

PUBLIC REVIEW DOCUMENT



WASTE MANAGEMENT & RADIATION CONTROL

Draft Permit in Response to Class 3 Permit
Modification Request From
Tooele Army Depot-South
Add an Open Detonation Treatment Unit

PUBLIC COMMENT PERIOD
June 12, 2018 TO July 26, 2018

Public Notice

NOTICE OF PUBLIC COMMENT
Tooele Army Depot South Area Class 3 Permit Modification
UT5210090002

The Director of the Division of Waste Management and Radiation Control is soliciting public comment on a Draft Permit prepared in response to a Class 3 Permit Modification Request to add an Open Detonation Treatment Unit to the Tooele Army Depot South Area (TEADS) Part B Hazardous Waste Operations Permit.

The 45-day public comment period to receive comments on the draft permit will commence on June 12, 2018 and end on July 26, 2018. In accordance with R315-124-11 of the Utah Administrative Code, any interested person may request a public hearing on this permit modification request. A request for a public hearing must be in writing and must state the nature of the issues proposed to be raised in the hearing.

Documents related to this permit modification request can be reviewed at the following location:

Division of Waste Management and Radiation Control
Multi Agency State Office Building
195 North 1950 West, 2nd Floor
Salt Lake City, Utah

For the public's convenience, an unofficial copy of the documents related to this permit modification request are available on the Internet at <https://deq.utah.gov/waste-management-and-radiation-control/waste-management-radiation-control-public-notice>.

Written comments will be accepted if received by 5:00 p.m. on July 26, 2018 and should be submitted to the address below. Comments can also be hand delivered to the Division address above and must be received by 5:00 p.m. on July 26, 2018.

Scott T. Anderson, Director
Division of Waste Management and Radiation Control
Department of Environmental Quality
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Comments can also be sent by electronic mail to: dwmrcpublic@utah.gov and must be received by 5:00 p.m. on July 26, 2018. Comments sent in electronic format should be identified by putting the following in the subject line: Public Comment for TEADS Open Detonation Modification. All documents included in comments should be submitted as ASCII (text) files or in pdf format.

Under Utah Code Section 19-1-301.5, a person who wishes to challenge a Permit Order may only raise an issue or argument during an adjudicatory proceeding that was raised during the public comment period and was supported with sufficient information or documentation to enable the Director to fully consider the substance and significance of the issue.

For further information, please contact Tom Ball of the Division of Waste Management and Radiation Control at (801) 536-0251. In compliance with the Americans with Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Larene Wyss, Office of Human Resources at (801) 536-4281, TDD (801) 536-4284 or by email at lwyss@utah.gov.

Fact Sheet

Utah Department of Environmental Quality Division of Waste Management and Radiation Control FACT SHEET



June 2018

Approval of Class 3 Permit Modification:

Tooele Army Depot-South Area Modification to Add an Open Detonation Treatment Unit

TEAD-S Facility

The Tooele Army Depot-South Area (TEAD-N) is located approximately 15 miles south of Tooele, Utah. The TEAD-S is a permitted facility formerly used by the US Army to store and destroy military chemical, blister and nerve agents. There are several buildings permitted for the storage of hazardous waste at the TEAD-S. There are also several Solid Waste Management Units (SWMUs) at the TEAD-S that are being remediated under Corrective Action Plans. The destruction of all the chemical weapons and agents formerly stored at TEAD-S has been completed and the mission of the facility has changed. The TEAD-S was formerly the Desert Chemical Depot (DCD).

Hazardous Waste Permit

The current TEAD-S Part B Permit was issued in August 2015. The Utah Division of Waste Management and Radiation Control (Division) conducts permitting oversight activities at the TEAD-S under the Resource Conservation and Recovery Act (RCRA). The RCRA is a federal law written to protect human health and the environment, reduce waste, conserve energy, and to reduce or eliminate the generation of hazardous waste. The RCRA is

codified under the Code of Federal Regulations, Title 40, parts 260 through 299. The Division is authorized by the Environmental Protection Agency to enforce the RCRA in the state. The State of Utah has codified its own rules under the Utah Administrative Code, Sections R315-101 to 103, R315-124, R315-260 to 266, R315-268, R315-270 and R315-273. Under State and Federal rules facilities that have been issued permits must submit permit modification requests in order to make changes to those permits. (See R315-270-41).

Permit Modification Request

In accordance with R315-270-42(c) of the Utah Administrative Code a permit modification request was submitted by the United States Department of the Army, Tooele Army Depot South (Permitee) to add an Open Detonation Treatment Unit to the TEAD-S Part B Hazardous Waste Operations Permit. The request was submitted on March 31, 2017.

A public comment period was held from April 4, 2017 to June 5, 2017 and a public meeting was held on May 18, 2017. Comments were received and a response to comments document is available upon request.

Draft Permit

In accordance with R315-124-6(d) of the Utah Administrative Code the Director has prepared a draft permit.

In addition to the changes made to add an Open Detonation Treatment Unit the citations of various rule numbers have been updated to reflect the re-numbering of the Hazardous Waste Rules found in R315 of the Utah Administrative Code that took place in 2016.

Opportunity for Public Hearing

In accordance with R315-124-11 of the Utah Administrative Code any interested person may request a public hearing on this draft permit. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. Submit the request either in person at the physical address below or by mailing to the mailing address below. Requests must be received by 5:00 PM on July 26, 2018.

Public Comment Period

In accordance with R315-124-10 a 45-day public comment period will begin on June 12, 2018 and will end on July 26, 2018. Copies of the draft permit are available for review from 8:00 AM to 5:00 PM, Monday

through Friday, at the physical address listed below. An unofficial copy of the draft permit will also be available on the Division of Waste Management and Radiation Control, Public Notices web page at the following address:

<https://deq.utah.gov/waste-management-and-radiation-control/waste-management-radiation-control-public-notice>

Physical Address

Department of Environmental Quality, Division of Waste Management and Radiation Control, Multi Agency State Office Building, 195 North 1950 West, 2nd Floor, Salt Lake City, Utah 84116

Mailing Address

Scott Anderson, Director
Utah Division of Waste Management and Radiation Control
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Written comments will be accepted until 5:00 p.m. on July 26, 2018, and can be either submitted in person at the physical address listed above, mailed to the mailing address listed above or submitted by e-mail at:

dwmrcpublic@utah.gov. The subject line for the e-mail should state "Public Comment for TEADS Open Detonation Modification". In accordance with R315-124-13 of the Utah Administrative Code all persons who believe any condition of this draft permit is inappropriate or that the Director's decision to prepare a draft permit is inappropriate shall raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period. All documents included in comments should be submitted as ASCII (text) files or in pdf format.

At the conclusion of the public comment period the Director of the Division of Waste Management and Radiation Control will consider all comments received prior to making a final decision on the permit modification.

Public Involvement

The public is provided additional opportunities for involvement in the decision making process through a mailing list. If you would like to be notified of pending decisions and other permitting activities regarding the TEAD-S, contact the Division and request to be added to the TEAD-S mailing list or visit the following web site and click on "Public Notice Actions Email Alerts" and complete the form:

<https://deq.utah.gov/waste-management-and-radiation-control/waste-management-radiation-control-public-notice>

Additional Information

This fact sheet contains a summary of the draft permitting decisions regarding the Tooele Army Depot-South Area Modification to Add an Open Detonation Treatment Unit. If you would like more detailed information or have questions please contact:

Tom Ball

DEQ/DWMRC
P.O. Box 144880
195 North 1950 West
Salt Lake City, Utah 84114-4880
Telephone: (801) 536-0200

Modification Request



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
TOOELE ARMY DEPOT
TOOELE, UT 84074-5000

Div of Waste Management
and Radiation Control

March 30, 2017

MAR 31 2017

Environmental Office

DSHW-2017-00 2789

SUBJECT: Tooele Army Depot South Request Class III Modification to RCRA Part B Permit,
✓ UT5210090002– Open Detonation (OD) Treatment Unit and Submittal of OD Supporting
Documents: Human Health Risk Assessment, Screening Level Ecological Risk
Assessment, and the Risk Management Plan

Mr. Scott T. Anderson
Director, Division of Waste Management & Radiation Control
Department of Environmental Quality
ATTN: Tom Ball
P.O. Box 144880
Salt Lake City, UT 84114-4880

Dear Mr. Anderson:

Tooele Army Depot South Area (TEAD-S) is requesting a Class III permit modification, in accordance with Appendix I of 40 CFR 270.42, of the Part B Hazardous Waste Storage Permit UT5210090002 issued to TEAD-S on August 18, 2015. The permit modification request includes: the addition of Module VII for open detonation operations in the former open detonation range; various additions and updates to permit attachments that will allow for safe operations of the proposed detonation range; and modifications to Modules V and VI allowing for removal of the SWMUs that met risk-based closure and updates to post closure groundwater monitoring. Along with the modifications to the Permit, the Human Health Risk Assessment, Screening Level Ecological Risk Assessment and corresponding Risk Management Plan will also be included. Enclosed on compact disk (CD) is the following:

- Summary of the modifications made to the permit
- Track change versions of effected permit modules and attachments
- Finalized versions of effected permit modules and attachments
- Human Health Risk Assessment Report
- Screening Level Ecological Risk Assessment Report and
- Risk Management Plan

A 60 day public comment period on the proposed modifications shall begin on April 4, 2017 and will end on June 5, 2017 at 5:00 p.m., with a public information meeting scheduled on May 18, 2017 at 5:30 p.m. located at Tooele Army Depot's Eagle's Nest Theater Room (Building 1005), Second Avenue, Tooele, UT 84074. Publication of the public notice in the local newspaper is scheduled for April 4, 2017. A notification of this modification request will also be emailed out to all persons on the mailing list within 7 days of this request submittal.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge

and belief, true, accurate, and complete. I am aware that there are significant penalties for submitted false information, including the possibility of fine and imprisonment for knowing violations.

Should you have any questions regarding this matter, please contact Kristyl Bentley of my staff at (435) 833-3257.

Respectfully,

A handwritten signature in black ink, appearing to read "Royal D. Rice". The signature is fluid and cursive, with a long horizontal stroke at the end.

Encl.

ROYAL D. RICE
Chief, Environmental/Engineering

**Tooele Army Depot South Area (TEAD-S) RCRA Operating Permit
Summary of Modifications, March 2017**

The proposed March permit modification to Tooele Army Depot South's Resource Conservation and Recovery Act (RCRA) operating permit addresses many areas of the permit to account for the addition of the Open Detonation (OD) Area for thermal treatment of munition items. Module VII has been added to the permit, along with 4 attachments to this module.

Table 1, Summary of Modifications for 2017, below provides a detailed summary of all proposed changes to the permit.

Table 1 Summary of Modifications for March 2017

Document	Title	Proposed Changes
Module V	Corrective Action Program (CAP) For Solid Waste Management Units	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Table 1A. Removed Solid Waste Management Units (SWMUs) that have been closed either with No Further Action or risk-based closure for soil.
Module VI	Post-Closure Conditions and Standards For Solid Waste Management Units	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Table 2. Added groundwater monitoring requirements for SWMU 2. ▪ Table 2. Updated groundwater monitoring requirements for SWMU 5. ▪ Table 2. Removed HWMU 31, SWMU 8 and SWMU 23. The sites, have undergone risk-based closure but were retained in post closure (for safety reasons for explosives) pending permitting of the TEAD-S OD unit. As the sites are located within the OD unit, upon permitting of the OD, the sites are to be removed.
Module VII	Open Detonation	<ul style="list-style-type: none"> ▪ New Module for the addition of treatment unit, Open Detonation, for waste munitions.
Module VII Attachment 1	Open Detonation Operations	<ul style="list-style-type: none"> ▪ New document to support Module VII.
Module VII Attachment 2	Risk Management Plan	<ul style="list-style-type: none"> ▪ New document to support Module VII.
Module VII Attachment 3	Environmental Performance Standards	<ul style="list-style-type: none"> ▪ New document to support Module VII.
Module VII Attachment 4	Open Detonation Closure Plan	<ul style="list-style-type: none"> ▪ New document to support Module VII.

Attachment 1	Waste Analysis Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Changed “OB/OD Conex” to “OD Conex”. ▪ Added section 29 for Open Detonation
Attachment 2	Inspection Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Changed “OB/OD Conex” to “OD Conex”. ▪ Added section 5.0 – Open Detonation Unit Inspection Plan ▪ Added Table 2-6. Inspection Plan and Schedule for OD Unit. ▪ Added Figure 2-5. Daily Operation Inspection for OD Area ▪ Added Figure 2-6. Weekly Hazardous Waste Inspection Storage In-Place for OD Area.
Attachment 4	Contingency Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Added section 27.0 – Open Detonation Specific Procedures ▪ Changed “OB/OD Conex” to “OD Conex”.
Attachment 5	Closure Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Changed “OB/OD Conex” to “OD Conex”. ▪ Updated Table 5-1 USEPA RSLs
Attachment 6	General Facility Description	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Added 5.3 – reference to OD Area.
Attachment 9	Security Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Added paragraphs 3.4, 4.4 and 5.2 in reference to the OD Unit.
Attachment 10	Preparedness and Prevention Plan	<ul style="list-style-type: none"> ▪ Updated UAC Rule references. ▪ Changed “OB/OD Conex” to “OD Conex”. ▪ Added section 28.0 – Open Detonation Unit.
Attachment 16	Quality Assurance Program Plan	<ul style="list-style-type: none"> ▪ New document to support Attachment 1 – Waste Analysis Plan.

Draft Permit

MODULE II - GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

II.A.1. The Permittee shall maintain and operate all areas of waste management 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, groundwater or surface water which could threaten human health or the environment. Should one of these incidents occur, the Permittee shall investigate and determine the cause of the incident and implement corrective measures to prevent future occurrences. The Director may consider appropriate enforcement action, to include the cessation of waste management activities, until adequate resolution of the problem occurs.

~~II.A.2—Except for explosives or munitions emergency response, as defined by Utah Admin. Code R315-1-1(b), the Permittee shall not perform open burning or open detonation of hazardous waste at the OB/OD (open burning/open detonation) unit until this Permit has been modified to incorporate the requirements of Utah Admin. Code R315-8-16 for the OB/OD unit.~~

II.B. REQUIRED NOTICE

II.B.1. When the Permittee is to receive hazardous waste from an off-site source (except where the Permittee is also the generator), the Permittee shall inform the generator in writing that Tooele Army Depot-South Area (TEAD-S) has the appropriate Permits for, and will conditionally accept the waste the generator is shipping. This will be accomplished by sending the generator a statement of these facts once for each waste stream. The Permittee shall keep a copy of this written notice as part of the operating record.

II.C. WASTE ANALYSIS PLAN

II.C.1. The Permittee shall comply with the waste analysis procedures found in Attachment 1 (Waste Analysis Plan), as well as all chain-of-custody procedures. In addition, the Permittee shall comply with any other conditions involving waste analysis.

II.C.2. The Permittee shall only use test methods described in Attachment 1 (Waste Analysis Plan) . Changes in test methods described in Attachment 1 (Waste Analysis Plan) as a result of an improvement or refinement by EPA or the State of Utah of that method shall be adopted by the Permittee in accordance with Utah Admin. Code R315-~~3270-42~~.

II.C.3. The Permittee shall verify the analysis of each waste stream when new or modified wastes are generated and at least once every three years thereafter. The Permittee shall conduct a yearly evaluation of each waste stream and shall submit to the Director a letter report certifying that the known waste streams have not changed. The Waste Stream Evaluation Form as shown in Attachment 1 (Waste Analysis Plan) shall be used for this report.

II.C.4. Waste analyses will not be required for propellants, explosives and pyrotechnics. User knowledge will suffice unless an unknown component is suspected. Residues from the treatment of propellants, explosives and pyrotechnics are subject to Condition II.C.3.

II.C.5. At a minimum, the Permittee shall:

II.C.5.a. Maintain proper functional instruments;

II.C.5.b. Use approved sampling and analytical methods.

II.C.6. If the Permittee uses a contract laboratory to perform analyses, the laboratory shall be certified by the State of Utah to perform the contracted analyses. Provisional certification is not acceptable as certification under this paragraph. For parameters for which certification is unavailable, the laboratory shall provide quality control/quality assurance data sufficient to assess the validity of the data. The Permittee shall inform the laboratory in writing that it is required to follow the Waste Analysis Plan conditions set forth in Attachment 1 (Waste Analysis Plan).

II.D **SECURITY PROCEDURES**

II.D.1 The Permittee shall comply with the security conditions and procedures found in Attachment 9 (Security Plan).

II.E. **INSPECTION PLAN**

II.E.1. The Permittee shall follow the inspection procedures found in Attachment 2 (Inspection Plan). In addition, the Permittee shall comply with the following conditions as well as conditions pertaining to inspections in Modules I, II and III;

II.E.1.a The Permittee shall remedy any deterioration or malfunction as required by Utah Admin. Code R315-~~8264-2-615~~(c). If the remedy requires more than seventy-two (72) hours from the time that the problem is detected, the Permittee shall submit to the Director, before the expiration of the seventy-two (72) -hour periods, a proposed time schedule for correcting the problem.

II.E.1.b. Records of inspections shall be kept as required by Utah Admin. Code R315-~~8264-2-615~~ and Utah Admin. Code R315-~~8264-9-5174~~.

II.E.1.c Any problem which could endanger human health or the environment (tank rupture, dike failure, transportation spills, etc.) shall be corrected as soon as possible after the problem is discovered. If the threat to human health or the environment has not been eliminated within twenty-four (24) hours, the Permittee shall notify the Director.

II.E.1.d. Problems found during periodic inspections conducted under this Module shall be corrected within the time frame stipulated in Condition II.E.1. If, upon determination by the Director or the Permittee, continued operation of the waste management unit involved in the inspection could endanger human health or the environment, the Permittee shall cease operation of the unit until the problem has been corrected. The Permittee shall be allowed to undertake those operations that are part of corrective action activities.

II.E.1.e. The Permittee may make the following revisions to the Inspection Procedures (included as Attachment 2 of this Permit), in accordance with the procedures for Class 1 Permit Modifications, which require pre-approval from the Director, in accordance with Utah Admin. Code R315-~~3270-4-32~~:

II.E.1.e.i Upon certification of closure of an individual hazardous waste management unit, any portion of the inspection plan specific to that unit may be deleted from the

Inspection Procedures.

- II.E.1.e.ii The Permittee may modify inspection requirements in an existing inspection form, table, figure, or record in cases where such modifications will result in additional inspection procedures.
- II.E.1.e.iii If necessary, the Permittee shall create additional inspection forms, tables, figures, or records to address inspection requirements for equivalent replacement equipment.

II.F. **TRAINING PLAN**

II.F.1 The Permittee shall conduct personnel training as required by Utah Admin. Code R315-~~8264-2-716~~. The Permittee shall comply with the personnel training procedures found in Attachment 3 (Training Plan). New personnel working with or around hazardous waste shall complete the required personnel training on or within six (6) months after their hire date or assignment to the facility or to a new position at the facility. In addition, the Permittee shall comply with the following conditions;

- II.F.1.a Facility personnel shall annually review their initial training in both contingency procedures and the hazardous waste management procedures relevant to the positions in which they are employed.
- II.F.1.b The Permittee shall maintain training documents and records as required by Utah Admin. Code R315-~~8264-2-716~~(d) and Utah Admin. Code R315-~~8264-2-716~~(e), in accordance with Attachment 3 (Training Plan). These records shall indicate the type and amount of training received.
- II.F.1.c The Permittee shall maintain a copy of the Attachment 3 (Training Plan) at the Facility until the Facility is fully closed and closure is certified.

II.G. **GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE**

II.G.1 The Permittee shall comply with the requirements of Utah Admin. Code R315-~~8264-2-817~~. and the requirements of all applicable National Fire Protection Association (NFPA) codes.

II.G.2 In addition to the requirements of Utah Admin. Code R315-~~8264-2-817~~., the Permittee shall comply with Conditions III.G and III.H pertaining to ignitable, reactive, or incompatible waste.

II.G.3 The Permittee shall separate and protect ignitable and reactive waste 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), water and radiant heat.

II.G.4 The Permittee shall take precautions to prevent reactions which:

- II.G.4.a Generate extreme heat or pressure, fire or explosions, or violent reactions;
- II.G.4.b Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

- II.G.4.c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
- II.G.4.d. Damage the structural integrity of the device or facility;
- II.G.4.e. Through other like means, threaten human health or the environment.

II.H **RESERVED**

II.I **PREPAREDNESS AND PREVENTION**

- II.I.1. The Permittee shall follow the preparedness and prevention procedures found in Attachment 10 (Preparedness and Prevention Plan).
- II.I.2. At a minimum, the Permittee shall equip and maintain in good operating condition at the Facility the equipment identified in Attachment 10 (Preparedness and Prevention Plan), as required by Utah Admin. Code R315-~~8264-3-32~~.
- II.I.3. The Permittee shall test and maintain the equipment specified in Condition II.I.2 as required by the National Fire Protection Association (NFPA) to assure its proper operation in time of emergency.
- II.I.4. The Permittee shall maintain records of those preventative maintenance and repair activities specified in Condition II.I.2 and shall keep schedules reflecting minimum and planned frequency for the performance of preventative maintenance activities in the Operating Record at the facility.
- II.I.5. The Permittee shall maintain access to the communications or alarm system as required by Utah Admin. Code R315-~~8264-3-54~~.
- II.I.6. At a minimum, the Permittee shall maintain aisle space as required by Utah Admin. Code R315-~~8264-3-65~~. A minimum of 2.5 feet of aisle space is required in the container storage areas.
- II.I.7. The Permittee shall attempt to make arrangements with State and local authorities as required by Utah Admin. Code R315-~~8264-3-7~~. The attempts to make such arrangements, any refusals and all final arrangements shall be documented in the Operating Record.

II.J **CONTINGENCY PLAN**

- II.J.1. The Permittee shall comply with Attachment 4 (Contingency Plan), and follow the emergency procedures described by Utah Admin. Code R315-~~8264-4-756~~ whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment. The Permittee shall comply with Utah Admin. Code R315-~~9-263-30~~ and Condition I.S in reporting releases to the Director.
- II.J.2. The Permittee shall maintain copies of the plan in accordance with the requirements of Utah Admin. Code R315-~~8264-4-453~~.
- II.J.3. The Permittee shall review Attachment 4 (Contingency Plan) in accordance with Utah Admin. Code R315-~~8264-4-554~~. The Permittee shall immediately amend, if necessary, Attachment 4 (Contingency Plan) in accordance with Utah Admin. Code R315-~~3270-4-32~~.

II.J.4. A trained emergency coordinator shall be available at all times in case of an emergency as required by Utah Admin. Code R315-~~8264-4-655~~. The names, addresses, and telephone numbers of all persons qualified to act as emergency coordinators shall be supplied to the Director as required by Utah Admin. Code R315-~~8264-4-352~~(ed).

II.K. **MANIFEST SYSTEM**

II.K.1. The manifest number shall be recorded in the Operating Record with each waste load that leaves the Permittee's facility. The Permittee shall comply with Utah Admin. Code R315-~~5262-21 through 27~~ and Utah Admin. Code R315-~~8264-5-70~~ for the movement of each waste load off site.

II.K.2. The manifest number shall be recorded in the Operating Record with each waste load that arrives at the Permittee's facility. The Permittee shall comply with the manifest requirements of Utah Admin. Code R315-~~8264-5-271~~., Utah Admin. Code R315-~~8264-5-472~~., and Utah Admin. Code R315-~~8264-5-776~~.

II.K.3. If the waste load is refused and returned to the generator, such action shall be documented in the Operating Record.

II.L. **RECORDKEEPING AND REPORTING**

II.L.1. The Permittee shall maintain an accurate written Operating Record at the facility in accordance with Utah Admin. Code R315-~~8264-5-373~~. and Utah Admin. Code R315-~~50264-2 Appendix I~~.

II.L.2. The operating record shall be maintained on site and available for review as required by Condition I. N. and Condition I.DD.

II.L.3. The Permittee shall, by March 31 of each year, submit to the Director a certification pursuant to Utah Admin. Code R315-~~8264-5-73~~, signed by the owner or operator of the facility or his authorized representative, that the Permittee has a waste minimization 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 practicable; and that the proposed method of treatment, storage, or disposal is the most practicable method currently available to the Permittee which minimizes the present and future threat to human health or the environment.

II.L.3.a. The Permittee shall, by March 31 or each year, submit to the Director a certification that Open Detonation (OD) treatment is the only practicable method currently available to minimize the present and future threat to human health or the environment for all of the items detonated the previous year, and that the Permittee has a program in place to investigate available technologies, other than OD of energetic wastes, to reduce the volume and toxicity of released treatment residues and discharges. A report with an evaluation of alternatives shall be included with the certification. The report shall present a list and analysis of viable alternatives according to technical feasibility, economic feasibility, impact to employee health and safety and whether the alternatives will reduce releases and discharges to the environment. Alternatives that are not viable shall be identified with the rationale for the rejection.

II.L.4. The Permittee shall comply with the biennial report requirements of Condition I.X.1. The report

shall include wastes generated, treated or stored at the Permittee's facility during the previous odd-numbered year.

II.L.5. The Permittee shall submit additional reports to the Director in accordance with Utah Admin. Code R315-~~8264-5-877~~.

II.M. **CLOSURE**

II.M.1. The Permittee shall comply with Utah Admin. Code R315-~~8264-7-110 through 120~~ and close the facility in accordance with Attachment 5(Closure Plan).

II.M.2. For all hazardous waste management units, minor deviations from the procedures found in Attachment 5 (Closure Plan) that are necessary to accommodate proper closure shall be described in narrative form with the closure certification statements. The Permittee shall describe the rationale for implementing minor changes as part of this narrative report. Within sixty (60) days after completion of closure of each hazardous waste management unit the Permittee shall submit the certification statements and narrative report to the Director.

II.M.3. The Permittee shall amend Attachment 5 (Closure Plan) in accordance with Utah Admin. Code R315-~~3270-4-32~~ whenever necessary, or when required to do so by the Director.

II.M.4. The Permittee shall notify the Director in writing of the partial closure of any portion of the facility in accordance with Utah Admin. Code R315-~~8264-7110 through 120~~.

II.M.5. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule specified in Attachment 5 (Closure Plan).

II.M.6. The Permittee shall decontaminate or dispose of all facility equipment, structures, soil and rinsate as required by Utah Admin. Code R315-~~8264-7-110 through 120~~ and Attachment 5 (Closure Plan). Facility equipment, structures and soil which have not been decontaminated shall be disposed of only at a hazardous waste treatment, storage or disposal facility that has a hazardous waste treatment, storage or disposal permit.

II.M.7. The Permittee shall certify that the facility has been closed in accordance with the specifications in Attachment 5 (Closure Plan) and as required by Utah Admin. Code R315-~~8264-7110 through 120~~, and shall provide a certification by an independent, registered professional engineer qualified by experience and education in the appropriate engineering field.

II.M.8. In the event that any hazardous waste management unit cannot be clean closed by removing hazardous waste, hazardous constituents, contaminated subsoil, and any contaminated groundwater as specified in Attachment 5 (Closure Plan) the Permittee shall submit the modified Closure/Post-Closure Plan for that hazardous waste management unit to the Director, as a Permit Modification request, in accordance with Utah Admin. Code R315-~~3270-4-32~~. Within thirty (30) days of the date that the Director approves the modification request, the unit shall be closed as a landfill, in accordance with R315-~~8264-7110 through 120~~.

II.M.9. Wash waters resulting from decontamination of facility structures and equipment at the time of closure shall be sampled, analyzed and disposed in accordance with Attachment 5 (Closure Plan).

| II.N. **COST ESTIMATES FOR THE FACILITY CLOSURE**

| II.N.1 The Permittee is exempt from the requirements for closure cost estimates in accordance with Utah Admin. Code R315-~~8264-8140~~ through 151.

II.O. **FINANCIAL ASSURANCE FOR THE FACILITY CLOSURE**

| II.O.1 The Permittee is exempt from the requirements for financial assurance in accordance with Utah Admin. Code R315-~~8264-8140~~ through 151.

II.P. **LIABILITY REQUIREMENTS**

| II.P.1 The Permittee is exempt from liability requirements in accordance with Utah Admin. Code R315-~~8264-8140~~ through 151.

II.Q. **AIR EMISSION STANDARDS (Subpart CC)**

| II.Q.1 The Permittee shall comply with Utah Admin. Code R315-~~8264-22-1080~~ through 1091 for storage of hazardous waste in containers.

**MODULE V
CORRECTIVE ACTION PROGRAM (CAP)
FOR SOLID WASTE MANAGEMENT UNITS**

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
V.A. SOLID WASTE MANAGEMENT UNITS (SWMU)	1
V.B. STANDARD CONDITIONS	1
V.C. RCRA FACILITY INVESTIGATION	1
V.D. INTERIM MEASURES	2
V.E. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY IDENTIFIED SOLID WASTE MANAGEMENT UNITS	2
V.F. DETERMINATION OF NO FURTHER ACTIONS	3
V.G. CORRECTIVE MEASURES STUDY AND IMPLEMENTATION	4
V.H. REPORTING REQUIREMENTS	4
V.I. MODIFICATION OF THE CORRECTIVE ACTION SCHEDULE OF COMPLIANCE ...	4
MODULE V - APPENDIX A RCRA FACILITY INVESTIGATION (RFI)	11
MODULE V - APPENDIX B CORRECTIVE MEASURES STUDY (CMS) AND CORRECTIVE MEASURES IMPLEMENTATION (CMI)	14

**MODULE V
CORRECTIVE ACTION PROGRAM
FOR SOLID WASTE MANAGEMENT UNITS**

V.A. SOLID WASTE MANAGEMENT UNITS (SWMUs)

- V.A.1. The Permittee shall conduct a Corrective Action Program (CAP) for the SWMUs in Table 1A in accordance with this module.
- V.A.2. The Director may append additional SWMUs to those listed in Table 1A in accordance with Utah Admin. Code R315-~~3-4.3-270-42~~, based on additional information received by the Permittee, the Director or any other knowledgeable source.

V.B. STANDARD CONDITIONS

- V.B.1. Failure to submit the information required by this module or falsification of any submitted information is grounds for termination of this Permit in accordance with Utah Admin. Code R315-~~3-4.4-270-43~~.
- V.B.2. The Permittee shall sign and certify all plans, reports, notifications, and other submissions to the Director, in accordance with Condition I.AA.
- V.B.3. The Permittee shall submit two paper copies and one electronic copy of each plan, report, notification or other submissions, required by this module to the Director by mail or hand delivery to the address specified in Condition I.DD.
- V.B.4. All plans and schedules required by this module shall, upon written approval from the Director, be incorporated by reference into this Permit. Any noncompliance with such approved plans and schedules shall be deemed noncompliance with this Permit.
- V.B.5. The Permittee can only receive extensions of the specified compliance schedule due dates for the submittals required by this module in accordance with Condition V.I., and upon written approval from the Director.
- V.B.6. All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data and other supporting information gathered or generated during activities undertaken pursuant to this module shall be maintained at the Facility during the effective term of this Permit. The Permittee shall provide copies of reports, logs, etc., to the Director upon request.
- V.B.7. The Permittee shall provide seven days' advance notice of field activities associated with approved work plans. This notice may be provided by telephone, but shall be followed with a written notice within 72 hours.

V.C. RCRA FACILITY INVESTIGATION

- V.C.1. The Permittee shall conduct a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) to determine the nature and extent of releases of hazardous wastes or hazardous constituent(s) to the environment, originating from any location at the Facility including a Solid Waste Management Unit (SWMU) to gather data to support the Corrective Measures Study (CMS). The Permittee shall conduct the RFI in accordance with Appendix A.
- V.C.2. The Permittee shall prepare and submit the RFI Report as described in Appendix A for each SWMU.
- V.C.4. Reserved
- V.C.5. Reserved

- V.E.1. The Permittee shall notify the Director in writing within 30 days of discovery of any newly identified sites which the Permittee believes may meet the definition of a Hazardous Waste Management Unit (HWMU) or SWMU. Upon notification, a visit to the site will be scheduled. During the site visit, the Permittee shall present available information about the site as needed to justify a decision about how to manage the site. These decisions include: 1) a determination that the site is not an HWMU or SWMU; 2) a determination that the site will be addressed through the process outlined in Condition V.D for interim measures (if managed under Condition V.D, the site does not need to be added to Table 1A); 3) a determination that a newly identified SWMU needs to be added to Table 1A and that the Permittee must include the new SWMU in the RFI program as described in Appendix A.
- V.E.2. If information is presented during the decision making process described in Condition V.E.1 to indicate that hazardous wastes were or may have been placed in a newly identified SWMU after November 19, 1980, the Director may consider the unit as a HWMU and require the Permittee to close the unit under the requirements of Utah Admin. Code R315-~~7-265~~ and Utah Admin. Code R315-101 of the Rules.
- V.E.3. A decision as described in Condition V.E.1 and Condition V.E.2 shall be made within 30 days of the site visit. Thirty days after making a decision and choosing a site management process as described in Condition V.E.1, the Permittee shall submit a schedule for submittal of an interim measures plan or RFI Workplan.
- V.E.4. The RFI Workplan, closure plan or interim measures plan shall include the following: a description of past and present operations and dates of operation; a description of site waste streams; all existing site environmental monitoring data; a sample and analysis plan; a quality assurance and quality control plan; plans for collection of human health and ecological risk assessment data and other data and information as needed to fulfill the requirements of Utah Admin. Code R315-101. The plan shall also include a schedule for plan implementation and a date for submittal of a draft final report of results.
- V.E.5. The Permittee shall submit draft final and final RFI reports, closure reports or interim measures reports describing all results obtained from the implementation of the approved plans. The reports shall also include a risk assessment and address non-degradation of natural resources as described in Utah Admin. Code R315-101. The CMS Workplan may be submitted as part of the final RFI or as a separate document for approval by the Director.
- V.E.6. Based on the results and conclusions proposed by the Permittee in the final RFI Report, closure report or interim measures report, the Director may approve the site for no further action (NFA) as defined in Condition V.F, require further investigations or require a CMS as described in Condition V.G. For SWMUs meeting the residential or industrial land use requirements of Utah Admin. Code R315-101, the Director will require a public comment period before approval of the RFI report. For SWMUs needing corrective action, a public comment period may be required.

V.F. DETERMINATION OF NO FURTHER ACTION

- V.F.1. The Permittee may petition the Director for a determination of No Further Action (NFA) as described in Utah Admin. Code R315-101 for a HWMU or SWMU in accordance with Utah Admin. Code R315-~~8-6-11264-100~~. NFA means the unit qualifies for residential land use and is no longer regulated under this Permit.
- V.F.2. At a minimum, the NFA proposal for HWMUs and SWMUs shall contain information based on the RFI or other relevant information that demonstrates there are no releases of hazardous waste or hazardous waste constituents from the HWMUs or SWMUs at the Facility that pose a threat to human health or the environment in accordance with Utah Admin. Code R315-101.
- V.F.3. A determination of NFA, in accordance with Condition V.F.1., shall not preclude the Director from requiring further investigations, studies or remediation at a later date, if new information or subsequent analysis indicates a release or potential of a release from a HWMU or SWMU at the Facility that is likely

- V.I.1.iv. Once established in accordance with Condition V.G.5., the compliance date(s) for submittal of the corrective measures final (100% completion) design and construction plans in accordance with Table 3.
 - V.I.1.v. Compliance dates for implementing the approved plans or reports; and
 - V.I.1.vi. Compliance dates for quarterly submittal of progress reports.
- V.I.2. In accordance with Utah Admin. Code R315-~~3-15~~270-41, the compliance schedules shall be modified if the Director determines that good cause exists for which the Permittee had no control and for which there is no reasonable available remedy.
- V.I.2.i. Failure to obtain adequate funds or appropriations to conduct the Corrective Measures Implementation Program Plan in accordance with Condition V.G.3 shall be considered good cause for modification of the compliance schedule(s) as provided in Condition V.I.2 subject to the following conditions:
 - V.I.2.i.a. The Permittee shall use its best effort to secure all funds that may be required for implementation of the CMI plan.
 - V.I.2.i.b. If necessary, the Permittee shall seek by the most expeditious means possible, appropriations from the U.S. Congress. In accordance with Sections 1-4 and 1-5 of Executive Order 12088 as implemented by the Office of Management and Budget Circular A-106, as amended. Section 1-5 of Executive Order 12088 states, "The head of each executive agency shall ensure that sufficient funds for compliance with applicable pollution control standards are requested in the Agency budget."
 - V.I.2.i.c. Immediately upon failure to obtain adequate funding, the Permittee shall submit to the Director, by certified mail, express mail or hand delivery, a written request and justification for modification of the compliance schedule. The written justification shall demonstrate that good cause exists, in accordance with Condition V.I.2.i. The Permittee shall also provide an alternate schedule of compliance for conducting the Corrective Measures Implementation for the subsequent fiscal year.
 - V.I.2.i.d. Upon evaluation, if the Director determines that good cause exists in accordance with Condition V.I.2.i, the Director shall modify the compliance schedule.
 - V.I.2.i.f. For any approved modification, the compliance schedule shall be modified to provide relief from the original compliance schedule time frames only for the subsequent fiscal year. All successive compliance dates after the end of such fiscal year shall be modified to reflect the original time frames specified prior to the modification request under Condition V.I.2.i.
 - V.I.2.ii. Failure to obtain adequate funds or appropriations from Congress shall not, in any way, release the Permittee from its obligation to comply with Condition V.G.3. or any other requirement of this permit or applicable rules.
 - V.I.2.iii. If adequate funds for corrective measures are not available, the Director may pursue any actions deemed necessary to protect human health and the environment, not excluding judicial recourse or termination of this permit.
- V.I.3. The Permittee may submit a request for modifications of the interim compliance dates that do not affect the final compliance dates to the Director for approval.

TABLE 1A SOLID WASTE MANAGEMENT UNITS (SWMU ^a)	
SWMU NUMBER	SWMU DESCRIPTION
1	Demilitarization area/Disposal pits
2	Gravel pits (Area 10)
13	SWMU Chemical Agent Munition Disposal System Diesel fuel and chromium release
25	Demilitarization area/Disposal pits
26	Sanitary landfill (active)
27	Sewage treatment plant
30	Chemical Agent Munition Disposal System landfill
37	Slag piles and bomb fragments

^aThe SWMU numbering corresponds to that used in Ground-water Consultation No. 38-26-1364-86, September 5, 1986, conducted by the U.S. Army Environmental Hygiene Agency and the RCRA Facility Assessment, December 1987, prepared for the U.S. Environmental Protection Agency (USEPA).

TABLE 1B AREAS OF CONCERN (AOCs ^a)	
AOC Number ^b	AOC Description
2	Salvage Yard
3	Ladder Dip Tank
5	Toxic Area 1
6	Toxic Area 2
7	Toxic Area 3
8	Classification Yard
9	Open Storage Pad 1
10	Open Storage Pad 2
11	Open Storage Pad 3
15	Demilitarization/Incineration Area
21^c	Small Arms Range
23	Building 4553 Bomb Renovation Building Evaporation Pond
24	Building 1873 (2005) and Dry Well
27	Classification Yard Access Road Burial

MODULE V - APPENDIX A RCRA FACILITY INVESTIGATION

1. OBJECTIVES AND PURPOSE

The objective of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) is to determine if releases of hazardous waste or hazardous waste constituents at any Solid Waste Management Unit (SWMU) or Area of Concern (AOC) pose an unacceptable risk to human health, ecological receptors or natural resources. The RFI has two main parts, Phase I and Phase II. The purpose of Phase I is to determine if a release has occurred. The purpose of Phase II is to define the nature and extent of any release and collect sufficient data to conduct risk assessments. Phase II also includes an evaluation of all data collected in Phases I and II and preparation of a Phase II Report. The evaluation of RFI data shall be conducted as defined in approved RFI Workplans, Utah Admin. Code R315-101 and approved documents describing groundwater management, applicable USEPA guidance and memorandums or other correspondence from the Director describing requirements for corrective action and long-term monitoring for landfills. The final RFI report may act as a final decision document for each site (e.g., no further action (NFA), remediation, etc.) The final decision document is presented to the public for comment.

1.A. Phase I RFI

The Permittee has met all the requirements of the Phase I RFI for all SWMUs listed in Table 1A. A Phase I RFI shall be conducted for AOCs listed in Table 1B.

1.A.1. Phase I RFI Reports for Newly Identified SWMUs and AOCs

Upon completing the Phase I investigation for newly identified SWMUs or AOCs, the Permittee shall prepare and submit for approval by the Director a Phase I RFI Report. This report shall be consistent in scope with the approved Phase I RFI Reports. This report shall recommend no further action, additional investigation as part of the Phase II RFI, immediate action under an interim measures plan as outlined in Condition V.D., or other action as deemed necessary by the Permittee. The Phase I Report shall be incorporated into the permit in accordance with Utah Admin. Code R315-~~3-15~~270-41.

For AOCs where the results of the Phase I RFI indicate that additional investigation is required as part of the Phase II RFI, the AOCs shall be added to the Module V Table 1A and given a SWMU designation.

1.B. Phase II RFI Workplans

For SWMUs requiring Phase II RFI Workplans, the Phase II RFI Workplans shall be consistent in scope with the previously approved Phase II RFI Workplans.

1.B.1. Phase II RFI Workplan for Newly Identified SWMUs

Based on the results of the Phase I RFI Report for newly identified SWMUs, the Permittee shall prepare and submit a Phase II RFI Workplan. This workplan shall be consistent in scope with Phase II RFI Workplans approved for SWMUs listed in Condition 1.B.

1.C. Phase II RFI Report

The Permittee shall prepare and submit to the Director for approval a Phase II RFI Report for SWMUs listed in Module V, Table 1 with an analysis and summary of all Phase I and Phase II RFI results. The objective of the evaluation and report is to ensure that the investigations for each SWMU are sufficient to describe the nature and extent of contamination, potential threats to human health and the environment, to prepare a risk assessment, address non-degradation of natural resources and a Corrective Measures Study (CMS) Workplan.

1.C.1. Phase II RFI Workplan and Report Requirements

**MODULE VI
POST-CLOSURE CONDITIONS AND STANDARDS
FOR SOLID WASTE MANAGEMENT UNITS (SWMUs)**

TABLE OF CONTENTS

LIST OF FORMS	ii
LIST OF ATTACHMENTS	ii
VIA SOLID WASTE MANAGEMENT UNITS (SWMU) and HAZARDOUS WASTE MANAGEMENT UNITS (HWMU)	1
VI.B PERMIT CONDITIONS.....	1
VI.C MONITORING AND RECORDS	2
VI.D RESERVED.....	2
VI.E DOCUMENTS TO BE MAINTAINED AT FACILITY SITE.....	2
VI.F SWMUs and HWMUs SUBJECT TO POST-CLOSURE REQUIREMENTS.....	2
VI.G COMPLIANCE SCHEDULE.....	4
VI.H POST-CLOSURE MAINTENANCE AND MONITORING.....	4
VI.I SECURITY.....	4
VI.J GENERAL INSPECTION REQUIREMENTS.....	5
VI.K TRAINING REQUIRMENTS.....	5
VI.L PREPAREDNESS AND PREVENTION	6
VI.M SAMPLING, ANALYTICAL AND QA/QC PROCEDURES	6
VI.N RECORDKEEPING AND REPORTING	6
VI.O POST-CLOSURE CARE.....	6
VI.P GROUNDWATER	7
VI.Q AREAS IMPACTED BY MERCUR OUTWASH.....	7

VI.C MONITORING AND RECORDS

VI.C.1 Monitoring and Records

VI.C.1.a Samples and measurements taken for the purpose of monitoring shall be accurate and representative of the monitored activity. The method used to obtain representative samples shall be described in an approved Quality Assurance Project Plan (QAPP). The analysis of all samples, except chemical agents shall be conducted by State certified laboratories.

VI.C.1.b The Permittee shall retain as part of the Operating Record all records or reports required by this Permit for the duration of the post-closure period. This period may be extended by request of the Director at any time and is automatically extended during the course of any unresolved enforcement action.

VI.D RESERVED

VI.E DOCUMENTS TO BE MAINTAINED AT FACILITY SITE

VI.E.1 The Permittee shall maintain for the duration of the post-closure care period the following documents and amendments, revisions and modifications to these documents:

VI.E.1.a Post-closure Permit and any amendments.

VI.E.1.b Post-closure monitoring records, to include monitoring of environmental media and analytical results, any environmental media treatment system unit records and analytical results and records of the effectiveness of any environmental media treatment systems as required by this Permit.

VI.E.1.c Certification of Closure for each SWMU/HWMU as required by Utah Admin. Code R315-~~7-14~~265-115.

VI.E.1.d Inspection forms and schedules as required by Utah Admin. Code R315-~~8-2-6~~264-15(b)(2) and this Permit.

VI.E.1.e Operating Records required by Utah Admin. Code R315-~~8-5-3~~264-73 and this Permit.

VI.E.1.f Copies of all required submittals.

VI.E.1.g Copies of the Facility's Post-Closure Excavation Permit and any other related land use documents and requirements, including records showing removal of soils or construction at any HWMUs or SWMUs listed in Table 1.

VI.E.2 The Permittee shall follow the Excavation Permit process as described in Form D. The Permittee shall use the Excavation Permit and Form A to verify land use, compliance with institutional controls and management of environmental media at the SWMUs/HWMUs listed in Table-1.

VI.F SWMUs and HWMUs SUBJECT TO POST-CLOSURE REQUIREMENTS

TABLE - 1				
Post Closure Permit SWMUs and HWMUs.				
MODULE VI ATTACHMENT NO.	SITE	TYPE OF CLOSURE	REQUIRED INSPECTION FORM	
			FORM NO.	FORM TYPE
1	SWMU 9	Industrial	A	Industrial Post Closure
2	SWMU 19	Industrial	A	Industrial Post Closure
3	SWMU 33	Industrial	A	Industrial Post Closure
4	SWMU 28	Industrial	A	Industrial Post Closure

VI.F.1 SWMUs where site controls are not required for soils within 0 to 10 feet below ground surface (ft bgs) but other “special restrictions” are required are listed in Table 2. Special restrictions may include prevention of installation of drinking water wells, required groundwater monitoring, and/or notice of industrial levels of contamination in soils greater than 10 ft bgs and/or restricted use due to presence of Munitions of Explosive Concern (MEC).

TABLE – 2		
Special Restrictions for Post Closure SWMUs/HWMUs		
SWMU/HWMU NUMBER	SWMU/HWMU DESCRIPTION	INSPECTIONS/RESTRICTIONS
<u>SWMU 2</u>	<u>Discarded military munitions burial pit</u>	<ul style="list-style-type: none"> Groundwater monitoring shall be conducted in accordance with the recommendations outlined in the “Final Long term Monitoring of SWMU 2, SWMU 5 and HWMU 1 and Implementation of the Hydrogeologic Assessment and Recommendations Plan” March/April 2017.
SWMU 5	Building 600 foundation, drainage pond and ditch	<ul style="list-style-type: none"> Soil at depths greater than 10 ft bgs may include hexavalent chromium at levels exceeding industrial risk levels. Groundwater monitoring shall be conducted in accordance with the recommendations outlined in the “Final Hydrogeological Assessment and Recommendations Report” July 2013.
<u>SWMU 25</u>	<u>Open Burn/Open Detonation (OB/OD) Treatment Areas from Surface Stabilization</u>	<ul style="list-style-type: none"> The OBOD treatment areas within SWMU 25 were certified closed under industrial closure. These areas are located within SWMU 25 and will be included in the SWMU 25 post closure plan.
<u>HWMU 31</u>	<u>Former Open Burn/Open Detonation Area</u>	<ul style="list-style-type: none"> The Permittee shall ensure that any development or use of the site is tracked through the Excavation Permit Process and controls are in place to ensure protection against potential surface and

TABLE – 2		
Special Restrictions for Post Closure SWMUs/HWMUs		
		buried MEC.
SWMU 8	Kickout area associated with HWMU 31	<ul style="list-style-type: none"> The Permittee shall ensure that any development or use of the site is tracked through the Excavation Permit Process and controls are in place to ensure protection against potential surface and buried MEC.
SWMU 23	Kickout area associated with HWMU 31	<ul style="list-style-type: none"> The Permittee shall ensure that any development or use of the site is tracked through the Excavation Permit Process and controls are in place to ensure protection against potential surface and buried MEC.
SWMU 29	Immediate areas bordering the former SWMU	<ul style="list-style-type: none"> The area immediately outside the boundary of the former SWMU may contain buried debris and/or drums. The Permittee shall ensure that any intrusive activities include anomaly avoidance to ensure protection of workers.

VI.G COMPLIANCE SCHEDULE

VI.G.1 The Permittee shall submit a post closure plan within 180 days after the Director approves the CMI Completion Report.

VI.H POST-CLOSURE MAINTENANCE AND MONITORING

VI.H.1 The Permittee shall inspect, maintain, monitor and track activities at the SWMUs listed in Table 1 throughout the post-closure care period in a manner that will ensure detection of a release of hazardous waste, hazardous waste constituents, leachate, contaminated runoff or hazardous waste decomposition products to the air, soil, groundwater, or surface water from the closed unit, and in a manner that will prevent unauthorized site use or unauthorized use of any excavated soil. The Permittee shall maintain any inspection, monitoring, security, treatment and other necessary equipment throughout the post-closure care period in a manner that will ensure detection of a release from the closed unit and minimize the possibility of fire, explosion, or any sudden or non-sudden release of hazardous waste constituents to air, soil, surface water or groundwater which could threaten human health or the environment.

VI.H.2 The Permittee shall ensure that installation of drinking water wells is prohibited at the SWMUs/HWMUs without prior approval of the Director.

VI.H.3 The Permittee shall follow the existing Facility excavation permit coordination procedures as contained in Form D prior to initiating any intrusive activities at the SWMU/HWMU. Applications for excavation permits shall be documented using Form D, Excavation Permit.

VI.I SECURITY

VI.I.1 Specific security requirements for each SWMU/HWMU listed in Table 1 are presented in the post closure permit attachments.

VI.J GENERAL INSPECTION REQUIREMENTS

- VI.J.1 The Permittee shall follow the inspection schedules as specified in the post closure permit attachments. All records of inspections and remedial actions shall be retained in the Operating Record throughout the post-closure care period.
- VI.J.2 Inspections shall be documented on required forms as provided in Module VI and as indicated in the post closure permit attachments and as summarized in Table 3.

Table -3 - General Site Inspection Checklists, TEAD-S Post-Closure Plans:

TABLE - 3		
Required Inspection Form(s)		
SWMU NUMBER	Type of Closure	Form Type
9	Risk-based, Industrial	Form A
19	Risk-based, Industrial	Form A
28	Risk-based, Industrial	Form A
33	Risk-based, Industrial	Form A

- VI.J.3 Upon discovering any deterioration or malfunction, the Permittee shall perform corrective action as required by Utah Admin. Code R315-~~8-2.6264-15~~(c). Corrective action shall be conducted as soon as practicable from the time the problem is discovered. If corrective action is extensive or will require more than 30 days to complete, the Permittee shall provide a corrective action schedule for approval by the Director.
- VI.J.4 If either the Director or the Permittee determines that any corrective action could endanger human health or the environment, the Permittee shall cease the activity until the problem has been corrected.
- VI.J.5 Records of inspections shall be kept at the Facility, as required by Utah Admin. Code R315-~~8-2.6264-15~~(d).
- VI.J.6 The Permittee shall inspect post-closure groundwater-monitoring wells at the frequency specified in each site-specific post closure plan as specified below:
 - VI.J.6.a Inspect for damage to the above ground casing of the well.
 - VI.J.6.b Inspect for damage to cement apron and ensure that the annulus is properly sealed.
 - VI.J.6.c Check for visible damage and any tampering to locks and monitoring well caps.
 - VI.J.6.d Ensure that the wells are accessible and visible.

VI.K TRAINING REQUIRMENTS

VI.K.1 The Permittee shall comply with the personnel qualification, training, and training documentation requirements, where applicable, listed in this Permit. Additionally, inspectors of any post-closure care units shall be trained (documentation required), at a minimum, in the following:

VI.K.1.a Attachment 4 (Contingency Plan),

VI.K.1.b Site-specific Post-Closure Plans,

VI.K.1.c General Post-Closure Site Inspection Checklists (Form A)

VI.K.1.d Site-specific SWMU/HWMU Post-Closure Inspection Checklists (included in site-specific post-closure permit attachments).

VI.L PREPAREDNESS AND PREVENTION

VI.L.1 Preparedness and Prevention measures, for each site listed in Table 1, shall be specified in the post closure permit attachments, or in Attachment 4(Contingency Plan), where applicable to each site. Any modifications of this provision shall be made in accordance with Condition I.D.3.

VI.M SAMPLING, ANALYTICAL AND QA/QC PROCEDURES

VI.M.1 Analytical data obtained from samples collected for compliance with this Module shall be obtained using procedures specified in an approved QAPP.

VI.N RECORDKEEPING AND REPORTING

VI.N.1 The Permittee shall submit reports and notifications as required by this Module and as specified in the post closure permit attachments for each site to the Director documenting post-closure inspection and monitoring activities and results from analyses of samples. Copies of all Permit-related records will be maintained in the Operating Record.

VI.O POST-CLOSURE CARE

VI.O.1 For each site listed in Table 1, the Permittee shall conduct all post-closure activities in accordance with the post-closure plans as specified in the post closure attachments. Each post-closure plan shall include information and requirements to satisfy the requirements of Utah Admin. Code R315-~~101~~ through Utah Admin. Code R315-~~401~~273 for closure of landfills, surface impoundments, storage areas, tanks and other units. Types of site inspections required for each SWMU are outlined in Table 3 and the corresponding post-closure inspection forms are provided as Form A of Module VI.

VI.O.2 Unless specified in a schedule included in the site-specific post closure attachment, the Permittee shall submit analytical results from all sampling activities required under Module VI within 180 days of receipt of the analytical results from the laboratory. All groundwater elevation data shall be submitted to the Director within 60 days of receipt of the analytical results from the laboratory. A report briefly describing analytical data quality shall be included with the results. If the Permittee cannot meet the 180-day requirement, the Permittee shall contact the Director and propose an alternate schedule for approval. The proposal shall include justification for not submitting the information within 180 days.

VI.P GROUNDWATER

Reserved

VI.Q AREAS IMPACTED BY MERCUR OUTWASH

VI.Q.1 The Permittee shall ensure that areas potentially impacted by the Mercur Outwash, namely the eastern half and southeastern corner of the Facility (refer to Figure 1 of Module V) are evaluated in the excavation permit process prior to development or other intrusive work and to ensure controls are in place to ensure adequate worker protection from potential exposure to metals in soil that have been impacted by the Mercur Outwash.

VI.R. AREAS IMPACTED BY MEC

VI.R.1. The Permittee shall ensure that areas potentially impacted by MEC from historical operations at the former HWMU 31 (refer to Figure 1) are evaluated in the excavation permit process prior to development or other intrusive work to ensure controls are in place to ensure adequate worker protection.

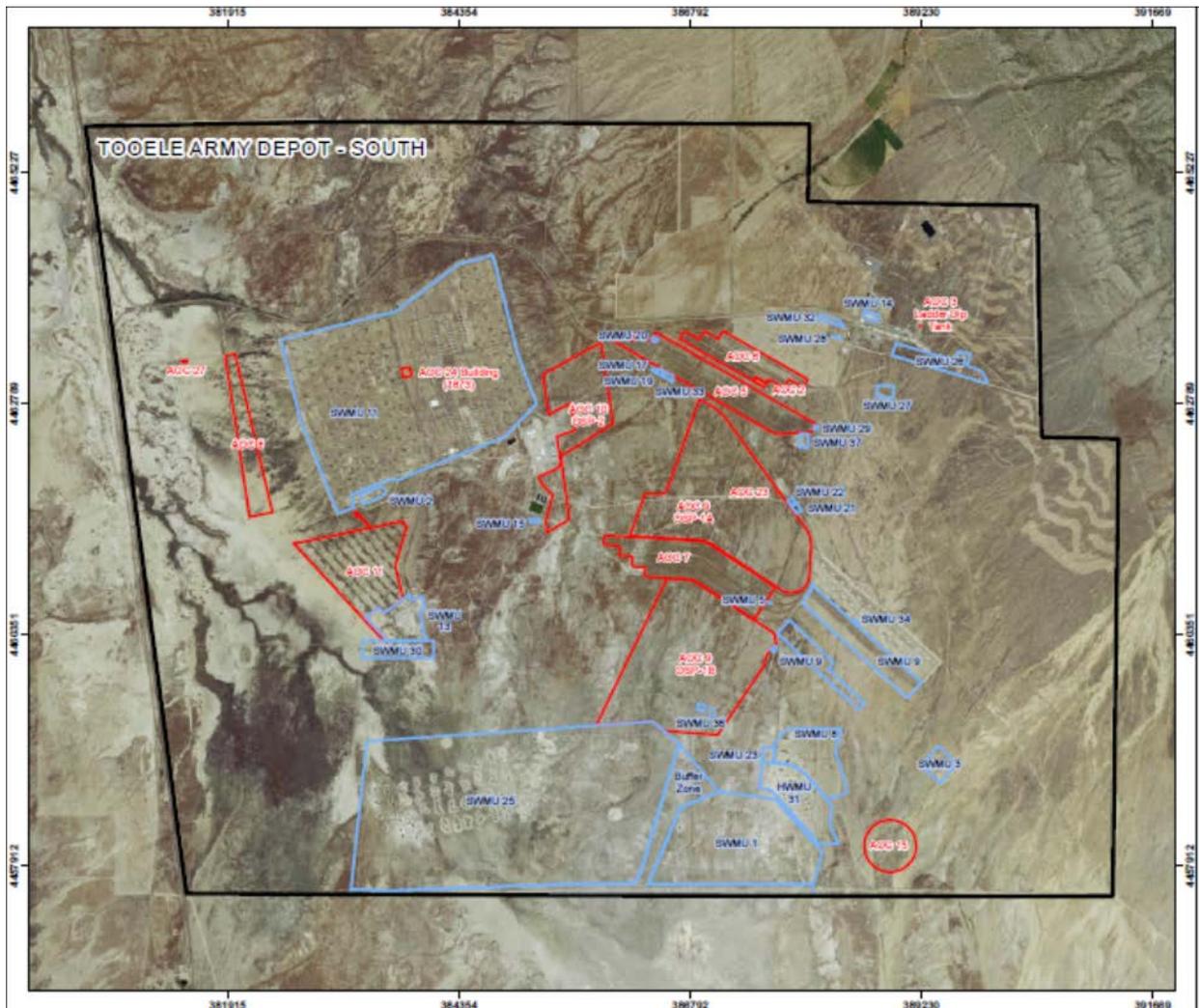


Figure 1. Area of highest probability for MEC from historical operations at the former HWMU 31.

MODULE VII
OPEN DETONATION (OD)

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
<u>VII.A. APPLICABILITY</u>	<u>1</u>
<u>VII.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION</u>	<u>1</u>
<u>VII.C. RECEIPT OF OFF-SITE WASTE PROHIBITED</u>	<u>2</u>
<u>VII.D. TREATMENT OF MUNITIONS CONTAINING DEPLETED URANIUM</u>	<u>3</u>
<u>VII.E. RISK THRESHOLD</u>	<u>2</u>
<u>VII.F. GENERAL OPERATING CONDITIONS</u>	<u>4</u>
<u>VII.G. INSPECTION SCHEDULES AND PROCEDURES</u>	<u>5</u>
<u>VII.H. ENVIRONMENTAL MONITORING REQUIREMENTS</u>	<u>5</u>
<u>VII.I. FACILITY MODIFICATION/EXPANSION</u>	<u>7</u>
<u>VII.J. CLOSURE AND POST CLOSURE</u>	<u>5</u>
<u>VII.K. OD OPERATING RECORD</u>	<u>5</u>
<u>VII.L. LAND USE PROVISIONS</u>	<u>7</u>

LIST OF ATTACHMENTS

<u>DESCRIPTION</u>	<u>ATTACHMENT NO.</u>
<u>Open Detonation Operations</u>	<u>1</u>
<u>Environmental Performance Standards</u>	<u>2</u>
<u>Open Detonation Unit Closure Plan</u>	<u>3</u>

MODULE VII
OPEN DETONATION (OD)

VII.A. APPLICABILITY

VII.A.1. The requirements of this permit module pertain to the treatment of waste military munitions at the OD area at the Tooele Army Depot South Area (TEAD-S). The Permittee shall comply with Utah Admin. Code R315-264 and all conditions of this module.

VII.A.2. The permit conditions of this module allow treatment at the OD area, as designed and described in the drawings and specifications in Module VII Attachment 1 Open Detonation Operations. The OD area consists of 20 operational pits.

VII.A.3 OD operations shall be accomplished by trained explosive personnel following all DoD directives regarding explosive safety operations for the OD area and the conditions of this permit.

VII.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

VII.B.1. At the OD unit, the Permittee shall treat only hazardous waste military munitions characterized as D003 and generated from the following general sources or if the material meets the risk threshold criteria of Condition VII.E:

VII.B.1.a. Unserviceable or serviceable excess DoD munitions and explosive materials (e.g. bulk explosives, small arms munitions that cannot be safely treated in the deactivation furnace, projectiles, flares, grenades, sub-munitions, bombs and rocket motors);

VII.B.1.b. Unserviceable or serviceable excess solid propellant components and associated residue generated by a DoD contractor and the contractor requests treatment assistance; and

VII.B.2. The Permittee may only treat hazardous waste military munitions with known classifications and compositions in the Munition Items Disposition Action System (MIDAS) database and in Attachment 1 (Waste Analysis Plan) excluding the items listed in Condition VII.B.2.b., unless an emergency situation exists. If an emergency exists and an item is not in the MIDAS database, all available information will be reviewed to minimize hazards to the Demilitarization team and the environment and an Emergency Permit shall be obtained from the Director of the Division of Waste Management and Radiation Control (Director). Information on the item will be submitted to the Defense Ammunition Center (DAC), for inclusion into the MIDAS database, within 60 days of treatment.

VII.B.2.a. The same information on the item that is provided to the DAC will be provided to the Director, within 60 days of treatment, along with an analysis determining whether or not the introduction of the item to the waste stream impacts *Human Health Risk Assessment* (Tetra Tech, 2017) or the *Ecological Risk Assessment* (Tetra Tech, 2017).

VII.B.2.b. Munitions with any of the following constituents shall not be treated by OD: hexachlorethane (HC), colored smoke, white phosphorus (WP), red phosphorus (RP), depleted uranium (DU) and riot control munitions.

VII.B.3. The Permittee is prohibited from treating wholly inert items and improvised explosive devices (e.g. homemade bombs which are non-military), chemical and nuclear weapons, their devices and components, and military munitions, propellant or residues that contain free liquids. Items that are believed to be wholly inert items, but cannot be conclusively verified to be inert, may be cracked open with a small explosive charge to expose the interior to verify that no explosives are present. The Permittee shall document in the operating record all treatment and verification activities required by this condition.

VII.B.4. Subject to the prohibitions of Conditions VII.B.1, VI.B.2, and VI.B.3, the Permittee shall not exceed the maximum Net Explosive Weight (NEW) for each day and each calendar year of each Category and specified munition type as listed below:

<u>Category</u>	<u>Description</u>	<u>Annual Quantity^{a,b} (NEW lb/ year)</u>
<u>A</u>	<u>High Explosive Cased: Cased munitions with a high explosive filler. Includes cartridges, bombs, and rocket motors.</u>	<u>5,976,000</u>
	<u>High Explosive Donor: Uncased high explosives including bulk explosives.</u>	
	<u>Mines: Items with a common name including the term mine. Generally thin walled. Typical NEWs ranging from 1.4 lbs. to 24 lbs. per item.</u>	
	<u>Grenades: Items with a common name including grenade. Typically weight less than one pound.</u>	
<u>B</u>	<u>Impulse Cartridges: Items with a common name including impulse.</u>	<u>72,000</u>
<u>C</u>	<u>Incendiaries/Tracers: Items used as incendiaries and tracers.</u>	<u>216,000</u>
<u>D</u>	<u>Fuse/Fuze: Items with a common name including fuse/fuze.</u>	<u>216,000</u>
<u>E</u>	<u>Simulators: Items with a common name including the term simulator.</u>	<u>216,000</u>
<u>F</u>	<u>Detonators/Blasting Caps: Items with a common name including blasting cap, detonating cord, percussion primer and used as part of detonation trains. Typically low NEWs/item ratios generally ranging around 0.01 to 0.0001 lbs. NEW/item.</u>	<u>144,000</u>
<u>G</u>	<u>Adapter/Booster: Items with a common name including adapter, booster tape, and booster guided. Typically contain less than 1 lb. NEW per item.</u>	<u>360,000</u>
^a Maximum pit loading of 5,000 lbs. NEW for 20 pits per day.		
^b See the Open Detonation Risk Management Plan for information on the derivation of these quantities.		

VII.B.5. Mitigation of one-hour acute exceedances requires that emissions from all items detonated during a single one-hour treatment event be considered. Daily amounts will be adjusted to account for mixed munition categories and donor. Because the open detonation operation events will include detonation of more than one munition type and/or categories of munitions, the Permittee shall enter the amount of each category type into the Munitions Mix Evaluator spreadsheet during the planning for each detonation. The spreadsheet calculates the total emissions, for chemicals of concern, and compares the emissions to the allowable one-hour threshold. See the Open Detonation Risk Management Plan for details.

VII.B.6. During the planning of each detonation involving fragment producing munitions the Permittee shall input information about each detonation into the Buried Explosion Module which will calculate the maximum distance that fragments from the detonation could travel. The Permittee

~~March-June 2017~~8

shall not conduct any detonation operations that could cause fragments to come within 50 feet of the depot boundary fence adjacent to the OD area. See the Open Detonation Risk Management Plan for additional information.

VII.B.7. The Permittee shall conduct all detonations in accordance with this permit.

VII.B.8. The Permittee shall comply with the waste compatibility requirements of Utah Admin. Code R315-264-172.

VII.C. RECEIPT OF OFF-SITE WASTE PROHIBITED

VII.C.1. The Permittee shall not receive hazardous wastes that are generated off-depot except for the following wastes that will be treated at the OD area in accordance with this Module:

VII.C.1.a. Waste conventional munitions generated by TEAD-S during investigation or remediation of sites adjacent to TEAD-S that were contaminated from past TEAD-S operations,

VII.C.1.b. DoD owned waste conventional military munitions,

VII.C.1.c. Waste conventional munitions generated at the Tooele Army Depot North Area (TEAD-N), and

VII.C.1.d. Conventional military or commercial explosive items identified as hazardous waste and collected during emergency response situations and transported by U.S. DoD Explosive Ordnance Disposal (EOD) Personnel.

VII.D. TREATMENT OF MUNITIONS CONTAINING DEPLETED URANIUM

VII.D.1. Munitions containing depleted uranium in any form shall not be treated at the OD area without the express approval of the Director.

VII.E. RISK THRESHOLDS

VII.E.1. OD operations shall be conducted in a manner that minimizes the risk to human health and the environment. The risk thresholds for operations at the OD area are based on the *Human Health Risk Assessment* (Tetra Tech, 2017), *Ecological Risk Assessment* (Tetra Tech, 2017) and *Risk Management Plan* (Tetra Tech, 2017).

VII.E.2. At the request of the Director or the Permittee, the completeness and accuracy of the OD risk assessment shall be evaluated. At a minimum, the evaluation shall include the following information:

VII.E.2.a. A review of the list of chemical/munition constituents to add additional chemicals and emission factors as a result of updates in the waste characterization databases such as the MIDAS database.

VII.E.2.b. Updated munitions information or results from compliance sampling that would require the addition of chemical compounds.

VII.E.3. The Permittee shall operate the OD area to prevent unacceptable risk of cancer. The cumulative carcinogenic risk to on-site workers shall not exceed 1.0×10^{-4} (one in ten thousand) for the closest potential receptors (on-site OD workers and locations evaluated using the OBOD Model (OBODM) associated with the human health risk assessment). The cumulative non-carcinogenic hazard to the closest on-site potential receptors of a detonation shall not exceed a hazard index of 1.0. The risks and hazards shall be calculated according to the methodology in the *Human Health Risk Assessment* (Tetra Tech, 2017).

VII.E.3.a. Risk management decisions within the OD range will be based on the results of the human health risk assessment for on-site workers. Ecological risks will not be evaluated within the OD range while active. Upon closure of the range, ecological impacts within the OD boundary will be assessed. Hazards to on-site ecological receptors shall not exceed a hazard index of 1.0.

VII.E.4. The cumulative carcinogenic risk to actual or potential off-site human receptors shall not exceed 1.0×10^{-6} (one in a million). The cumulative non-carcinogenic hazard to actual or potential off-site receptors shall not exceed a hazard index of 1.0. Hazards to off-site ecological receptors shall not exceed a hazard index of 1.0. The location of the off-site human and ecological receptors will consist of the area to the south of the OD range to the southern TEAD-S fence line. The risks and hazards shall be calculated according to the methodology in the *Tooele Army Depot South Area Risk Assumption's Document* (AQS, 2017). The Permittee shall maintain compliance with the environmental performance standards listed in Utah Admin. Code R315-264-600 and review the information in the Open Detonation Risk Management Plan every five years.

VII.E.4.a. Risk management decisions outside of the OD range will be based on the results of the human health and ecological risk assessments for the off-site receptor location.

VII.E.5. If changes need to be made to the OD operating procedures, then the existing OD risk assessments will first be updated with new exposure estimates reflective of the proposed changes to ensure that the revised procedures and the resulting emissions will not present an unacceptable risk to personnel and the environment. The risk standards to be met in these updated risk assessments will be the same as those summarized in VII.E.3 and VII.E.4. Updated risk assessments shall be submitted to the Director for review and approval.

VII.F. GENERAL OPERATING CONDITIONS

VII.F.1. The Permittee shall adhere to the following procedures:

VII.F.1.a. OD operations shall be conducted within the secure area of the OD area with controlled access for humans and livestock. At a minimum, DoD Explosives Safety Standards shall be used to dictate safe separation distances from external receptors. For each operational day, operators shall conduct a visual pre-operational inspection of the pits and 50 feet on both sides of the depot boundary fence adjacent to the OD area to ensure no livestock or people are potentially in harm's way.

VII.F.1.b. The OD area shall be posted with warning signs to keep unauthorized personnel out. Warning flags shall be flown and access roads shall be barricaded and posted during OD operations.

- VII.F.1.c. During OD operations, telephone or two-way radio contact shall be available and operational with support personnel, including security and firefighting units.
- VII.F.1.d. The integrity of the OD area and support equipment shall be determined through regular inspections in accordance with the inspection plan in Attachment 2 (Inspection Plan). Inspection records shall be maintained at the facility.
- VII.F.1.e. Prior to OD, meteorological data including wind speed, approach of storms (including electrical storms), precipitation, cloud cover, visibility and inversions (temperature with altitude) shall be monitored to ensure that OD is not conducted under adverse weather conditions. Meteorological data shall be recorded and maintained for each detonation. The following conditions apply to the OD unit:
- VII.F.1.e.i. OD operations shall occur between the hours of 11:00 a.m. and 6:00 p.m. Mountain Daylight Time.
- VII.F.1.e.ii. OD operations shall only occur April 1 through October 31 of each calendar year.
- VII.F.1.e.iii. The wind speed shall be observed at the time of treatment at the weather instrument near the entrance to the OD area and recorded on the Demilitarization Approval Form. The alternate weather instrument near Building 4554 will be used in the event there are operational problems with the instrument near the OD entrance.
- VII.F.1.e.iv. OD operations shall only be initiated when the sustained wind speed is between three (3) miles per hour (mph) and 20 mph. No OD operations shall be initiated with gusts greater than 30 mph.
- VII.F.1.e.v. OD operations shall not be initiated when the visibility is less than one mile.
- VII.F.1.f. Waste munitions shall be treated within 24 hours of receipt at an OD unit. If treatment of the waste munitions is delayed, after the munitions are received at an OD unit, due to an unforeseen change that creates conditions outside those permitted by Condition VII.F.1.e., the munitions may be stored and remain in place in the unit until conditions allow treatment to be performed.
- VII.F.1.g. Prior to OD, waste munitions shall be inspected to ensure that only waste defined in Condition VII.B is detonated.
- VII.F.1.h. For each operational day, operators shall conduct a post-operational visual inspection of the pit area, as described in Section 3.0 of Module VII Attachment 1, and 50 feet on both sides of the depot boundary fence adjacent to the OD area to clear all Munitions Potentially Presenting an Explosives Hazard (MPPEH) or any metal fragments that could threaten human health or the environment. Items or material such as lumps of explosives or unfuzed munitions will be recovered and prepared for treatment on the next scheduled day. Fuzed ammunition or other types of munitions that are unsafe to move will be treated in-place. Additionally, MPPEH, non-explosive scrap metal, casings, fragments and related items will be picked-up and cleared from the OD area bi-annually; once in the

spring prior to full-scale treatment and once in the fall upon completion of full-scale treatment. Metal waste shall be recycled whenever feasible.

- VII.F.1.i. The donor charge and placement geometry for OD operations shall be optimized to minimize the generation of un-detonated waste and residue. All re-detonations shall be recorded in the operating record.
- VII.F.1.j. High order detonations shall be conducted using the appropriate amount of initiator to encourage the complete combustion of the energetic material to be treated.
- VII.F.1.k. Prior to each OD event, the treatment area shall be inspected to ensure that no livestock are present.
- VII.F.1.l. The OD operations shall not generate noise or ground vibration at levels that will have an adverse effect on nearby onsite and offsite receptors. Operations shall not exceed local noise ordinances. Noise complaints shall be recorded in a noise complaint log.
- VII.F.1.m. The Permittee shall have a noise management program.
- VII.F.1.n. The Permittee shall have available, during each detonation, adequate fire protection equipment and containment measures to assure the confinement and control of any fire resulting from OD operations.
- VII.F.1.o. To help prevent ground fires, during operations, litter, packing material, dry grass, leaves and other extraneous combustible material in the amount sufficient to spread fire, shall be removed within fire-break areas.
- VII.F.1.p. Any fires started from kick out from a detonation shall be extinguished as soon as possible. Uncontrolled fires will be addressed in accordance with Section 27.3 of Attachment 4 (Contingency Plan).
- VII.F.1.q. The Permittee shall operate and maintain the detonation unit in the pits in accordance with the plans in Module VII Attachment 1, Open Detonation Operations.
- VII.F.1.r. Open detonations shall not occur in more than one pit at one time.
- VII.F.1.s. Following each open detonation treatment, inspections of the pits are conducted to ensure no low order detonation resulted. Should the rare event of a low order detonation occur in a pit, the proper amount of donor will be added to the pit and re-detonated the same day for purpose of the Demil Team's safety. Should the additional donor exceed the daily NEW limit, the Permittee will notify the Director within 7 days of the daily NEW limit exceedance. A low order detonation is when items in a pit incompletely detonate, leaving UXO.
- VII.F.1.t. The Permittee shall conduct visual observations of sensitive areas adjacent to the OD ranges on the west and south as described in Section 4.0 of Module VII Attachment 1. Should kick out be observed going into these areas the Permittee

~~March-June 2017~~8

shall inspect the areas observed to be impacted upon completion of the operations for the day to check for and treat any untreated munitions.

VII.F.2. The Permittee shall record in the OD operating record all unplanned discharges, fires and explosions, including all low order detonations, as specified in Utah Admin. Code R315-264-56(i).

VII.F.3. The Permittee shall record in the OD operating record the location of Material Potentially Presenting an Explosive Hazard (MPPEH) found during searches that is required to be treated in place and the date, time and method of treatment of the MPPEH.

VII.G. INSPECTION SCHEDULES AND PROCEDURES

VII.G.1. The Permittee shall inspect the OD units in accordance with the inspection requirements in Attachment 2 (Inspection Plan). The Permittee shall conduct inspections of the detonation pits each day of treatment.

VII.H. ENVIRONMENTAL MONITORING REQUIREMENTS

VII.H.1. Environmental monitoring requirements are discussed in Module VII Attachment 2, Environmental Performance Standards. Environmental monitoring of soil at the OD area shall be conducted in accordance with the monitoring frequencies, sampling locations, sampling methods, and analytical parameters, analytical methods, and quality control requirements specified in Section 4.8 of Module VII Attachment 2.

VII.I. FACILITY MODIFICATION/EXPANSION

VII.I.1. Modification of the design plans and specifications in Module VII Attachment 1, Open Detonation Operations and construction of additional treatment units shall be allowed only in accordance with Condition I.D.

VII.J. CLOSURE AND POST CLOSURE

VII.J.1. The Permittee shall close the OD units in accordance with the Closure Plan in Module VII Attachment 3 or conduct post-closure monitoring in accordance with Utah Admin. Code R315-264-110.

VII.K. OD OPERATING RECORD

VII.K.1. The Permittee shall maintain an operating record describing the OD activities. Portions of the operating record may be maintained at the area where the report is generated. For example, records of waste treated at the OD units may be maintained by ammunition operations personnel and kept in their office. The record shall include the following information:

VII.K.1.a. The requirements of Utah Admin. Code R315-264-73.

VII.K.1.b. Description and quantity (number and NEW) of each hazardous waste munition, initiators and donors received and treated at the OD units.

VII.K.1.c. Date and time of treatment.

~~March-June 2017~~⁸

- VII.K.1.d. Copies of documents showing the disposition of residues transported off the OD area.
- VII.K.1.e. An annual running total of the NEW of all energetics treated at the OD units.
- VII.K.1.f. Meteorological conditions during each detonation as listed in Condition VII.F.1.e.
- VII.K.1.g. All information to characterize waste. Information to support Condition VII.B.2.
- VII.K.1.h. Copies of all completed demilitarization forms for all events.
- VII.K.1.i. Output from the Munitions Mix Evaluator spreadsheet and the Buried Explosion Module for all events.
- VII.K.1.j. Document the results of searches, sweeps and inspections conducted in accordance with Condition VII.F.1.h and Module VII Attachment 1 prior to and following detonations.

VII.L. LAND USE PROVISIONS

- VII.L.1. The Permittee shall evaluate the soil sampling data, air emission factors, land use, air modeling protocols and other pertinent inputs/drivers to the risk assessments in the Open Detonation Risk Management Plan, and incorporate any changes into the OD risk assessments, in accordance with the schedule in permit Condition VII.H.

TOOELE ARMY DEPOT - SOUTH AREA
(TEAD-S)

MODULE VII
ATTACHMENT 1

OPEN DETONATION OPERATIONS

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS.....ii

1.0 APPLICABILITY AS A MISCELLANEOUS UNIT 1

2.0 HAZARDOUS WASTE STORAGE AND VARIANCE..... 1

3.0 DESCRIPTION AND OPERATION OF OD UNIT 1

4.0 MONITORING AND MAINTENANCE PLAN.....4

5.0 RUNON AND RUNOFF MANAGEMENT5

Figures

Figure 1 – Location of OD Area at TEAD-S 6

Figure 2 – Operation Area of OD, Satellite 7

Figure 3 – Operation Area of OD, Drawing 8

Figure 4 – Post-Operational Daily Inspection Route 9

Figure 5 – Visual Observation Area 10

LIST OF ACRONYMS AND ABBREVIATIONS

DLADS Defense Logistics Agency Disposition Services
OD Open Detonation
TEAD-N Tooele Army Depot North Area
TEAD-S Tooele Army Depot South Area
UXO Unexploded Ordnance

1.0 APPLICABILITY AS A MISCELLANEOUS UNIT

The Permittee conducts thermal treatment of conventional energetic material items at the Open Detonation (OD) Area. The principal work activities at the Tooele Army Depot – South Area (TEAD-S) are the shipping, receiving, maintenance and demilitarization of conventional munitions. The location of the OD Area is shown in Figure 1 and a detailed map showing the OD operations area is shown in Figures 2 and 3. Treatment by OD falls under the miscellaneous units’ provision in Utah Admin. Code R315-264-600.

OD is used for treatment of energetic materials because this is the only safe and effective treatment process currently available for most energetic material items. The selection of OD is based on energetic material item-specific information developed by the U.S. Army, based on energetic material type and content, explosion potential, and historical experience. The U.S. Army is continuing to study and evaluate alternative treatment processes that may be used in the future, rather than OD, to treat appropriate energetic materials. The Permittee reports progress in developing alternative technologies as part of the annual waste minimization certification.

Because the OD treatment process is a non-continuous (i.e., batch) process, the facility is not subject to steady-state or “normal” operating conditions. Wastes are treated by the Demilitarization (Demil) Team following all DoD directives regarding explosive safety operations for the OD area and the conditions of this permit.

There are major advantages for using OD disposal practices. These include the following:

- Safety. Safety is the most important consideration. Strict observance of proven OD procedures has resulted in an excellent safety record being earned by the personnel who have helped to treat the many millions of pounds of waste military energetic materials safely over the last four decades at numerous DoD installations.
- Versatility. These types of operations are extremely versatile; large or small quantities of the myriad types of materials can be treated easily and safely.
- Reliability. Because of its inherent simplicity, OD is an extremely reliable process not subject to equipment downtime.
- Treatment Efficiency. OD is a very efficient treatment as demonstrated by testing.

2.0 HAZARDOUS WASTE STORAGE AND VARIANCE

The Permittee shall not treat nonreactive waste at the OD Units other than incidental packaging. A variance to treat solid waste is not needed.

Currently the Permittee only accepts off-site waste from Tooele Army Depot North Area (TEAD-N) for treatment at the OD Units. Munitions shall be treated the same day that they are received at the OD Units. In the case of weather delays, munitions shall be treated as soon as possible (generally within 24 hours). Should treatment be delayed, the munitions shall be stored in place, in accordance with Condition VII.F.1.f., until conditions permit treatment to commence. Weekly inspections for the munitions stored in the OD Units shall be conducted as outlined in Attachment 2, Inspection Plan.

3.0 DESCRIPTION AND OPERATION OF OD UNIT

The OD pits are near the southeastern corner of TEAD-S. The entire OD Area is approximately 140 acres. There are 25 potentially available OD pits, numbered 1 through 25. OD shall be conducted in pits 1 through 12 and pits 18 through 25 in the locations they are shown in Figure 2 and were modeled. OD shall not be conducted in pits 13 through 17. Figure 1 shows the location of the pits on the installation and Figure 2 shows the pit configuration. OD is conducted in subsurface pits. The amount of earth cover is determined by the quantity of the net explosive weight (NEW) to be treated. Detonations of 0 to 50 pounds Net Explosive Weight (NEW) (including donor) require no earth cover, detonations of 51 to 5000 pounds NEW shall be covered with 15 feet of earth cover. Ammunition that contains submunitions shall be detonated in pits but shall not be buried¹.

There are no engineering plans or cross-sectional drawings of the OD Area because there are no engineered structures used in the OD process. Due to the nature of the OD operations, engineered features could be destroyed by detonation.

Prior to conducting OD, certain time and meteorological conditions must be met:

- OD may only occur April 1st through October 31st of each calendar year.
- OD may not be initiated prior to 11:00 a.m. Mountain Daylight Time.
- OD must be concluded at or before 6:00 p.m. Mountain Daylight Time.
- Sustained wind speeds must be greater than or equal to three (3) miles per hour (mph).
- Sustained wind speeds must be less than or equal to 20 mph.
- No wind gusts greater than 30 mph, and
- Operations must be postponed during or when any electrical storms are approaching within three miles, when there is a 50% chance or greater of a thunder storm or when there is a 75% chance or greater of snowstorms, or other precipitation events.

Meteorological data may be obtained from:

- Salt Lake City National Weather Services (<http://nimbo.wrh.moaa.gov/slc>),
- AccuWeather (<http://accuweather.com>), and/or
- On-site meteorological instruments (maintained and calibrated as indicated below).

<u>Weather Tower Meteorological Instruments Maintenance and Calibration Schedule</u>		
<u>Equipment</u>	<u>Requirement</u>	<u>Frequency</u>
<u>AWS310 Data Collection Platform</u>	<u>General inspection and maintenance of components</u>	<u>Annually</u>
	<u>Battery Replacement</u>	<u>Every 3-5 years</u>
<u>WA15 Heated Wind Set</u>	<u>General inspection and maintenance of components</u>	<u>Annually</u>
	<u>Replace Bearings</u>	<u>Annually</u>
	<u>Replace O-rings</u>	<u>Annually</u>
<u>PWD22 Present Weather Detector</u>	<u>General inspection and maintenance of components</u>	<u>Annually</u>
	<u>Calibrate visibility calibration</u>	<u>Every 6 months when in use</u>
<u>CL31 Ceilometer</u>	<u>General inspection and maintenance of components</u>	<u>Annually</u>
<u>SA20M Lightning</u>	<u>General inspection and maintenance of components</u>	<u>Annually</u>

A determination is made prior to detonation whether to cease operations or to continue based on meteorological data. This information is recorded on the Demilitarization Approval Form. The demil operations are determined “GO” or “NO GO” by weather forecasts as described above. When forecasts indicate a “GO” condition, demil operations proceed. However, if the weather conditions deteriorate, as observed by the Demil Team Leader, or his/her designated representative, he/she contacts the Demil Planner. A determination is made whether to continue the operation with the ammunition already in the pit or to store the ammunition in the pit and detonate it as soon as permit conditions allow.

The Demil Planner will annotate on the Demilitarization Approval Form that each organization has been notified. The Demil Planner phones the Demil Team Leader to inform whether the mission has been approved/disapproved. The Demil Team Leader phones the Demil Planner to tell when charges have been set and when the team is ready to detonate.

The design elements that are used to provide protection of human health and the environment include: using appropriate soil cover depending on treatment quantity; covering the munitions to appropriate depths; submunition type munitions will not be covered¹; locating the OD unit far from public roads and inhabited housing; only treating appropriate reactive materials; re-treating any unexploded ordnance (UXO); operating only during appropriate weather conditions; and restricting access to the unit by the use of warning signs, gates, and a surveillance team.

Prior to conducting OD operations, dry grass, leaves, and other combustible materials are cleared within a 61 meter (200 ft) radius from the pits.

The placement of the initiating charges and the amount of initiating charge are determined by the amount and nature of material being treated. Munitions are detonated by either non-electrical or electrical methods. The residues generated as a result of OD operations are metallic materials such as shell fragments (shrapnel) and occasionally MPPEH. The OD area shall be inspected for these materials that present an immediate threat following OD operations. The post operational inspection will consist of operators walking or driving along the inspection route indicated on the map in Figure 4 to verify complete treatment of munitions, ensure no low order detonations occurred, and identify any MPPEH posing an immediate threat. MPPEH that is determined safe to move shall be picked up and placed in a pit for the next detonation.

Any MPPEH found that is unsafe to move will be treated-in-place. The Demil leader/foreman will contact the planning division prior to detonating the MPPEH. Should the additional donor material cause the permittee to exceed the NEW limit for the day contained in this permit an Emergency Permit shall be obtained from the Director of the Division of Waste Management and Radiation Control (Director). The treatment-in-place of the MPPEH and the additional material shall be documented on the Demil Approval form. Any MPPEH, resulting from OD operations, that is found in SWMU 1 will be removed from the area to a safe location to either treat in a pit or treat-in-place as previously discussed.

Low order denotations can be determined through the blast sound difference and/or post observation of the earth cover remaining on the pit. In the event of a low order detonation, the Demil leader/foreman will notify the Directorate of Ammunition Operations management, Environmental Management Division and the Safety Office. Designated personnel will attempt to determine the reason for the low order detonation. The minimum amount of earth cover shall be cleared away from the area, an assessment shall be conducted and the appropriate remedial actions determined. A request for additional donor material as, needed will be made, and the ammunition detonated. Should the additional donor material cause the

¹ Submunition type munitions are not covered to allow for verification that all the submunitions were detonated.

permittee to exceed the NEW limit for the day contained in this permit an Emergency Permit shall be obtained from the Director. The additional material will be annotated on the Demil Approval form. The OD area shall remain closed while low order detonations are being uncovered and prepared for detonation.

During the phases of range operations a minimum of three (3) designated personnel will verify the counts from the firing points. All three personnel must have a consensus on the counts or the operations will be treated as a misfire.

A misfire is defined as failure of a component to fire or explode following an intentional attempt to cause an item to do so. A misfire may occur in spite of all precautions. No one will approach a misfire for at least 60 minutes. One qualified person will examine the misfire with a second qualified person acting as a safety backup. The safety backup shall stay clear of the immediate danger area and shall use natural barriers or obstructions for protection, but remain in a position to observe the actions of the person examining the misfire. The safety backup will be prepared to go to the aid of the person examining the misfire if an accident should occur. The OD area shall remain closed while misfires are being uncovered and prepared for detonation.

Analysis of the OD treatment residue is not conducted at TEAD-S. The Permittee periodically recovers scrap metal, casings, fragments, and related items from the OD area as resources allow, and based on the Demil Team Leader's judgment regarding safe operation of the range. The recovered material is disposed of through the Defense Logistics Agency Disposition Services (DLADS). The Demil team will inspect and document the recovered material to ensure it is explosive free. The Ammunition Surveillance Inspector will verify the documentation.

The munitions are on pallets that are transported to the OD pit via forklift. The palletized munitions are positioned to ensure complete detonation.

Upon completion of daily operations, all firing lanes shall be visually inspected. Firing wires shall be inspected for breaks or cuts, old blasting cap wires shall be removed and the lines shall be shunted.

4.0 MONITORING AND MAINTENANCE PLAN

The OD area shall be inspected before and after use. Prior to any detonation operations, the OD pits shall be inspected to ensure that they are:

- Free of water
- Free of glass, wood fragments, metal scraps, and debris, trash, obstacles, or tripping hazards
- Free of plant matter or other potentially combustible material.

As stated earlier, OD is a very efficient method of treatment; very little shrapnel remains in the OD unit. After each day of detonation operations, a search of the surrounding area shall be made for MPPEH as previously described. All MPPEH found must be detonated within two working days of the day they are found, or be stored within the pit(s) until permit conditions allow them to be detonated.

Figure 5 indicates the area adjacent to the OD range that is subject to visual observations during OD treatment operations in accordance with Condition VII.F.1.t. of Module VII. The Permittee shall conduct visual observations of area highlighted in Figure 5 looking for kick out going into these areas from OD treatment operations. Kick out is indicated by objects flying through the air and subsequent puffs of dirt from the ground or just objects flying through the air or puffs of dirt from the ground.

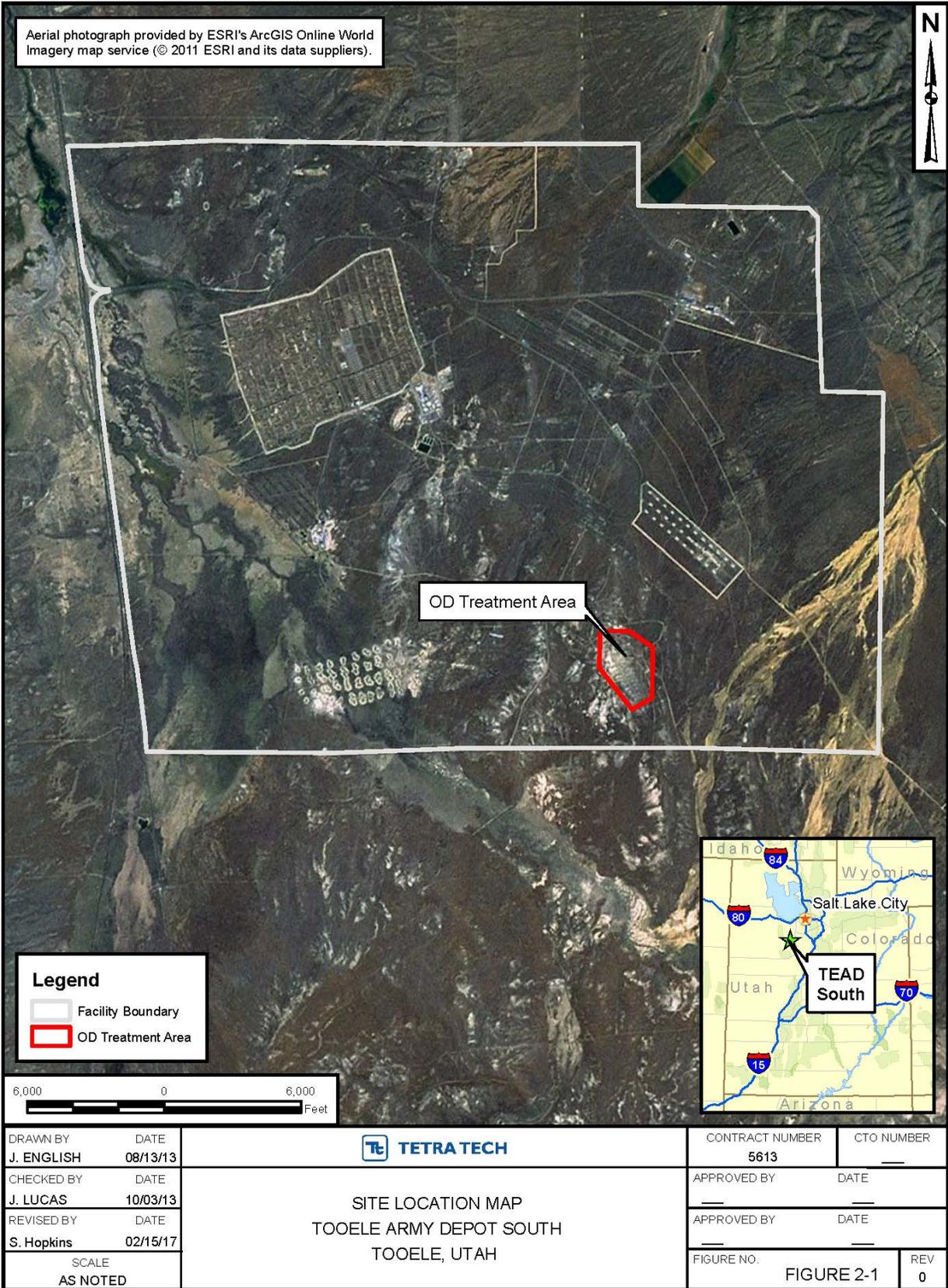
The visual observations shall be conducted for each new munition category type and/or NEW amount, if the NEW amount was increased from previous observation. If the view of the area to be visually observed is obstructed for any reason, an additional visual observation will be conducted during the next scheduled OD treatment operation.

The Permittee shall record the date and time of the visual observation, the location of the visual observation and indicate what areas may have been impacted by kick out and require an inspection. The inspection of areas observed to be impacted shall be conducted upon completion of the operations for the day to check for and treat any untreated munitions.

5.0 RUNON AND RUNOFF MANAGEMENT

The process of OD disrupts several feet of soil. No perennial streams, rivers, lakes reservoirs, estuaries, or wetlands are located within five miles of the OD unit. Any small drainage channels that could flow through the unit and exit the unit to the south have been eliminated within the OD unit by grading of the site. Outside the boundaries of the unit, the ephemeral drainage channels are very difficult to locate on the ground surface. The OD unit has not been inundated with runon or runoff.

Precipitation should not contact the waste during OD because OD is not conducted during or prior to rain. Should conditions create delays, once the pits have been loaded, munitions will be stored and remain in place until detonations are permitted. After OD, the only remaining material, shrapnel, is visually inspected to make certain it does not contain any UXO. If UXO is found, the material is retreated.



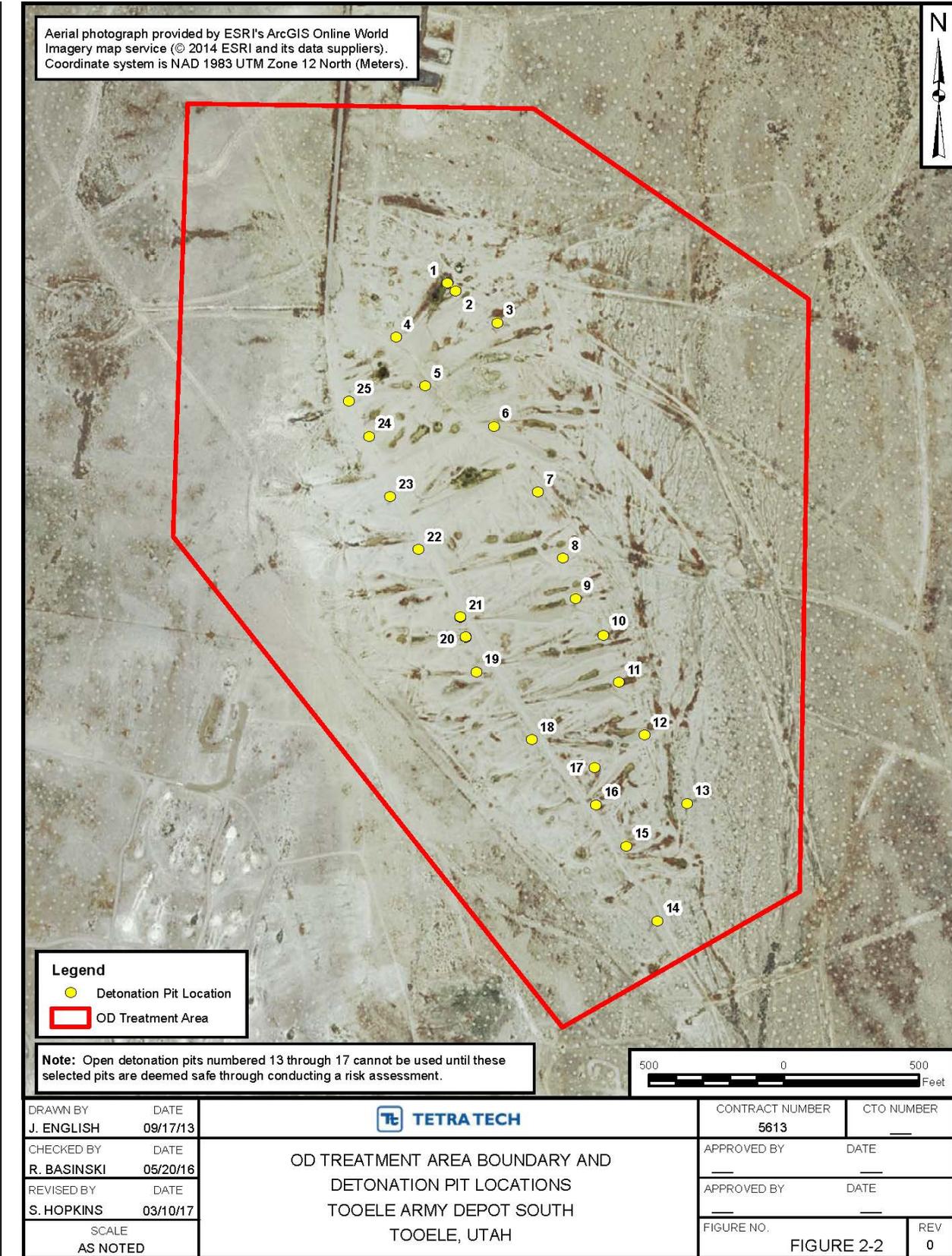


Figure 3 – Operation Area of OD, Drawing

June 2018

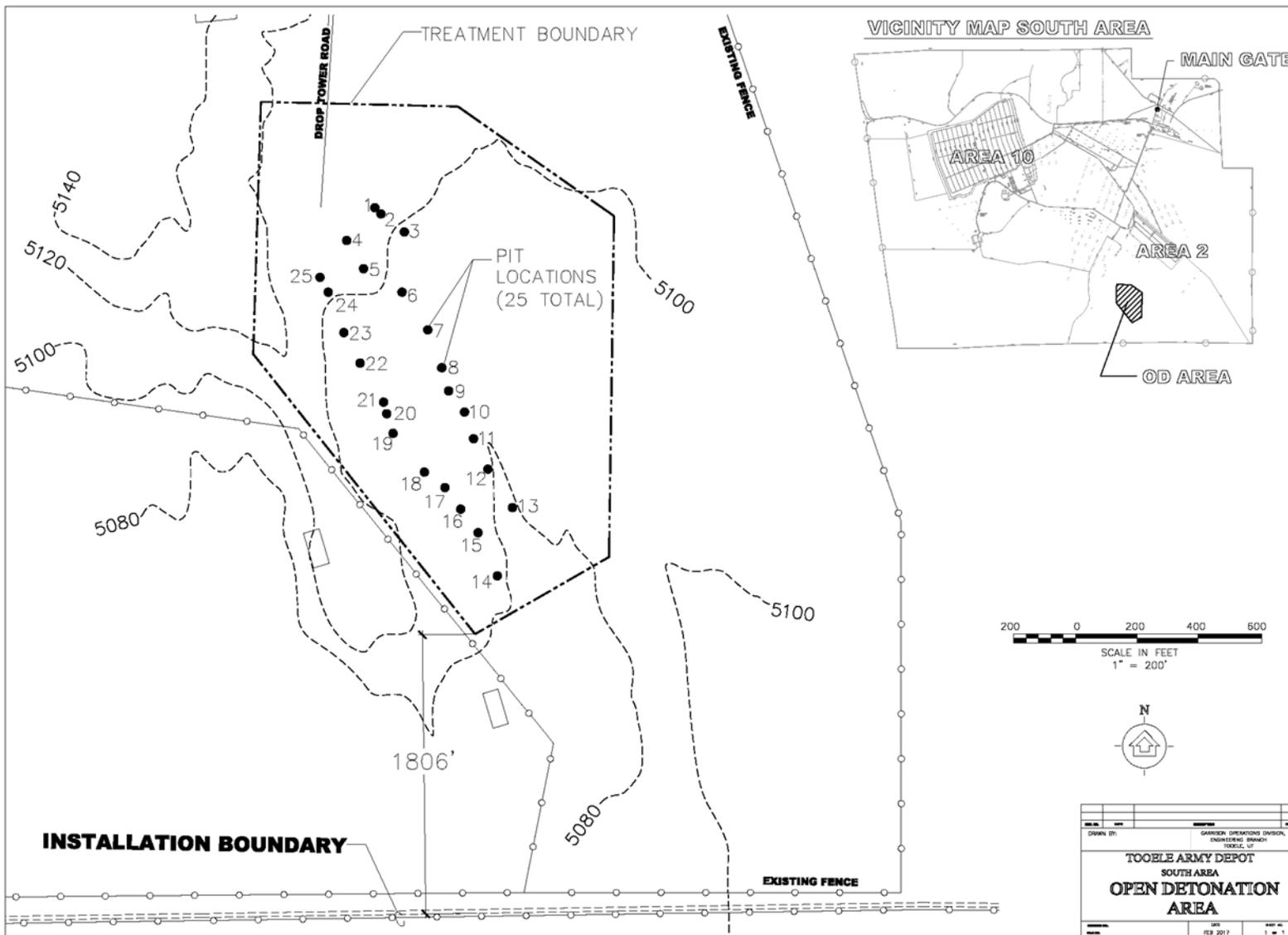
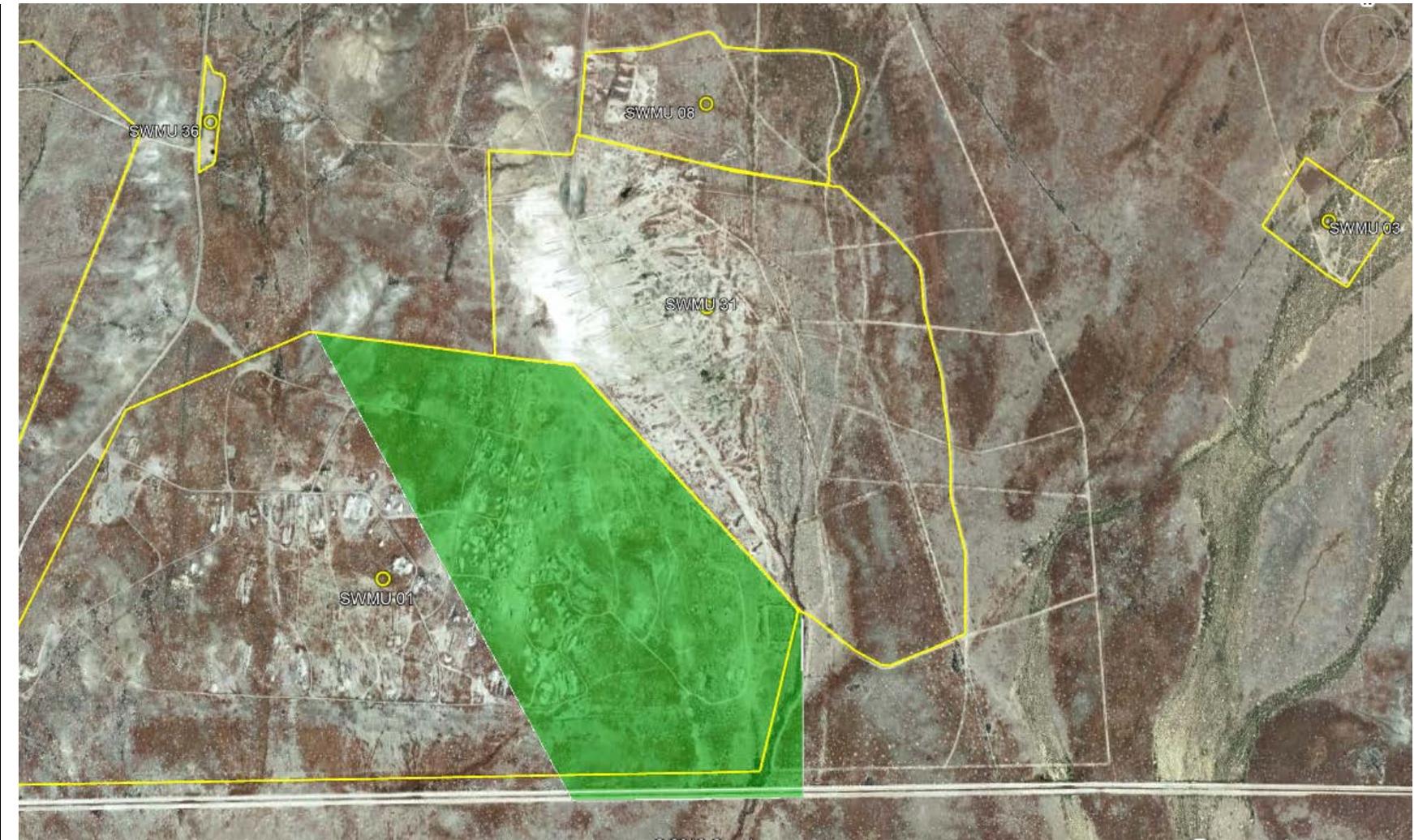


Figure 5 –Visual Observation Area

June 2018



MODULE VII, ATTACHMENT 2 **ENVIRONMENTAL PERFORMANCE STANDARDS**

1.0 INTRODUCTION

This attachment presents environmental performance standards for the Tooele Army Depot South Area (TEAD-S) Open Detonation (OD) unit. The results of the soil sampling and analyses will provide data to support the human health and ecological risk assessments (Tetra Tech, 2017) and to monitor treatment effectiveness for the OD unit required by Utah Admin. Code R315-264-601, R315-270-23(a)(2), and R315-270-23(d). This attachment is organized in the following sections:

- Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment R315-264-601(a);
- Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, wetlands or on the soil surface R315-264-601(b);
- Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in air R315-264-601(c); and
- References.

Patterns of land use in the area are described in Attachment 6 (Facility Description). The volume and physical and chemical characteristics of waste treated at the unit are described in Attachment 1 (Waste Analysis Plan). Potential damage to wildlife and vegetation are described in *Screening Level Ecological Risk Assessment for Open Detonation Treatment Unit*(Tetra Tech, 2017).

2.0 PREVENTION OF ANY RELEASES THAT MAY HAVE ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT DUE TO MIGRATION OF WASTE CONSTITUENTS IN THE GROUND WATER OR SUBSURFACE ENVIRONMENT: Utah Admin. Code R315- 264-601(a); R315-264-602, R315-270-23

This section describes:

- Volume and physical and chemical characteristics of the waste in the unit including the potential for migration through soil, liners or other containing structures;
- Hydrologic and geologic characteristics of the unit and the surrounding area;
- Existing quality of ground water, including other sources of contamination and their cumulative impact on ground water;
- Quantity and direction of ground-water flow;
- Proximity to and withdrawal rates of current and potential ground water users;
- Potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation;
- Potential for damage to domestic animals, crops and physical structures; and
- Additional information required.

2.1 Volume and Physical and Chemical Characteristics of the Waste in the Unit and Potential for Migration through Soil, Liners or Other Containing Structures R315-264-601(a)(1) and R315-264-601(b)(1)

The OD unit will be used for the energetic treatment of explosive materials. The type, volume and chemical characteristics of the material to be treated are addressed in Module VII.

The potential for contaminant migration from the OD area to the first water-bearing interval is dependent upon the chemical nature of the contaminants relative to solubility and sorption, the porosity of the soil, and a transport mechanism. Waste composition is discussed in Attachment 1 (Waste Analysis Plan). The majority of potential contaminants detected or expected within the OD area surface soils exhibit low solubility and high partitioning coefficients or cation exchange capacities that greatly reduce the potential for contaminant mobility. Regardless of contaminant sorptive capacity and solubility, both a transport mechanism and porous media must be present to allow movement of contaminants from ground surface to the uppermost water-bearing unit. In the OD area, average rainfall is eight (8) inches per year, with effectively no infiltration of water to the uppermost aquifer. The closure investigation of the former Hazardous Waste Management Unit (HWMU 31) (CH2MHill, 2014) demonstrated that previous OD activities had not resulted in vertical migration of contaminants in soil or impact to groundwater. Therefore, not only do potential contaminants generally exhibit low solubility/high sorptive capacities, contaminant transport via surface water infiltration is highly unlikely in view of the site-specific geologic and climatic conditions. The OD treatment activities disturb the uppermost portion of the unsaturated zone due to treatment of propellants, explosives, and pyrotechnic (PEP) material. The disturbance of the material in the uppermost unsaturated zone due to explosions and the subsequent re-grading of the material have a minimal effect on the overall character of the unsaturated zone material as the unsaturated zone is approximately 70 ft thick and is composed of predominantly firm light gray to light yellowish-gray, clayey silt and silty clay (Parsons, 2013). Based on historical OD activities combined with the subsurface investigation results, there is no evidence to suggest that current OD treatment activities would have any effect upon groundwater under the OD unit.

Soil sampling supports the assumption that contamination from historic OD activities does not migrate through the soil to the unsaturated zone. The results of these analyses are summarized and described in CH2MHill, 2014. Surface soil samples covering the full extent of HWMU 31 included Incremental Sampling Methodology (ISM) samples collected from 20 sampling units encompassing each OD pit. Surface and subsurface samples were collected from the base of the five OD pits with the most historical activity/use. Discrete samples were collected from multiple depth intervals from 0 to 20 feet below ground surface (bgs). Groundwater samples were collected at three locations. Upon completion of the site characterization sampling to support HWMU 31 closure, human health and ecological risk assessments were conducted to: 1) determine any impacts to soil and groundwater, 2) assess potential risks and hazards from exposure to chemicals in soil and groundwater, 3) support decisions regarding no further action at the site, and 4) to establish baseline soil and groundwater conditions for permitting the OD unit. The conclusion of the site assessment was that the current conditions at HWMU 31 (the permitted TEAD-S OD unit) render the site suitable for no further action with respect to contamination in soil and groundwater in accordance with Utah Admin. Code R315-101.

2.2 Hydrologic and Geologic Characteristics of The Unit and Surrounding Area and Quantity and Direction of Groundwater Flow R315-264-601(a)(2) and (4) and R315-264-601(b)(5)

Details on the hydrologic and geologic conditions of the OD unit and surrounding area are presented in the *Final Hydrogeologic Assessments and Recommendations Report* (Parsons, 2013) and the *2016 Long Term Monitoring of SWMU 2, SWMU 3, SWMU 5, and HWMU 31 Annual Report* (Parsons, 2016). A summary from these reports is provided below.

Surface soil at the OD unit consists primarily of fill and mining disturbed land with quaternary lacustrine and alluvial deposits making up the central south eastern portion of the unit and

quaternary lacustrine deposits of the Bonneville Lake Cycle on the northwest and southeast boundaries. Surface soil at this OD unit consist primarily of yellowish-brown, clayey sand, and clayey silt. The unsaturated zone is approximately 70 ft thick and is composed of predominantly firm light gray to light yellowish-gray, clayey silt and silty clay. The underlying saturated zone extends to approximately 84 ft and is comprised of light gray, silty clay and clayey silt (Parsons, 2013).

As part of the base-wide groundwater level measurements (Parsons, 2016), depth to groundwater was measured at wells in the vicinity of the former HWMU 31, specifically wells present in the eastern portion of solid waste management unit (SWMU 1) including well S-17-88, SWMU 3 and SWMU 9. Depth to groundwater was measured between May 3 and May 5, 2016, and groundwater elevations were calculated to be around 100 ft bgs. The overall groundwater elevation is approximately 5,020 ft above mean sea level (amsl). Review of the groundwater elevations confirms a southwest groundwater flow direction exists. Based on lithologic descriptions from geotechnical testing done on background wells to the east of the former HWMU 31, hydraulic conductivity values can be estimated and are expected to range from 10^{-5} to 10^{-3} cm/sec (Parsons, 2016).

2.3 Existing Quality of Ground Water, Including Other Sources of Contamination and Their Cumulative Impact on Ground Water R315-264-601(a)(3)

Groundwater at the proposed OD area has not been impacted by historical activities or other sources of contamination (Parsons, 2013 and 2016). Groundwater is estimated to be Class II drinking water, based on wells in nearby areas (Parsons, 2013). Groundwater quality to the south of the OD unit is Class III-IV, non-potable.

2.4 Proximity to and Withdrawal Rates of Current and Potential Ground Water Users and Patterns of Land Use in the Region R315-264-601(a)(5) and (6)

There are no production wells in proximity to the OD unit. The closest production wells are location up gradient from the OD unit near the northern boundary of TEAD-S. Groundwater quality to the south of the OD unit is Class III-IV, non-potable. There are no current or potential groundwater users in the downgradient vicinity of the OD unit. Land use around the OD unit is controlled and of limited industrial use. Land to the south of the OD unit is uninhabited.

2.5 Potential for Deposition or Migration of Waste Constituents into Subsurface Physical Structures, and into the Root Zone of Food-Chain Crops and other Vegetation R315-264-601(a)(7)

The results of the surface soil sampling and risk assessments (CH2MHill, 2014) indicate that operations at the unit have a minimal potential to damage human health or the environment. In addition, the soil within the OD will be maintained clear of vegetation. Therefore, the potential for migration of waste to the root zone of food chain crops and other vegetation and the potential for damage to wildlife is minimal. The area around the unit is not used for grazing domestic animals or growing crops.

2.6 Potential for Health Risks Caused by Human Exposure to Waste Constituents and Potential for Damage to Domestic Animals, Wildlife, Crops, Vegetation and Physical Structures Caused by Exposure to Waste Constituents R315-264-601(a)(8) and (9)

Long-term (chronic) on-post and off-post impacts to human health and the environment will be

controlled though operational limits on the amount and type of munitions that may be treated annually to mitigate carcinogenic risk to a cumulative risk level of 1E-06. The limits are described in Table 3-3 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017) and are summarized in Module VII.

Short-term (acute) on-post and off-post impacts to human health and the environment will be controlled though operational limits on the amount and type of munitions that may be treated hourly and daily to mitigate non-carcinogenic hazards equal to or below an acute hazard quotient of 1.0. The limits are described in Section 3.2 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017) and are summarized in Module VII.

The Permittee will ensure compliance with both chronic and acute treatment limits with an approved spreadsheet or database.

3.0 PREVENTION OF ANY RELEASES THAT MAY HAVE ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT DUE TO MIGRATION OF WASTE CONSTITUENTS IN SURFACE WATER, OR WETLANDS OR ON THE SOIL SURFACE: Utah Admin. Code R315-264-601(b), R315-270-23

This section describes the:

- Effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;
- Hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;
- Patterns of precipitation in the region;
- Proximity of the unit to surface waters;
- Current and potential uses of nearby surface waters and any water quality standards established for those surface waters;
- Existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;
- Patterns of land use in the region;
- Potential for health risks caused by human exposure to waste constituents; and potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

3.1 Effectiveness and Reliability of Containing, Confining and Collecting Systems and Structures in Preventing Migration R315-264-601(b)(2)

The TEAD-S OD unit is designed and operated to minimize the migration of wastes to the soil surface. OD operations are conducted within an OD pit and may include buried (soil cover) and unburied treatments. The treatment of reactive and explosive waste by OD will be demonstrated through the annual compliance sampling outlined in this permit attachment.

Following each OD treatment event, the detonation area shall be visually inspected for signs of untreated waste and scrap metal or other debris. Untreated or incompletely treated wastes and contaminated scrap metal shall be re-detonated. Scrap metal that is free of explosives, based on visual inspection, is collected and disposed of or recycled. As a result of these operational controls, little or no environmental contamination of surface soils is expected as a result of OD operations at the unit.

3.2 Hydrologic Characteristics of the Unit and the Surrounding Area Including the Topography of the Land Around the Unit R315-264-601(b)(3)

The general direction of surface water drainage at TEAD-S is to the south. There are no permanent streams within the TEAD-S OD unit boundaries. Most streams flowing through TEAD-S are ephemeral and intermittent, with surface water flow resulting from storm activity within the installation as well as from intermittent streams that exist in the mountains adjacent to TEAD-S. Run-off from the mountain streams and precipitation within the installation flow through well-established drainage channels. The surface water then either infiltrates into the alluvium of the stream channels or runs onto the flat plain of the desert where it evaporates quickly.

TEAD-S lies within the Rush Valley between the Oquirrh Mountain Range to the east and the Stansbury Mountain Range to the west. TEAD-S is located on the east side of the valley at the base of the Oquirrh Mountain Range. The eastern portion of TEAD-S is located on the flanks of the Ophir Creek, Mercur Creek, and West Dip Gulch Alluvial Fans. Sediment discharge from the alluvial fans has produced a gently southwestward-sloping ground surface. The elevation of the OD area ranges from approximately 5,080 to 5,130 feet amsl. A ridge is present along the west side and directs regional surface water flow to the southeast.

3.3 Patterns of Precipitation in the Region R315-264-601(b)(4)

The climate of Rush Valley is semi-arid with four well defined seasons. Prevailing winds at TEAD-S are from the southeast, with occasional winds from the north-northwest. Most precipitation occurs during the winter and early spring months as snow, and the least occurs during July and August (Parsons, 2013). In the OD area, average rainfall is eight (8) inches per year, with effectively no infiltration of water to the uppermost aquifer.

3.4 Proximity of the Unit to Surface Waters (R315-264-601(b)(6), (7), and (8))

TEAD-S lies within Rush Valley which is part of the Great Salt Lake Basin. Rush Valley has no outlet for surface water. Most of the streams in Rush Valley are intermittent and usually only flow in response to precipitation events, and most of the water is lost to infiltration or evapotranspiration. Nine perennial streams drain the mountains surrounding Rush Valley, and annual stream flow ranges from approximately 400 acre-feet (acre-ft) at Oak Brush Creek in the Sheeprock Mountains to 7,000 acre-ft at Ophir Creek in the Oquirrh Mountains (Gardner and Kirby, 2011; Figure 2.1 in Parsons, 2013). The majority of the TEAD-S lies on a gently sloping southwest flank of an alluvial fan present at the mouth of Ophir Canyon. The usually dry Ophir Creek channel crosses into the TEAD-S in the northeast, near the installation's main entrance. Rush Lake is a shallow lake located near the northern margin of Rush Valley. This feature and several other surface water bodies to the south comprise the only surface waters in the basin areas of Rush Valley. The source for these surface waters includes groundwater discharge near the central axis of Rush Valley, intermittent stream flow that reaches the central regions of the basin during above normal precipitation (Hood et al., 1969), and discharge of numerous springs located around the margins of Rush Lake. Groundwater recharge from the Oquirrh Mountains is believed to be the source for at least some of the springs located along the eastern shore of Rush Lake (Gardner and Kirby, 2011). These and other surrounding springs may be the largest source of water inputs to Rush Lake (Gardner, 2012). Oquirrh Mountain recharge moves westward into the

valley and is directed by low permeability lakebed sediments to move primarily through the shallow basin fill materials before discharging in springs along the eastern shore of Rush Lake. (Gardner & Kirby, 2011). (Parsons, 2013)

3.5 Potential for Health Risks Caused by Human Exposure to Waste Constituents and Potential for Damaged to Domestic Animals, Wildlife, Crops, Vegetation and Physical Structures Caused by Exposure to Waste Constituents R315-264-601(b)(10) and (11)

Long-term (chronic) on-post and off-post impacts to human health and the environment will be controlled through operational limits on the amount and type of munitions that may be treated annually to mitigate carcinogenic risk to a cumulative risk level of 1E-06. The limits are described in Table 3-3 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017a) and are summarized in Module VII.

Short-term (acute) on-post and off-post impacts to human health and the environment will be controlled through operational limits on the amount and type of munitions that may be treated hourly and daily to mitigate non-carcinogenic hazards equal to or below an acute hazard quotient of 1.0. The limits are described in Section 3.2 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017a) and are summarized in Module VII.

The Permittee will ensure compliance with both chronic and acute treatment limits with an approved spreadsheet or database.

4.0 PREVENTION OF ANY RELEASES THAT MAY HAVE ADVERSE EFFECTS ON HUMAN HEALTH OR THE ENVIRONMENT DUE TO MIGRATION OF WASTE CONSTITUENTS IN AIR: Utah Admin. Code R315264-601(c), R315-270-23

This section describes the:

- Volume and physical and chemical characteristics of the waste in the unit including the potential for the emission and dispersal of gasses, aerosols and particulates,
- Effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air,
- Operating characteristics of the unit,
- Atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area,
- Existing quality of the air, including other sources of contamination and their cumulative impact on the air,
- Potential for health risks caused by human exposure to waste constituents, and
- Potential for damage to domestic animals, crops, and physical structures caused by exposure to waste constituents.

4.1 Volume and Physical and Chemical Characteristics of the Waste in the Unit and Potential for the Emission and Dispersal of Gasses, Aerosols and Particulates R315-264-601(c)(1)

OD will release potentially hazardous constituents to the air. That possibility is evaluated extensively in the *Air Dispersion Modeling Report* and the *OD Human Health Risk Assessment* (Tetra Tech, 2017).

The type, volume and chemical characteristics of the material to be treated are addressed in Module VII. Module VII contains daily and annual operating limits specific to types of munitions.

4.2 Effectiveness and Reliability of Systems and Structures to Reduce or Prevent Emissions of Hazardous Constituents to the Air R315-264-601(c)(2)

Operations of the TEAD-S OD Unit are also permitted under TEAD-S Approval Order issued by the Utah Department of Air Quality. OD operations will only be allowed under the conditions described in Module VII of this Permit. There are no structures in place to minimize air emissions.

4.3 Operating Characteristics of the Unit R315-264-601(c)(3)

Operating characteristics of the unit are described in Module VII Attachment 1, Open Detonation Operations.

4.4 Atmospheric, Meteorological, and Topographic Characteristics of the Unit and the Surrounding Area R315-264-601(c)(4)

TEAD-S is located in a semi-arid, continental, steppe region, or high desert known as the Great Basin Desert. This region is often referred to as a cold desert due to its mid-latitude location. Typically winters are cold, summers are hot and dry with a high evaporation rate, and most precipitation falls in the spring.

Other weather characteristics typical of the TEAD-S area include occasional electrical storms and dust storms in summer, and temperature inversion conditions in winter. Temperature inversion conditions occur when cold Arctic air spills into the area, wind speed is low, and contrary to the normal pattern, air temperature increases with height above the ground surface. Surface airflow is reduced and any tendency toward reduced air quality is aggravated under these conditions.

Temperature data for TEAD-S show that monthly average temperatures range from 25.5 °C (77.9 °F) in July, which is the hottest month, to -2.8 °C (27 °F) in January, which is the coolest. Daily extremes for each month show a substantial range. For example, for July the daily extreme high is 42.8 °C (109 °F) and the extreme low is 2.8 °C (37 °F), a range of 40.0 °C (72 °F). Similarly, the daily extreme range for January is 50.6 °C (91 °F). The large temperature fluctuations recorded between day and night and seasonally are typical of the area's arid continental climate.

TEAD-S is surrounded by mountain ranges and peaks to the north and west. This topography creates the distinct diurnal flow patterns that are modified by regional weather patterns, such as cold frontal systems or low-high pressure gradients. At night, radiative cooling of the mountain surfaces cools the air adjacent to those surfaces, causing the air to become denser at higher elevations. This denser air drains down the slopes and then is channeled down the axis of the valleys.

The mountain to valley circulation reverses on days with clear skies and light winds. As the mountain slopes are heated by solar radiation, the air above the slopes becomes warmer than the air at the same level over the valley resulting in upslope flow along the adjacent valley axis. Upslope flow is evident in the wind roses for the summer and fall afternoon periods. At most

locations, the typical afternoon flow is from the northwest to north. Unlike drainage winds, which are associated with stable thermal stratifications, upslope winds are associated with unstable thermal stratifications, which enhance the turbulent mixing of the slope winds with the winds aloft. Consequently, upslope flows are more variable than downslope winds.

In summary, local wind patterns are governed by differential heating and cooling of the higher elevations relative to the flatlands and by regional weather. These patterns usually include the onset of southeasterly or southerly downslope flow at night that persists into morning, which transitions into northwesterly through northerly flow with daytime heating. There are two periods of relative atmospheric stability in the early morning and early evening hours. These patterns are marked in summertime but weak or absent in winter, due to differences in the amount of heat in the form of solar radiation received seasonally, and the tendency of snow to reflect solar radiation away during winter.

Wind conditions at TEAD-S are summarized in *Air Dispersion Modeling Report* (Tetra Tech, 2017).

Dispersion of material released into the atmosphere occurs as a consequence of large scale and small-scale atmospheric motions. Motions that are large with respect to the volume of the released material tend to move the material along the direction of the mean flow. Smaller (turbulent) motions tend to disperse this material. The large-scale motions are characterized in terms of a time-averaged wind speed and direction. Turbulent motions are caused by the wind encountering flow obstacles (trees, buildings, hills, etc.) and by heating of air near the earth's surface. The effects of turbulent motion on dispersion are usually evaluated in terms of atmospheric stability. Turbulent motions and dispersion are suppressed in a stable atmosphere at night and are enhanced in an unstable atmosphere during the day.

The most commonly used measure of turbulence is a letter scale which uses commonly measured variables such as time of day, wind speed, and cloud cover to describe stability. A day with calm winds and bright sunshine would have greatly enhanced turbulent dispersion due to warm air bubbling off heated surfaces. This most unstable condition is designated as "Category A" stability. Letters "B" and "C" denote progressively weaker thermal enhancement of turbulent motions due to increased wind speed and/or cloud cover. "Category D" represents an atmosphere where turbulent dispersion receives no thermal enhancement. "Categories E, F," and "G" occur at night where radiative cooling suppresses turbulent motions. "Category G" represents the greatest degree of turbulence suppression that occurs with calm winds and clear skies. Dispersion is weakest under "Category G" stability.

"Categories D" and "E" are prevalent at TEAD-S during winter months (December, January, and February). Nocturnal temperature inversions produce a shallow layer of cold, still air just above the earth's surface, causing "Category G" stability and poor dispersion. During summer months (June, July, and August), unstable categories "B" and "C" are common during the day. Stability categories "F" or "G" may occur during the evening and early morning hours when wind speeds approach zero.

4.5 Existing Quality of the Air, Including Other Sources of Contamination and their Cumulative Impact on the Air Particulates R315-264-601(c)(5)

TEAD-S is located in an Air Quality Control Region that is in attainment with all applicable ambient air quality standards. TEAD-S is designated as a Class II area.

TEAD-S is considered a “minor” source under the operating permit program because it does not have the potential to emit more than 100 tons per year of a criteria pollutant, and is not under a Title V Operating Permit.

4.6 Potential for Health Risks Caused by Human Exposure to Waste Constituents Particulates R315-264-601(c)(6)

There is minimal potential for public exposure to hazardous waste at the OD unit due to the distance of the unit to off-site and the extensive security measures in place at TEAD-S. Potential risks to on-site receptors are described in the *OD Human Health Risk Assessment and the Open Detonation Risk Mitigation Plan* (Tetra Tech, 2017).

4.7 Potential for Damage to Domestic Animals, Crops, and Physical Structures Caused by Exposure to Waste Constituents Particulates R315-264-601(c)(7)

The results of the air dispersion modeling indicate that OD operations at the unit have a minimal potential to damage human health or the environment. The potential for dispersed contaminants to migrate to the root zone of food chain crops and other vegetation and the potential for damage to wildlife is minimal. The area around the unit is not used for grazing domestic animals or growing crops. There are no structures located within or near the OD unit that could be damaged by exposure to waste constituents from the unit.

Long-term (chronic) on-post and off-post impacts to human health and the environment will be controlled through operational limits on the amount and type of munitions that may be treated annually to mitigate carcinogenic risk to a cumulative risk level of 1E-06. The limits are described in Table 3-3 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017a) and are summarized in Module VII.

Short-term (acute) on-post and off-post impacts to human health and the environment will be controlled through operational limits on the amount and type of munitions that may be treated hourly and daily to mitigate non-carcinogenic hazards equal to or below an acute hazard quotient of 1.0. The limits are described in Section 3.2 of the *Open Detonation Risk Management Plan* (Tetra Tech, 2017a) and are summarized in Module VII.

The Permittee will ensure compliance with both chronic and acute treatment limits with an approved spreadsheet or database.

5.0 Soil Monitoring R315-264-601 and R315-270-23

The area to be permitted as the TEAD-S OD area was historically used as an OD range. The former range, HWMU 31, was investigated under the TEAD-S Installation Remediation Program and in accordance with the TEAD-S Resource Conservation and Recovery Act (RCRA) part B permit. The purpose of the HWMU 31 investigation included: 1) remove surface debris, 2) determine if any impact had occurred to soil and groundwater, 3) evaluate risks to human health and the environment, 4) perform any corrective action needed to achieve residential risk-based levels in soil, and 5) to establish a baseline data set for soil and groundwater to be used for the TEAD-S OD unit.

The results of the HWMU 31 closure investigation indicated that while metals and explosives were detected in soils and metals were detected in groundwater at the former HWMU 31, there

were no adverse risks to either human health or the environment (CH2MHill, 2014). Soil sampling shall be used to determine potential impacts to surface and subsurface soil from on-going operations. Soil samples shall be collected on an annual basis. Sampling will be conducted in accordance with a sampling plan approved by the Director of the Division of Waste Management and Radiation Control (Director). This plan shall be submitted at least 30 days prior to the date on which the Permittee plans to conduct the sampling. In addition, a trend analysis will be conducted annually to determine if there are any discernable increases in human health or ecological risks over time. The annual soil sampling shall be conducted between September 1 and November 30 of each year.

A report summarizing the sampling procedures, analytical results and data usability shall be submitted to the Director for approval within 180 days of the sampling event. These reports will also be used to demonstrate the treatment effectiveness of OD as required by Utah Admin. Code R315-270-23.

Screening level risk assessments shall be conducted for both human health and ecological risk assessments using the data from each sampling event. The assessment will be conducted in accordance with the State of Utah approved methodology contained in the TEAD-S Risk Assumptions Document (AQS, 2017). A report of the risk assessments shall be submitted to the Director within 180 days of the Permittee receiving approval from the Director of the sampling report. The risk assessments will also be used to assess trends in the data (i.e, low level increases in soil concentrations).

6.0 REFERENCES

AQS, 2017. Tooele Army Depot South Area Final Risk Assumptions Document Solid Waste Management Units and Other Corrective Action Sites, Revision 5, March.

CH2MHill, 2014. Final Environmental Remediation Services at Solid Waste Management Unit 3 and Hazardous Waste Management Unit 31, Tooele Army Depot South Area. February.

Parsons, 2013. Final Hydrogeological Assessment and Recommendations Report, Deseret Chemical Depot. July.

Parsons, 2016. Final Long Term Monitoring of SWMU 2, SWMU 5, HWMU 31, and Implementation of the Hydrogeological Assessment and Recommendations Report Work Plan, Tooele Army Depot South Area. February.

Tetra Tech, 2017a. Open Detonation Risk Mitigation Plan, October.

Tetra Tech, Inc. 2017b. Human Health Risk Assessment Report for Open Detonation Treatment Unit for Tooele Army Depot South, Stockton, Utah, October.

Tetra Tech, Inc. 2017c. Screening Level Ecological Risk Assessment Report for Open Detonation Treatment Unit, Tooele Army Depot South, Stockton, Utah, October.

MODULE VII ATTACHMENT 3 **TEAD-S OD Unit Closure Plan**

1.0 INTRODUCTION

This attachment provides closure and post-closure plans for the TEAD-S OD unit as required by Utah Admin. Code R315-264-110 through 120. This attachment is organized in the following sections:

- Closure Plan, and
- Financial Requirements.

2.0 CLOSURE PLAN: Utah Admin. Code R315-270-14(b)(13), R315-264-110 through R315-264-10

This section describes the procedures that will be used to perform closure of the TEAD-S OD unit. During the active life of the OD unit annual compliance sampling will be conducted per Module VII, Attachment 2. Periodic surface sweeps for munitions debris shall also be conducted during the active life of the OD unit. Upon site closure, remediation to industrial levels will be obtained. Post closure care will be conducted through a post closure permit and dig permit restrictions to ensure industrial use.

Prior to implementation, this plan shall be updated for consistency with new rules, requirements, and to include sampling methods and procedures. Updates to the plan require a permit modification and must be approved by the Director of the Division of Waste Management and Radiation Control (Director) prior to plan implementation.

Closure of the TEAD-S OD is discussed in the following sections:

- Content of the Closure Plan,
- Closure Performance Standard,
- Schedule for Closure,
- Disposal or Decontamination of Equipment, Structures, and Soils,
- Post-Closure Plan,
- Certification of Closure, and
- Survey Plat.

2.1 Content of the Closure Plan: Utah Admin. Code R315-264-112(b)

When the U.S. Army determines that final closure of the OD unit should commence, a detailed up-to-date closure plan shall be completed and submitted to the Director for review and approval. Submission of the closure plan will require a modification to the existing permit and a public comment period prior to beginning closure activities.

The final closure plan shall include:

- A description of how the OD unit will be closed in accordance with the closure performance standard required by R315-264-111;
- A description of how final closure of the OD unit will be conducted;
- An estimate of the maximum inventory of hazardous waste that was ever on-site;
- Detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for

cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard; A description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated equipment, system components, structures, and soils;

- A description of all other activities necessary to meet the closure performance standard;
- A schedule for closure; and
- Closure clean-up criteria, risk-based industrial levels, to meet the requirements of R315-101.

2.2 Closure Performance Standard: Utah Admin. Code R315-264-111

Closure performance standards shall be addressed in the plan submitted prior to final closure. The closure standard will likely be based on soil screening levels for the industrial scenario found in Table 5-1 of Attachment 5, Closure Plan. Closure will ensure minimization of on-going maintenance and control exposure to human health and the environment. These standards shall include source clean-up of potential explosive constituents.

2.3 Schedule For Closure: Utah Admin. Code R315-264-112(b)(6)

No specific date for the OD unit closure has been scheduled. When it is determined that closure of the OD unit can begin, a detailed closure plan shall be submitted to the Director and shall include a schedule for closure. Closure activities shall not begin until after the final closure plan is approved. It is anticipated that closure can be completed within one hundred eighty (180) days of receiving approval of the final closure plan from the Director.

2.4 Disposal Or Decontamination Of Equipment, Structures, And Soils: Utah Admin. Code R315-264-114

All contaminated equipment, structures, and soils shall be properly decontaminated and disposed of in compliance with standards for generators of hazardous waste.

2.5 Post-Closure Plan: Utah Admin. Code R315-264-117 through 120, R315-264-110, R315-270-14(b)(13)

A post-closure plan shall be required because the Army does not intend to seek clean closure but closure in accordance with R315-101 for industrial use. Potential munition hazard may be present due to freeze/thaw and erosion. The property will remain in the custody of the Army.

2.6 Certification of Closure: Utah Admin. Code R315-264-115; R315-264-120

Within sixty (60) days of completion of closure, TEAD-S shall submit to the Director, by registered mail, certification that the OD unit has been closed in accordance with the approved closure plan. The certification shall be signed by the Installation Commanding Officer and an independent registered professional engineer. Documentation supporting the engineer's certification shall be furnished with the certification.

2.7 Survey Plat: Utah Admin. Code R315-264-116

The OD unit is not a disposal facility; therefore, a survey plat is not required.

3.0 FINANCIAL REQUIREMENTS: Utah Admin. Code R315-270-14(b)(15), R315-264-142

A closure cost estimate and financial assurance mechanism are not required for this facility because R315-264-140(c) exempts the Federal government from these requirements.

**Tooele Army Depot-South Area
Attachment 2
Inspection Plan**

Inspection Plan [Utah Admin. Code R315-~~8264-2-615~~]

1. Inspection Schedule [Utah Admin. Code R315-~~3270-2-514~~(b)(5), Utah Admin. Code R315-~~8264-2-615~~(b), Utah Admin. Code R315-~~8264-5-373~~]

1.1 The Permittee shall inspect the permitted storage structures, equipment, and containers within Tooele Army Depot-South Area (TEAD-S or Facility) hazardous waste management units regularly and frequently according to a schedule designed to detect deterioration, tampering, malfunctions, and discharges that could cause a release of hazardous waste to the environment or pose a threat to human health. Most inspections shall be performed on a weekly basis unless operations or other circumstances indicate a different frequency of inspection. Inspection plans and schedules are found in Section 4 of this Attachment. Storage Area Inspection Log Sheets shall outline all areas that shall be inspected and provide inspection records. Inspection log sheets shall be found in Section 5 of this Attachment. Interior vapor inspections of the permitted storage structures shall be conducted on a weekly basis. Inspection records shall be maintained by the Permittee for a period of at least three years.

2.0 Types of Problems [R315-~~8264-2-615~~(b)(3)]

2.1 Inspection of all permitted facilities, including 90-day storage areas and satellite accumulation sites (SASs), shall determine:

- 2.1.1 Integrity of doors, locks, fences, and warning signs;
- 2.1.2 Secondary containment breaches, cracked floors, excessive moisture in buildings;
- 2.1.3 Leaks or deterioration of containers;
- 2.1.4 Proper labeling, accumulation dates,;
- 2.1.5 Adequate aisle spacing, stability of containers; and
- 2.1.6 Presence of Personal Protective Equipment (PPE), fire extinguishers, spill control kits, and eye washes where required.

3.0 Frequency of Inspections [R315-~~8264-2-615~~(b)(4)]

3.1 Frequency of facility inspections at the Facility shall be based on the rate of deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections.

3.2 The ~~OB~~/OD Conex shall be inspected weekly. Containers shall be inspected weekly to meet the hazardous waste loading/unloading areas inspection requirements of Utah Admin. Code R315-~~8264-9-5174~~. Spill equipment and other contingency equipment shall be inspected weekly. Hazardous waste loading and unloading areas shall be inspected daily when in use. Section ~~3-6~~ of this Attachment contains inspection schedules.

3.3 Permitted igloos that are in use shall be inspected weekly for integrity of security features, proper secondary containment, building integrity, and spills. Lightning protection systems shall be inspected semiannually and tested biennially. The inspection log sheet for Area 10 igloos is provided in Figure 2-1.

3.4 Area 10 Igloos that store agent related wastes in containers shall be inspected weekly unless they are empty of hazardous waste. Containers shall be inspected weekly to meet the hazardous waste loading/unloading areas inspection requirements of Utah Admin. Code R315-~~8264-9-5174~~. Spill equipment and other contingency equipment shall be inspected weekly. Hazardous waste loading

and unloading areas shall be inspected daily when in use. Section 3 of this Attachment contains inspection schedules.

4.0. Specific Process Inspection Requirements [Utah Admin. Code R315-~~3270-2.514~~(b)(5), Utah Admin. Code R315-~~8264-2.615~~(b)]

4.1 Inspections for specific items are discussed in this section. Included are inspection descriptions for hazardous waste storage containers subject to Utah Admin. Code R315-~~8264-22~~1080 through 1090.

4.2 Container Inspections [Utah Admin. Code R315-~~8264-9.5174~~]

4.2.1 All hazardous waste containers shall be inspected weekly for corrosion, damage, spills, deterioration, and other conditions that could affect container integrity. In addition to examining the physical conditions of containers, all hazardous waste container inspections shall cover:

- 4.2.1.1 Facility operating record requirements,
- 4.2.1.2 Container labeling requirements,
- 4.2.1.3 Storage location requirements, and
- 4.2.1.4 Aisle space requirements.

5.0 Open Detonation (OD) Unit Inspection Plan

5.1 Inspections are conducted for equipment malfunctions, Munitions Potentially Presenting and Explosive Hazard (MPPEH), metal fragments, and other discharges that could threaten human health or the environment. The Permittee is allowed to store waste munitions in pits under certain conditions as outlined in Module VII. When waste munitions are being stored, the Permittee will conduct weekly inspections. The purpose of the inspections is to detect potential problems and correct them before they affect human health or the environment. Records of inspections and the inspection schedule are maintained in files at the Facility. All inspection logs are kept on file for at least three years.

5.2 The Demilitarization (Demil) Team is responsible for inspecting necessary equipment for operational readiness prior to the beginning of detonation. If any vital equipment in the area is inoperative, has deteriorated, or is not in compliance with regulatory requirements, maintenance or replacement is initiated before operations commence. Table 2-6 presents a schedule for inspecting the OD Unit. This record will be maintained at the Facility for each day the OD Unit is operated.

5.3 At the conclusion of all detonations for the day, operators shall conduct a post-operational visual inspection of the pit area, as described in Section 3.0 of Module VII Attachment 1, and 50 feet on both sides of the depot boundary fence adjacent to the OD area to clear all unexploded ordnance (UXO) or any metal fragments that could threaten human health or the environment. If not completely destroyed, items are placed in the pit and detonated or, if unstable, detonated in-place. The pits are inspected for the presence of water before OD operations. If there is water in a pit, that pit is not used.

5.4 Inspections for leaks, spills, and fugitive emissions are not applicable to the type of OD operation performed at the Facility.

5.5 A weekly hazardous waste inspection will be conducted according to section 4.2 when waste is accumulated onsite and collected in containers. A daily operation inspection will be performed each day when OD events are planned to occur, see Figure 2-4. A weekly operation inspection will be performed when items are stored in the pits, see Figure 2-5. Daily and weekly operation inspections will not be performed when no items are being stored in pits and when OD events are not planned to occur.

56.0 Inspection Plans and Schedules

Table 2-1: Inspection Plan and Schedule for Area 10 Storage

FACILITY OR CHARACTERISTIC	ITEM	FREQUENCY	TYPES OF PROBLEMS	CORRECTIVE ACTION ¹
Storage Igloo⁴				
	Doors	Weekly	Verify that the only entrance to the igloo is locked when it is not in use.	I
	Locks	Weekly	Check locks to ensure that they are secured and in good condition.	I
	Spills	Weekly	Verify that no spills have occurred by looking for loose debris or liquid when applicable on container surfaces, pallets, and floor.	I
	Secondary Containment	Weekly	Verify that containers storing liquid waste are in overpacks or in drip pans. Verify that the overpacks or drip pans are not leaking.	I
	Building Integrity	Weekly	Ensure that the building is intact and that there are no structural defects.	I
Spill Equipment²				
	Contingency Plan ³	Weekly	Ensure that the Contingency Plan is present.	N
	Fire Extinguisher	Weekly	Verify that the fire extinguisher is present and the pressure gage shows the extinguisher to be operational. Verify the expiration date on the extinguisher charge has not past.	I

**Table 2-2: Inspection Plan and Schedule for Open Burning/Open Detonation (OB/OD) Conex Storage and Building 4553
 Storage Vault**

FACILITY OR CHARACTERISTIC	ITEM	FREQUENCY ¹	TYPES OF PROBLEMS	CORRECTIVE ACTION ²
OB/OD Conex				
	Doors	Weekly	Verify that the only entrance to the OB/OD Conex is locked when OB/OD grounds are not in use.	I
	Lock	Weekly	Check the lock to ensure that it is secured and in good condition.	I
	Warning Signs	Weekly	Verify that warning signs are readable from a distance of 25 feet. The OB/OD Conex has one door and can only be accessed through it; therefore, the sign must be visible when the OB/OD Conex is approached.	I
	Leaks/Spills	Weekly	Verify that no releases to the environment have occurred by checking the interior dirt floor of the OB/OD Conex and the loading/unloading zone for discolorations due to a spill or leak from a reactive waste munition.	I
	Building Integrity	Weekly	Ensure that the OB/OD Conex has not been tampered with and that it is intact.	I

Table 2-2: Inspection Plan and Schedule for OB/OD Conex Storage and Building 4553 Storage Vault (Continued)

FACILITY OR CHARACTERISTIC	ITEM	FREQUENCY ¹	TYPES OF PROBLEMS	CORRECTIVE ACTION ²
Containers				
	Operating Record	Weekly	Verify that all entries in the operating record are complete and up to date. Entries include: 1) a description (common name, EPA hazardous waste numbers, physical form, and for characteristic wastes, the process that produced the waste) and quantity (weight, or volume and density) of each hazardous waste received and the methods (EPA handling codes) and dates of its treatment, storage, or disposal at the OB/OD grounds. Verify the location of the waste within the facility and the quantity at each location. Verify that the records and results of waste analyses are present along with any summary reports and details of any incidents that required implementation of the contingency plan are present.	I
	Container Labels	Weekly	Verify that all containers are labeled with a yellow hazardous waste label and label subheadings are filled out.	I
	Containers	Weekly	Verify all containers in storage are: 1) not bulging, 2) not dented or creased, 3) uncorroded, and 4) not leaking.	I
Spill Equipment				
	Contingency Plan	Weekly	Ensure that the Contingency Plan is present on the transport vehicle.	N
	Fire Extinguisher ³	Weekly	Verify that the fire extinguisher is present and the pressure gauge shows the extinguisher to be operational. Verify the expiration date on the extinguisher charge has not past.	I

Table 2-5: Inspection Plan and Schedule for Hazardous Waste Loading/Unloading Areas

ITEM	FREQUENCY	TYPES OF PROBLEMS	CORRECTIVE ACTION ¹
Loading Dock/Ramp	Whenever in use	Inspect the loading ramps or concrete aprons for signs of damage that might cause instability, or difficulty in operation of materials handling equipment. Look for scaling or chipping of surface, debris, or other objects on the concrete ramp/apron that the equipment operator would have to avoid.	I
Leaks/Spills	Whenever in use	Inspect for evidence of spills by looking for residue on pallets and truck cargo beds. Look for soil discoloration in and around the concrete ramp/apron and in the vicinity of the materials handling equipment, i.e., trucks and forklifts.	I
Container Transferred ²	Whenever in use	Inspect the containers that are to be transferred to insure they are in good condition. Look for corrosion, bulging, loose lids, dents, or creases. Insure pallets are not crushed or broken to the point of causing difficulty to the forklift operator. Look for loose or broken banding.	I
	Whenever in use	Ensure the containers are transferred to the proper location in storage, i.e., compatible storage configuration.	I
	Whenever in use	Ensure the containers are labeled and that the label subheadings are filled out. This includes Waste Stream Name, Waste Description, Container Number, Waste Stream Number, Weight, and Accumulation Start Date.	I
	Whenever in use	Ensure the transferred containers are added or subtracted from the operating record. Ensure the waste codes contained on the container label are permitted to be stored in the facility (if the transfer is a receipt). Ensure the waste analysis plan includes the typed of waste being transferred (if the transfer is a receipt).	I
	Whenever in use	Ensure the Hazardous Waste Manifest (if the transfer involves an off-site transfer of containers) is filled out properly, and no entries are left blank.	I

Notes:

¹Corrective Action (If necessary): ‘I’ Initiate corrective action immediately. ‘N’ Initiate corrective action prior to next inspection.

²Container transfers may involve the movement of on-site generated waste between hazardous waste management units and/or the receipt of off-site agent-related waste. This does not include munitions that are currently part of the national chemical munitions stockpile, but includes:

- 1) Wastes found during corrective action cleanup activities which must be transported to a facility that has the proper storage and disposal capabilities, 2) conventional munitions, explosives, or propellants that have been declared hazardous waste and have been shipped from Tooele Army Depot-North (TEAD-N) to Tooele Army Depot-South (TEAD-S) for storage or treatment (~~Open Burning/Open Detonation~~OD).

Table 2-6: Inspection Plan and Schedule for OD Unit

<u>ITEM</u>	<u>FREQUENCY*</u>	<u>TYPES OF PROBLEMS</u>	<u>CORRECTIVE ACTION¹</u>
<u>Loading/Unloading Area</u>	<u>Daily</u>	<u>Inspect for discolored soil, propellant, and explosive residue.</u>	<u>I</u>
<u>Entrance Gate</u>	<u>Daily</u>	<u>Verify that lock and chain are present and operational.</u>	<u>I</u>
<u>Warning Signs</u>	<u>Daily</u>	<u>Verify that warning signs are readable from a distance of 25 feet and noticeable from any direction from which the facility may be approached (i.e., each side of the fence that faces away from the building must have warning signs).</u>	<u>I</u>
<u>Detonation Pits</u>	<u>Daily</u>	<u>Ensure that all ordnance has been properly detonated.</u>	<u>I</u>
<u>Detonation Pits</u>	<u>Weekly/After Storms**</u>	<u>Ensure that the pits have not been disturbed.</u>	<u>I</u>
<u>Meteorological Conditions</u>	<u>Daily</u>	<u>Ensure that the meteorological conditions comply with those specified in the permit.</u>	<u>I</u>
<u>Transfer Documents</u>	<u>Daily</u>	<u>Verify that the transfer documents are filled out properly and the material received is the same as that specified on the document (NSN and quantity).</u>	<u>I</u>
<u>Waste Analysis Plan</u>	<u>As required</u>	<u>Verify that the waste analysis for the munitions/propellant to be demilled are included in the OD operating record.</u>	<u>I</u>
<u>Road Barriers/Gate</u>	<u>Daily</u>	<u>Verify that the road barrier/gate is secure when operations are in progress.</u>	<u>I</u>
<u>Contingency Plan Equipment</u>	<u>Daily</u>	<u>Ensure that the Contingency Plan is present at the Equipment facility.</u>	<u>I</u>
<u>Fire Extinguishers</u>	<u>Daily</u>	<u>Verify that the fire extinguisher is present and the pressure gauge shows the extinguisher to be operational. Verify that the expiration date on the extinguisher charge has not passed.</u>	<u>I</u>
<u>Communication Equipment</u>	<u>Daily</u>	<u>Verify that communication equipment is present at the facility.</u>	<u>I</u>
<u>Personal Protective Equipment</u>	<u>Daily</u>	<u>Verify that each worker has powder coveralls, safety shoes, hard hat, gloves and safety glasses.</u>	<u>I</u>
<u>Material Handling Equipment</u>	<u>Daily</u>	<u>Verify that material handling equipment performs properly by ensuring that (1) brakes function and work predictably, and (2) hydraulic lift functions properly and in a predictable manner.</u>	<u>I</u>
<u>Vehicle Horn</u>	<u>Daily</u>	<u>Verify that a vehicle horn is functional.</u>	<u>I</u>
<u>*When in use (operations occur between April and October)</u>			
<u>**When munition items are being stored in place. Visual inspections will be conducted from a safe distance.</u>			

5.0 7.0 Inspection Logs and Forms

Figure 2-1: Weekly Inspection Log for Area 10 Storage

An explanation of any deficiency and associated corrective action(s) will be provided in the appropriate section below.

IGLOO

- i-1. Locks/Doors
- i-2. Spills/Leaks
- i-3. Secondary Containment
- i-4. Building Integrity

CONTAINERS

- c-1. Operating Record
- c-2. Container Labels
- c-3. Storage Location
- c-4. Storage Location
- c-5. Aisle Space

SPILL EQUIPMENT

- s-1. Contingency Plan*
- s-2. Fire Extinguisher*
- s-3. Communication Equipment*
- s-4. Eye Wash*
- s-5. Absorbent Material*
- s-6. N/A
- s-7. Protective Equipment*
- s-8. N/A
- s-9. N/A
- s-10. Overpacks

MONITORING

At minimum, two of the following systems:

Note: Items with an asterisk are available on the Transport Vehicle.

Igloo Number/Deficiency									
2810/									
2811/									

Deficiencies Discovered (Igloo number and description of deficiency):

Repairs/Corrective action taken (Date; location; and nature of repairs made):

All inspections are done in accordance with state, federal, and Army regulations

Inspected by: _____

Signature: _____

Date: _____

Time: _____

Figure 2-2: Weekly Inspection Log for Container Storage Buildings

Tooele Army Depot-South Area
Attachment 4
Contingency Plan

1.0 Purpose and Scope [Utah Admin. Code R315-~~3270-2.514~~(b)(7), Utah Admin. Code R315-~~8264-450~~]

1.1 The Permittee shall minimize hazards to human health or the environment from fires, explosions, or any unplanned release of hazardous waste or hazardous waste constituents from facilities associated with the Tooele Army Depot-South Area (TEAD-S or Facility). The Facility utilizes the following three plans to accomplish this. 1. The Oil and Hazardous Substance Spill Prevention, Control, and Countermeasures Plan (SPCCP) is proactive, and describes controls designed to prevent spills or minimize the impact of spills of oil and hazardous substances to the environment. 2. The Installation Spill Contingency Plan (ISCP) details what actions will take place if a hazardous material spill or release occurs. 3. If a disaster occurs as the result of natural forces, civil disturbances, major accidents or incidents, oil spills, hazardous substance pollution, or enemy action, the Emergency Control Plan (ECP) is implemented. Together, these three plans detail and implement contingency planning provisions.

2.0 Location of Installation

2.1 The Facility is located approximately 12 miles south of Tooele City in Tooele County, Utah. Figure 6-1, Tooele Army Depot-South Area-General Site Map, found in Attachment 6 shows the general layout of the Facility. The primary mission of the Facility is the storage of conventional munitions. Hazardous waste activities performed at the Facility are described in Attachments 1 (Waste Analysis Plan) and 12 (Container Management).

3.0 Name/Address/Telephone Number of Owner/Operator

3.1 The Facility is operated by the Joint Munitions Command (JMC) for the US Army. The address and telephone number for the operator is:

Commander, Tooele Army Depot-South Area
JMTE-GMV, Building 5119 Attn: Environmental Division
1 Tooele Army Depot
Tooele, UT 84074-5000
(435) 833-4198

4.0 Reporting of Spills [Utah Admin. Code R315-~~8264-4.756~~(a) and (d)]

4.1 Any employee who witnesses or discovers a spill or incident involving hazardous substances and determines that the incident requires emergency response shall be responsible for notifying the Fire Department (FD) by dialing 911. After receiving the 911 call, the On Scene Commander (OSC) shall activate the FD Hazardous Materials Team and notify the Installation On Scene Coordinator (IOSC). The IOSC shall note in the Operating Record the time, the date, and the details of any accident/incident requiring the implementation of the Contingency Plan (i.e., a spill/release of a hazardous material/waste equal to or greater than the reportable quantity). The IOSC shall initiate any required external reporting requirements as detailed in Section 22 below.

5.0 Location of Hazardous Waste Storage Facilities

5.1 Hazardous wastes shall be stored in a manner to facilitate accountability and control.

- 5.2 Permitted storage igloos located in Area 10 shall be used for storage of agent-related secondary waste, and hazardous wastes. Wastes stored in Area 10 shall be primarily those containing free liquids, although wastes without free liquids may be stored in Area 10.
- 5.3 The ~~Open Burning~~/Open Detonation (~~OB~~/OD) Conex container is located in the ~~OB~~/OD area of the Facility. The purpose of the ~~OB~~/OD Conex is to store containers of conventional munitions that have been designated as hazardous waste. Hazardous wastes generated by support activities shall be stored in 90-day storage areas, and then shall be shipped to a licensed Treatment, Storage, and Disposal Facility (TSDF).

6.0 **General**

- 6.1 Implementation [Utah Admin. Code R315-~~8264-4-251~~(b), Utah Admin. Code R315-~~8264-4-352~~]
- 6.2 The IOSC will ensure that an incident log is kept for all spills and releases.
- 6.3 The IOSC shall maintain a current ISCP that shall be reviewed and evaluated at the same time as the SPCCP. The SPCCP shall be reviewed and evaluated at least once every 3 years, or when material changes in facility design, operation, or maintenance are made that would affect the potential for a release of oil or hazardous substances to the environment per 40 Code of Federal Regulations (CFR) § 112.5, which requires that any change be entered into the plan within six months of that change. Any amendment made to the SPCCP shall be reflected in the ISCP. It shall be the responsibility of Permittee to ensure that copies of the SPCCP, the ISCP, and all revisions to the plans shall be:
- 6.3.1 Maintained at the Facility in the Operating Record;
- 6.3.2 Submitted to the Facility's fire departments;
- 6.4 The SPCCP shall describe the sites at the Facility with a potential to release oil or regulated material/waste, and describes the controls designed to prevent spills or minimize the impact of spills on the environment. The SPCCP shall provide:
- 6.4.1 The objectives of the plan, a description of the facility, a description of the surface water location and characteristics, a list of historical spills, and a list of spill control personnel;
- ~~1-6.4.2~~ The spill prevention, control, and countermeasure requirements;
- 6.4.3 A description of operational activities that may potentially cause a spill and the preventative measures or controls to be used for each site; and
- 6.4.4 The implementation of security, training, inspections, and record keeping.
- 6.5 The ISCP identifies resources, equipment, personnel, and procedures to be used to prevent oil or non-agent-related hazardous material/waste spills from reaching surface and subsurface water. The ISCP shall also be designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or gradual release of oil or non-agent-related hazardous material/waste to air, soil, or surface water, and will be carried out whenever any of these incidents occur. The ISCP shall provide:

- 6.5.1 Identification of the IOSC, the TEAD-S FD, and their responsibilities for implementing the plan;
- 6.5.2 A discussion of the roles of various other Facility personnel; and
- 6.5.3 A discussion of the implementation of the ISCP including actions to be taken during an oil or non-agent-related hazardous material/waste spill.

7.0 Emergency Coordinators [Utah Admin. Code R315-~~8264-4.352~~(c), Utah Admin. Code R315-~~8264-4.655~~]

Emergency Coordinators		
Name	Title	Telephone Number
Primary		
Craig Tate	Fire Chief/IOSC	Office: (435) 833-2015 Home: (435) 530-7074
Alternate 1:		
James Tarpley	Assistant Fire Chief	Office: (435) 833-2053 Home: (801) 631-5022
Alternate 2:		
Brad Tippets	Assistant Fire Chief	Office: (435) 833-2015 Home: (435) 830-8279

Fire Department Supervisors		
Name	Title	Telephone Number
Primary		
Craig Tate	Fire Chief/IOSC	Office: (435) 833-2015 Home: (435) 530-7074
Alternate 1:		
James Tarpley	Assistant Fire Chief	Office: (435) 833-2053 Home: (801) 631-5022
Alternate 2:		
Brad Tippets	Assistant Fire Chief	Office: (435) 833-2015 Home: (435) 830-8279

- 7.1 This section describes the emergency response organization and designated emergency coordinators and other personnel at the Facility. Directorates shall provide personnel, equipment, and expertise for proper response to spills of oil or hazardous material/waste, as described in the SPCCP and ISCP.

8.0 Procedures for Early Detection of Spills

8.1 All hazardous waste containers shall be inspected weekly for corrosion, damage, spills, deterioration, and other conditions that could affect container integrity. In addition to examining the physical conditions of containers, all Facility hazardous waste container inspections shall cover:

- 8.1.1 Facility operating record requirements,
- 8.1.2 Container labeling requirements,
- 8.1.3 Storage location requirements, and
- 8.1.4 Aisle space requirements.

9.0 Installation On Scene Coordinator [Utah Admin. Code R315-~~8264-4.352~~(a), Utah Admin. Code R315-~~8264-4.655~~]

9.1 The responsibilities of the IOSC shall include:

- 9.1.1 Identification of the character, source, and size of the area affected by the spill;
- 9.1.2 Assessment of possible direct or indirect hazards to human health and the environment as a result of the spill;
- 9.1.3 Determination of the need for agency notification;
- 9.1.4 Requests for additional manpower and resources if required; and
- 9.1.5 Coordination of mitigation, cleanup, and reporting procedures.

9.2 The IOSC is responsible for assessing the potential impact of an incident/accident and coordinating the deployment of personnel and equipment for mitigation. The IOSC shall coordinate and direct all Army efforts to control and clean up hazardous substance spills or releases caused by the Army, tenants, or other agencies within facility boundaries. The Advisory/Support Group shall support the IOSC, as necessary.

9.3 A minimum of one employee shall be qualified to act, as the IOSC and shall be available at all times. The IOSC shall be responsible for coordinating all emergency response measures. The IOSC shall be thoroughly familiar with all aspects of the Contingency Plan, which includes the SPCCP, the ISCP, as well as all operations and activities at the installation, the location and characteristics of wastes handled, and the location of pertinent records at the installation, and the installation layout. The IOSC shall be responsible to:

- 9.3.1 Notify and deploy the TEAD-S FD;
- 9.3.2 Determine the magnitude of the spill;
- 9.3.3 Notify the Installation Commanding Officer;
- 9.3.4 Seek immediate medical attention for those individuals injured as a result of the spill;
- 9.3.5 Make necessary notifications to Security;
- 9.3.6 Arrange for contracts with offsite disposal facilities and cleanup contractors;
- 9.3.7 Determine the quantity of material released and determine whether a reportable quantity of oil or hazardous material/waste was released to the environment; and
- 9.3.8 Make necessary notifications to the Division of Waste Management and Radiation Control (Division) and United States Environmental Protection Agency (EPA).

10.0 Reserved

- 14.2.1.1 Environmental Manager assists with the evaluation of environmental threats, proper disposal and management of wastes, technical guidance, and reporting to outside agencies as required by regulations.
- 14.2.1.2 The Installation Safety Officer provides site-specific information on chemical and other hazards at depot facilities including Safety Data Sheets (SDSs), Personal Protective Equipment (PPE) information, sampling/monitoring data, chemical hazards and other emergency response information. Other responsibilities include the establishment of control zones based upon the evaluation of hazards, ensuring that proper decontamination procedures are in place, and documentation of site activities.
- 14.2.1.3 The IOSC and/or OSC provide monitoring of the scene and determine the extent of contamination around the scene and will use monitoring information to determine evacuation priorities.
- 14.2.1.4 U.S. Army Health Clinic is responsible for medical surveillance and support for the FD Hazardous Materials Team and emergency medical treatment.
- 14.2.1.5 Public Affairs Office (PAO) may be called upon by the IOSC to interface with the news media in the event that a hazardous substance escapes from the installation and threatens the public.
- 14.2.1.6 Contract Officer will initiate a contract for spill cleanup by private contractor if directed by the IOSC. Cleanup contractors may be used when spill cleanup operations impair the primary mission of the Facility, or when the spill exceeds the capabilities of the Facility.

14.3 Local Area Responders

~~14.3.1~~ Local area responders are Facility personnel who regularly work in hazardous waste management facilities having a potential for spills of hazardous substances. Their responsibilities include cleaning up small or large incidental spills (non-emergency) of substances for which they are equipped and trained, and with which they are familiar. This includes stopping or containing flows, diking, repairing leaks; containerizing and labeling spilled wastes, and notification of the IOSC. For larger non-emergency spills, this group may be called upon by the IOSC to assist in the cleanup of spills in areas other than where they ordinarily work.

14.4 Hazardous Waste (HW) Management Facility Employees

14.4.1 The responsibilities of this group are similar to those of the Local Area Responders except that these individuals are members of the Facility Hazardous Waste Management Program (HWMP). The HWMP is required for all employees who work at permitted hazardous waste management facilities.

14.5 Law Enforcement and Security

14.5.1 The function of this group is to control traffic and crowds associated with an incident, and to assist the OSC with emergency evacuation and isolation.

14.6 Facilities Support

14.6.1 Facilities Support provides heavy equipment support as instructed by the IOSC. This group may be called upon to disconnect electrical power when deemed necessary by the OSC.

14.7 JMC Office of Chief Counsel

14.7.1 The JMC Office of Chief Counsel assists the IOSC in ensuring that all record-keeping and sampling activities initiated during a response action will be conducted according to applicable rules and regulations.

15.0. Spill Response Mobilization Procedures

15.1 Notification [Utah Admin. Code R315-~~8264-4.756~~(a) and (d)]

15.1.1 Any employee who witnesses or discovers a spill or incident involving hazardous substances and determines that the incident requires emergency response is responsible for notifying the FD by dialing 911. After receiving the 911 call, the OSC shall activate the FD Hazardous Materials Team and notify the IOSC as described above. The IOSC shall note in the Operating Record the time, the date, and the details of any accident/incident requiring the implementation of the Contingency Plan (i.e., a spill/release of a hazardous material/waste equal to or greater than the reportable quantity). The IOSC shall initiate any required external reporting requirements as detailed in Section 22.0.

15.2 Identification of Hazardous Materials [Utah Admin. Code R315-~~8264-4.756~~(b)]

15.2.1 Following the occurrence of a release, fire, or explosion, the IOSC shall identify the character, exact source, amount, and the size of the area affected by any released materials. Primary identification of released hazardous materials/wastes will depend on the ability of the IOSC to trace the discharge to its source. For the majority of incidents, the workers in the area will be familiar with the substance or waste (user knowledge) and will be able to make a positive identification. Other sources of identification information include: SDSs, military specifications, labels, manifests, inventory records, and chemical databases. Whenever possible, container labels shall be preserved to include a complete identification for preparing incident reports. When identification is not possible by these methods, samples shall be collected and analyzed. A detailed description of hazardous waste managed at the Facility is provided in Attachment 1 (Waste Analysis Plan).

15.3 Assessment [Utah Admin. Code R315-8-4.7(c) and (d)]

15.3.1 The IOSC, in coordination with appropriate state, federal, and local authorities, shall assess possible hazards to human health or the environment that may result from a release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion. To assist the IOSC in assessing the hazards, the following information shall be considered:

15.3.1.1 Whether the nature of the hazard is known, unknown, or can be reasonably assumed;

15.3.1.2 The degree of toxicity of the material;

15.3.1.3 The presence of toxic, irritating, or asphyxiating gases which may be present as a result of controlling a fire;

- 15.3.1.4 Containment of a spill or lack of containment;
 - 15.3.1.5 Uncertainty as to the extent of migration of wastes or water used in fire control to either the groundwater or surface water; and
 - 15.3.1.6 The ability of response teams to contain the emergency.
- 15.3.2 If the IOSC determines that the Facility has had a release, fire, or explosion that could threaten human health or the environment outside the Facility, the IOSC shall report those findings according to paragraphs 15.3.2.1 and 15.3.2.2.
- 15.3.2.1 If the assessment indicates that evacuation of local areas may be advisable, the OSC shall immediately notify local emergency management agencies. The IOSC shall be available to assist officials to decide whether local areas should be evacuated.
 - 15.3.2.2 The IOSC shall immediately notify the National Response Center (NRC) (800) 424-8802 and the Division. The report shall include:
 - 15.3.2.2.1 The name and telephone number of the person making notification;
 - 15.3.2.2.2 The name and address of the facility;
 - 15.3.2.2.3 The time and type of incident (e.g., spill, fire, explosion);
 - 15.3.2.2.4 The name and quantity of material involved to the extent known;
 - 15.3.2.2.5 The extent of injuries, if any; and
 - 15.3.2.2.6 The possible hazards to human health or the environment outside the facility.
- 15.4 Response During Off Duty Hours [Utah Admin. Code R315-~~8264-4.352~~(a), R315-8-~~4.756~~]
- 15.4.1 The spill response procedure for off-duty hours is the same as for normal hours, with the following exceptions:
 - 15.4.1.1 During off-duty hours, the IOSC and Advisory/Support Group are not present, and members or alternates may have to be called or report to the incident site if required by the OSC; and
 - 15.4.1.2 The U.S. Army Health Clinic function will be replaced with a contracted ambulance and EMT crew.

16.0 Spill Mitigation and Cleanup

- 16.1 Control Procedures [Utah Admin. Code R315-~~8264-4.756~~(e) and (g)]
 - 16.1.1 Following implementation of the initial response procedures outlined in paragraph 15.3.2. and detailed in the appropriate response plans, steps to control and mitigate the release shall be initiated. Site- specific and material-specific spill response procedures shall be located in each of the hazardous waste storage facilities. General spill control procedures shall be as follows:
 - 16.1.1.1 Stopping the Spill: If possible, the spill flow should be stopped by turning off pumps, closing valves, returning containers to an upright position, patching holes, transferring material to another container, or moving the container to a more secure location.

- 16.1.1.2 **Containment:** In all cases, response personnel shall attempt to confine the spill in the smallest area possible using earthen dams, berms, and/or other man-made barricades. Inlets to sewer or storm water systems shall be blocked or bermed. Response personnel shall ensure that drainages are protected. Spill kits containing absorbent material and other containment supplies shall be available in areas where bulk liquids are stored or transferred.
- 16.1.1.3 **Removal:** Larger volumes of oil or liquids shall be removed with pumps, if possible. Sorbent materials shall be used to absorb smaller amounts of oil or hazardous constituents. On water, only floating or retrievable sorbent products shall be used. Director approval is required for the use of either sinking or dispersing agents.
- 16.1.1.4 **Reclamation:** When possible, hazardous materials shall be reclaimed and containerized. An attempt shall be made to reclaim and recycle waste oil or other hazardous material/waste. Leaking hazardous waste containers are generally not repaired, but shall be placed into an overpack drum. Various types of emergency leak repair kits are maintained and may be used as a temporary measure until the drum can be properly contained.
- 16.1.1.5 **Storage:** Any material recovered from a spill of oil or hazardous substances shall be managed as hazardous waste unless it is analyzed and determined to be non-hazardous. Waste analysis procedures shall be outlined in Attachment 1 (Waste Analysis Plan).
- 16.1.1.6 **Disposal:** All oil, gas, or other substances not usable after reclamation shall be characterized and disposed of in accordance with state and federal regulations. Soil contaminated with oil or hazardous materials/wastes shall be removed with hand tools, heavy construction equipment, or both. Contaminated soil shall be assessed to determine appropriate management actions. Disposal alternatives shall conform to appropriate federal and state regulatory requirements.
- 16.1.1.7 **Restoration:** The area of contamination shall be restored to its original (pre-spill) condition. Any contaminated soil that is removed shall be replaced by clean fill. Necessary re-vegetation and erosion control measures shall be implemented.
- 16.1.1.8 **Decontamination:** All equipment and clothing shall be decontaminated in accordance with decontamination practices described in local standing operating procedures (SOPs). When working with certain hazardous materials/waste, it may be necessary to properly dispose of the hand tools, overshoes, and gloves with the waste. Any equipment used during the response procedures shall be cleaned and fit for its intended use.

17.0 Storage and Treatment of Released Material [Utah Admin. Code R315-~~8264-~~4.756(g)]

- 17.1 Any recovered waste, contaminated soil or water, or other material generated as a result of a spill incident and clean-up activities shall be handled and managed as a hazardous waste unless it is analyzed and determined to be non-hazardous. All material shall be properly disposed of in accordance with Division and EPA regulations.

- 17.2 Soil contaminated with oil or hazardous materials/wastes shall be removed with the appropriate removal equipment, such as hand tools for small removals, or heavy construction equipment (backhoes, scoop loaders, etc.) for larger removals. Contaminated soil will be assessed to determine appropriate management actions.
- 17.3 Spilled or contaminated material resulting from a hazardous material/waste accident or incident shall be collected immediately, characterized, and placed in appropriate hazardous waste storage units until final disposal.
- 18.0 Incompatible Waste [Utah Admin. Code R315-~~8264-4.756~~(h)(1)]**
- 18.1 At no time during a response to an accident or incident shall incompatible materials be stored or transported together. In the event that a waste that is incompatible with wastes or materials already stored at a given location is spilled, the incompatible materials or wastes shall be moved to a temporary location until the spilled waste is completely cleaned-up or neutralized.
- 19.0 Post-Emergency Equipment Maintenance [Utah Admin. Code R315-~~8264-4.756~~(h) and (i)]**
- 19.1 After an emergency event, all emergency equipment that was used shall either be cleaned so that it is fit for reuse, or it shall be replaced. The equipment and protective clothing shall be washed with the proper decontamination solution, or discarded and replaced with new equipment or clothing. Before operations resume an inspection of all safety equipment used and decontaminated after the emergency response shall occur. When the inspection is completed, the IOSC shall notify the state and local authorities, and the Major Command of the status of the emergency equipment and the status of the return to normal operations.
- 20.0 Prevention of Recurrence or Spread of Fires, Explosions, or Releases [Utah Admin. Code R315-~~8264-4.756~~(e)]**
- 20.1 During an emergency, the IOSC shall implement all measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous materials or wastes at the installation. These measures shall include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.
- 20.2 If a facility on the installation stops operations in response to a fire, explosion, or release, the IOSC shall ensure that all valves or pipes and other related, affected equipment are monitored for potential leaks, pressure build-up, gas generation, and ruptures.
- 20.3 Some munitions in the permitted storage igloos contain explosives (bursting, propellant, and fuzes). Detonation of an explosively configured munition presents not only a hazard to personnel and property from the blast effects, but also a hazard from the spread of chemical agent. Requirements for safely handling, transporting, and storing ammunition and explosives are described in the following regulations and standards and shall be followed by the Permittee:
- 20.3.1 Local SOPs;
- 20.3.2 Federal Register, 53 FR, 8504-8507;

- 20.8 An "all clear" signal will be given when the fire has been extinguished, personnel are no longer endangered, and the FD has determined the emergency has passed. All emergency equipment used in the emergency response shall be cleaned and decontaminated.
- 20.9 Before operations are resumed, the IOSC shall be responsible for conducting an inspection of all safety equipment to ensure that the equipment is fit for future use. When the inspection is completed, the IOSC shall notify the Division, and local authorities, and Major Command that the response operations have been satisfactorily completed. The FD shall also inform the IOSC and the OSC of the status of the emergency equipment and when normal operations can resume.

21.0 Cleanup Resources [Utah Admin. Code R315-~~8264-4.352~~(d)]

21.1 Tables 4-2 and 4-3 list the equipment available for use during an emergency response at the different waste storage areas at the Facility. All of these resources are available for use by the Regional Response Team (RRT). The IOSC shall coordinate with the installation commander and determine what resources are needed to support the RRT.

Table 4-2: TEAD-S Emergency Heavy Equipment			
Equipment	Capability	Qty	Location
Fire truck-Pumper	750 gallon per minute	1	Fire Station (Bldg. 5010)
Fire truck-brush truck	200 gallon per minute	1	Fire Station (Bldg. 5010)
Ambulance	Medical assistance, evacuation	1	Fire Station (Bldg. 5010)

Table 4-3: Area 10 Emergency Equipment and Supplies			
Equipment	Capability	Qty	Location
Hand Tools	Small spill cleanup: shovels, brooms	AR	Transport Vehicle
Fire Extinguisher	ABC Type	1	Transport Vehicle
Communication Systems	Cellular telephones, hand-held radios	AR	Transport Vehicle
Eyewash	Eye protection	AR	Transport Vehicle
Protective Clothing	Personnel protection	AR	Transport Vehicle
Spill Kit	Spill cleanup	AR	Transport Vehicle
AR: As Required			

22.0 Reporting Requirements [Utah Admin. Code R 315-~~8264-4.756~~ (d)(2), Utah Admin. Code R315-~~8264-4.756~~(j), R315-~~9263-30 through 33~~]

- 22.1 Personnel working in potential spill site areas shall follow site-specific instruction for reporting spills. These instructions shall be located in each of the hazardous waste storage facilities.
- 22.2 Telephonic Spill Reporting

22.2.1 The IOSC shall contact the Director or his designee during normal business hours (8 AM -5 PM Monday through Friday) (801) 536-0200. During non-business hours the IOSC shall contact the Utah State Department of Environmental Quality (24-hour Answering Service, 801-536-4123) and the National Response Center (800-424-8802) immediately following the release of a reportable quantity. The contingency plan shall be activated in the event of a spill exceeding the following quantities:

22.2.1.1 One kilogram of any acutely hazardous waste identified in Utah Admin. Code R315-~~261-433~~(e). Notification will also be made for a spill of a lesser quantity of acutely hazardous waste if there is a potential threat to human health or the environment.

~~4.22.2.1.2~~ Any spill of P999 and F999 must be reported.

22.2.1.3 One hundred kilograms of other hazardous waste.

22.2.2 The following information shall be required when providing immediate reporting of the spill.

22.2.2.1 Name, phone number, and address of person responsible for the spill (IOSC).

22.2.2.2 Name, title, and phone number of individual reporting.

22.2.2.3 Time and date of the spill.

22.2.2.4 Location of the spill, as specific as possible, including nearest town, city, highway, or waterway.

22.2.2.5 Description of the material and the amount spilled.

22.2.2.6 Cause of the spill.

22.2.2.7 Emergency action taken to minimize the threat to human health and the environment.

22.2.3 Spills occurring during transportation of hazardous waste by air, rail, highway, or water shall be reported as required by Utah Admin. Code R315-~~9263-130~~.

22.3 Written Spill Reports

22.3.1 Within 15 days after a spill in excess of a reportable quantity, a written report shall be submitted to the Division in accordance with Utah Admin. Code R315-~~9263-433~~. The written report shall be either hand carried or sent by certified mail or an overnight delivery service, and shall include the following information:

22.3.1.1 Name, address, and telephone number of the IOSC (person reporting the spill);

22.3.1.2 Name, address, and telephone number of the facility;

22.3.1.3 Date, time, and type of incident (e.g., spill, fire, explosion);

22.3.1.4 Name and quantity of material(s) involved;

22.3.1.5 The extent of injuries, if any;

22.3.1.6 An assessment of actual or potential hazards to human health or the environment, when applicable; and

22.3.1.7 An estimate of the quantity and disposition of recovered material that resulted from the incident.

22.4 Reports to the Public

22.4.1 All spill reports submitted to outside agencies will be forwarded through the PAO to the installation commander's office. The IOSC shall maintain copies of written spill reports

on file. Spill information for release to the public shall be reviewed by the Depot Systems Command Environmental Office and approved by the installation commander. Information shall be released to the public in accordance with facility guidance. The PAO shall be responsible for providing information to the public.

23.0 Training

23.1 Facility employees responding to an emergency shall be trained in accordance with Attachment 3 (Training Plan).

24.0 Extremely Hazardous Wastes

24.1 Utah Admin. Code lists waste chemical agents and agent-related secondary wastes and residues as acutely hazardous wastes as defined in Utah Admin. Code R315-~~2261-~~~~433~~(e)(1). Neat waste agents of all types shall be assigned a waste code of P999. Agent-related secondary wastes and residues from all types of agent shall be identified by waste code F999.

24.2 Secondary agent-related hazardous wastes shall be stored in permitted igloos in Area 10.

25.0 Evacuation Procedures and Routes [Utah Admin. Code R315-~~8264-4.352~~(e)]

~~4.25.1.1~~ In the event of a health-, safety-, or life-threatening accident, the involved facilities shall be evacuated in accordance with the evacuation plan for that location. A steady, continuous alarm with an air horn, siren, or vehicle horn shall indicate that the site is being evacuated. The supervisor of the facility, or an assigned alternate, shall determine the presence or absence of all employees when they have assembled at the waiting area specified by security personnel.

26.0 Arrangements with Local Agencies [Utah Admin. Code R315-~~8264-4.352~~(b), Utah Admin. Code R315-~~8264-3.7~~]

26.1 The Facility maintains its own security police force and fire department. These groups shall be the first to respond to an emergency. In addition, reciprocal agreements have been made within local agencies in the region to coordinate emergency services. Medical services have been coordinated with University of Utah Hospital, Mountain West Medical Center, and IHC Health Services, INC. Fire protection agreements have been made with the Tooele City Fire Department, North Tooele County Fire Department, and Stockton Fire Department. Other emergency services have been coordinated through the Tooele City Law Enforcement.

27.0 Open Detonation (OD) Specific Procedures

27.0.1 The IOSC shall implement the Contingency Plan if accidents occur involving wastes intended for OD when those accidents result in or could result in uncontrolled detonation, which could release hazardous constituents into the environment or endanger human health. The IOSC shall act immediately to assess any such situation. The decision to implement this Plan will depend on the IOSC assessment of several factors:

- The type and quantity of wastes and other materials involved.

- The potential for the spread of fire or the initiation of an explosion, and
- The available capability to respond to and control the situation.

27.0.2 If the IOSC must be summoned, on-scene personnel (in particular the designated team leader) who would most likely be the Range supervisor at the OD Unit, shall first call the Demilitarization (Demil) Team Leader, who shall then call the IOSC. While waiting for the IOSC to arrive, on-scene personnel shall try to control the incident, if safe to do so, or else shall immediately evacuate the area. The initial response to any emergency is to protect human health and safety, and then the environment. Identification, containment, treatment and disposal assessment constitute the secondary response.

27.1 Identification of Hazardous Materials Released at the OD Unit

27.1.1 The IOSC, with the assistance of the Demil Team Leader, is responsible for identifying the chemical and physical characteristics, exact source, amount, and area extent of the release and hazards of the incident.

27.1.2 Information available to the IOSC will be gathered by interviewing personnel at the OD Unit, reviewing the schedules and records pertaining to the OD operations, and discussions with the Demil Team. Information of any hazards presented by waste materials during an emergency is limited to the items scheduled to be detonated.

27.1.3 The types of waste explosives treated at the Facility by OD include unserviceable ammunition, mines, grenades, bombs and other ordnance.

27.2 Assessment

27.2.1 The IOSC and/or OSC is responsible for assessing the nature of the emergency incident. Since little or no quantitative information (for example, exposure levels) initially may be available, the criteria for assessing the hazards, risks, and vulnerabilities are qualitative. The following criteria will be considered in making this assessment:

- The need to protect individuals present at the scene and those in the process of responding.
- The nature and size of the incident.
- Specific information available on the wastes and other materials involved.
- Weather (e.g., wind speed and direction), topography and other conditions (e.g., time of day).
- Need to establish safety zones.
- Factors that affect spread, ignition, or reactivity of the product.
- The probability that the incident could spread beyond the incident scene.
- The need to deny access to unauthorized personnel.

27.2.2 To assist in the assessment of the situation, the IOSC may find it appropriate to confer with the Demil Team, or with explosives experts from other Department of Defense installations.

27.2.3 Under reasonable foreseeable conditions, the types and quantities of materials treated at the OD unit would not result in any significant releases that could spread beyond the Facility boundary. In the event of fires, the combination of natural firebreaks, paved roads, man-made firebreaks, and long distances present in the OD Unit have been designated to prevent fires from spreading beyond the unit and outside the Facility.

27.3 Uncontrolled Fires

27.3.1 Uncontrolled fires may occur as a result of OD operations. If an uncontrolled fire occurs within the OD area, it will not be fought unless necessary to provide assistance to injured personnel.

27.3.2 During uncontrolled fires, the IOSC and/or OSC performs the following functions:

- Assesses the situation using all available knowledge; the assessment determines whether or not to implement the Contingency Plan.
- Upon implementation of the Contingency Plan, performs the functions in paragraph 27.3.3
- Notifies all appropriate military authorities and emergency response units immediately.
- Eliminates all possible sources of ignition in the immediate area. These include lighted tobacco products and unauthorized vehicle traffic.
- Coordinates all response efforts without exposing personnel to undue risk.
- With assistance from EO, assumes responsibility for directing follow-up activities, if required.
- With assistance from EO, prepares and submits all necessary reports on the incident.

27.3.3 The IOSC and/or OSC take the following actions upon implementation of the Contingency Plan:

- Stops all routine work in the affected area.
- Stops all nonessential waste handling activities
- Evacuates all nonessential personnel.
- Removes all injured persons from the site and gives medical treatment.

- Gives “all-clear” notification by radio or portable telephone when all danger is over.
- Arranges for cleaning and inspecting all emergency equipment before resuming normal OD operations.

27.4 Storage, Treatment and Disposal of Released Material

27.4.1 Immediately after an incident, the IOSC and/or OSC shall arrange for the treatment, storage, or transportation and disposal of recovered waste and waste residues, contaminated soil, or other contaminated materials. The cleanup residue is collected by Demil Team personnel and FD personnel. The material will be collected and containerized until the arrangements for sampling, analysis and disposal can be made.

27.4.2 Cleanup residues that do not possess a potential to detonate will not be treated in the OD unit respectively. These waste residues that may be reactive, but not explosive, will be treated and disposed offsite by other appropriate methods in compliance with applicable regulations.

27.4.3 The IOSC and/or OSC shall be authorized to use all facility personnel and equipment or contractor services as necessary to complete this task. Should the services of a cleanup contractor be required, the IOSC shall request such support from the TEAD-N Director of Contracting. Reactive wastes or reactive waste residues recovered after an incident shall be treated on-site at the unit by Demil Team personnel.

27.5 Control of Fires and Prevention of Recurrence or Spread of Fires, Explosions, or Releases

27.5.1 The TEAD-S FD shall respond to any reported emergency situation involving reactive hazardous wastes. The FD is staffed and led by trained, professional fire fighters. Actions appropriate to controlling and preventing the spread of fires will be selected and implemented by these trained professionals. The Permittee shall rely upon their professional, on-scene judgment in selecting a course of action that is most protective of human health and the environment. Similarly, the knowledge and training of on-scene Army ordnance experts shall be used in determining the most appropriate response to actual or potential uncontrolled explosions, or releases of reactive hazardous wastes.

27.5.2 Should any event occur that would require implementation of this Contingency Plan, the Permittee shall follow up with actions to prevent future recurrences. At a minimum, future OD operations shall be suspended and an investigation of the incident shall be conducted to determine the reasons for the occurrence. Based on the results of the investigation, any appropriate changes shall be instituted prior to resumption of OD operations.

27.6 Post-Emergency Equipment Maintenance

27.6.1 The IOSC and/or OSC is responsible for maintaining necessary emergency response equipment and PPE. The FD Officer-In-Charge inspects and inventories all emergency equipment before returning it to service. As appropriate, soiled equipment is

decontaminated with an appropriate cleaning solution and the rinsate is collected in 55-gallon drums. Representative samples of the collected rinsate will be analyzed for toxic metals (including barium, lead, and selenium) and for 2,4-dinitrotoluene. All analyses will be conducted in accordance with Attachment 1 (Waste Analysis Plan). Rinsates exhibiting hazardous or toxic characteristics as defined in Utah Admin. Code R315-261-20 will be managed accordingly and will be sent offsite for appropriate treatment at a permitted treatment facility. OD operations can resume only when all emergency equipment is determined to be clean and in service.

Tooele Army Depot-South Area

Attachment 5 Closure Plan

TEAD-S Closure Plan

- 1.0 Closure Plan Summary and Closure Performance Standard [Utah Admin. Code R315-~~3270-2.514~~(b)(13), Utah Admin. Code R315-~~8264-7110 through 120~~]**
- 1.1 The Tooele Army Depot-South Area (TEAD-S ofr Facility) stored chemical munitions for U.S. Department of Defense (DOD) agencies and is managed by the Joint Munitions Command (JMC) of the U.S. Army. Hazardous wastes generated through normal operations are stored in the Facility's permitted hazardous waste management units (HWMUs). HWMUs include:
- 1.1.1 Igloos once storing recovered chemical warfare material;
 - 1.1.2 Igloos which store other hazardous waste;
 - 1.1.3 ~~Open Burning~~/Open Detonation (~~OB~~/OD) Conex storing waste propellants and explosives.
- 1.2 A full description of the operational hazardous waste management activities associated with these units is provided in Attachment 12 (Container Management).
- 1.3 Upon completion of operational hazardous waste management activities, the Facility's hazardous waste management units shall be closed in accordance with the requirements of Utah Admin. Code ~~Rule~~ R315-~~8264-7110 through 120~~, and in accordance with this closure plan.
- 1.4 Facility HWMUs shall be closed to meet the residential or industrial land use requirements of Utah Admin. Code R315-101. The present inventory of wastes at the Facility shall be sent to a permitted, offsite treatment, storage, and disposal facility (TSDF).
- 1.5 HWMUs managing waste in containers at the Facility, including permitted igloos and the OB/OD Conex, shall be closed in accordance with the requirements of Utah Admin. Code R315-~~8264-9.9178~~ and other conditions described in this attachment.
- 1.6 Closure of the permitted igloos (excluding the OB/OD Conex) to the residential use standards of Utah Admin. Code R315-101 and shall be accomplished in accordance with the following general steps:
- 1). Where required, interior air shall be verified < 1 vapor screening level (VSL) concentration prior to start of closure procedures.
 - 2). All remaining hazardous wastes shall be removed and disposed of.
 - 3). Any residual loose material and debris shall be removed from the structure's floor and characterized.
 - 4). The floors shall be decontaminated using a high-pressure, hot-water/~~decontamination~~ solution mixture. Spent cleaning solutions generated will be containerized and screened for chemical agent and pH in accordance Attachment 1(Waste Analysis Plan).
 - 5). Final unventilated air-monitoring inside each structure shall be used to verify agent vapor concentration of less than 1.0 general population level (GPL) for three (3) consecutive (NRT) monitoring cycles.

6). Directed (judgmental) sampling of potentially contaminated soils located underneath storage unit floors shall be conducted in accordance with the Closure Sampling and Analysis Plan(s) that will be submitted at the time of closure.

7). If contamination is detected in soil samples above screening levels listed in Table 5-1, a site-specific risk assessment may be conducted, or the igloo may be remediated under Corrective Action as a HWMU, or monitored under a post-closure permit.

Steps 6 and 7 will only be required for igloos and/or storage units in which there were recorded liquid agent or hazardous waste spill(s) which contacted the floor or in units which have an incomplete record of historical agent or hazardous waste exposure.

The closure approach and procedures specific to the ~~OB~~/OD ~~e~~Conex are outlined in Section 4 of this closure plan.

- 1.7 Monitoring and analytical results shall be evaluated to determine if they meet the closure performance standards presented in Table 5-1, which are protective of human health and the environment. Closure shall follow risk-based closure standards and Table 5-1 presents both residential and industrial levels. The performance standard values presented for chemical agents and EA-2192 are health-based screening levels developed by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) that follow EPA Region IX risk assessment method, and referred to as the health-based environmental screening levels (HBESLs).

The Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) for risk-based closure are proposed for all other chemicals of potential concern (COPCs). The RSL risk method is a multi-pathway risk-based assessment that considers soil ingestion, inhalation of volatiles released from soil, dermal absorption from soil, and inhalation of airborne particulates.

Analytical results for metals may alternatively be evaluated against measured background levels to meet the performance standard for metals.

- 1.8 A site-specific risk assessment may be conducted to demonstrate closure, as necessary.

Table 5-1: Closure Performance Standards					
COPC ^a	Air Monitoring	CHPPM HBESLs ^c Industrial (mg/kg)	CHPPM HBESLs ^d Residential (mg/kg)	USEPA RSLs ^e	
				Residential (mg/kg)	Industrial (mg/kg)
CHEMICAL AGENTS					
HD	< GPL ^b	0.3	0.019	NA	NA
VX	< GPL ^b	1.1	0.0043	NA	NA
GB	< GPL ^b	32	0.14	NA	NA
GA	< GPL ^b	68	0.29	NA	NA
L	< GPL ^b	3.7	0.045	NA	NA
AGENT DEGRADATION PRODUCTS					
EA2192	NA	1.1	0.0047	NA	NA
IMPA	NA	NA	NA	6,100 300	628 2,000
EMPA	NA	NA	NA	3,700	37,000
DIMP	NA	NA	NA	6,300	82,000
MPA	NA	NA	NA	3,700 800	374 9,000
Thiodiglycol	NA	NA	NA	5,400 100	687 9,000
EXPLOSIVES					
2,4,6-Trinitrotoluene	NA	NA	NA	192 1	799 6
HMX	NA	NA	NA	3,800 900	495 7,000
RDX	NA	NA	NA	5.66 .1	242 8
Tetryl	NA	NA	NA	240 180	2500 2300
METALS^g					
Arsenic	NA	NA	NA	0.396 0	1.63 .0
Barium	NA	NA	NA	15,000	190 220,000
Cadmium	NA	NA	NA	707 1	800 980
Chromium (VI)	NA	NA	NA	0.293 0	5.66 .3
Lead	NA	NA	NA	400	800
Mercury (elemental)	NA	NA	NA	101 1	434 6
Mercuric chloride and other salts	NA	NA	NA	23	310 350
Selenium	NA	NA	NA	390	5,100 800
Silver	NA	NA	NA	390	5,100 800
SVOCs					
As determined	NA	NA	NA	see note ^f	see note ^f
VOCs					
As determined	NA	NA	NA	see note ^f	see note ^f
Notes:					
^a Chemicals of potential concern based on contamination history.					
^b The GPLs are 2x10 ⁻⁵ mg/m ³ for HD, 6x10 ⁻⁷ mg/m ³ for VX, and 1x10 ⁻⁶ mg/m ³ for GA and GB, and 3x10 ⁻³ mg/m ³ for L					
^c From the “Reevaluation of 1999 HBESLs for Chemical Warfare Agents, May 2007” more conservative 1999 industrial levels listed.					
^d Residential 2007 HBESLs have been adjusted to reflect a 1E-06 risk level.					
^e EPA RSLs dated June 2014 May 2016					
^f SVOCs and VOCs will be determined based on contamination characterization.					
^f Performance standards will be based on EPA RSLs.					
^g Background levels for metals may be used as an alternate performance standard.					

2.0 Partial Closure and Final Closure Activities [Utah Admin. Code R315-~~3270-2-514~~(b)(13)]

2.1 HWMU closure activities at the Facility shall include the removal of all hazardous waste and hazardous waste residues from the HWMUs. The permitted recovered chemical warfare material and hazardous waste storage igloos and the ~~OB~~/OD Conex shall be managed in accordance with Utah Admin. Code R315-~~8264-9-170~~ and shall follow the closure requirements of Utah Admin. Code R315-~~8264-9-9178~~.

2.2 During closure, several activities required by the Facility's permit will end or phase out as waste operations cease and closure of a HWMU begins. These activities include but may not be limited to the following:

- Resource Conservation and Recovery Act (RCRA) inspections
- Chemical Surety and Hazardous Waste Training
- RCRA inventory recordkeeping
- Agent air monitoring
- Monitoring instrument calibrations
- Emergency equipment maintenance
- Safety requirements
- Security requirements
- Signs and placard maintenance

For each HWMU that is not currently in operation, or that is scheduled for closure, a request for terminating the above permit requirements for that HWMU, with specific effective dates, shall be submitted to the Director of the Division of Waste Management and Radiation Control (Director).

2.3 **Supporting Documents.** The following documents provide detailed information regarding decontamination, monitoring and sampling activities to be performed during storage unit closure.

(a) **TEAD-S Facilities and Equipment Decontamination Plan** (reference document). The TEAD-S Facilities and Equipment Decontamination Plan (FEDP) outlines the procedures and requirements for the cleaning and decontamination of potentially agent contaminated storage facilities and the GPL unventilated monitoring tests.

(b) **TEAD-S Closure Sampling & Analysis Plan (SAP)** (reference document). TEAD-S Closure SAP describes the procedures for sampling and analysis required to demonstrate that the Facility's permitted storage units meet the closure performance standard.

(c) **TEAD-S Facility Quality Assurance Project Plan (QAPP)** (reference document). The TEAD-S QAPP outlines the Quality Assurance and Quality Control criteria for analysis of samples identified in the SAP.

(d) **TEAD-S Risk Assumptions Document (RAD)**. The RAD describes the risk assessment and natural resource assessment requirements.

3.0 Maximum Waste Inventory [Utah Admin. Code R315-~~8264-7110 through 120~~]

- 3.1 The maximum waste inventory for each HWMU is the maximum permitted waste storage capacity for that unit. Maximum waste inventories for the Facility HWMUs are presented in Table 5-2.

Table 5-2: Storage Areas Maximum Waste Inventory			
Hazardous Waste Management Unit	Number of units, containers, boxes etc.	Storage Capacity per Unit	Total Maximum Waste Inventory
Area 10 Igloos	2 igloos	384, 55-gallon drums per igloo	42,240 gallons
OB /OD Conex	1 Building	440 gallons explosives	440 gallons explosives

- 3.2 At final closure, all inventories of hazardous wastes stored in containers in the HWMUs listed in Table 5-2 shall be removed and treated onsite, or transported to a permitted, offsite TSDf for disposal.

4.0 Closure Procedures

The following information provides a description of the steps needed to remove all hazardous waste or hazardous constituents, as well as to decontaminate or remove contaminated containment system components, equipment, structures, and soils during partial and final closure.

4.1 Closure Approach

Following equipment and waste removal from each storage unit, an inspection shall be conducted to determine the condition of the floor.

The available historical documentation shall be reviewed to determine if any liquid agent or hazardous waste leaks occurred which contacted the floor and the estimated quantity of each recorded spill.

4.1.1 Storage Igloos (with no Agent liquid exposure)

Storage igloos which have complete storage/agent exposure records which indicate they have had no history of liquid agent exposure shall be cleaned, decontaminated and monitored to less than 1.0 GPL as required by paragraph 1.6, steps 1 thru 5.

4.1.2 Storage Igloos (with Agent liquid exposure).

Igloos which have historical liquid agent exposure, show evidence of liquid agent exposure, or igloos which have incomplete historical storage/exposure records, shall be subjected to the following tiered sampling strategy. The igloo floor shall be inspected for cracks.

- (a) Suspect areas shall be monitored (such as stains and cracks where known leaks occurred) to < 1 Worker Protection Limit (WPL).

(b) Floor areas shall be decontaminated by steam cleaning. The spent decontamination solution from this process shall be screened for agent and pH in accordance with Attachment 1 (Waste Analysis Plan).

(c) The igloo shall be air monitored (unventilated) to less than 1.0 GPL.

(d) If floor cracks, joints, or other floor damage exists such that agent or other contaminants could have been transmitted beneath the floor, samples of the soil shall be taken from beneath the igloo floor to determine the nature, concentration and extent of contamination. Soil sample concentrations shall be compared to the closure performance standards listed in Table 5-1. If the soil meets risk-based levels, no further sampling will be required.

(e) If soil samples described in (c) are greater than risk-based levels (or background levels for metals), a site-specific risk assessment may be conducted; or the igloo may be remediated under Corrective Action as a HWMU; or subject to the requirements of a post-closure permit. Additional verification samples may be collected to support decision concerning closure or post closure.

4.1.3 ~~OB~~/OD Conex.

The ~~OB~~/OD Conex stored only conventional munitions components and propellants prior to ~~OB~~/OD disposal.

The ~~OB~~/OD Conex shall be wipe sampled for explosive/propellant constituents. Wipe results shall be compared to risk-based screening levels for surface wipe samples.

4.2 Unit-Specific Closure Activities [Utah Admin. Code R315-~~8264-7110~~ through 120]

4.2.1 Closure activities for each of the Facility's permitted hazardous waste management units shall reflect the specific requirements and considerations appropriate for the types of waste stored in the unit. Hazardous waste and liquids shall be removed. Containers, structures, liquids, and soil shall be removed or decontaminated to below the closure performance standards specified in Table 5-1. If the removal or decontamination efforts are unsuccessful or impractical, a site-specific risk assessment based on remaining COPC concentrations may be conducted to demonstrate closure, or the storage unit will be subject to applicable post-closure requirements.

4.3 Permitted Storage Igloo Closure Activities

Removal of waste munitions from permitted storage igloos and transport of those wastes to an onsite disposal facility was performed during the demilitarization process. Treatment and disposal of non-munition, agent-related wastes stored in storage igloos shall be in accordance with Section 1.4. Following removal of all wastes from the storage igloos, closure will be accomplished as described in Sections 1.6 and 4.1.

4.4 ~~OB~~/OD Conex

4.4.1 The ~~OB~~/OD Conex is used to store obsolete and discarded conventional munitions, munition components, and propellant awaiting treatment at the Facility ~~OB~~/OD treatment units. Contamination of the interior of the ~~OB~~/OD Conex by D003 hazardous waste residues is unlikely because the reactive fillers of munitions and munitions components are solid, and are either

encased in the munition casing itself or placed into ammunition boxes or propellant cans prior to storage. All residual dusts shall be removed from interior of the ~~OB~~/OD Conex, and shall be collected and properly disposed.

The ~~OB~~/OD Conex shall be sampled in accordance with an approved plan for explosive and propellant constituents prior to closure.

5.0 Inventory Removal and Disposal [Utah Admin. Code R315-~~8264-7110 through 120~~, Utah Admin. Code R315-~~8264-571~~]

5.1 Wastes and/or residual wastes that remain following the completion of the Facility's hazardous waste management activities shall be removed from permitted units and managed according to the applicable regulatory requirements and as described in Section 4. Hazardous waste shall be treated and disposed of at a permitted TSDF.

5.2 Hazardous waste to be sent to an offsite TSDF for treatment or disposal shall be prepared in accordance with the requirements of Utah Admin. Code R315-~~8264-571~~ for manifesting and transporting hazardous waste. A manifest shall be prepared in compliance with the requirements of Utah Admin. Code R315-~~6263-2-20~~. The pre-transport requirements Utah Admin. Code R315-~~5262~~ will be followed for packaging, labeling, marking, and placarding. The hazardous waste shall be properly packaged in accordance with the Department of Transportation (DOT) regulations in 49 Code of Federal Regulations (CFR) §§ 173, 178, and 179.

6.0 Disposal or Decontamination of Equipment, Structures, and Soils [Utah Admin. Code R315-~~8264-7-114~~]

6.1 The Facility's hazardous waste management unit structures and equipment shall be decontaminated in accordance with Sections 1.7 and 4.1. Should it be determined at the time of closure that soil removal or remediation is required; the Closure Plan may be modified to address such issues.

6.2 If, after removing or decontaminating residual materials and making all reasonable efforts to effectively remove or decontaminate contaminated components, sub-soils, structures, and equipment as required by Utah Admin. Code R315-~~8264-9-9178~~ and Utah Admin. Code R315-~~8264-12-6258~~, and the Permittee finds that not all contaminated sub-soils can be practicably removed or decontaminated, then the Permittee shall close the facility and perform post-closure care in accordance with a post-closure plan.

7.0 Closure of Container Storage Units [Utah Admin. Code R315-~~8264-9-9178~~]

7.1 As required by Utah Admin. Code R315-~~8264-9-9178~~, all hazardous wastes and residual hazardous wastes shall be removed from the containment system at closure. Removal of hazardous wastes and residual hazardous wastes shall be performed according to the steps described in Section 4.

7.2 The remaining containers, liners, bases, and soils containing or contaminated with hazardous wastes or residual hazardous wastes shall be decontaminated or removed. Decontamination or removal of the remaining containment system shall be performed according to the steps described in Sections 4 and 6.

8.0 Reserved

9.0 Schedule for Closing [Utah Admin. Code R315-~~8264-7110~~ through 120]

9.1 In general, commencement of final closure of the container storage HWMUs described in this plan shall follow the completion of its mission.

In accordance with ~~40 CFR §~~ Utah Admin. Code R315-264-112(e), TEAD-S personnel may begin removing hazardous wastes and decontaminating or dismantling equipment in accordance with this attachment before notification of final closure.

10.0 Time Allowed For Closure [Utah Admin. Code R315-~~8264-7113]~~

10.1 The schedule for closure shall include, at minimum, the total time required to close each permitted hazardous waste management unit and the time required for intervening closure activities that shall allow tracking of the progress of partial and final closure.

10.2 For all HWMUs the Permittee shall notify the Director in writing at least 45 days prior to the date on which final closure activities are expected to commence. Notification shall be given to the Director at least 60 days prior to commencement of final closure of the waste pile.

10.3 No shipments of hazardous waste shall be received at a specific Facility hazardous waste management unit after the first day of the unit-specific closure period. Within 90 days of commencing closure of a HWMU, all hazardous waste stored in the HWMU undergoing closure shall be sent off site for management at a permitted TSDF. Partial and final closure activities shall be completed within 180 days of commencing closure of each HWMU. Residual materials identified in storage facilities shall be sampled and analyzed within 30 days of the initiation of closure, and shall be disposed of within 90 days.

11.0 Extensions for Closure Time

11.1 If it is determined that activities associated with the removal of all hazardous waste will require more than 90 days, a request for an extension to complete this activity shall be made at least 30 days before the initial 90-day time period expires. If partial and final closure activities cannot be completed within 180 days following the commencement of closure, a request for an extension to complete the activities shall be made at least 30 days before expiration of the initial 180 days.

12.0 Certification of Closure [Utah Admin. Code R315-~~8264-7115]~~

12.1 Within 60 days of completion of final closure activities and receiving all analytical results for each HWMU, the Permittee shall submit to the Director a closure report including a certification signed by the Depot Commander and an independent registered professional engineer stating that the HWMU was closed in accordance with the Facility's approved closure plan. The certifying engineer shall at a minimum, perform monthly inspections during partial and final closure activities. An inspection log shall be submitted with the closure report.

13.0 Post-Closure & Cost Estimate

13.1 Post Closure Plan [Utah Admin. Code R315-~~3270-2.514~~(b)(13)]

- |
- 13.1.1 If the Permittee or the Division determines that post-closure care is required at any of the HWMUs, the Permittee shall prepare a Post-Closure Plan that meets the requirements of Utah Admin. Code R315-~~8264-7118~~.
- |
- 13.2 A closure cost estimate or financial assurance is not required for the Facility’s hazardous waste management units because the federal government is exempted from the financial requirements of R315-~~8264-8140 through 151~~.
- |

**Tooele Army Depot-South Area
Attachment 6
General Facility Description**

General Facility Description [Utah Admin. Code R315-~~3270-2.514~~, Utah Admin. Code R315-~~8264-2.918~~]

1.0 General Description [Utah Admin. Code R315-~~3270-2.514~~(b)(1)]

1.1 Tooele Army Depot (TEAD), located immediately west of Tooele City includes two installations, the TEAD North and South Areas. The TEAD North Area, adjacent to Tooele City, was originally known as the Tooele Ordnance Depot (TOD), and functioned as a storage depot for World War II supplies, ammunition, and combat vehicles. In 1949, TOD assumed command of the South Area. In 1962, following a transfer to a new command, the TOD was re-designated the TEAD. The South Area was later realigned under the U.S. Army Chemical and Biological Defense Command (now the US Army Chemical Materials Activity (CMA)) and re-designated the Deseret Chemical Depot (DCD). In 2013 DCD's mission was completed and the facility was transferred back to TEAD and became the Tooele Army Depot-South Area (TEAD-S).

1.2 The primary mission of TEAD-S (the Facility) for the storage and demilitarization of chemical warfare agents has been completed. This permit has been modified to reflect these changes. This permit is specifically for the storage of hazardous wastes and demilitarization of conventional munitions by Open Detonation (OD) at the Facility. The general types of hazardous wastes stored at the Facility shall be:

- 1.2.1 Waste Munitions;
- 1.2.2 Waste from corrective action cleanup program;
- 1.2.3 Waste from industrial activities including vehicle and equipment maintenance;

1.3 The Facility is located approximately 12 miles south of Tooele City in Tooele County, Utah. Figure 6-1, Tooele Army Depot-South Area-General Site Topographic Map, shows the general layout of the Facility, including permitted storage facilities, topographic contours, and other physical site characteristics. Solid Waste Management Unit (SWMU) locations are shown in Figure 6-2, Tooele Army Depot-South Area-SWMU Location Map. The following is a general description of the processes that generate hazardous waste at the Facility.

2.0 Reserved

3.0 Reserved

4.0 Environmental Restoration and Decontamination Operations

4.1 The Facility has ongoing environmental restoration projects. These projects include monitoring well installation and Resource Conservation and Recovery Act (RCRA) corrective actions that generate investigative wastes (e.g., drill cuttings, used personal protective equipment (PPE), purge water). Environmental restoration activities bring equipment and vehicles into contact with contaminated media such as soil and groundwater. Equipment and vehicles used for these projects are decontaminated, generating waste decontamination solutions. Investigative wastes and waste decontamination solutions shall be contained, labeled, and disposed of according to Division and Environmental Protection Agency (EPA) regulations.

5.0 Miscellaneous Operations

5.1 A variety of other operations generate small quantities of hazardous wastes, including paints, adhesives, solvents, and spent filters from used gas masks. Additional items may occasionally be generated. In these instances, the Permittee shall either submit a permit modification to add such items to their permit, or the items shall be stored in an onsite storage area and properly disposed of.

5.2 SWMUs are areas in which solid and hazardous wastes may have been placed or released. A number of SWMUs have been identified at the Facility during the RCRA Facility Assessment and subsequent field investigations at the Facility.

5.3 The OD Area is located in the southeastern corner of TEAD-S. The OD Unit has been used since the 1940s for demilitarization activities of munitions detonation in pits. There are currently 20 pits that are permitted to be used at the OD Area.

6.0 Overview of the Storage Process

6.1 Hazardous wastes managed at the Facility can be divided into two categories: agent-related wastes and non-agent-related wastes.

6.2 Agent-related wastes include agent-contaminated materials, such as decontamination solutions. Waste bulk items, and agent-related wastes shall be managed in accordance with the Utah Admin. Code.

6.3 Permitted storage areas store agent-related waste and non-agent-related waste.

6.4 Attachment 1, Table 1-1-1, RCRA Hazardous Waste Designation and Rationale and Table 1-1-2, Hazardous Waste Streams and Storage Areas identifies hazardous wastes stored at the Facility's hazardous waste management units, their associated waste codes, and provides a brief discussion about the hazardous wastes. More detailed descriptions of the Facility hazardous waste management units appear in Attachment 12 (Container Management) which describes container management.

7.0 Agent-Related Hazardous Waste Generated and Stored

7.1 The Utah Admin. Code lists waste chemical agents and agent-related secondary wastes and residues as acutely hazardous wastes as defined in Utah Admin. Code R315-~~261-310(e)(1)~~ and Utah Admin. Code R315-~~261-433(e)(1)~~. Neat waste nerve, military and chemical agents of all types shall be assigned a waste code of P999. Residues from the demilitarization, treatment and testing of all types of nerve, military and chemical agent shall be assigned a waste code of F999.

8.0 Agent-Related Wastes

8.1 Wastes contaminated with agent shall be stored in igloos permitted for storage of hazardous waste. Wastes may include metal parts, energetic components, dunnage, used PPE, charcoal, and other absorbents and filters. Storage requirements and configurations are identified in Attachment 12 (Container Management).

8.2 Non-Agent-Related Hazardous Wastes Generated and Stored

8.2.1 Non-agent-related hazardous wastes are generated at the Facility during the performance of remediation activities and industrial support activities such as building maintenance, small construction projects, and office operations. Non-agent-related hazardous wastes are segregated in containers by compatibility, and are transported to and stored at onsite storage facilities before being transferred to an approved offsite Treatment, Storage, and Disposal Facility (TSDF). Alternatively, they are transported to and stored at a permitted hazardous waste storage unit to await transfer to an approved offsite TSDF.

9.0 Topographic Map [Utah Admin. Code R315-~~3270-2.514~~(b)(19)]

9.1 Figure 6-1, General Site Topographic Map, shows surface water features, fence lines, and roads. It also depicts the primary Facility access point, the Facility's legal boundaries, and area topography in accordance with the requirements of Utah Admin. Code R315-~~3270-2.514~~(b)(19).

10.0 Water-Related Features

10.1 The Facility is located in the Rush Valley, a basin located in the basin and range region of the western United States. The topography of the drainage basin is generally smooth and uniform, sloping to the southwest from the facility to the Rush Valley floor. The valley floor drains northwest to Rush Lake, approximately 11 miles from the facility. Few well-defined natural drainage channels exist in the Facility vicinity. The soils are permeable and can easily absorb the 100-year precipitation event, expected to be about 3.2 inches. Ponding or pooling of runoff waters does not generally occur. The Great Salt Lake, located approximately 75 miles from the Facility, is about 850 feet lower in elevation than the Facility.

11.0 Surrounding Land Uses

11.1 The Facility is surrounded mostly by federally owned land, administered by the Bureau of Land Management, some State of Utah owned land and some privately owned land. There are no injection or withdrawal wells within the boundaries of the permitted container storage units.

12.0 Wind Rose

12.1 A wind rose for the Facility is shown in Figure 6-4. The wind rose indicates a prevailing wind speed from the southeast greater than 5.1 mph for more than 16% of the recorded period. Wind comes from the northwest at about 1.5 to 3.1 mph for about 12% of the recorded period.

13.0 Reserved

14.0 Regional Hydrology, Geology, Meteorology, and Land Use [Utah Admin. Code R315-~~3270-2.1423~~(b)]

14.1 Geology

14.1.1 The Facility is located in the basin and range physiographic province that extends from western Utah to California and from southeastern Oregon to Arizona. Basin and range geology is characterized by alternating parallel zones of uplifted and down-dropped fault blocks, which are known as horsts and grabens, respectively, and typically result from a period of regional tectonic extension. Uplifted horsts form mountain ranges that surround the down-dropped basins.

14.1.2 The valley in which the Facility is located, the Rush Valley, is a graben feature and is bounded by uplifted horst features of the Stansbury Range to the west and the Oquirrh Range to the east, both of which rise steeply from the valley floor. As is typical of basin and range geology, the boundary between the Rush Valley basin and adjacent mountain ranges is defined by one or more normal faults, which are indicative of the extensional forces that resulted in the current structural geology of the area. The northern terminus of the Rush Valley is defined by South Mountain, which has a much smaller vertical rise than the major ranges to the east and west, but still effectively blocks any runoff to the north. From the Facility, the Rush Valley extends south for many miles.

14.1.3 The stratigraphy of the Rush Valley basin is generally composed of a series of alluvial fans interbedded with evaporite deposits. The alluvial fans are outwash features from the surrounding mountain ranges. Due to the steep gradient of the mountainsides, the alluvial fans often extend thousands of meters into the basin. Evaporite deposits consist primarily of evaporite minerals such as halite and gypsum and are a common feature in closed basins of the Western U.S. At one time, these deposits were minerals dissolved in precipitation runoff that periodically accumulates in depressions within the Rush Valley. As the accumulated water evaporates, the minerals remain to form deposits on the valley floor. With time, alluvial fans cover the deposits, resulting in the interbedded stratigraphy seen today. The soft sediments of the valley are underlain by crystalline basement rock at great depth.

14.1.4 The topography of the Rush Valley is generally flat, but with low-lying ridges, swales, and gulleys interspersed throughout the valley floor. The Facility occupies a small rise on the east side of the valley. The eastern boundary of the facility is roughly one-eighth mile west of the toe of the Oquirrh Range mountain front. Across the Facility, the surface slopes gently downward to the west and north to the north-south trending centerline of the Rush Valley floor. The valley floor is nearly flat in the vicinity, with a slight gradient to the north toward Rush Lake and South Mountain.

14.2 Meteorology and Hydrology

14.2.1 The climate of the Rush Valley is extremely arid, with very low annual precipitation and high evapotranspiration. Refer to Figure 6-4 for a wind rose that illustrates prevailing wind directions.

14.2.2 The valley floor drains northwest to Rush Lake, which is approximately 5 miles from the Facility. A few well-defined natural drainage channels exist on the eastern side of the Facility. These channels are products of the erosion that results from sporadic flash flood events on the western flanks of the Oquirrh Range. The soils are permeable and can easily absorb the 100-year precipitation event, expected to be about 3.2 inches. Ponding or pooling of runoff generally does not occur at the Facility. Virtually all precipitation or runoff evaporates or infiltrates into the soil. A small amount of infiltrated water percolates into deep aquifer storage, although most remains in shallow groundwater systems and eventually discharges into Rush Lake at the north end of Rush Valley. The only way that water is naturally removed from Rush Valley is via evapotranspiration.

14.3 Land Use

14.3.1 The Facility is a military facility operated by the US Army Joint Munitions Command (JMC). The installation is surrounded by some state-owned land, some privately owned land, but mostly by federally owned land administered by the Bureau of Land Management.

14.4 Seismic Standard [Utah Admin. Code R315-~~3270-2.514~~(b)(11)(i)-(ii), Utah Admin. Code R315-~~8264-2.918~~(a)]

14.4.1 TEAD-S is an existing facility and as such is exempt from compliance with seismic standards.

14.5 Floodplain Standard [Utah Admin. Code R315-~~3270-2.514~~(b)(11)(iii)-(iv), Utah Admin. Code R315-~~8264-2.918~~(b)]

14.5.1 No Federal Insurance Administration 100-year floodplain maps of the Facility exist. Nonetheless, it has been determined that the Facility is outside of the 100-year flood plain and not subject to flooding. No floods have occurred at the Facility during the more than 70 years it has been in existence and there is no history of flooding in the area, so a 100-year flood in the vicinity of the Facility would be insignificant. The overall drainage gradient for the Facility is 1 percent or greater. The southeastern corner of the Facility, which is the lowest elevation point within the Facility, is 35 to 40 feet higher in elevation than Rush Lake, which would be the accumulation point of floodwaters in the Rush Valley.

14.6 Traffic Patterns [Utah Admin. Code R315-~~3270-2.514~~(b)(10)]

14.6.1 Access to the Facility is via State Highway 198, connecting State Highway 73 to the main (north) gate; and via State Highway 73 directly, connecting to Doolittle Road and the east gate (Figure 6-1). Both State Highways are two-lane, undivided, asphalt concrete roads zoned at 55 mph. Neither highway is heavily traveled. The intersections of Highways 73 and 198 and Doolittle Road and Highway 73 are simple interchanges with no left turn lanes or traffic islands. Traffic control at the Highway 73/198 interchange is via a yield sign on Highway 198. Traffic control at the Doolittle Road /Highway 73 intersection is via a yield sign on Doolittle Road.

14.6.2 In the past, the Facility's west gate has been used for munitions shipments. Presently, no traffic is allowed through the west gate and the gate is kept locked except for emergencies. State Highway 36 is a two-lane, undivided, asphalt-concrete road. The Highway 36 / Harrison Road intersection is a simple interchange with traffic control via a yield sign on Harrison Road.

Tooele Army Depot-South Area
Attachment 7
~~Reserved~~Quality Assurance Program Plan (QAPP)

Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
<u>1.0</u>	<u>Program Organization and Responsibility</u>	<u>2</u>
<u>2.0</u>	<u>Background</u>	<u>2</u>
<u>3.0</u>	<u>Program Objectives</u>	<u>3</u>
<u>4.0</u>	<u>Data Usage</u>	<u>3</u>
<u>5.0</u>	<u>Sampling Responsibility and Type</u>	<u>3</u>
<u>6.0</u>	<u>Sampling Procedures</u>	<u>4</u>
<u>7.0</u>	<u>Data Quality Objectives</u>	<u>4</u>
<u>8.0</u>	<u>Data Completeness</u>	<u>4</u>
<u>9.0</u>	<u>Data Accuracy</u>	<u>4</u>
<u>10.0</u>	<u>Data Precision and Bias</u>	<u>5</u>
<u>11.0</u>	<u>Data Representativeness</u>	<u>6</u>
<u>12.0</u>	<u>Data Comparability</u>	<u>6</u>
<u>13.0</u>	<u>Method Sensitivity</u>	<u>6</u>
<u>14.0</u>	<u>Uncertainty</u>	<u>6</u>
<u>15.0</u>	<u>Chain-of-Custody and Sample Tracking</u>	<u>6</u>
<u>16.0</u>	<u>Analytical Procedures</u>	<u>7</u>
<u>17.0</u>	<u>Calibration Procedures and Frequency</u>	<u>7</u>
<u>18.0</u>	<u>Data Analysis Validation and Reporting</u>	<u>7</u>
<u>19.0</u>	<u>Internal Quality Control Procedures</u>	<u>8</u>
<u>20.0</u>	<u>Preventative Maintenance</u>	<u>8</u>
<u>21.0</u>	<u>Data Assessment Procedures</u>	<u>8</u>
<u>22.0</u>	<u>Corrective Action Procedures</u>	<u>9</u>
	<u>References</u>	<u>10</u>
	<u>Acronyms</u>	<u>11</u>

Appendices:

Appendix 1 - Sampling Protocol and Chain of Custody Procedures

Appendix 2 - Sample Container Types/Volumes, Preservation and Holding Time Requirements

1.0 Program Organization and Responsibility

- 1.1 The Tooele Army Depot South Area (TEAD-S) is a U.S. Army Depot under auspices of the Joint Munitions Command (JMC) and under local command by a Colonel. The Commanding officer has overall responsibility for operations and compliance for TEAD-S.
- 1.2 The TEAD-S's Environmental Office (EO) is responsible for ensuring that data provided to the state and federal regulatory agencies meets the requirements of this Permit, its attachments, and R315 of the Utah Administrative Code.
- 1.3 The on-site Quality Assurance (QA) Manager is an independent person who reports directly to the EO Chief. All data produced, both sampling and analytical will be reviewed by the QA manager and personnel reporting the results. All quality control data will be approved by the on-site QA manager prior to submission to the regulatory agencies.
- 1.4 The TEAD-S Safety Chief is the site safety officer and Industrial Hygiene Supervisor is the site health officer.

2.0 Background

- 2.1 The principal work activities at the ~~TEAD-S~~ ~~TB1~~ are the shipping, receiving, and demilitarization of conventional munitions, and the testing and development of ammunition peculiar equipment and related demilitarization testing.

3.0 Program Objective

- 3.1 The primary purpose of the Quality Assurance Program Plan (QAPP) is to provide quality assurance and quality control parameters to ensure that wastes are properly characterized in compliance with Resource Conservation and Recovery Act (RCRA) requirements for general waste analysis [Utah Admin. Code R315-264-13]. Waste characterization is also performed to ensure the safe management of wastes being stored or treated, proper disposition of treatment residues, and proper characterization of waste for shipment to a permitted hazardous waste treatment, storage, and disposal facility.
- 3.2 Specific details to be used for the above referenced activities are described in other sections of this QAPP. The quality requirements for sampling are provided in Appendix 1.
- 3.3 This plan provides procedures for sampling activities performed by both TEAD-S and contract personnel.
- 3.4 Specific sampling processes and data objectives will be detailed in the individual quality assurance project plans (QAPjPs).

3.5 Test procedures and methods performed by laboratories are described in the following documents:

1. Test Methods for Evaluating Solid Waste (SW-846), current edition.
2. Standard Methods for the Examination of Water and Wastewater, current edition.
3. Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act.
4. Guidelines Establishing Test Procedures for the Analysis of Contaminates under the Safe Drinking Water Act.

3.6 The TEAD-S EO will verify the minimum requirements of this QAPP are met for all sampling and analysis events. Minimum quality requirements for all laboratory analyses are specified in this document. The quality requirements for sampling are provided in Appendix 1.

4.0 Data Usage

4.1 Data collected, analyzed and validated are used to support the waste management programs. The project lead reviews sampling and analytical data submitted to the regulatory agencies to meet the project goals and objectives.

5.0 Sampling Responsibility and Type

5.1 The nature and extent of sampling will be done in accordance with Attachment 2 (Waste Analysis Plan) or will be determined by a project specific SAP. Types of sampling may include:

- a. Identification of waste streams to determine whether or not the waste is a listed or characteristic hazardous waste.
- b. Closure activities to determine whether or not all hazardous waste has been removed.
- c. Environmental samples to determine whether or not the environment has been contaminated as a result of a spill or other activity.
- d. Groundwater monitoring to ensure that the TEAD-S detects any impact to groundwater by regulated activities.
- e. Other projects including but not limited to Subpart X processes and site assessments.

6.0 Sampling Procedures

6.1 Sampling should be conducted following the protocols established in QAPjPs and should reflect current state and federally approved guidance.

6.2 Samples will be preserved if applicable and returned to the designated laboratory for analysis. If waste characterization is unknown or personnel are unfamiliar with processes that created the wastes to be sampled and/or a determination is made that there may be a safety problem by preserving samples, then no sample preservation will occur and a shorter holding time will be considered. The sample label will note any preservation including cold preservation or that the sample has not been preserved. Additional container, volume and preservation requirements are located in Appendix 2. Any problems which arise during sampling will be corrected on the spot before sampling is completed.

7.0 Data Quality Objectives

7.1 The objective of the QAPP is to develop and implement procedures for field sampling, chain-of-custody, laboratory analyses and reporting that will result in technically and legally defensible data. Specific procedures to be used for sampling, chain-of-custody, calibration, laboratory analyses, reporting, internal quality control, audits, preventative maintenance, and corrective actions are described in other sections of the QAPP. The purpose of this section is to define goals for completeness, accuracy, precision, representativeness, and comparability. The use of the Environmental Protect Agencies (EPA) User’s Guide to the Contract Laboratory Program, (EPA-R-2017-001 and EPA-R-2017-002, January 2017 or most current) Organic and Inorganic Validation Functional Guidelines may be used for determining data usability.

7.2 Test methods are determined by sample matrix, detection limit requirements and data usage. The TEAD-S Waste Analysis Plan provides a list of approved sample methods.

8.0 Data Completeness

8.1 Completeness is defined as the amount of valid data obtained from a measurement system compared to the amount that is expected to be obtained. A goal of at least 95% completeness should be obtained.

9.0 Data Accuracy

9.1 Accuracy is the degree of agreement between a measurement and an accepted reference or true value. The accuracy is determined from analyses of samples spiked with a known concentration. The number of spiked samples and the spiking levels will be taken from the respective methods.

The formula used to assess the accuracy of a laboratory control spike (LCS) is:

$$\%R = (Q_{LCS} / Q_{KC}) \times 100$$

Where: %R = Percent Recovery

Q_{LCS} = Quantity of Analyte Found in the Spiked Sample

Q_{KC} = Known Concentration of the LCS

The formula used to assess the accuracy of the matrix spike/matrix spike duplicate (MS/MSD) samples is:

$$\%R = ((Q_{ss} - Q_{us}) / Q_s) \times 100$$

Where: %R = Percent Recovery

Q_{ss} = Quantity of Analyte Found in the Spiked Sample

Q_{us} = Quantity of Analyte Found in the Unspiked Sample

Q_s = Quantity of Added Spike

9.2 Calculation of the accuracy for each analysis will be based on different criteria as discussed in this Quality Assurance Project Plan and the analytical methods. The matrix spike default values for water and soil are 75-125% and 60-140%, respectively. Project specific requirements may vary from the default values due to other considerations. The TEAD-S EO will review data and determine if project goals and data quality have been met, if not, the TEAD-S EO may discuss with the Division of Waste Management and Radiation Control (DWMRC) the impact to the data and if data is useable.

9.3 A matrix spike (MS) and matrix spike duplicate (MSD) sample shall be prepared and analyzed for every 20 samples of the same matrix type or once per day whichever is more frequent.

9.4 A laboratory control spike (LCS) and laboratory control spike duplicate (LCSD) will be performed per analytical batch. The default values for water and soil are 80-120% and 75-125%.

10.0 Data Precision and Bias

10.1 Precision is defined as the degree of mutual agreement among individual measurements made under prescribed conditions. Precision will use two different measurements depending on the number of data points being considered. Two data points will have the relative percent difference (RPD) calculated. Three or more data points will use the relative standard deviation (RSD) as a measure of the precision. External precision audits may be conducted by submitting blind duplicates to the laboratory and comparing the results with the acceptance criteria. The number of blind duplicates required will usually be 20 percent of all samples taken. Precision will be calculated for laboratory or field samples using the following equations:

$$\%RPD = \{(X_1 - X_2) / [(X_1 + X_2)/2]\} \times 100$$

Where: RPD = Relative Percent Difference

X_1 = Highest Analytical Result of Sample

X_2 = Lowest Analytical Result of Sample

$$\text{RSD} = (\text{standard deviation/average value}) \times 100$$

10.2 Calculation of the precision for each analysis will be based on different criteria as discussed in the project specific plans and the analytical methods used. The default values for precision for water and soil are <20%, and < 40%, respectively. Project specific requirements may vary due to other considerations.

10.3 Bias is a measure of systematic error. When a sample of known concentration is tested repeatedly, the bias is determined by how close the average test value is coming to the actual, known value.

11.0 Data Representativeness

11.1 To assure representativeness, all samples should be taken following protocols as set forth Section 6.0 of this QAPP. Also, site descriptions, site photo documentation, and sampling conditions and techniques should be documented in bound field notebooks as necessary.

12.0 Data Comparability

12.1 Comparability is a quantitative characteristic, which may be considered in planning sampling activities. The TEAD-S EO should work closely with any laboratory to ensure all data generated are consistent with and expressed in the same units as the data generated by other laboratories reporting similar analyses. This will allow for comparison of the data among different organizations.

12.2 Similarly, the TEAD-S EO should ensure that all data generated by field measurements are expressed in units that are consistent with standard practices. In addition to units, comparability should be assured in terms of sampling plans, analytical methodology, quality control and data reporting.

12.3 Proper preservatives, appropriate containers, and holding times for samples and analyses are given in Appendix 2.

12.4 Unless specifically outlined in a project specific plan, all soil/solids data will be reported on a dry weight basis.

13.0 Method Sensitivity

13.1 The methods specified must meet or exceed the regulatory requirements and method sensitivity specified by the project or risk requirements.

14.0 Uncertainty

14.1 Any data not meeting the required Data Quality Objectives (DQOs) will be discussed with the laboratory and the DWMRC to determine usability of the data. Any qualified data will be discussed in the analytical report.

15.0 Chain-of-Custody and Sample Tracking

15.1 Samplers may use either a legal chain-of-custody or a sample tracking form to enable tracking the possession and handling of a sample during transfer (from sample collection through laboratory analysis and final disposal) so that its physical possession is known at all steps in the process.

15.2 A sample is under legal chain-of-custody if:

1. It is in the person's possession, or
2. It is in the person's view at all times, or
3. It is locked in a secure location.

16.0 Analytical Procedures

16.1 Utah-certified laboratories will provide analytical data for compliance with Utah Admin. Code R444. All methods associated with data results (sampling, preparation, analytical) will be based on whether or not the method provides comparable, representative, complete, precise, sensitive and accurate data for the sample matrix and the range of expected values for the constituents for which the samples are being analyzed. EPA analytical methods will be used for analyses. If EPA does not have a method, e.g., chemical agents, then the TEAD-S EO will contact the DWMRC to discuss which method would be the most appropriate.

17.0 Calibration Procedures and Frequency

17.1 Laboratory equipment calibration procedures will be in accordance with the method and manufacturer specification. Any equipment used for field measurements will be calibrated according to manufacturer's specifications prior to use. Documentation of the calibration is required. The TEAD-S EO will maintain documentation on all field equipment calibrations. The laboratory will maintain their calibrations and maintenance documents. Any problems associated with field equipment, will be identified to the TEAD-S EO and a corrective action will be implemented.

18.0 Data Analysis, Validation and Reporting

18.1 The primary data analysis, validation and reporting is performed by the laboratory that analyzes the samples. Internal validation is performed by a qualified TEAD-S EO or by a contractor. Upon completion of the sample analyses, the laboratory will submit the results to the TEAD-S EO for review and project validation. Utah certified laboratories will retain the sample analysis records according to Utah Admin. Code R444-14.

18.1.1 Any qualified data shall have an associated case narrative

18.2 Laboratory Analysis, Validation and Reporting

18.2.1 TEAD-S shall use a Utah-certified laboratory to perform sample preparation and analyses. Subcontracted laboratories must also be Utah certified.

18.2.2 Each laboratory analyst will ascertain if the analytical data are within prescribed control limits before the data is entered into the Laboratory Information Management System (LIMS). Data is then reviewed for quality assessment.

18.2.3 100% of all final analytical data will be cross-checked before the results are forwarded by the laboratory to the TEAD-S EO.

18.4 Data validation package levels shall be submitted by the laboratory based on the QAPjP.

18.3 Laboratory Quality Control Procedures

18.3.1 The laboratory internal quality control procedures shall be in accordance with EPA guidelines. Internal quality control procedures include the use of duplicate analyses, spikes, calibration standards, internal standard, blanks, quality control charts, standard reference materials, reagent checks, and sample splits. Laboratories must be Utah-certified for all parameters being reported.

19.0 Internal Quality Control Procedures

19.1 Field quality control samples will be submitted to the laboratory as appropriate and as often as practical during field investigations in accordance with the QAPjP. Such quality control check samples may consist of:

1. One or more “blind” duplicate samples;
2. One or more field blanks;
3. One or more duplicate samples, or
4. Spiked” samples prepared with known amounts of constituents or standard reference samples.

19.2 TEAD-S EO will determine sampling source(s), parameters to be audited and the appropriate field quality control samples in accordance with the project plan. Field quality control samples will be collected or prepared in accordance Section 6.0 of this QAPP.

19.3 Quality control samples, as identified above, may be collected or prepared for each sample event. The TEAD-S EO will determine the number and type of quality control samples to be collected prior to going to the field. The quality control samples will be handled in the same manner as all other samples being analyzed for the same parameter. Sample identification labeling will be consistent with the identification of actual samples.

Project records concerning quality control check samples and results of their analyses will be maintained by the TEAD-S EO.

20.0 Preventive Maintenance

20.1 The TEAD-S EO will assess field equipment for proper operation and maintenance prior to use. Records of preventive maintenance performed will be maintained in a logbook with the equipment.

20.2 All contractors working for the TEAD-S will be responsible for preventative maintenance of their equipment.

20.3 Preventive maintenance procedures for laboratory equipment are the responsibility of the laboratory.

21.0 Data Assessment Procedures

21.1 Data quality will be evaluated using the accuracy, precision, representativeness and completeness criteria spelled out in Section 2.0 of this QAPP. The TEAD-S EO will evaluate field quality control sample results and analytical results submitted ~~by~~ to determine if goals were achieved.

21.2 If the quality control samples meet the TEAD-S criteria, the reported data will be accepted. If not, the laboratory will be consulted to determine what laboratory quality control/quality assurance samples were included with the sample batch. These samples will be included with the field set and reevaluated. If the combined set meets the acceptance criteria, the reported data may be accepted. If not, the data from analyzing the sample set may be used as a basis for a data corrective action referral.

22.0 Corrective Action Procedures

22.1 If a quality control audit results in detection of unacceptable conditions or data, as defined by the criteria presented above, the TEAD-S EO will be responsible for developing and initiating corrective action. Corrective action may include:

1. Re-analysis of the sample batch.
2. Re-sampling and analysis.
3. Evaluation and amendment of sampling and analytical procedures.
4. Acceptance of data, with an acknowledgement of the level of uncertainty surrounding the analytical results.

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Acronyms

<u>CFR</u>	<u>Code of Federal Regulations</u>
<u>CLP</u>	<u>Contract Laboratory Program</u>
<u>COC</u>	<u>Chain of Custody</u>
<u>DQO</u>	<u>Data Quality Objective</u>
<u>DWMRC</u>	<u>Division of Waste Management and Radiation Control</u>
<u>EO</u>	<u>TEAD-S Environmental Office</u>
<u>EPA</u>	<u>Environmental Protection Agency</u>
<u>HSWA</u>	<u>Hazardous and Solid Waste Amendments</u>
<u>LCS</u>	<u>Laboratory Control Spike</u>
<u>LIMS</u>	<u>Laboratory Information Management System</u>
<u>MS/MSD</u>	<u>Matrix Spike/Matrix Spike Duplicate</u>
<u>OSHA</u>	<u>Occupational, Safety, Health Administration</u>
<u>QA</u>	<u>Quality Assurance</u>
<u>QC</u>	<u>Quality Control</u>
<u>QA/QC</u>	<u>Quality Assurance/Quality Control</u>
<u>QAPP</u>	<u>Quality Assurance Program Plan</u>
<u>RCRA</u>	<u>Resource Conservation and Recovery Act</u>
<u>% R</u>	<u>Percent Recovery</u>
<u>% RPD</u>	<u>Relative Percent Difference</u>
<u>SAP</u>	<u>Sampling and Analysis Plan</u>
<u>TEAD-S</u>	<u>Tooele Army Depot South</u>
<u>UDEQ</u>	<u>Utah Department of Environmental Quality</u>
<u>WAP</u>	<u>Waste Analysis Plan</u>

Appendix 1

Sampling and Chain-Of-Custody Procedures

The following are the procedures and protocols for management of sample integrity.

Pre-Sampling Procedures

Safety Protection Protocols

The TEAD-S EO will evaluate the personnel protection and safety equipment to be used.

Containers and Forms

Once the number, types of samples and parameters to be analyzed are determined, the laboratory will be contacted to insure that capabilities are available to complete the required analyses within the appropriate holding times. The TEAD-S EO will insure that the necessary supplies and forms are available, including:

1. Appropriate number and type of sample containers with preservative (if necessary).
 Sample containers will be prepared in accordance with the method requirements.
2. Sample analysis request forms.
3. Sample tracking or chain-of-custody forms and seals, if applicable.
4. Sample labels, if applicable.
5. Trip blanks, if applicable.
6. Ice chests and ice packs, if applicable.

It is recommended that extra containers and sample request forms be taken to the sampling site. This will insure that the sampling will still be accomplished if breakage occurs or conditions dictate that more samples need to be taken.

Sampling Equipment Provision

Examples of appropriate sampling equipment are contained in Table 1 below.

Table 1
Sampling Equipment

<u>Sampling Point</u> →	<u>Drum</u>	<u>Sacks & Bags</u>	<u>Open Bed Truck</u>	<u>Closed Bed Truck</u>	<u>Storage Tanks or Bins</u>	<u>Waste Piles</u>	<u>Ponds, Lagoons, and pits</u>	<u>Conveyor Belt</u>	<u>Pipe</u>
<u>Waste Type</u> ↓									
<u>Free flowing liquids and slurries</u>	<u>Coliwasa</u>	<u>N/A</u>	<u>N/A</u>	<u>Coliwasa</u>	<u>Weighted bottle</u>	<u>N/A</u>	<u>Dipper</u>	<u>N/A</u>	<u>Dipper</u>
<u>Sludges</u>	<u>Trier (Spoon)</u>	<u>Trier (Spoon)</u>	<u>Trier (Spoon)</u>	<u>Trier</u>	<u>Trier</u>	<u>N/A</u>		<u>N/A</u>	<u>N/A</u>

<u>Sampling Point</u> →	<u>Drum</u>	<u>Sacks & Bags</u>	<u>Open Bed Truck</u>	<u>Closed Bed Truck</u>	<u>Storage Tanks or Bins</u>	<u>Waste Piles</u>	<u>Ponds, Lagoons, and pits</u>	<u>Conveyor Belt</u>	<u>Pipe</u>
<u>Waste Type</u> ↓									
<u>Moist Powders or Granules</u>	<u>Trier (Spoon)</u>	<u>Trier (Spoon)</u>	<u>Trier (Spoon)</u>	<u>Trier</u>	<u>Trier</u>	<u>Trier</u>	<u>Trier (Bucket*)</u>	<u>Shovel</u>	
<u>Dry Powders or Granules</u>	<u>Trier (Spoon)</u>	<u>Trier (Spoon)</u>	<u>Trier</u>	<u>Trier</u>	<u>Trier</u>	<u>Trier (spoon)</u>	<u>Trier (Bucket*)</u>	<u>Shovel</u>	
<u>Sand or packed powders and granules</u>	<u>Auger (Spoon)</u>	<u>Auger (Spoon)</u>	<u>Auger (Spoon)</u>	<u>Auger</u>				<u>N/A</u>	
<u>Large grained solids</u>	<u>Large Trier spoon</u>	<u>Large Trier spoon</u>	<u>Large Trier spoon</u>	<u>Large Trier</u>	<u>Large Trier</u>	<u>Large Trier</u>	<u>Large Trier</u>	<u>Large Trier</u>	<u>Large Trier</u>

Decontamination Supplies

The TEAD-S EO will specify decontamination procedures and supplies or will use disposable equipment. Containers for the disposal of waste generated as a result of the sampling will also be supplied.

Chain-of-Custody Procedures

Each person involved in the collection and the handling of samples will know chain-of-custody procedures. Samples collected may be introduced as documentation or evidence into legal proceedings. Chain-of-custody sample integrity will need to be maintained and the possession of samples be traceable from the time samples are collected until results are obtained from the lab. Chain-of-custody starts when the sampling team accepts the sampling containers. Sampling containers should be kept in a secure manner or in the sampler’s possession at all times. The TEAD-S EO is responsible for coordinating the chain-of-custody.

Sample Tracking Procedures

When chain-of-custody is not required, the TEAD-S EO will follow a sample tracking procedure. At a minimum, this procedure will include:

1. Sample Identification (e.g., sample number)
2. Sample description (e.g., location and depth, if applicable)
3. Sample date and time
4. Sample matrix (e.g., air, water etc.)
5. Samplers Name
6. Analytes, requested methods, and special instructions if needed
7. Contact information

Sample Seals

The following procedures apply to sample seals if chain-of-custody is required:

1. The sample seals are to be completed for each sample or the entire ice chest and include the Sample Number, date and collector’s signature.
2. A sample seal will be placed over the top or around the “neck” of each sample container used. The seal should be around or over the lid of the container. The seal ensures the integrity of the sample. The laboratory analyst will break the seal before analyzing the material collected.
3. The sample seals do not have to be used on each sample container if the samples remain in the custody of the sampler and are delivered directly to the laboratory by the sampler. One seal can be used to seal the ice chest for the trip to the laboratory. The seal should not be broken until the laboratory representative, qualified to accept chain-of-custody samples, arrives.

Sample Tracking Forms

When samples are collected, the appropriate sample tracking forms will need to be completed. The sample tracking forms may be obtained from the TEAD-S EO.

Sample Identification

Sample tracking is performed for every sample collected. The method of identification of a sample depends on the type of measurement or analysis performed. When on-site measurements are made, the data are recorded directly in field logbooks, with identifying information. Samples are identified with a unique sample label. Field analyses, such as pH, are documented in a field logbook. The information on the sample label includes, as applicable:

1. Field identifier
2. Date
3. Time
4. Sample location
5. Sampler
6. Type of sample
7. Preservatives
8. Methods

Cleaning of Equipment

At each specific sampling point, the team should:

1. Use new or cleaned equipment.
2. Clean the sample equipment either in the field or laboratory, prior to use or re-use. This may be verified by the use of “rinsate blanks.” These will be collected at a minimum rate of one blank per 20 samples. The sampling team should check with the TEAD-S EO prior to sampling to determine an acceptable method of “field cleaning” for the equipment to be used. Single use disposable equipment does not need to be cleaned prior to use.

Transporting Samples

The samples shall be transported either by sample personnel or by a commercial carrier with tracking ability, e.g., UPS, FEDEX.

Completion of the Sampling Event

The following are items to consider prior to leaving the sampling location:

1. Verify the number of samples taken.
2. Match the physical samples with the paper work. The team should check for proper samples in the correct containers and that the field sample numbers on the samples correspond with the numbers on the sample request form.
3. Verify the samples are properly preserved.
4. Clean and package all non-disposable equipment.
5. Verify time/date on sample tag, request forms.
6. Bag all disposable items that need to be discarded.
7. Ensure that all sample containers are free of any debris or residue on the outside of the container.

Completion of Laboratory Analysis

Upon completion of the sample analyses, the laboratory will submit the results to the TEAD-S EO for review.

The laboratory will retain the sample records according for a minimum of 5 years.

After sample results are accepted, the remaining sample(s) will either be disposed by the laboratory or given back to the sample team for final disposition.

Appendix 2

Sample Container Types/Volumes, Preservation and Holding Time Requirements

<u>Analysis</u>	<u>Soil Sample Container</u>	<u>Water Sample Container</u>	<u>Holding Time</u>	<u>Preservative</u>	<u>Sample Handling</u>
<u>Metals</u>	<u>Wide-mouth glass jar with Teflon-lined lid or 1 kilogram capacity laboratory sample bag</u>	<u>500 mL Plastic</u>	<u>Analyze within 6 months, Mercury analyze within 28 days</u>	<u>none (soil)</u> <u>HNO3 to a pH<2 (water)</u>	<u>cool to 4° C (ice)</u>
<u>Energetics</u>	<u>Wide-mouth glass jar with Teflon-lined lid or 1 kilogram capacity laboratory sample bag</u>	<u>1 Liter amber glass</u>	<u>Extract 7 days (water); 14 days (soil); Analyze within</u>	<u>none</u>	<u>≤6° C (ice)</u>
<u>Dioxin/ Furans</u>	<u>Wide-mouth amber glass jar with Teflon-lined lid or 1 kilogram capacity laboratory sample bag</u>	<u>4 Liter amber glass jar with Teflon-lined lid</u>	<u>Extract 30 days; Analyze within 45 days</u>	<u>none</u>	<u>≤6° C (ice)</u>
<u>Perchlorate</u>	<u>Wide-mouth amber glass jar with Teflon-lined lid or 1 kilogram capacity laboratory sample bag</u>	<u>500 mL Plastic</u>	<u>28 days to analysis</u>	<u>none</u>	<u>cool to 4° C (ice)</u>

**Tooele Army Depot-South Area
Attachment 9
Security Plan**

Security Plan

1.0 Security

1.1 Security Procedures and Equipment [Utah Admin. Code R315-~~3270-2.514~~(b)(4)]

1.1.1 This section describes the procedures and equipment that shall be used to prevent the unknowing entry, and to minimize the possibility for unauthorized entry, of persons onto the Tooele Army Depot-South Area (TEAD-S or Facility) installation. Security methods include barriers, an entry control system, and warning signs. Security procedures and equipment used at the Facility shall be in compliance with Utah Admin. Code.

2.0 24-hour Surveillance System [Utah Admin. Code R315-~~8264-2.514~~(b)(1)]

2.1 The Facility employs a uniformed civil service security guard force to provide surveillance of the Facility and to restrict the entry of unwanted or unauthorized visitors. All patrols are motorized, equipped with communications equipment, and are assigned specific areas to patrol. At a minimum patrols shall:

2.1.1 Check for intrusion or security violations;

2.1.2 Check locks, fence lines, building security, and other areas within their patrol;

2.1.3 Challenge all persons entering or exiting the areas who may act suspicious, who are not carrying proper identification, or who are without required escorts;

2.1.4 Report all incidents to the Field Supervisor; and

2.1.5 Perform specific duties outlined in the daily log for that patrol area.

3.0 Barriers [Utah Admin. Code R315-~~8264-2.514~~(b)(2)(i)]

3.1 The Facility is entirely surrounded by an eight-foot, multi-strand, barbed wire fence with secured gates. Clear zones are maintained on either side of the fence where possible. Gates in the perimeter fence are controlled by security personnel. Proper personal and vehicle identification is required for entry and exit.

3.2 All permitted units are locked when not in use. Visitors entering permitted units shall be escorted while inside the building.

3.3 Additional fencing and related security measures shall be maintained at Area 10.

3.4 Entry to the Open Detonation (OD) Unit is limited by a posted road barricade/gate.

4.0 Means to Control Entry [Utah Admin. Code R315-~~8264-2.514~~(b)(2)(ii)]

4.1 Access to the Facility is via State Highway 198, connecting State Highway 73 to the main (north) gate; and via State Highway 73 directly, connecting to Doolittle Road and the east gate (Figure 6-1). On the access road, signs shall be posted to notify visitors they are entering a military installation. The main entrance road takes personnel and visitors to a security gate. All visitors and unregistered vehicles are challenged at the gate. Visitor passes are required. Passes are obtained from the security personnel at the security gate before proceeding. All other gates within or around the perimeter of the Facility shall be kept locked.

- 4.2 Container storage buildings shall be locked at all times except when personnel are working in the individual buildings. Entry shall be possible only through the normally locked doors. Only personnel trained in handling hazardous waste shall have access to building keys.
- 4.3 Means to control entry at Area 10 shall be equal to or exceed those applied to the Facility as a whole. Igloos shall be secured at all times, except when personnel are working in an individual unit.
- 4.4 Access to the OD Unit is limited to personnel involved in ongoing operations and controlled by the Demilitarization (Demil) Team, the Environmental Office and the Security Office.
- 5.0 Warning Signs [Utah Admin. Code R315-~~8264-2.514~~(c)]
- 5.1 Warning signs shall be posted on the main access road informing all vehicle drivers that they are entering a military installation. Warning signs identifying the Facility as a Department of Defense facility and listing the penalties for trespassing or unauthorized entry shall be posted every 1/10-mile on the perimeter fence line. Signs indicating that only entry of authorized personnel is permitted and entry into the area is potentially dangerous shall be located on the perimeter fence and on all other active permitted storage units.
- 5.2 The entrance to the Facility's OD Unit is clearly marked with signs informing peronnel that detonation activities may be occuring. During the times that the OD Unit is active, Ammunition Operations personnel control access to the area. All signs are in English; all persons working within the TEAD-S perimeter are required to be literate in English, which is the predominant language of the surrounding area. Authorized visitors who might not be literate in English, such as members of international inspection teams, would be escorted by base personnel at all times.

**Tooele Army Depot-South Area
Attachment 10
Preparedness and Prevention Plan**

Preparedness and Prevention Plan

1.0 Site wide Preparedness and Prevention Procedures

1.1 Overview

1.1.1 Regulatory Requirements

1.1.2 This attachment describes the procedures to prevent hazards in Tooele Army Depot-South Area (TEAD-S or Facility) permitted hazardous waste storage areas. The security procedures are described in Attachment 9 (Security Plan). Attachment 10 (Preparedness and Prevention Plan) shall meet the requirements of Utah Admin. Code R315-~~3270-2.514~~(b)(4), (5), (8), and (9), and Utah Admin. Code R315-~~3270-2.615~~(c) and (d) as well as Utah Admin. Code R315-~~8264-2.514~~, Utah Admin. Code R315-~~8264-2.615~~, Utah Admin. Code R315-~~8264-2.817~~, Utah Admin. Code R315-~~8264-3.332~~, Utah Admin. Code R315-~~8264-3.433~~, Utah Admin. Code R315-~~8264-3.534~~, Utah Admin. Code R315-~~8264-3.635~~, Utah Admin. Code R315-~~8264-9.5174~~, Utah Admin. Code R315-~~8264-9.7176~~, Utah Admin. Code R315-~~8264-9.8177~~; Utah Admin. Code R315-~~8264-221080 through 1091~~; the Facility Standing Operating Procedures (SOPs); and other plans identified in Attachment 4 (Contingency Plan). The SOPs and plans contain information on the program or facility-specific procedures to prevent hazards. The procedures relative to the Permit are summarized below.

2.0 Waiver or Documentation of Preparedness and Prevention Requirements [Utah Admin. Code R315-~~3270-2.514~~(b)(6), Utah Admin. Code R315-~~8264-3.332~~, Utah Admin. Code R315-~~8264-3.635~~]

2.1 The Permittee is requesting no waivers for ~~the~~ preparedness and prevention ~~requirements of Utah Admin. Code R315 3 2.5(b), Utah Admin. Code R315 8 3.3, or Utah Admin. Code R315 8 3.6.~~ The Facility's hazardous waste management units shall be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned discharge of hazardous waste or hazardous waste constituents that could threaten human health or the environment.

3.0 Inspection Schedule [Utah Admin. Code R315-~~3270-2.514~~(b)(5), Utah Admin. Code R315-~~8264-2.615~~(b), Utah Admin. Code R315-~~8264-5.373~~]

3.1 The permitted storage structures, equipment, ~~and~~ containers and treatment units within the Facility's hazardous waste management units shall be inspected regularly and frequently in accordance with Attachment 2 (Inspection Plan).

4.0 Reserved

5.0 Reserved

6.0 Reserved

7.0 Reserved

8.0 Reserved

9.0 Reserved

10.0 Reserved

11.0 Reserved

12.0 Reserved

13.0 **Equipment Requirements** [Utah Admin. Code R315-~~8264-3.332~~, Utah Admin. Code R315-~~8264-3.433~~, Utah Admin. Code R315-~~8264-3.534~~]

~~13.1 The following sections address the equipment required by Utah Admin. Code R315-8-3.3 through Utah Admin. Code R315-8-3.5.~~

13.21 **Internal Communications** [Utah Admin. Code R315-~~8264-3.332~~(a), Utah Admin. Code R315-~~8264-3.433~~, Utah Admin. Code R315-~~8264-3.534~~]

13.21.1 In all the Facility's hazardous waste management units, internal communications and alarm signals shall be achieved primarily by voice, since all units are small enough for voice communication to be effective. Two-way radios shall be available for communications between Facility security and employees working at Area 10 waste storage igloos and the Open Detonation (OD) unit. ~~At units outside of Area 10, s~~ounding a vehicle horn may also be used as an alarm signal.

13.32 **External Communications** [Utah Admin. Code R315-~~8264-3.332~~(b), Utah Admin. Code R315-~~8264-3.433~~, Utah Admin. Code R315-~~8264-3.534~~]

13.32.1 All personnel entering and working within a hazardous waste management unit shall carry a communication device capable of summoning external assistance in an emergency. Employee teams working at the ~~Open Burning/Open Detonation (OB/OD) Conex~~ shall be equipped with a communication device capable of summoning external assistance. Facility communications equipment shall be tested weekly to ensure proper function.

13.43 **Emergency Equipment** [Utah Admin. Code R315-~~8264-3.332~~(c), Utah Admin. Code R315-~~8264-3.433~~]

13.43.1 Emergency equipment identified in Attachment 4 (Contingency Plan) shall be maintained at the Facility to respond to emergency situations. The Fire Department shall be equipped with fire trucks and equipment for extinguishing fires and responding to chemical agent or other hazardous material spills. Fire extinguishers shall be located in transport vehicles when working at all permitted hazardous waste storage sites.

13.43.2 The Facility shall maintain supplies of personal protective equipment (PPE) and shall be equipped with a transport vehicle. Fire control, spill control, and a portable eyewash shall be kept on a transport vehicle and brought to the hazardous waste storage location where activities are being performed. When work is being performed at the ~~OB/OD Conex~~, fire control equipment shall be staged onsite in a vehicle. A spill kit shall also be permanently maintained at the ~~OB/OD Conex~~ (when in use).

13.43.3 Emergency equipment at all Facility hazardous waste management units shall be inspected weekly, and shall be ready for immediate deployment in the event of an incident or accident. Available equipment for spill cleanup shall be listed in Attachment 4 (Contingency Plan).

13.54 Water for Fire Control [Utah Admin. Code R315-~~8264-3.332~~(d)]

13.54.1 The Facility Fire Department shall maintain a 750-gallon per minute (gpm) pumper truck and a brush truck with a 200-gallon tank to fight fires. A fire hydrant is located about 4,800 feet from the ~~OB~~/OD Conex. Fire hydrants are located approximately 500 to 4000 feet from the Area 10 igloos. Small fires will be fought with fire extinguishers carried on all vehicles.

13.65 Aisle Space Requirements [Utah Admin. Code R315-~~8264-3.635~~]

13.65.1 Proper aisle space shall be maintained for all hazardous waste storage areas to allow unobstructed movement of personnel, materials handling equipment (MHE), and spill control and decontamination equipment.

13.65.2 A minimum aisle space of 2.5 feet shall be maintained in the Area 10 storage igloos. Sufficient aisle space shall be maintained at the ~~OB~~/OD Conex to allow for inspections and use of fire and spill control equipment.

13.76 Management of Ignitable or Reactive Wastes in Containers [Utah Admin. Code R315-~~3270-2.615~~(c), Utah Admin. Code R315-~~8264-9.7176~~]

13.76.1 Containers holding ignitable or reactive waste shall be stored in permitted storage areas located within Area 10 or the OB/OD Conex. These permitted storage areas exceed the requirement for containers to be more than 50 feet from the property line of the installation.

13.87 Management of Incompatible Waste in Containers [Utah Admin. Code R315-~~3270-2.615~~(d), Utah Admin. Code R315-~~8264-9.8177~~]

13.87.1 Incompatible wastes and materials shall not be placed in the same container or stored near other containers of incompatible wastes. Storage compatibility criteria, as described in 49 [Code of Federal Regulations \(CFR\)](#) Part 177 Subpart C Department of Transportation (DOT) Hazard Class (Division), shall be used when segregating wastes. No incompatible wastes shall be stored on the same pallet in permitted Facility hazardous waste storage units. Drums that have previously held hazardous waste shall not be re-used to store wastes or materials that are incompatible with that previously held.

14.0 Area 10, Container Storage [Utah Admin. Code R315-~~8264-9.1170~~ through ~~9.10178~~]

14.1 General Information

14.1.1 The Facility stores secondary wastes derived from chemical munitions operations and other hazardous wastes that are generated in the course of normal facility operations.

15.0 Emergency Equipment [Utah Admin. Code R315-~~8264-3.332~~(c), Utah Admin. Code R315-~~8264-3.433~~]

15.1 Emergency equipment available for use in Area 10 is listed in Table 4-3, “Area 10 Emergency Equipment and Supplies” located in Attachment 4 (Contingency Plan).

16.0 Operating Requirements

16.1 Hazardous waste storage requires many different management practices to ensure safe operations and protection of the environment. Local SOPs describe procedures for packaging agent-related waste, and the Facility ~~HWMP-Hazardous Waste Management Plan~~ describes procedures for non-agent-related hazardous wastes, labeling containers, and performing waste inventories. Other management practices related to waste munition storage and handling are provided in the current Department of Defense Explosives Safety Board (DDESB) storage standards. Containerized hazardous wastes shall be managed according to Utah Admin. Code R315-~~8264-9170~~.

16.2 The Facility property line is well over the required minimum 50-foot distance from the nearest permitted storage building or igloo, so ignitable or reactive waste may be stored in these facilities in compliance with Utah Admin. Code R315-~~8264-97176~~.

16.3 An Operating Record shall be maintained for the life of the facility that specifies the location of each waste container and correlates waste analysis results to waste containers, as required by Utah Admin. Code R315-~~8264-5373~~. The contents of leaking or damaged containers shall be repackaged in Resource Conservation and Recovery Act (RCRA)-compliant containers. Headspace shall be left in all containers storing volatile liquid to avoid damage caused by expansion or contraction of wastes because of temperature changes.

16.4 Container Management

16.4.1 Container management activities in permitted storage igloos shall include visual inspections, labeling and inventorying containers in use, and over packing leaking containers.

16.4.2 No igloo storing munitions shall exceed the design and DDESB-designated quantities (net explosive weight) for munitions stored in the igloo. Munitions shall be stored in accordance with approved storage drawings for orientation of items and in accordance with the Facility permit.

16.4.3 A MHE aisle shall be maintained along the centerline within the storage igloos to facilitate inspections and movement of personnel around stacks. The MHE aisle shall allow movement of fire protection and decontamination equipment in case of emergencies. A 2.5-foot aisle space shall be maintained between palletized waste munitions and between rows of pallets in the permitted storage igloos. Different munition lots stored in the same igloo shall be separated by rows or other spacing or shall be identified by tags or signs. The igloos shall be closed and access shall be limited to authorized personnel. Storage management practices shall require that all containers be stored on pallets and that containers shall not be stacked.

16.4.4 A hazardous waste label shall be placed on each container or pallet with the following information:

- 16.4.4.1 Waste Stream Number,
- 16.4.4.2 Nomenclature,
- 16.4.4.3 Date of accumulation, and
- 16.4.4.4 Facility Information.

16.4.5 The Permittee shall perform all inspections in accordance with Attachment 2 (Inspection Plan) and appropriate Facility SOPs. Visual inspections shall be employed to detect liquid spills.

17.0 Preventive Procedures, Structures, and Equipment [Utah Admin. Code R315-~~3270-2514~~(b)(8)]

17.1 Loading and Unloading [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(i)]

17.1.1 Hazards associated with handling, loading, and unloading operations shall be minimized through the implementation of Facility SOPs. Hazards shall also be minimized by personnel receiving the proper training as required Attachment 3 (Training Plan). Hazardous waste containers shall be inspected prior to movement to make sure they are properly closed and tightly sealed. Containers shall be transported on pallets and loaded and unloaded with a forklift. One or more spotters shall be used when hazardous waste is moved at any Facility hazardous waste management unit. Ramps facilitate movement of MHE in and out of storage units.

17.2 Runoff [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(ii)]

17.2.1 Permitted storage igloo structures shall be totally enclosed, weather-tight, and above exterior grade.

17.3 Protection of Water Supplies [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(iii)]

17.3.1 Contamination of water supplies shall be prevented at the Facility by minimizing the risk of discharge of hazardous waste. This shall be accomplished by proper inspection and maintenance of hazardous waste containers, including mitigation of leaking containers, prompt cleanup of any spills, and proper construction and maintenance of storage structures. Personnel shall be properly trained and equipped to handle hazardous wastes in both normal and emergency situations.

17.4 Mitigation of Equipment and Power Failures [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(iv)]

17.4.1 Area 10 permitted storage igloos do not require power for normal operations. Portable generators shall be used for special operations requiring power. If the generators or any other special equipment fails during operations, the activity shall be suspended until the equipment is repaired or replaced. Emergency backup generators shall provide power for surveillance systems in the event of a power outage. The Facility has numerous emergency portable generators to provide backup for any operations requiring emergency power.

17.5 Personal Protective Equipment (PPE)[Utah Admin. Code R315-~~3270-2.514~~(b)(8)(v)]

17.5.1 Various levels of PPE are worn to protect workers from chemical exposure at the Facility. Stocks of PPE appropriate for all hazardous materials managed at the Facility shall be maintained onsite.

17.5.2 The potential for exposure of personnel to any hazardous materials during operations shall be minimized through monitoring and decontamination of PPE and other equipment before, during, and after use in an area known to be contaminated or potentially contaminated. Facility SOPs or health and safety plans shall be used to prepare PPE for either reuse or storage for eventual disposal.

17.6 Prevention of Reaction of Ignitable, Reactive, or Incompatible Waste [Utah Admin. Code R315-~~3270-2.514~~(b)(9), Utah Admin. Code R315-~~8264-2.817~~]

17.6.1 All wastes stored at the Facility that are listed as ignitable or reactive shall be protected from sources of ignition or reaction (e.g. open flames, smoking, welding, radiant heat, or heat from friction, sparks, spontaneous ignition, etc.). Fusible links shall be used that close igloo ventilation dampers in the event of high temperatures, thereby minimizing the danger from fire. Attachment

1 (Waste Analysis Plan) lists ignitable or reactive wastes stored at the Facility which include spent high efficiency particulate air filters, paint residues, and degreasing solvents. All hazardous wastes, not just the ignitable or reactive wastes, shall be protected from ignition sources. Ignitable waste shall not be stored in Area 10.

- 17.6.2 To prevent accidental ignition or reaction caused by a lightning strike, the permitted storage igloos are protected with a lightning protection system. The air terminal (lightning rod) on the rear vent stack is placed at least one foot higher than the top of the vent. Grounding rods are also attached to the igloos.
- 17.6.3 Smoking and spark-producing devices shall not be allowed in units storing waste. Automatic lighters are installed in permitted smoking areas. No smoking signs shall be posted at the entrance of Area 10. The Fire Department shall issue hot work permits for all operations that involve spark- or flame-producing operations.
- 17.6.4 A list of ignitable (D001) and reactive (D003) wastes stored in permitted storage areas is provided in Attachment 1 (Waste Analysis Plan), Table 1-1-1, RCRA Hazardous Waste Designation and Rationale. Precautions shall be taken with regard to storage to ensure that ignitable and reactive wastes are not exposed to ignition sources or other conditions that could initiate a reaction. Containers storing incompatible wastes at the Facility shall be segregated, and incompatible wastes shall not be mixed. No Smoking signs shall be posted at the entrance to Area 10 and all other permitted hazardous waste units. Workers shall be trained annually in proper handling and storage of hazardous waste as required by Attachment 3 (Training Plan). Training for Facility employees shall provide instruction for proper handling and protection from sources that could ignite or cause a reaction with munitions. The training for employees shall also provide instruction on the proper handling of munitions and related waste. General safety requirements in Facility SOPs, reviewed with employees, shall provide instructions for properly handling munitions.

18.0 Inspection and Maintenance [Utah Admin. Code ~~R315-3270-2.514~~(b)(5), Utah Admin. Code R315-~~8264-2.615~~(b), Utah Admin. Code R315-~~8264-5.373~~;

18.1 Frequency of facility inspections are defined in Attachment 2 (Inspection Plan) and are based on the rate of deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections.

19.0 Reserved

20.0 Reserved

21.0 Reserved

22.0 Reserved

23.0 Reserved

24.0 Reserved

25.0 Reserved

26.0 Reserved

27.0 Open Detonation ~~Open Burning~~ Conex

27.1 General Information

27.1.1 The ~~OB~~/OD Conex is located in the ~~OB~~/OD area of the Facility. The purpose of the ~~OB~~/OD Conex shall be to store conventional munitions that have been designated as hazardous waste prior to treating them in the ~~OB~~/OD area.

27.2 Emergency Equipment

27.2.1 A spill kit is stored at the ~~OB~~/OD Conex.

27.2.2 A fire hydrant is located about 4,800 feet from the ~~OB~~/OD Conex. Small fires shall be fought with fire extinguishers carried on all vehicles.

27.3 Operating Requirements

27.3.1 Reserved.

27.4 Preventive Procedures, Structures, and Equipment [Utah Admin. Code R315-~~3270-2.514~~(b)(8)]

27.5 Loading and Unloading [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(i)]

27.5.1 Hazards associated with handling, loading, and unloading operations shall be minimized through the implementation of Facility SOPs. Hazards shall also be minimized by personnel receiving the proper training as required by Attachment 3 (Training Plan). Hazardous waste containers shall be inspected prior to movement to make sure they are properly closed and tightly sealed. Containers shall be transported on pallets and loaded and unloaded with a forklift. One or more spotters shall be used when hazardous waste is moved at any Facility hazardous waste management unit. Ramps facilitate movement of MHE in and out of storage units.

27.6 Runoff [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(ii)]

27.6.1 The ~~OB~~/OD Conex storage building is mounted on rollers, positioning a stored container about 4 inches above exterior grade. An earthen berm surrounding the ~~OB~~/OD Conex provides further protection from run-on and controls any runoff.

27.7 Protection of Water Supplies [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(iii)]

27.7.1 Contamination of water supplies shall be prevented at the Facility by minimizing the risk of discharge of hazardous waste. This shall be accomplished by proper inspection and maintenance of hazardous waste containers, including mitigation of leaking containers, prompt cleanup of any spills, and proper construction and maintenance of storage structures. Personnel shall be properly trained and equipped to handle hazardous wastes in both normal and emergency situations.

27.8 Mitigation of Equipment and Power Failures [Utah Admin. Code R315-~~3270-2.514~~(b)(8)(iv)]

27.8.1 Any activities at the ~~OB~~/OD Conex requiring power shall be supported by portable equipment. No power is required for the building to remain in a safe standby status.

27.9 Personal Protective Equipment [Utah Admin. Code R315-~~3270-2-514~~(b)(8)(v)]

27.9.1 Personal protective equipment shall be supplied to personnel working at the ~~OB~~/OD Conex as appropriate to accomplish assigned tasks in a safe manner.

27.10 Prevention of Reaction of Ignitable, Reactive, or Incompatible Waste [Utah Admin. Code R315-~~3270-2-514~~(b)(9), Utah Admin. Code R315-~~8264-2-817~~]

27.10.1 All wastes stored at the Facility that are listed as ignitable or reactive shall be protected from sources of ignition or reaction (e.g. open flames, smoking, welding, radiant heat, or heat from friction, sparks, spontaneous ignition, etc.). Fusible links shall close igloo ventilation dampers in the event of high temperatures, thereby minimizing the danger from fire. Attachment 1 (Waste Analysis Plan) , lists ignitable or reactive wastes stored at the Facility, which include spent high efficiency particulate air filters, paint residues, and degreasing solvents. All hazardous wastes, not just the ignitable or reactive wastes, shall be protected from ignition sources..

27.10.2 To prevent accidental ignition or reaction caused by a lightning strike, the permitted storage igloos are protected with a lightning protection system. The air terminal (lightning rod) on the rear vent stack is placed at least one foot higher than the top of the vent. Grounding rods are also attached to the igloos.

27.10.3 Smoking and spark-producing devices shall not be allowed in units storing waste. Automatic lighters are installed in permitted smoking areas. No smoking signs shall be posted in all permitted storage areas, 90-day storage areas, and SASs. The Fire Department shall issue hot work permits for all operations that involve spark- or flame-producing operations.

27.10.4 A list of ignitable (D001) and reactive (D003) wastes stored in permitted storage areas is provided in Attachment 1 (Waste Analysis Plan), Table 1-1-1, RCRA Hazardous Waste Designation and Rationale. Precautions shall be taken with regard to storage to ensure that ignitable and reactive wastes are not exposed to ignition sources or other conditions that could initiate a reaction. Containers storing incompatible wastes at the Facility shall be segregated, and incompatible wastes shall not be mixed. “No Smoking” signs shall be posted at the entrance of Area 10 and all other permitted units. Workers shall be trained annually in proper handling and storage of hazardous waste, as identified in Attachment 3 (Training Plan). Training for Facility employees shall provide instruction for proper handling and protection from sources that could ignite or cause a reaction with munitions. The training for employees shall also provide instruction on the proper handling of munitions and related waste. General safety requirements in Facility SOPs, reviewed with employees, shall provide instructions for properly handling munitions.

27.11 Inspection and Maintenance [R315-~~3270-2-514~~(b)(5), R315-~~8264-2-615~~(b), R315-~~8264-5-373~~; ~~40-CFR § 264.73(b)(5)~~]

27.11.1 Frequency of facility inspections are defined in Attachment 2 (Inspection Plan) and are based on the rate of deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections.

28.0 Open Detonation Unit

28.1 Internal Communications

28.1.1 The OD Area is serviced with a mobile telephone and a two-way radio. The telephone and the two-way radio are maintained in good working order and checked by Demilitarization (Demil) Team personnel prior to going to the area.

28.2 External Communications

28.2.1 Communications with off-site emergency agencies shall be conducted by the Installation On-Scene Coordinator (IOSC) or the On-Scene Commander (OSC). These personnel shall be contacted by the Demil Planner, who shall be contacted by portable radio and/or mobile telephone by the Demil Team Leader.

28.3 Fire and Spill Control

28.3.1 Firefighting equipment is readily available at the OD area during operations. The equipment consists of hand tools and fire extinguishers. Additional emergency equipment is stored at the TEAD-S Fire Department. This equipment includes respirators, protective clothing, fire extinguishers, and first aid kits. TEAD-S Fire Department personnel, trained in responding to hazardous materials emergencies, have ready access to the area and are dispatched to the scene in case of emergency.

28.3.2 Prior to beginning OD operations, the Demil Team Leader or his designated representative shall arrange to have the areas around the operations site cleared of vegetation. Firebreaks are cut around and within the OD area. Access roads serve as firebreaks. After each detonation, the area is swept for fires.

28.3.3 Workers are not allowed to engage in fire fighting if the size or condition of the fire would endanger their life or health.

28.3.4 In addition, the TEAD-S Fire Department stores and maintains an inventory of spill control and containment materials. This includes shovels, overpack drums and specialized tools. Large quantities of absorbent socks, pads, mats, sheets, bales, pillows, and pulp are also stored in the Fire Station.

28.3.5 The TEAD-S Fire Prevention and Protection Branch responds to fires and provides the initial response. They evacuate and assess the area. Meanwhile, the members of the TEAD-S Fire Department start decontamination procedures.

28.4 Equipment Testing and Maintenance

28.4.1 Preparedness and prevention equipment is inspected in accordance with Attachment 2 (Inspection Plan).

28.5 Contingency Arrangements and Coordination Agreements

28.5.1 The Permittee shall maintain reciprocal agreements with area fire departments, law enforcement agencies and hospitals. TEAD-S has its own fire department and security organizations, which will be the primary responders to emergencies. This plan and others dealing with hazardous

waste management are reviewed by these organizations so that they may become familiar with the hazards and properties of the materials and the facilities at TEAD-S.

28.5.2 The IOSC is the primary emergency authority. All decisions concerning the type of emergency response (i.e., firefighting technique, traffic control, medical treatment, isolation/evacuation requirements, air sampling, and spill containment/cleanup) are made by the IOSC and the emergency response team members.

28.5.3 Ambulance Support is provided by the TEAD-S Fire Department 24 hours per day every day of the year.

28.6 Loading and Unloading Operations

28.6.1 The following requirements will be observed in the operation of Government-owned/leased motor vehicles transporting explosives, ammunition, and other hazardous material:

28.6.1.1 When a motor vehicle approaches within 25 feet of the doors of a structure, through which a shipment is to be moved, the doors must be kept closed until the motor has been switched off; unless the exhaust system is equipped with a spark arresting device or no exposed explosives are present. Exposed explosives exclude finished ammunition and explosives packaged for shipment per DOT regulation.

28.6.1.2 No explosives will be loaded into or unloaded from motor vehicles while their motors are running except when required to provide power to vehicle accessories such as mechanical handling equipment used in the loading and unloading of the vehicle, provided:

- a) The accessory is an integral part of the vehicle.
- b) The exhaust gases from the motor are emitted at least 6 feet from the point at which the loading operations are conducted and are directed away from this point.
- c) The exhaust pipe is equipped with a spark arrester.
- d) Materials being loaded or unloaded, which may evolve flammable vapors, are enclosed in tightly fitting containers.

28.6.1.3 The brakes of conveyance must be set when parked. When parked on a grade, at least one wheel must be chocked. Safety jacks may be necessary to support a semitrailer during the loading and unloading when the trailer is not coupled to a tractor.

28.6.1.4 During unloading operations, compatibility requirements are maintained. Any unloaded initiator, combustible material and fuels are positioned a safe distance from explosives or ordnance.

28.6.1.5 Transport vehicles are removed from the hazard area before the containers are opened.

28.6.2 Items are packaged in containers of strength equal to or greater than those described in 49 CFR Part 173 Subpart C – Definitions, Classifications and Packaging for Class 1.

28.7 Runoff

28.7.1 OD operations are not conducted during periods of precipitation or during flooding. All energetic materials are completely destroyed during detonation and no hazardous residues are generated. Hence, there is no potential that run-on or run-off from the area will contact wastes or hazardous

residues. On-going site management, to include grading of the OD area, will minimize potential runoff.

28.8 Protection of Water Supplies

28.8.1 No known drinking water supplies are located within a mile of the OD area.

28.9 Mitigation of Equipment and Power Failures

28.9.1 Power outages and lighting strikes are not anticipated to be a cause of problems at the OD Unit. All OD operations are halted or canceled during an electrical storm. OD operations are conducted only within well-defined weather conditions as specified in Module VII.

28.9.2 If a truck breaks down and cannot be towed to its destination, a guard will be stationed at the truck site. The Permittee will dispatch a truck at once with loading personnel to transfer the load to a replacement vehicle.

28.10 Personnel Protection Procedures

28.10.1—The handling of waste explosives is conducted in a manner that minimizes contact of involved personnel with the waste. All handling operations and requirements for protective clothing are in accordance with SOPs. Protective clothing includes explosive handler coveralls, steel-toed safety shoes and safety glasses. Additional equipment may be required by a specific SOP for a particular ordnance item.

28.11 Prevention of Accidental Ignition or Reaction of Waste

28.11.1 –All hazardous materials and hazardous wastes handled at the Facility OD Area are assumed to be reactive, since they are military ordnance and only reactive wastes may be treated at the site. Non-reactive wastes are not treated at the OD Area. All personnel working in the OD Area must take all appropriate measures to prevent incidents that generate uncontrolled extreme heat or pressure, fire or explosions or violent reactions; produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; produce uncontrolled inflammable fumes or gases in sufficient quantities to pose a risk of fire or explosion; or through any other means, threaten human health or the environment.

28.11.2 OD operations generate heat, pressure (shock waves), explosions, and violent reactions. The intent of the OD operations is to initiate these phenomena in a controlled setting. The means to prevent unintended reactions is provided through the establishment of safety guidelines implemented through SOPs. As summarized below, the safety guidelines include, but are not limited to, the following:

28.11.2.1 Unauthorized ignition sources such as flame-producing devices are prohibited at the OD area at any time;

28.11.2.2 Sparking equipment and tools are prohibited near explosive materials unless specifically authorized by the Demil Supervisor;

28.11.2.3 All hand tools and mechanical devices are inspected prior to use to ensure their safety;

28.11.2.4 Motor vehicles used to transport waste explosives, ammunition, or other material meet the requirements of the applicable SOP;

28.11.2.5 OD operations are conducted only within well-defined weather conditions as specified in Module VII;

28.11.2.6 The material is protected against accidental ignition or explosion from fragments, grass fires, burning embers, or the impulse associated with materials being detonated;

28.11.2.7 Dry grass, leaves and flammable/combustible materials are removed from around the OD area;

28.11.2.8 Initiators (e.g., blasting caps, primers) and explosives are packaged, transported, and handled separately until placement for treatment; and

28.11.2.9 Engines of transport vehicles are turned off prior to the unloading of munitions.

28.11.3 These procedures are in use at various Department of Defense OD operations throughout the country. Experience has shown that when they are followed, the danger of accidental detonation or combustion is negligible.

Comments and Responses