

**ATTACHMENT 1**  
**GENERAL FACILITY DESCRIPTION**

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## 1.0 GENERAL FACILITY DESCRIPTION [UAC R315-3-5(b)(1)]

Tooele Army Depot (TEAD) consists of 24,732 acres of federal land in north-central Utah, in Tooele County. The facility is located about 40 miles southwest of Salt Lake City, approximately 3 miles southwest of the town of Tooele, Utah.

A Vicinity Map, Figure 1, and a General Site Map, Figure 2, show the location of TEAD in reference to its surrounding communities and the overall layout, roads and structures, of the depot. With the exception of the city of Tooele, the properties immediately adjacent to TEAD are undeveloped. The properties to the north are used as pasture or are cultivated, and the properties to the west and south are used for rangeland grazing. The properties to the east of TEAD consist of the city of Tooele and undeveloped rangeland along the lower western slopes of the Oquirrh Mountains. See Attachment 17.b for a more detailed discussion of the land use surrounding TEAD.

The principal work activities at TEAD are the shipping, receiving, and demilitarization of conventional munitions, and the testing and development of ammunition peculiar equipment and related demilitarization testing. This Permit contains the operating requirements for permitting seven HW storage facilities, a deactivation furnace (HW incineration), a small caliber munitions primer initiation unit and an open burn/open detonation (OB/OD) Units. General information about these hazardous waste management units (HWMUs) is given below:

<b>HWMU</b>	<b>TYPES OF WASTES STORED/TREATED</b>
Permitted HW Storage (Bldg. 528)	Waste industrial chemicals: solvents, fuels, paint residues, POL, corrosives, paint removers, metal processing compounds.
PEP HW Storage (Bldgs. A101, C815, 1368) 1205, 1370, C816	Waste propellants, explosives, and pyrotechnic (PEP) materials, munitions, munition components, residues.
HW Incineration (Deactivation Furnace Bldg. 1320)	Thermal treatment of waste munitions, munitions components, and PEP materials.
Primer Initiation (Disassembly Line building 1325)	Initiation of primers from small caliber munitions
Open Burning/Open Detonation Unit	Demilitarization activities including munitions detonation in pits and propellant burning in pans.

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## **2.0 BACKGROUND INFORMATION**

TEAD's current missions include ammunition renovation, storage, demilitarization, and the design, fabrication, and testing of ammunition equipment.

The realignment of TEAD's mission to rebuild and refurbish of military equipment, by the Base Realignment and Closure (BRAC) commission, has greatly reduced the generation of hazardous paint wastes, spent solvents, and acids and bases. The generated wastes are managed and stored pending removal and transportation to a permitted hazardous waste (HW) disposal facility by a contracted permitted HW transporter.

Small arms munitions from onsite inventories that are deemed obsolete or off-specification by Department of Army (DA) standards are incinerated in the Deactivation Furnace, also known as the APE 1236 furnace. Recoverable scrap metal from incineration of these munitions is recycled through the Defense Reutilization and Marketing Office (DRMO). The ash from this operation is tested by TCLP analysis and is managed appropriately. Metal parts are determined to be free of explosive contamination by Ammunition Surveillance personnel at TEAD and are reprocessed if necessary until free of explosive contamination.

The Small Caliber Disassembly Line separates the projectile from the cartridge case, which allows for the propellant to be recovered for reuse. The projectile is containerized and sent to the Deactivation Furnace for treatment. The primer in the cartridge case is initiated in a cubicle on the end of the disassembly line.

The OB/OD Area is located in the southwestern corner of TEAD and consists of a detonation unit, a static fire unit and a burn pan unit. The OB/OD Units have been used since the 1940s for demilitarization activities including munitions detonation in pits and propellant burning in pans. Past activities included burning munitions and other items in open trenches. Trenches were backfilled when they became full. Burning is no longer conducted in open trenches. There are currently 19 detonation pits, eleven burn pans and six static silos at the OB/OD Area.

## **3.0 CORRECTIVE ACTIONS**

TEAD is on the CERCLA National Priorities List and entered into a Federal Facilities Agreement (FFA) with EPA Region VIII and the Utah Department of Environmental Quality (UDEQ) in September 1991. Seventeen of the 58 known and potential waste sites at TEAD were designated as CERCLA sites in this agreement.

In January 1991, TEAD was issued a RCRA Post Closure and Corrective Action Permit. This permit basically serves the same purpose as the FFA. The Corrective Action portion of the Permit addresses 9 known release Solid Waste Management Units (SWMUs) and 32 suspected release SWMUs. Thus, 17 of the 58 sites are being handled under CERCLA/SARA with the EPA as the lead regulatory agency and 41 are being addressed under RCRA with the state of Utah as the lead agency. The FFA has been incorporated into the *TEAD North Area Industrial Waste Lagoon Post-Closure Permit*. Further information about the SWMUs and corrective actions can be found in the latest version of the TEAD Installation Action Plan.

#### **4.0 SEISMIC STANDARD [UACR315-8-2.9(a); R315-3-5(b) (11)]**

The HWMUs at TEAD are existing facilities and as such are exempt from the provisions of UAC R315-8-2.9(a).

#### **5.0 FLOODPLAIN STANDARD [UAC R315-8-2.9(b); R315-3-5(b)(11)]**

No Flood Insurance Administration 100-year floodplain maps of the TEAD facility exist. However, TEAD has been determined to be outside of the 100-year flood plain and not subject to flooding based on the following information extracted from the *TEAD Master Plan Report* prepared by Higginbotham and Associates, P.C., and the *Installation Assessment* prepared by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA):

- There is no history of flooding at TEAD during the 65 years that it has been in existence.
- The overall drainage gradient for the entire TEAD facility is 2% or greater, and this grade continues for many miles. The topography is generally smooth and uniform, allowing no chance for ponding or pooling of floodwaters.
- No channels exist that would concentrate flows from upgradient areas.
- Few well-defined channels exist in the vicinity of TEAD. There are none that would carry or direct water to or through any of the HWMUs.
- TEAD facilities are 300 feet higher in elevation than the Great Salt Lake, the ultimate drainage for the area.
- The drainage gradient to the Great Salt Lake is smooth and uniform. The lake is approximately eight miles from TEAD.
- There are no onsite barriers to impede runoff. No significant vegetation exists to retain runoff waters.
- The area is arid to semiarid and receives little precipitation. The 100-year 24-hour precipitation event is less than 3.2 inches.
- The soils of the area are generally very pervious. Thus, little runoff is expected.

A Topographic Map of the depot covering all HWMUs, required by UAC R315-3-5(b)(19), is included in this facility description as Figure 3. The wind rose showing prevailing wind direction and speed on depot is located in Attachment 17.

#### **6.0 TRAFFIC PATTERNS [UAC R315-3-5(b)(10)]**

The Vicinity Map in Figure 1 shows the highway network for the major highways serving the TEAD area. State Highway 36 runs from the southwest to the northeast, adjacent to the southeast corner of TEAD.

State Highway 112 runs from the northwest to the southeast, adjacent to the northeast corner of TEAD. State Highway 59 runs from the north to the south along the western boundary of TEAD.

Primary entry routes to TEAD are by way of the Main Entrance Road to State Highway 36 and the North Gate Approach Road off State Highway 112. The Main Entrance Road serves as the major traffic corridor.

Traffic patterns related to the HWMUs are shown in Figure 4. Generally, all traffic, including government, commercial, and private vehicles, follows the primary traffic routes.

## **7.0 TRAFFIC CONTROL**

Stop signs are positioned at most intersections to control the flow of traffic in the more congested areas of the installation. Traffic lights are located at the main entrance gate. Security personnel are authorized to enforce traffic regulations and provide traffic control when required. Arterial roads are constructed within the magazine areas to service maintenance and storage facilities. These roads are of standard two-lane configuration with speed limits ranging from 10 to 50 mph, depending on congestion and road conditions such as curves, surface types, and visibility.

## **8.0 ESTIMATED TRAFFIC VOLUME**

It is estimated that up to 600 vehicles belonging to employees and contractors, are driven onto the installation each workday. Most trips driven on the installation by employees are made in government vehicles. There are around 50 government (GSA) high capacity trucks and about 210 pickup trucks, vans, and sedans. These vehicles are used approximately 5 hours per day. About 60 engineering construction vehicles are also in use in varying degrees. Additionally, about 115 material handling equipment vehicles, forklifts, etc., are frequently driven on the installation's roads.

## **9.0 ROAD SURFACING AND LOAD BEARING CAPACITY**

All arterial and major access roads at TEAD are designated for a minimum bearing load capacity of 18,000 pounds per axle. Construction materials for road surfaces along main access routes and arterial roads to the operations and storage are asphalt/concrete, bituminous, or gravel. Secondary road surfaces are earthen. Table 1 gives design details for TEAD roads by class.

## **10.0 TOPOGRAPHIC MAPS**

The map, presented in Figure 3, illustrates the general topography of each HWMU, including the OB/OD Units. In addition, as required by various subsections of UAC R315-3-5(19), figures are included to illustrate the following:

- Surface Water: See Attachment 17, Risk Management Plan for figures and discussion that depict surface water surrounding TEAD.
- Land Use: See Attachment 17.b for figures and discussion that depict the land use surrounding TEAD.

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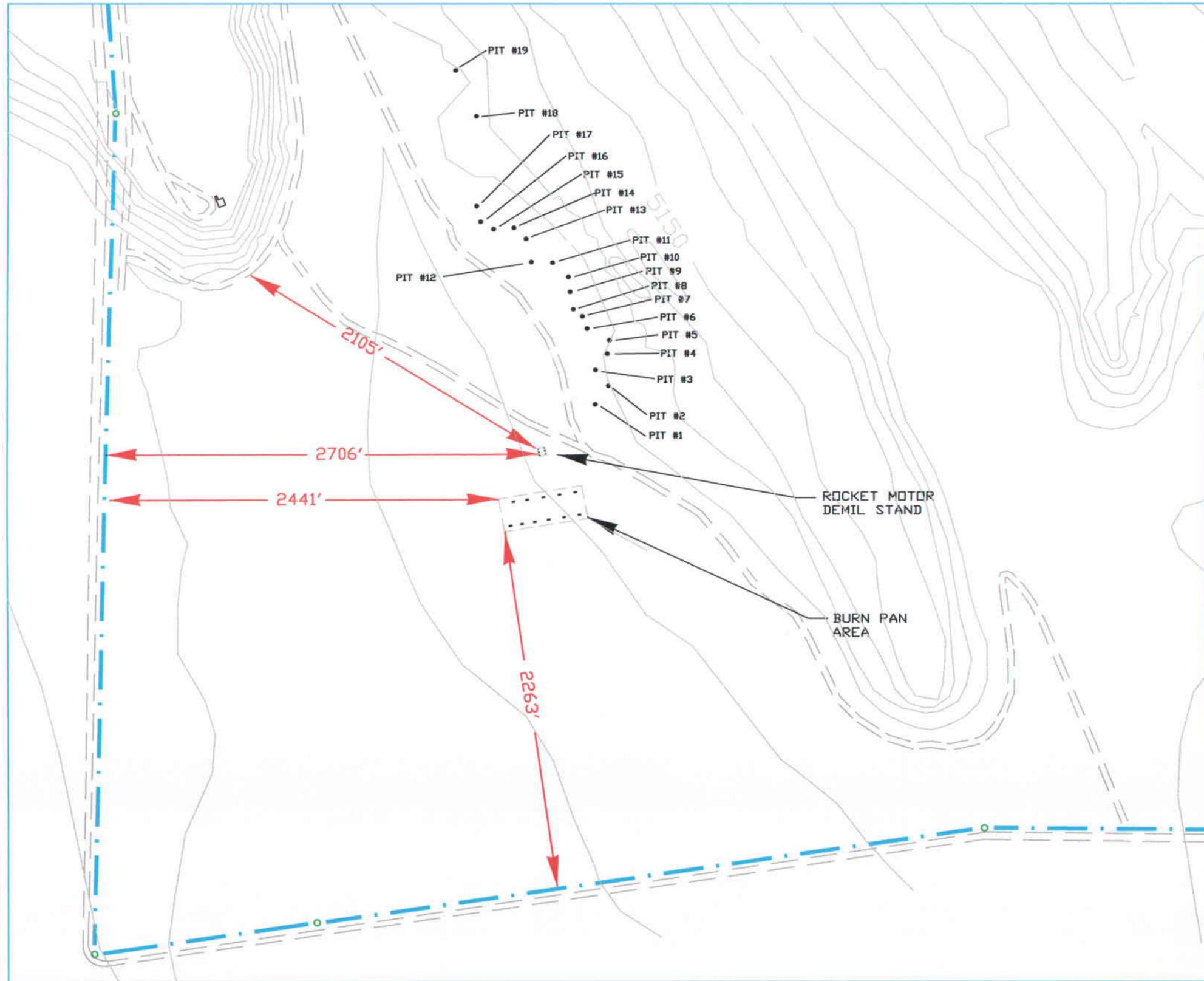
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PUBLIC WORKS TOOELE ARMY DEPOT TOOELE, UTAH		
TOOELE ARMY DEPOT TOOELE, UTAH		
Operation Area of OB/OD		
DRAWN BY: BOB THURSTON	FEBRUARY 2008	Figure 2

## **MODULE II - GENERAL FACILITY CONDITIONS**

### **II.A. APPLICABILITY**

- II.A.1. The requirements of this Permit module pertain to all Hazardous Waste Management Units (HWMUs) identified within Modules III, IV, V and VI.

### **II.B. DESIGN AND OPERATION OF FACILITY**

- II.B.1. The Permittee shall design, construct, maintain and operate the HWMUs and surrounding areas to minimize the possibility of a fire, explosion, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater or surface water which could threaten human health or the environment.
- II.B.2. Any request for changes to the existing HWMUs shall be in accordance with UAC R315-3-4.3 and Condition I.D.6. Changes to the design and operation of a HWMUs shall satisfy the secondary containment, environmental performance and incinerator control requirements specified in this permit. Any changes to a HWMU must be documented on as-built drawings and with a professional engineering certification as required by UAC R315-3-3.1(I).
- II.B.3 After review of the as-built drawings and field verification of the facilities, the Executive Secretary will notify the Permittee in writing of any change which he concludes does not satisfy the operating requirements specified in this permit. If it is established that such changes are permit violations, the Executive Secretary may require the Permittee to remove, replace or modify any construction inconsistent with this permit.

### **II.C. REQUIRED NOTICE**

- II.C.1. As required by UAC R315-8-2.3(a)(1), the Permittee shall notify the Executive Secretary in writing at least four weeks in advance of the date the Permittee expects to receive waste military munitions from a foreign source, Notice of subsequent shipments of the same waste from the same foreign source in the same calendar year is not required.
- II.C.2. When the Permittee arranges to receive waste military munitions from an off-site source, the generator must be informed in writing by the Permittee that he has the appropriate Permit for and will accept the waste the generator is shipping. As

required by UAC R315-8-2.3 (b), the Permittee shall keep a copy of the written notice as part of the operating record.

**II.D. WASTE ANALYSIS PLAN**

- II.D.1. The Permittee shall follow the procedures of the Waste Analysis Plan in Attachment 2 of this Permit. In addition, the Permittee shall comply with any other conditions involving waste analysis in Modules III, IV, V and VI.
- II.D.2. The Permittee shall use the test methods described in the Waste Analysis Plan in Attachment 2 or an equivalent procedure that satisfies Condition I.O.3. Changes in a test method described in the Waste Analysis Plan, as a result of an improvement or refinement of that method, may be adopted by the Permittee and incorporated into this Permit, in accordance with UAC R315-4-1.5.
- II.D.3. The Permittee shall verify the analysis of each waste stream when new or modified wastes are known or suspected to exist. The Permittee shall conduct an evaluation of each new waste stream generated on-site and shall submit to the Executive Secretary a report of the analysis in compliance with UAC R315-8-2.4. The report shall be submitted 120 days after adequate volume is generated to allow analysis. The Waste Stream Evaluation Form, as shown in Attachment 2, shall be used for this report. Analysis of existing waste streams shall be kept in the operating record.
- II.D.4. Sampling of any component of a waste munition to be stored and/or treated at TEAD, including the energetic material of a munition, is not required to meet the waste analysis requirements of UAC R315-7-9.4 and UAC R315-8-16. User knowledge will suffice. User knowledge to determine the detailed physical and chemical analysis of a waste munitions shall include use of information in the MIDAS database as well as drawings and manufacturers information. All waste characterization information shall be in the operating record. Residues from the treatment of PEP wastes are subject to Condition II.D.3.
- II.D.5. At a minimum, the Permittee shall:
- II.D.5.a. Maintain proper functional instruments;
- II.D.5.b. Use approved sampling and analytical methods;
- II.D.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 condition. 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 must operate under the Waste Analysis Plan conditions set forth in this Permit.

**II.E. SECURITY**

II.E.1. The Permittee shall comply with security conditions and procedures contained in Attachment 3.

**II.F. GENERAL INSPECTION REQUIREMENTS**

II.F.1. The Permittee shall conduct inspections in accordance with UAC R315-8-2.6, and the procedures and schedule in Attachment 4. In addition, the Permittee shall comply with the conditions pertaining to inspections in Modules III, IV, V and VI and the following:

II.F.1.a. The Permittee shall remedy any deterioration or malfunction as required by UAC R315-8-2.6(c). If the remedy requires more than 72 hours to implement, from the time that the problem is detected, the Permittee shall submit to the Executive Secretary, before the expiration of the 72 hour period, a proposed time schedule for correcting the problem.

II.F.1.b. Records of inspections shall be kept as required by UAC R315-8-2.6(d).

**II.G. PERSONNEL TRAINING**

II.G.1. The Permittee shall conduct personnel training as required by UAC R315-8-2.7. The training program shall follow the outline found in Attachment 5. New personnel working with or around hazardous waste shall complete the required personnel training within six months after their hire date, assignment to the facility or assignment to a new position at the facility. In addition, the Permittee shall comply with the following conditions:

II.G.1.a. Facility personnel shall take part in an annual review of their initial training in both contingency procedures and the hazardous waste management procedures relevant to the positions, which they are employed.

II.G.1.b. The Permittee shall maintain training documents and records as required by UAC R315-8-2.7(d) and UAC R315-8-2.7(e) and in accordance with the Training Plan

in Attachment 5. These records shall indicate the type and amount of training received.

- II.G.1.c. The Permittee shall maintain a copy of the Training Plan at the facility until the facility is fully closed and closure is certified.

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

- II.H.1. The Permittee shall comply with the requirements of UAC R315-8-2.8 and the requirements of all applicable National Fire Protection Association (NFPA) and Department of Defense Explosives Safety Board (DDESB) codes and standards.
- II.H.2. In addition to the requirements of UAC R315-8-2.8, the Permittee shall comply with the conditions of Modules III, IV, V and VI pertaining to ignitable, reactive, or incompatible waste.

**II.I. LOCATION STANDARDS**

- II.I.1. It has been determined that this facility has met the location standards specified by UAC R315-8-2.9.

**II.J. PREPAREDNESS AND PREVENTION**

- II.J.1. The Permittee shall follow the Preparedness and Prevention Plan in Attachment 6.
- II.J.2. Required Equipment. At a minimum, the Permittee shall equip and maintain at the facility, and keep in good operating condition, the equipment set forth in Attachment 6, as required by UAC R315-8-3.3.
- II.J.3. Testing and Maintenance of Equipment. The Permittee shall test and maintain the equipment specified in Condition II.J.2. as necessary to assure its proper operation in time of emergency.
- II.J.4. The Permittee shall maintain records of these preventative maintenance and repair activities specified in Condition II.J.3. and shall keep schedules, reflecting minimum and planned frequency for the performance of preventative maintenance activities in the operating record at the facility in accordance with Condition I.O.

- II.J.5. Access to Communications or Alarm System. The Permittee shall maintain access to the communications or alarm system as required by UAC R315-8-3.5.
- II.J.6. Required Aisle Space. At a minimum, the Permittee shall maintain a minimum 2.5 feet aisle space in the container and munitions storage areas in accordance with UAC R315-8-3.6.
- II.J.7. Arrangements with Local Authorities. The Permittee shall attempt to make arrangements with state and local authorities as required by UAC R315-8-3.7. Any refusals to enter into an agreement shall be documented in the operating record.

**II.K. CONTINGENCY PLAN**

- II.K.1. Implementation of Plan. The Permittee shall immediately carry out the provisions of Attachment 7, and follow the emergency procedures described by UAC R315-8-4.7, 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 Condition I.T. in reporting releases to the Executive Secretary.
- II.K.2. Copies of Plan. The Permittee shall comply with the requirements of UAC R315-8-4.4.
- II.K.3. Amendments to Plan. The Permittee shall review the Contingency Plan in accordance with UAC R315-8-4.5. The Permittee shall immediately amend, if necessary, the
- II.K.4. Emergency Coordinator. A trained emergency coordinator shall be available at all times in case of an emergency, as required by UAC R315-8-4.6.

**II.L. MANIFEST SYSTEM**

- II.L.1. The manifest number shall be recorded in the operating record with each waste load that leaves the Permittee's facility. UAC R315-5-2 and UAC R315-8-5 apply for all record keeping associated with the movement of these wastes.
- II.L.2. Within ten days of receiving wastes from Deseret Chemical Depot (DCD) the Permittee shall submit copies of these manifests to the Executive Secretary.

**II.M. RECORDKEEPING AND REPORTING**

- II.M.1. The Permittee shall maintain an accurate written operating record at the facility in accordance with UAC R315-8-and UAC R315-50-1.
- II.M.2. The Permittee shall, by March 1 of each year, submit to the Executive Secretary:
- II.M.2.a a certification pursuant to UAC R315-8-5.3 , signed by the owner or operator of the facility, or an 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 and
- II.M.2.b. a certification that OB and OD treatment is the only practicable method or combination of methods currently available to minimize the present and future threat to human health or the environment and that the Permittee has a program in place to investigate available technologies, other than the OB and 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.M.3. The Permittee shall comply with the biennial report requirements of UAC R315-8-5.6, by March 1 of each even-numbered reporting year. The report shall include wastes generated, treated and stored at the Permittee's facility during the previous odd-numbered year.
- II.M.4. The Permittee shall submit additional reports to the Executive Secretary in accordance with UAC R315-8-5.8.
- II.M.5. All reports, notifications, application, or other materials required to be submitted to the Executive Secretary shall be submitted at the address shown in Condition I.DD.
- II.M.6. The Permittee shall maintain a copy of the certifications required in Condition II.M. in the operating record and sign each certification in accordance with UAC R315-5-4.41(a)(8) and UAC R315-3-2.2(d)(1).

## **II.N. CLOSURE/POST CLOSURE**

- II.N.1. Performance Standard. The Permittee shall close the facility in accordance with UAC R315-8-7 and Attachment 8.
- II.N.2. For all HWMUs, minor deviations from the permitted Closure Plan procedures 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 60 days after completion of closure of each hazardous waste management unit, the Permittee shall submit the certification statements and narrative report to the Executive Secretary.
- II.N.3. Amendment to Closure/Post-Closure Plan. The Permittee shall amend the closure/post-closure plan in accordance with UAC R315- 4-1.5 whenever necessary, or when required to do so by the Executive Secretary.
- II.N.4. Notification of Closure. The Permittee shall notify the Executive Secretary in writing of the partial closure of any portion of the facility in accordance with UAC R315-8-7. The Permittee shall notify the Executive Secretary at least 180 days prior to the commencement of final facility closure. The closure plan contained in Attachment 8 will be reviewed by the Permittee, and modified if necessary, before commencing partial or final facility closure. If the closure plan requires modification, the plan shall be modified and submitted to the Executive Secretary for approval in accordance with Condition I.D.
- II.N. 5. Time Allowed for Closure. After treating the final volume of hazardous waste, the Permittee shall remove from the site all hazardous waste in accordance with the time frames specified in Attachment 8.
- II.N.6. Disposal of Contaminated Equipment, Structures and Soil. The Permittee shall decontaminate or dispose of all facility equipment, structures, soil and rinsate as required by UAC R315-8-7, R315-8- 14.5 and Attachment 8. Facility equipment, structures and soil which have not been decontaminated will be disposed of at a permitted TSDF.
- II.N.7. Certification of Closure. The Permittee shall certify that the facility has been closed in accordance with the specifications in Attachment 8, as required by UAC R315-8-7, and shall provide a certification by an independent, registered professional engineer qualified by experience and education in the appropriate engineering field.
- II.N.8. In the event that any hazardous waste management unit cannot be clean closed by

removing hazardous constituents, contaminated subsoil, and any contaminated groundwater as specified in the Closure Plan, Attachment 8, the Permittee shall modify the Closure/Post-Closure Plan for that HWMU in accordance with UAC R315- 4- 1.5 and Condition I.D. Within 30 days of the date that the Executive Secretary approves the modification, the unit shall be closed as a landfill, in accordance with UAC R315-8-7

- II.N.9. Survey Plat. The Permittee shall submit a survey plat no later than the submission of certification of closure of each hazardous waste storage and treatment unit, in accordance with UAC R315-8-7.

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

- II.O.1. The Permittee, as a Federal facility, is exempt from closure cost estimate requirements in accordance with UAC R315-8-8

## **II.P. RECEIPT OF OFF-SITE WASTE PROHIBITED**

- II.P.1 The Permittee shall not receive hazardous wastes that are generated off-depot except for:
- II.P.1.a. Wastes generated by TEAD during investigation or remediation of sites adjacent to TEAD that were contaminated from past TEAD operations,
- II.P.1.b. Army owned waste conventional military munitions that will be treated in the incinerator operated in accordance with Module IV of this Permit,
- II.P.1.c. Army owned waste conventional munitions that will be recycled and treated in the small caliber disassembly line operated in accordance with Module V of this permit,
- II.P.1.d. Waste conventional munitions generated at the Deseret Chemical Depot (DCD), and
- II.P.1.e. Conventional military or commercial explosive items identified as hazardous waste and collected during emergency response situations and transported by U.S. Army Explosive Ordnance Disposal (EOD) Personnel. The collection of these wastes is limited to the area of Utah, Wyoming and Idaho and three counties in Nevada, namely, Elko, Eureka and White Pine. The maximum amount of explosive wastes that can be received or received and stored from one EOD emergency response shall be no more than 100 kg (220 pounds).

II.P.1.f. Army owned waste conventional munitions that will be treated at the OB/OD area in accordance with Module VI of this Permit.

II.P.2. F999 and P999 wastes associated with lethal chemical agents shall not be stored or treated at TEAD.

**II.Q. TREATMENT OF MUNITIONS CONTAINING DEPLETED URANIUM**

II.Q.1. Munitions containing depleted uranium in any form shall not be treated at the facility without the express approval of the Executive Secretary.

**II.R. RISK THRESHOLDS**

II.R.1. Open Burn (OB) and Open Detonation (OD) operations shall be conducted in a manner that minimizes the risk to human health and the environment. The risk thresholds in Module VI for operations at the OB/OD area are based on the risk assessments in Attachments 16 and 17. The human health risk assessment uses potency factors (slope factors or chronic reference doses) for carcinogens and reference doses for non-carcinogens from the U.S. EPA's Integrated Risk Information System (IRIS) and from the U.S. EPA's Health Effects Assessment Summary Tables (HEAST) databases.

II.R.2. At the request of the Executive Secretary or the Permittee, the completeness and accuracy of the risk assessments in Attachments 16 and 17 shall be evaluated. At a minimum, the evaluation shall include the following information:

II.R.2.a. A review of the list of chemicals/munitions constituents to add additional chemicals and emission factors as a result of updates in the waste characterization databases such as the MIDAS database.

II.R.2.b. A review of the toxicity information (reference doses, cancer slope factors), to include any new toxicity data.

**ATTACHMENT 16**  
**OPEN BURNING/OPEN DETONATION OPERATIONS**

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## 1.0 OB/OD DESIGN AND OPERATION

### 1.1. Applicability as a Miscellaneous Unit [UAC R315-8-16 and R315-8-6.8]

TEAD conducts thermal treatment of conventional energetic material items at the OB/OD Area. The principal work activities at TEAD are the shipping, receiving, maintenance and demilitarization of conventional munitions, and the testing and development of ammunition peculiar equipment and related demilitarization testing. The location of the OB/OD Area is shown in Figure 1 and a detailed map showing the OB/OD operations area is shown in Figure 2. Treatment by OB/OD falls under the miscellaneous units provisions in UAC R315-8-16.

OB/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 OB/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 OB/OD, to treat appropriate energetic materials. TEAD is installing equipment to reutilize propellant as an explosive for the mining industry and to caustically treat Cartridge Activated Devices. TEAD reports progress in developing alternative technologies as part of the annual waste minimization certification.

Because the OB and OD treatment processes are a noncontinuous (i.e., batch) process, the facility is not subject to steady-state or "normal" operating conditions. Wastes are treated by the Demil Team according to Standard Operating Procedures (SOPs). The SOPs detail the handling of the explosives from storage to unloading, the tools to be used, setting the charge, and, ultimately, burning or detonation.

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

- Safety. Safety is the most important consideration. Strict observance of proven OB and 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 Department of Defense (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 their inherent simplicity, OB and OD are extremely reliable processes not subject to equipment downtime.
- Treatment Efficiency. Both OB/OD are very efficient treatments as demonstrated by testing. This is discussed in further detail in Attachment 21.

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## **1.2. Hazardous Waste Storage and Variance**

TEAD does not treat nonreactive waste at the OB/OD Units other than incidental packaging. Thus a variance to treat solid waste is not needed.

Currently TEAD only accepts waste from Deseret Chemical Depot (DCD) for treatment at the OB/OD Units. Munitions are treated the same day that they are received at the OB/OD Units. In the case of weather delays, munitions are treated as soon as possible (generally within 24 hours). Should the need to store the munitions in the pits exceed 24 hours, TEAD would request an emergency storage permit from the State Division of Solid and Hazardous Waste

## **1.3. OPEN BURN (OB)**

### **1.3.a Appropriateness of Treatment Technology [UAC R315-3-23(b)]**

The reasons that OB is an appropriate treatment technology for unserviceable munitions is discussed in Section 1.1 above.

### **1.3.b Description of OB Unit [UAC R315-3-6.8(a)]**

OB occurs at the OB unit. The OB unit is about 200 feet directly south of the OD unit. Figures in Appendix C show the burn pans at the OB Unit. Treatment at the OB unit is accomplished by the use of 11 burn pans. Items typically treated are bulk propellants. No donor charges are used in OB.

The 11 burn pans are designed and constructed similarly. The dimensions of each of the 11 pans are approximately 16 ft x 4 ft x 11 inches deep. A schematic of a typical burn pan is provided in Appendix A. Appendix A also has the detailed drawings of the burn pans used at TEAD. The burn pans are approximately 60 feet apart. Each pan is elevated approximately 1 foot. The position of the legs of the structure allows for easy inspection of the bottom of the pan and the surface of the ground beneath it. The pans are constructed of steel, and covers are placed over them when they are not in use.

Prior to conducting OB, certain meteorological conditions must be met. Figure 3 lists the meteorological parameters for TEAD. The Demil Team Leader, or his/her designated representative, must ensure that all firing has ceased when aircraft approach the area. Designated observers have effective communications with the Range Supervisor any time an aircraft approaches the area. OB is not initiated until 1/2-hour after sunrise and is concluded 1/2-hour before sunset. Meteorological data are obtained from the:

- Salt Lake City National Weather Services; or
- Internet (<http://nimbo.wrh.noaa.gov/saltlake/>).

Figure 3. Meteorological Parameters for TEAD

<b>Parameters</b>	<b>TEAD Requirement</b>
Wind speed for burn and static fire	3-20 mph/gusts to 30 mph
Wind speed for detonation	3-15 mph/gusts to 20 mph
Cloud cover (see note)	<80%
Ceiling	>2,000 ft.
Precipitation	<75% chance
Thunderstorm/electrical storm	<50% chance
Clearing index	>500
Visibility	1 mile
<p>Source: TEAD Regulation 385-2, AMC Regulation 755-8.            Note: Cloud cover and ceiling limits are in conjunction with each other. Operations shall not be carried out when the cloud cover is greater than 80% and the cloud ceiling is less than 2,000 ft.</p>	

An on-site met tower provides site-specific data. A determination is made prior to burning whether to cease operations or to continue based on the meteorological data. This information is recorded on a 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 for the operation, he/she contacts the Demil Planner. A determination is made whether to continue the operation with the propellant already in the pan or to leave the propellant in the pan and burn it the following day. If the propellant is held over until the next day, the Environmental Management Office is notified so that it can brief the Executive Secretary about why the materials were left unburned. Under no circumstances is propellant placed in the pan after weather conditions have deteriorated.

The Demil Planner annotates on the Demilitarization Approval Form that each organization has been notified. The Demil Planner takes this Demilitarization Approval Form to the Directorate of Ammunition Operations or his/her designated representative for approval/disapproval. 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 describe when charges have been set and when they are ready to burn.

The preliminary steps prior to the actual OB activities are similar to those for the OD practice. Dry grass, leaves, and other extraneous combustible material in amounts sufficient to spread fires are removed within a radius of 61 m (200 feet) from the pans. Meteorological data are checked, and trays are arranged so that the propellants burn in the opposite direction from which the wind is blowing. Telephone or two-way radio communications are established and remain in operation during the entire OB operation.

The propellant to be burned is loaded into the pans. The propellant is poured into the pans with extreme care taken to prevent the occurrence of spills. The propellant is placed in the pan to a thickness no greater than 7.5 cm (3 in.). The area is then cleared of all personnel except for those needed to install the igniting charge into the pans. When the area is determined to be clear, the igniting charges are laid in the pans and activated.

The burn operation is observed from a safe position, and fire-fighting equipment is made available to combat grass, brush, or equipment fires. Qualified personnel check pans and ensure that all propellant has been burned. At the end of each day's operation, all extraneous operations materials are removed from the OB unit. Ash and residue are gathered, containerized in an authorized container, labeled as hazardous waste, and stored.

The Demil Team operates the OB unit in accordance with Standard Operating Procedure (SOP) No. TE-0000-H-012. This SOP provides additional information on current procedures.

### **1.3.c. Leak Detection Provisions [Utah Code R315-3-6.8(a)(1) and (2)]**

This section addresses the concern that ash/residue or wastes may be released from the burn pan if it develops a leak, a break, or a crack. The potential for such a release is minimized through pre-burn and post-burn inspections of burn pan integrity. The burn pan is situated above ground on two I-beams to allow visual inspection for leaks. The use of I-beams facilitates the conduct of routine integrity inspections of the burn pans.

Any pan showing any evidence of deterioration is not used; and damaged pans are repaired prior to being returned to use. Additionally, the structural integrity of steel pans has been shown to be reliable in previous U.S. Army tests at the Tooele Army Depot.

There is no need to construct secondary containment in the OB unit to be fully protective of the environment. Any ejecta is collected during the post-burn inspection and is returned the same day. The pan design has been tested and shown to be structurally reliable. In addition, any damage to the pan would be detected during pre-burn and post-burn inspection and repaired before the pan is used again.

### **1.3.d. Precipitation Cover [Utah Code R315-3-6.8(a)(1) and (2)]**

Each burn pan is equipped with a precipitation cover. The covers are tight fitting and remain on the burn pans during non-operational periods to prevent accumulation of precipitation and wind dispersion of any ash and residue.

### **1.3.e Control of Releases of Ash and Residue During OB [Utah Code R315-3-6.8(a)(1) and (2)]**

This section addresses the concern that the propellant, waste, or ashes will be ejected from the burn pan onto the ground during burning operations, potentially resulting in environmental contamination via the soil, surface water, and groundwater pathways. This potential for contamination is minimized during OB by several measures. First, the burn pan is of sufficient height to minimize the ejection of most waste. Second, post-burn inspection of the

area surrounding the pan would reveal the presence of ejected materials, which are subsequently collected. A determination is made as to whether there is any remaining contamination by having experienced personnel carefully inspect the pans and the surrounding area after a burn.

It is considered unsafe to approach the burn pan for ash removal and inspection until a sufficient time has passed to allow all materials in the pan to cool. The pan is inspected after a burn to make sure that all the propellants have burned and the pan is then covered. Any visible ejecta from the pan are collected and placed back in the pan. Although every effort is made to pick up visible ejecta, it is possible that some very small particles may escape detection. After OB, pans are inspected, and any ash is collected and temporarily stored in appropriate containers at the SAA. When the container is full, a composite sample is collected and analyzed. Full containers will be removed within 3 days to a 90-day permitted facility.

### **1.3.f. Methods to Control Deterioration of Fabricated Devices [Utah Code R315-3-6.8(a)(1) (2)]**

As stated in UAC R315-8-7, *The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard.* The most serious deterioration or malfunction during OB would be loss of burn pan integrity such as a burn pan leak. However, routine pan integrity inspections are conducted prior to and after each OB treatment event. In the event of an accidental release of waste propellants before or during a burn event, the released waste materials will be collected and re-treated in a different burn pan. Specific response procedures are established and are contained in Attachment 7. Procedures to prevent hazards are discussed in Attachment 6.

### **1.3.g. Prevention of Accumulated Precipitation in Burn Pans [UAC R315-3-6.8(a)(1) and (2)]**

Accumulation of precipitation within the burn pan could provide a means of release of ash or waste to the environment and could also prevent complete thermal treatment of the waste. Precipitation accumulation in the burn pan during non-operational periods is prevented through the use of a precipitation cover. Covers are tight fitting, are secured in place over the pans, and remain on the pans during non-operational periods. Precipitation accumulation in the pan during OB events and cool downs is minimized by conducting OB events only at times when precipitation is not expected. OB treatment operations are not conducted during low overcast sky (i.e., cloud cover of 80% or more and cloud ceiling of less than 2,000 feet) and during precipitation or forecasted high probability of precipitation (greater than 75%). For obvious reasons, the covers cannot be used during OB operations. Following a waiting period (based on safety considerations) after the burn, the pan is inspected and its cover replaced.

If water has accumulated in the pans, it is drained out into an appropriate container prior to a burn. The drained water is sampled by Environmental Office personnel and placed into

hazardous waste storage until the analysis can be reviewed to determine the correct disposition of the water.

### **1.3.h. Handling of Precipitation Accumulated in Fabricated Devices [UAC R315-3-6.8(a)(1) and (2)]**

Although it is highly unlikely, TEAD recognizes that precipitation may contact the ash while the ash is in the burn pan prior to being removed. In such cases, the precipitation is removed with the ash and is considered part of the waste.

### **1.3.i. Controls to Prevent Wind Dispersion of Ash and Other Residue**

Certain administrative controls are used to protect human health and the environment. These include controls to prevent wind dispersion of ash and other residue, such as operating only during moderate wind speeds (i.e., greater than 3 mph to less than 20 mph) to reduce the potential of fugitive particulate emissions. The propellants are generally in the form of pellets, and other energetic materials are contained in casings. Thus, wind dispersion of these energetic wastes is not a problem. The high walls of the burn pan minimize the potential for fugitive wind erosion of these materials.

The cover of the burn pan is replaced after completion of the burn (after a wait time for safety reasons). In addition, the high sides of the burn pan reduce the potential for wind erosion during pre- and post-burn conditions when the cover is off. EPA has reported the efficiency of barriers with a 50% porosity to control wind-blown dust to range from 0% to about 90% based on limited tests (USEPA, 1988c). The zone of protection provided by test wind barriers was approximately 10 times the barriers' height. Solid barriers that have 0% porosity (such as the sides of the burn pans at TEAD) are expected to provide even greater control efficiency.

### **1.3.j. Inspection, Monitoring, and Maintenance [UAC R315-3-6.8(a)(1) and (2)]**

The OB unit is inspected before and after use. Prior to use, the OB unit is inspected to ensure that:

- The burn pans do not have cracks, holes, or other leak sources, and
- The immediate area is free of excess vegetation or other potentially combustible material.

After OB activities are completed, the burn pans are inspected for partial burns. If unburned material is discovered, it is subsequently re-burned, provided the pan is safe. Otherwise, re-burning operations are delayed overnight. See Attachment 4 for inspection procedures that are used.

### **1.3.k. Standing Operating Procedures [UAC R315-3-6.8(a)(2)]**

All OB activities at TEAD are conducted by the Demil Team. As discussed above, all Demil personnel are required to comply with SOP No. TE-0000-H-012. The SOP prescribes the

responsibilities, policies, and procedures for the operation of the OB unit. This SOP will be amended, as necessary, to reference and be consistent with all conditions of RCRA.. The SOP retains the environmental performance standards specified in this permit.

The Demil office maintains the official file for all treatment activities in the OB unit. As stated in Attachment 2, ash residue analysis results will be maintained by the Environmental Office.

#### **1.4 OPEN DETONATION (OD) [UAC R315-3-6.8(a)(8) and R315-3-23**

##### **1.4.a. Appropriateness of Treatment Technology [UAC R315-3-23(b)]**

The reasons that OD is an appropriate treatment technology for unserviceable munitions is discussed in Section 1.1 above.

##### **1.4.b. Description and Operation of OD Unit [UAC R315-3-6.8(a)]**

The OD pits are in the southwestern corner of the TEAD. The entire OB/OD Area is approximately 780 acres. OD is conducted in 19 pits. These pits are numbered 1 through 19. The figures in Appendix C show the location of the pits in relation to the static fire silos and burn pans. The area is a broad dissected alluvial fan emanating from the Stansbury Mountain. OD is conducted in subsurface pits that are covered with native soil. The depth of the pits is determined by the quantity of munitions treated. There are no engineered features at this OD unit to detect or prevent releases. Due to the nature of OD, engineered features could be destroyed by detonation.

Prior to conducting OD, certain meteorological conditions must be met. Acceptable meteorological conditions for conducting OD are indicated in Figure 3 and in the SOP. OD is not initiated until at least 1/2 hour after sunrise and is concluded at least 1/2 hour before sunset, with wind speeds greater than 3 miles per hour (mph) and less than 15 mph with gusts less than 20 mph, and not during or immediately prior to the approach of any electrical storms, snowstorms, or other precipitation events. Meteorological data may be obtained from the Salt Lake City National Weather Service, and the Internet.

The Demil Team Leader or his/her designated representative ensures that all firing has ceased when aircraft approach the area. Designated observers have effective communications with the Range Supervisor any time an aircraft approaches the area. OD will not be initiated until 1/2-hour after sunrise and is concluded 1/2-hour before sunset. Meteorological data are obtained from the

- Salt Lake City National Weather Services; or
- Internet (<http://nimbo.wrh.noaa.gov/saltlake/>)

An on-site met tower provides site-specific data. A determination is made prior to detonation whether to cease operations or to continue based on meteorological data. This information is recorded on a 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 leave the ammunition in the pit and detonate it the following day. If the ammunition is held over until the next day, the Environmental Office is notified so that it can brief the Executive Secretary about why the munitions were left undetonated. Under no circumstances is ammunition placed in the pit after weather conditions have deteriorated.

The Demil Planner will annotate on the Demilitarization Approval Form that each organization has been notified. The Demil Planner takes the Demilitarization Approval Form to the Directorate of Ammunition Operations or his/her designated representative for approval/disapproval. 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 burial depth depending on treatment quantity; burying the munitions to appropriate depths; locating the OD unit far from public roads and inhabited housing; limiting the treatment amounts to 750 lbs NEW per pit, per event. (including donor) ; 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.

TEAD is limited to the pit explosive limits specified in Condition VI.B.4. and Table 1 for the 3.5-in. rocket fragment munitions. Any additional munitions are considered on a case-by-case basis for explosive limits. If it is determined that the munitions are of greater explosive quantity or different type, additional tests will be conducted to determine debris/fragment throw range. A 20% factor is added to the maximum throw range as a safety factor.

Earth cover for the TEAD detonations is also specified in SOP No. TE-0000-G-010. Requirements are as follows:

- 0-50 lbs. NEW (including donor) requires no earth cover
- 51-750 lbs. NEW (including donor) requires 15 feet of earth cover.

TEAD OD SOP No. TE-0000-G-010 also specifies the distances that are required from above-ground (unburied) detonations to unprotected personnel. This is specified in Table 2. If the OD materials are buried, Table 3 is used. In lieu of the formula specified in Table 3, column A of Table 3 may be used for above-ground detonations. If the materials to be detonated are buried, the reduced distance provided by columns B through I of Table 3 can be used.

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

Table 1. TEAD explosive limits for the 3.5-in. rocket fragment munitions

<b>Pit no.</b>	<b>Distance boundary</b>	<b>Non frag</b>	<b>Less than 5''</b>	<b>Untested 5'' or greater</b>	<b>Tested 5'' or greater</b>
1	2912 Feet	750 lbs	750 lbs	0 lbs	750 lbs

2	2992 Feet	750 lbs	750 lbs	0 lbs	750 lbs
3	3091 Feet	750 lbs	750 lbs	0 lbs	750 lbs
4	3194 Feet	750 lbs	750 lbs	0 lbs	750 lbs
5	3168 Feet	750 lbs	750 lbs	0 lbs	750 lbs
6	3141 Feet	750 lbs	750 lbs	0 lbs	750 lbs
7	3115 Feet	750 lbs	750 lbs	0 lbs	750 lbs
8	3058 Feet	750 lbs	750 lbs	0 lbs	750 lbs
9	3000 Feet	750 lbs	750 lbs	0 lbs	750 lbs
10	2945 Feet	750 lbs	750 lbs	0 lbs	750 lbs
11	2879 Feet	750 lbs	750 lbs	0 lbs	750 lbs
12	2814 Feet	750 lbs	750 lbs	0 lbs	750 lbs
13	2745 Feet	750 lbs	750 lbs	0 lbs	750 lbs
14	2676 Feet	750 lbs	750 lbs	0 lbs	750 lbs
15	2608 Feet	750 lbs	750 lbs	0 lbs	750 lbs
16	2521 Feet	750 lbs	750 lbs	0 lbs	750 lbs
17	2348 Feet	750 lbs	0 lbs	0 lbs	0 lbs
18	2213 Feet	750 lbs	0 lbs	0 lbs	0 lbs
19	2362 Feet	750 lbs	0 lbs	0 lbs	0 lbs

The placement of the initiating charges and the amount of initiating charge are determined by the amount and nature of material being treated and are specified in Army manuals. Munitions are detonated by either non-electrical or electrical methods. The only residues generated as a result of OD operations are metallic materials such as shell fragments (shrapnel) and occasionally pieces of energetic materials or UXO that were not completely treated during OD. The OD unit is inspected for these materials following OD. After each day of detonation operations, a search of the surrounding area is made for unexploded munitions. Items or material such as lumps of explosives or unfuzed ammunition may be picked up and prepared for the next detonation. Recovery and detonation of fuzed ammunition or suspected live munition items are treated in accordance with SOP No. TE-0000-G-010. All items or material (fuzed, unfuzed, and live munitions) found must be detonated within two working days of the time they are recovered or put into permitted storage until they are detonated.

Analysis of the OD treatment residue is not conducted at TEAD. TEAD periodically recovers scrap metal, casing, fragment, and related items from the OD grounds 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 Reutilization Marketing Office (DRMO). The Demil team will inspect and document the recovered material to ensure it is explosive free. The Ammunition Surveillance Inspector will verify the documentation. Management of ash and residues is discussed further in Attachment 2.

The munitions are on pallets that are transported to the OD pit via forklift or roller conveyor. The palletized munitions are positioned in such a manner to ensure complete detonation. The palletized munitions requiring unpacking are removed to the unpack operation near or within

the demolition pit using a forklift. A minimum of 10 feet of separation is maintained between unpack operations and materials stacked in the OD pit. Information about the specific item being treated is used to determine appropriate treatment. For example, bombs and mortar projectiles are as much as 80% (by weight) explosives and have relatively thin walls, as compared with artillery shells, which are 10 to 15% explosives and have relatively heavy walls. The Demil Team personnel maintain an extensive collection of Army Technical Manuals to provide guidance on appropriate OD procedures for specific items (e.g., Technical Manual - Ammunition and Explosives Standards, TM 9-1300-206, Headquarters, Department of the Army, August 1973).

Table 2. Distances from above-ground detonations to unprotected personnel

Material to detonate	Blast distance	Fragment/debris
Non-frag explosive material	$D = 328 W^{**1/3}$	1,250 feet
Bombs and projectile with a diameter less than 5 inches	$D = 328W^{**1/3}$	2,500 feet
Bombs and projectiles with a diameter of 5 inches or more	$D = 328W^{**1/3}$	4,000 feet
All other ammunition	$D = 328W^{**1/3}$	2,500 feet

Table 3. Required blast overpressure protection distances to nonessential personnel\*

NEW in lbs.	Distance in feet for various burial depth								
	0 FT COL A	1 FT COL B	2 FT COL C	3 FT COL D	4 FT COL E	5 FT COL F	7 FT COL G	10 FT COL H	15 FT COL I
1	328	79	16	16	16	16	16	16	16
5	561	261	104	41	28	28	28	28	28
10	707	398	191	92	44	35	35	35	35
20	890	464	326	182	102	57	45	45	45
30	1019	566	368	260	157	94	51	51	51
40	1122	650	439	329	208	131	62	56	56
50	1208	721	501	349	255	166	71	60	60
100	1522	984	737	553	414	326	165	76	76
150	1743	1171	911	708	550	428	256	105	87

\*Required Blast Overpressure protection distances to nonessential personnel from ranges used for detonating ammunition for the purposes of demilitarization, demonstration, or explosives ordnance disposal,

#### **1.4.c. Monitoring, and Maintenance Plan [UAC R315-3-6.8(a)(2)]**

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

- Free of water
- Free of ordnance fragments, UXO, blasting caps, detonation cords, or other OD operational debris
- 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 is made for unexploded munitions. Items or material such as lumps of explosives or unfuzed ammunition may be picked up and prepared for the next detonation. Recovery and detonation of fuzed ammunition or suspected live munition items are treated in accordance with SOP No. TE-0000-G-010. All items or material (fuzed, unfuzed, and live munitions) found must be detonated within two working days of the day they are found, or put into permitted storage until they are detonated.

#### **1.4.d. Run on and Runoff Management [UAC R315-3-6.8(a)(2)]**

The process of OD disrupts several feet of soil. The modeling results from the Multimedia Environmental Pollutant Assessment System (MEPAS) indicate that, with several conservative and worst-case assumptions, the concentrations estimated for groundwater leaching, overland runoff, surface water recharge, and atmospheric deposition are of lesser magnitude than the health-based levels for constituents of concern.

Precipitation does not contact the waste during OD because OD is not conducted during or prior to rain. No material is stored in the OD area; 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.

#### **1.4.e. Standard Operating Procedures (SOPs) [UAC R315-3-6.8(a)(2)]**

OD operations are conducted in accordance with TEAD SOP (SOP No. TE-0000-G-010). This SOP is periodically reviewed and updated. The SOP will be revised, as necessary, to be commensurate with conditions of this permit.

### **1.5. Static Firing**

Static firing of rockets and missiles is similar to open burning as only the propellant is burned and the metal from the rocket or missile is recycled. The static firing unit is located mid-way

between the demolition pits and the open burn pans. Appendix B shows the static firing silos at the OB/OD Area. Treatment is accomplished by the use of six silos. Items typically treated are solid propellant rockets and missiles. No donor charges are used in static firing.

The silos are located, in two rows 40 feet apart and 20 feet between each silo, on a rebar-reinforced concrete pad 52 feet by 10 feet deep. Covers are placed over the silos when they are not in use. Prior to conducting static firing, the same meteorological conditions as for open burning must be met (Section 12.2).

Operating procedures prior to the actual static firing activity are similar to those used in open burning. Dry grass, leaves and other extraneous combustible material in amounts sufficient to spread fires are removed within a radius of 61. (200 feet) from the silos. Meteorological conditions are checked and the silos inspected before each event. Carousels designed for each rocket are prepared and lowered into the silos. Rocket motors are lowered into the carousels and secured in place. The area is then cleared of all personnel except for those needed to install the firing wire to the rocket or missile igniter. When the area is determined to be clear, the rocket motors are electrically ignited from a safe position.

Fire fighting equipment is available to combat grass, brush or equipment fires. Qualified personnel check the silos to ensure that all of the propellant has been burned.

Demil personnel operate the Static Fire Area in accordance with SOP no. TE-0000-J-168. This SOP provides additional information on current operating procedures.

APPENDIX A  
DETAILED BURN PAN DRAWINGS

APPENDIX B  
STATIC FIRE SILOS DRAWINGS

APPENDIX C  
DETONATION PITS DRAWINGS

## DEFINITIONS

For purposes of this permit, the following definitions shall apply:

"Background" shall mean the naturally occurring level, plus two standard deviations from the mean, of constituents of an environmental medium not affected by facility operations or leakage from a regulated unit. The location of the sampling site shall be selected by the Permittee and approved by the Executive Secretary.

"Control Board" shall mean the Utah Solid and Hazardous Waste Control Board.

"Director" shall mean the Executive Director of the Utah Division of Solid and Hazardous Waste.

"Energetic" shall mean a substance, either a pure compound or a mixture of compounds, capable of undergoing a very rapid chemical change. Energetics include high explosives, low explosives (propellants and pyrotechnics), incendiaries, fuse powders and thermites.

"Explosive" shall mean a chemical compound or mixture which, when subjected to heat, impact, friction, shock or other suitable stimulus, undergoes a very rapid chemical reaction with the evolution of large volumes of heated gases that exert high pressures in the surrounding medium.

"Facility" shall mean all contiguous land, and structures, and other appurtenances, and improvements on the land at the Tooele Army Depot, Tooele County, Utah.

"Hazardous Waste Management Unit (HWMU)" shall mean a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is a significant likelihood of mixing hazardous waste constituents in the same area.

"High Explosive" shall mean an energetic material in which the decomposition process (detonation) proceeds through the entire material at supersonic speed; a shock wave is produced.

"Low Explosive" shall mean an energetic material in which the decomposition process (deflagration) occurs at subsonic speeds. The decomposition process occurs on the surface of the explosive only; there is no shock wave.

"Open Burn" shall mean the high temperature oxidation of fuel with the release of heat and combustion products.

"Open Detonation" shall mean a chemical reaction of explosive material in conjunction with a shock wave.

"Operating Day" shall mean any fraction of a calendar day when operating any unit under this permit.

"RCRA" shall mean the Resource Conservation and Recovery Act of 1976, as amended by The Solid and Hazardous Waste Amendments (HSWA) of 1984.

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

"Significance Level" shall mean the observed level of contamination that has been determined to be allowed to remain at the point of any contamination for a pre-approved time period. While the concentration of a significance level is above background concentrations, the observed level must be below applicable maximum contaminant limits established under the federal Safe Drinking Water Act, water classification standards, or below applicable air quality standards.

"Spill" shall mean the accidental discharging, spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes, into or on any land or water.

"Waste Munitions" shall mean all types of conventional ammunition products and their components, produced by or for the Department of Defense (DOD) for national defense and security. This includes munitions produced by other parties under contract to or acting as an agent for DOD

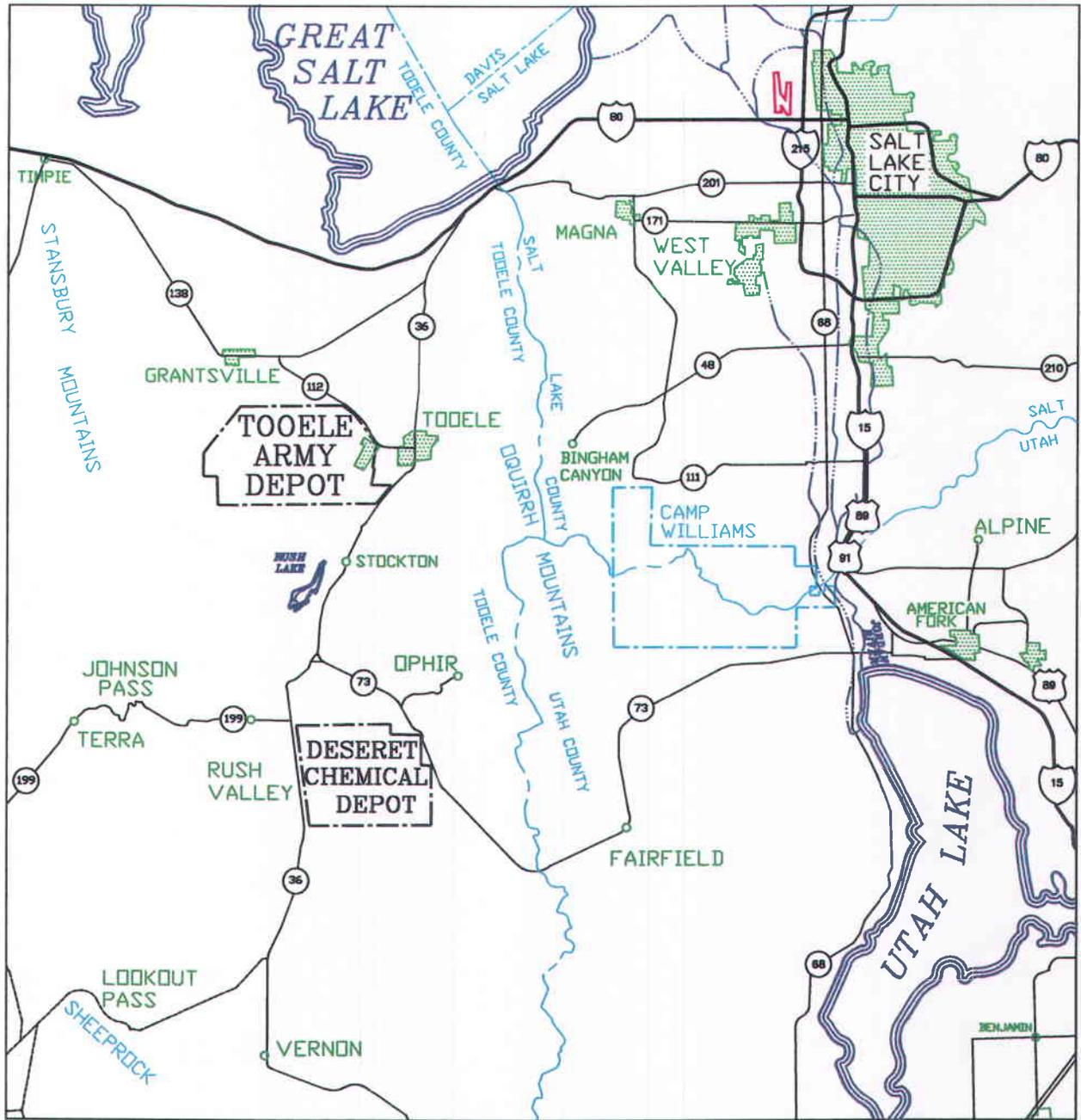
All definitions contained in UAC R315-1, 2, 3, 8, 9 and 13, are hereby incorporated, in their entirety, by reference into this permit, except that any of the definitions used in this permit shall supersede any definition of the same term given in R315. Where terms are not defined in the regulations or this permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

## ACRONYM LISTING

AA	Atomic Adsorption
ACFM	Actual Cubic Feet Per Minute
AMC	Army Material Command
AR	As Required
ASC	Allowable Stack Concentration
ASTM	American Society for Testing Materials
°C	Degree Centigrade (Celsius)
CAR	Corrective Action Report
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CQA	Central Quality Assurance
Cr	Chromium
CSF	Container Storage Facility
CV	Coefficient of Variation
CWA	Clean Water Act
DCD	Deseret Chemical Depot
DDESB	Department of Defense Explosives Safety Board
DERA	Defense Environmental Restoration Account
DOD	Department of Defense
DOT	Department of Transportation
DRE	Destruction and Removal Efficiency
DRMO	Defense Reutilization and Marketing Office
DSCFM	Dry Standard Cubic Foot Per Minute
DWS	Drinking Water Standard
EMD	Environment Office
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
°F	Degree Fahrenheit
FD	Fire Department
FID	Flame-ionization Detector
FPD	Flame-photometric Detector
GAL	Gallon
GC	Gas Chromatograph
GC/MS	Gas Chromatograph/Mass Spectrometry
GPL	General Population Limit

GPM ..... Gallon Per Minute  
 GOGO ..... Government Owned Government Operated  
 HAZ ..... Hazardous  
 HCl ..... Hydrogen Chloride  
 HEPA ..... High Efficiency Particulate Air Filter  
 HMIS ..... Hazardous Materials Information System  
 HVAC ..... Heating Ventilation and Air Conditioning  
 HW ..... Hazardous Waste  
 HWCP ..... Hazardous Waste Contingency Plan  
 HWMP ..... Hazardous Waste Management Program  
 HWMU ..... Hazardous Waste Management Unit  
 ICS ..... Incident Command System  
 ID ..... Identification  
 IOSC ..... Installation On Scene Coordinator  
 IRT ..... Installation Response Team  
 ISCP ..... Installation Spill Contingency Plan  
 LVS ..... Low Volume Sample  
 MM5 ..... EPA Modified Method Five  
 MSDS ..... Material Safety Data Sheet  
 N/A ..... Not Applicable  
 NAAQS ..... National Ambient Air Quality Standards  
 NFPA ..... National Fire Protection Association  
 NHMC ..... Non-methane Hydrocarbons  
 NIOSH ..... National Institute for Occupational Safety and Health  
 NIST ..... National Institute of Standards and Technology  
 NSN ..... National Stock Number  
 NSPS ..... New Source Performance Standards  
 OB/OD ..... Open Burn/Open Detonation  
 OJT ..... On the Job Training  
 OSC ..... On Scene Commander  
 OSHA ..... Occupational Safety and Health Administration  
 P&A ..... Precision and Accuracy (study)  
 PAO ..... Public Affairs Office  
 PAS ..... Pollution Abatement System  
 PCB ..... Polychlorinated Biphenyl  
 PEP ..... Propellant, Explosive and Pyrotechnics  
 PLC ..... Programmable Logic Controller  
  
 POHC ..... Principal Organic Hazardous Constituent  
 POL ..... Petroleum Oil and Lubricants  
 PPE ..... Personal Protective Equipment

PPB ..... Parts Per Billion  
 PPM ..... Parts Per Million  
 QA ..... Quality Assurance  
 QC ..... Quality Control  
 QL ..... QC Sample Prepared in the Laboratory  
 QP ..... QC Sample Prepared in the Plant  
 R315 ..... Utah Administrative Code (Hazardous Waste)  
 RCRA ..... Resource Conservation and Recovery Act  
 RD&D ..... Research, Development, & Demonstration  
 RDTE ..... Research, Development, Testing, and Evaluation  
 RQ ..... Reportable Quantity  
 RRT ..... Regional Response Team  
 SCFM ..... Standard Cubic Foot Per Minute  
 SOP ..... Standard Operating Procedure  
 SPCCP ..... Spill Prevention Control and Countermeasures Plan  
 SAA ..... Satellite Accumulation Area  
 SSA ..... Stack Sampling Apparatus  
 STEM ..... Sampling Train for Explosive Materials  
 TCLP ..... Toxicity Characteristic Leaching Procedure  
 TEAD ..... Tooele Army Depot  
 TSDF ..... Treatment, Storage, and Disposal Facility  
 TWA ..... Time-weighted Average  
 UDSHW ..... Utah Division of Solid and Hazardous Waste  
 VOST ..... Volatile Organic Sampling Train  
 WC ..... Water Column



## VICINITY MAP

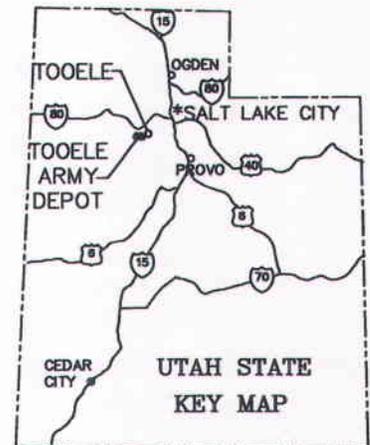
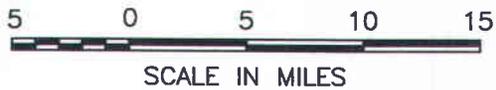


Figure 1

## **MODULE III - STORAGE IN CONTAINERS**

### **III.A. APPLICABILITY**

- III.A.1. The requirements of this permit Module pertain to the operation of hazardous waste container and hazardous waste munitions storage areas at the facility. The Permittee shall comply with UAC R315-8-9 and all conditions of this Module. The units regulated in this Permit include three munitions igloos, C815, C816 and A101; two Service Magazines, 1368 and 1370, an Above Ground Magazine 1205 and Building 528.

### **III.B. WASTE IDENTIFICATION**

- III.B.1 The Permittee shall store hazardous waste with the following codes in containers at the facility, subject to the terms of this permit:

D001 D002 D003 D004 D005 D006 D007 D008 D009 D011 D018 D019  
D020 D022 D023 D025 D026 D028 D029 D030 D032 D033 D035 D036  
D037 D039 D040 D042 D043 F001 F002 F003 F004 F005 K047 P030 P098  
P106 U002 U019 U031 U041 U044 O051 U069 U075 U080 U151 U154 U211  
U220 U226 U239

### **III.C. CONDITION OF CONTAINERS**

- III.C.1. If a container holding hazardous waste is not in good condition (e.g., severe rusting, bulging, apparent structural defects) or it begins to leak, the Permittee shall transfer the hazardous waste from such container, or the container of hazardous waste itself, to a DOT approved container. This shall be completed as soon as possible, but no later than 24 hours from the time the problem was first discovered and noted in the inspection log.

### **III.D. COMPATIBILITY OF WASTE WITH CONTAINERS**

- III.D.1. The Permittee shall assure that the waste is compatible with the containers as required by UAC R315-8-9.3.

**III.E.                    MANAGEMENT OF CONTAINERS**

- III.E.1.                The Permittee shall manage containers as required by UAC R315-8-9.4 in that containers shall always be closed except when the Permittee is adding or removing waste from containers. The Permittee shall not store containers in a manner, which may cause the containers to leak. The Permittee shall manage containers and follow all procedures in accordance with Attachment 9.
- III.E.2.                The Permittee shall also comply with Condition II.J.6. which requires 2.5 feet aisle space between the containers.
- III.E.3.                The largest liquid container allowed in the storage facilities identified in Condition III.F. shall be a 85-gallon over pack drum.
- III.E.4.                The 55-gallon and 85-gallon containers shall not be stacked more than two high.

**III.F.                    CONTAINMENT UNITS**

- III.F.1.                The Permittee shall construct, maintain and operate the containment system in accordance with Attachment 9. At capacity, the Permittee may store the following:
  - III.F.1.a.              Building 528 - 57,800 gallons which is 680, 85-gallon, liquid waste containers or its equivalent, 7,500 cubic feet of volume. Toxic sludge and solids, corrosive (alkaline) and reactive, ignitable and solvent and corrosive (acidic) wastes in Building 528 shall be segregated by bays and identified accordingly.
  - III.F.1.b.              Igloo A-101 - 1,227 cubic feet of volume.
  - III.F.1.c.              Igloos C-815 and C-816 - 16,200 cubic feet each.
  - III.F.1.d.              Service Magazines 1368 and 1370 - 1,000 cubic feet which is 10 pallets (100 cubic feet per pallet) or their equivalent.
  - III.F.1.e.              Above Ground Magazine 1205 - 72,000 cubic feet which is 162 pallets (100 cubic feet per pallet) or their equivalent.
- III.F.2.                A secondary containment sump in Building 528 shall be inspected for the presence of liquids in accordance with Attachment 4. If liquids are discovered

in the sump, the Permittee shall identify the source of the release in the inspection log. Any liquids discovered in the sump shall be removed and handled according to the plan outlined in Attachment 4.

- III.F.3. For the purpose of inspections, all containers shall be considered full to their respective capacities with liquid or solid hazardous waste.

**III.G. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTE**

- III.G.1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line. The Permittee shall comply with UAC R315-8-2.8.

**III.H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE**

- III.H.1. The Permittee shall not place incompatible waste or materials in the same container. The Permittee shall comply with UAC R315-8-2.8.
- III.H.2. The Permittee shall not place hazardous waste or materials in an unwashed container that previously held an incompatible waste or material.
- III.H.3. The Permittee shall document compliance with Conditions III.H.1. and III.H.2. as required by UAC R315-8-2.8 and place the documentation in the operating record.

**III.I. IDENTIFICATION AND LOCATION OF CONTAINERS IN OPERATING RECORD**

- III.I.1. The Permittee shall record in the operating record the location of each container of hazardous waste and hazardous waste munition accepted in any container storage area until it is manifested off-site, or taken for treatment to the incinerator, the Small Caliber Disassembly Process or the OB/OD unit, using an alpha-numeric system.

**III.J.            INSPECTIONS**

III.J.1.            The Permittee shall conduct inspections of the storage areas identified in Condition III.A. of this Permit in accordance with the schedule outlined in Attachment 4.

**III.K.            CLOSURE/POST CLOSURE**

III.K.1.            The Permittee shall close the storage areas in accordance with UAC R315-8-7, UAC R315-8-9.9, Condition II.N, and Attachment 8 of this permit.

**III.L.            STORAGE OF MUNITIONS**

III.L.1.            All waste munitions stored in containers or on pallets or other packing materials shall be stored in compliance with all applicable DOD Ammunition and Explosives Safety Standards.

**ATTACHMENT 1**  
**GENERAL FACILITY DESCRIPTION**

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## 1.0 GENERAL FACILITY DESCRIPTION [UAC R315-3-5(b)(1)]

Tooele Army Depot (TEAD) consists of 24,732 acres of federal land in north-central Utah, in Tooele County. The facility is located about 40 miles southwest of Salt Lake City, approximately 3 miles southwest of the town of Tooele, Utah.

A Vicinity Map, Figure 1, and a General Site Map, Figure 2, show the location of TEAD in reference to its surrounding communities and the overall layout, roads and structures, of the depot. With the exception of the city of Tooele, the properties immediately adjacent to TEAD are undeveloped. The properties to the north are used as pasture or are cultivated, and the properties to the west and south are used for rangeland grazing. The properties to the east of TEAD consist of the city of Tooele and undeveloped rangeland along the lower western slopes of the Oquirrh Mountains. See Attachment 17.b for a more detailed discussion of the land use surrounding TEAD.

The principal work activities at TEAD are the shipping, receiving, and demilitarization of conventional munitions, and the testing and development of ammunition peculiar equipment and related demilitarization testing. This Permit contains the operating requirements for permitting seven HW storage facilities, a deactivation furnace (HW incineration), a small caliber munitions primer initiation unit and an open burn/open detonation (OB/OD) Units. General information about these hazardous waste management units (HWMUs) is given below:

<b>HWMU</b>	<b>TYPES OF WASTES STORED/TREATED</b>
Permitted HW Storage (Bldg. 528)	Waste industrial chemicals: solvents, fuels, paint residues, POL, corrosives, paint removers, metal processing compounds.
PEP HW Storage (Bldgs. A101, C815, 1368) 1205, 1370, C816	Waste propellants, explosives, and pyrotechnic (PEP) materials, munitions, munition components, residues.
HW Incineration (Deactivation Furnace Bldg. 1320)	Thermal treatment of waste munitions, munitions components, and PEP materials.
Primer Initiation (Disassembly Line building 1325)	Initiation of primers from small caliber munitions
Open Burning/Open Detonation Unit	Demilitarization activities including munitions detonation in pits and propellant burning in pans.

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## **2.0 BACKGROUND INFORMATION**

TEAD's current missions include ammunition renovation, storage, demilitarization, and the design, fabrication, and testing of ammunition equipment.

The realignment of TEAD's mission to rebuild and refurbish of military equipment, by the Base Realignment and Closure (BRAC) commission, has greatly reduced the generation of hazardous paint wastes, spent solvents, and acids and bases. The generated wastes are managed and stored pending removal and transportation to a permitted hazardous waste (HW) disposal facility by a contracted permitted HW transporter.

Small arms munitions from onsite inventories that are deemed obsolete or off-specification by Department of Army (DA) standards are incinerated in the Deactivation Furnace, also known as the APE 1236 furnace. Recoverable scrap metal from incineration of these munitions is recycled through the Defense Reutilization and Marketing Office (DRMO). The ash from this operation is tested by TCLP analysis and is managed appropriately. Metal parts are determined to be free of explosive contamination by Ammunition Surveillance personnel at TEAD and are reprocessed if necessary until free of explosive contamination.

The Small Caliber Disassembly Line separates the projectile from the cartridge case, which allows for the propellant to be recovered for reuse. The projectile is containerized and sent to the Deactivation Furnace for treatment. The primer in the cartridge case is initiated in a cubicle on the end of the disassembly line.

The OB/OD Area is located in the southwestern corner of TEAD and consists of a detonation unit, a static fire unit and a burn pan unit. The OB/OD Units have been used since the 1940s for demilitarization activities including munitions detonation in pits and propellant burning in pans. Past activities included burning munitions and other items in open trenches. Trenches were backfilled when they became full. Burning is no longer conducted in open trenches. There are currently 19 detonation pits, eleven burn pans and six static silos at the OB/OD Area.

## **3.0 CORRECTIVE ACTIONS**

TEAD is on the CERCLA National Priorities List and entered into a Federal Facilities Agreement (FFA) with EPA Region VIII and the Utah Department of Environmental Quality (UDEQ) in September 1991. Seventeen of the 58 known and potential waste sites at TEAD were designated as CERCLA sites in this agreement.

In January 1991, TEAD was issued a RCRA Post Closure and Corrective Action Permit. This permit basically serves the same purpose as the FFA. The Corrective Action portion of the Permit addresses 9 known release Solid Waste Management Units (SWMUs) and 32 suspected release SWMUs. Thus, 17 of the 58 sites are being handled under CERCLA/SARA with the EPA as the lead regulatory agency and 41 are being addressed under RCRA with the state of Utah as the lead agency. The FFA has been incorporated into the *TEAD North Area Industrial Waste Lagoon Post-Closure Permit*. Further information about the SWMUs and corrective actions can be found in the latest version of the TEAD Installation Action Plan.

#### **4.0 SEISMIC STANDARD [UACR315-8-2.9(a); R315-3-5(b) (11)]**

The HWMUs at TEAD are existing facilities and as such are exempt from the provisions of UAC R315-8-2.9(a).

#### **5.0 FLOODPLAIN STANDARD [UAC R315-8-2.9(b); R315-3-5(b)(11)]**

No Flood Insurance Administration 100-year floodplain maps of the TEAD facility exist. However, TEAD has been determined to be outside of the 100-year flood plain and not subject to flooding based on the following information extracted from the *TEAD Master Plan Report* prepared by Higginbotham and Associates, P.C., and the *Installation Assessment* prepared by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA):

- There is no history of flooding at TEAD during the 65 years that it has been in existence.
- The overall drainage gradient for the entire TEAD facility is 2% or greater, and this grade continues for many miles. The topography is generally smooth and uniform, allowing no chance for ponding or pooling of floodwaters.
- No channels exist that would concentrate flows from upgradient areas.
- Few well-defined channels exist in the vicinity of TEAD. There are none that would carry or direct water to or through any of the HWMUs.
- TEAD facilities are 300 feet higher in elevation than the Great Salt Lake, the ultimate drainage for the area.
- The drainage gradient to the Great Salt Lake is smooth and uniform. The lake is approximately eight miles from TEAD.
- There are no onsite barriers to impede runoff. No significant vegetation exists to retain runoff waters.
- The area is arid to semiarid and receives little precipitation. The 100-year 24-hour precipitation event is less than 3.2 inches.
- The soils of the area are generally very pervious. Thus, little runoff is expected.

A Topographic Map of the depot covering all HWMUs, required by UAC R315-3-5(b)(19), is included in this facility description as Figure 3. The wind rose showing prevailing wind direction and speed on depot is located in Attachment 17.

#### **6.0 TRAFFIC PATTERNS [UAC R315-3-5(b)(10)]**

The Vicinity Map in Figure 1 shows the highway network for the major highways serving the TEAD area. State Highway 36 runs from the southwest to the northeast, adjacent to the southeast corner of TEAD.

State Highway 112 runs from the northwest to the southeast, adjacent to the northeast corner of TEAD. State Highway 59 runs from the north to the south along the western boundary of TEAD.

Primary entry routes to TEAD are by way of the Main Entrance Road to State Highway 36 and the North Gate Approach Road off State Highway 112. The Main Entrance Road serves as the major traffic corridor.

Traffic patterns related to the HWMUs are shown in Figure 4. Generally, all traffic, including government, commercial, and private vehicles, follows the primary traffic routes.

## **7.0 TRAFFIC CONTROL**

Stop signs are positioned at most intersections to control the flow of traffic in the more congested areas of the installation. Traffic lights are located at the main entrance gate. Security personnel are authorized to enforce traffic regulations and provide traffic control when required. Arterial roads are constructed within the magazine areas to service maintenance and storage facilities. These roads are of standard two-lane configuration with speed limits ranging from 10 to 50 mph, depending on congestion and road conditions such as curves, surface types, and visibility.

## **8.0 ESTIMATED TRAFFIC VOLUME**

It is estimated that up to 600 vehicles belonging to employees and contractors, are driven onto the installation each workday. Most trips driven on the installation by employees are made in government vehicles. There are around 50 government (GSA) high capacity trucks and about 210 pickup trucks, vans, and sedans. These vehicles are used approximately 5 hours per day. About 60 engineering construction vehicles are also in use in varying degrees. Additionally, about 115 material handling equipment vehicles, forklifts, etc., are frequently driven on the installation's roads.

## **9.0 ROAD SURFACING AND LOAD BEARING CAPACITY**

All arterial and major access roads at TEAD are designated for a minimum bearing load capacity of 18,000 pounds per axle. Construction materials for road surfaces along main access routes and arterial roads to the operations and storage are asphalt/concrete, bituminous, or gravel. Secondary road surfaces are earthen. Table 1 gives design details for TEAD roads by class.

## **10.0 TOPOGRAPHIC MAPS**

The map, presented in Figure 3, illustrates the general topography of each HWMU, including the OB/OD Units. In addition, as required by various subsections of UAC R315-3-5(19), figures are included to illustrate the following:

- Surface Water: See Attachment 17, Risk Management Plan for figures and discussion that depict surface water surrounding TEAD.
- Land Use: See Attachment 17.b for figures and discussion that depict the land use surrounding TEAD.

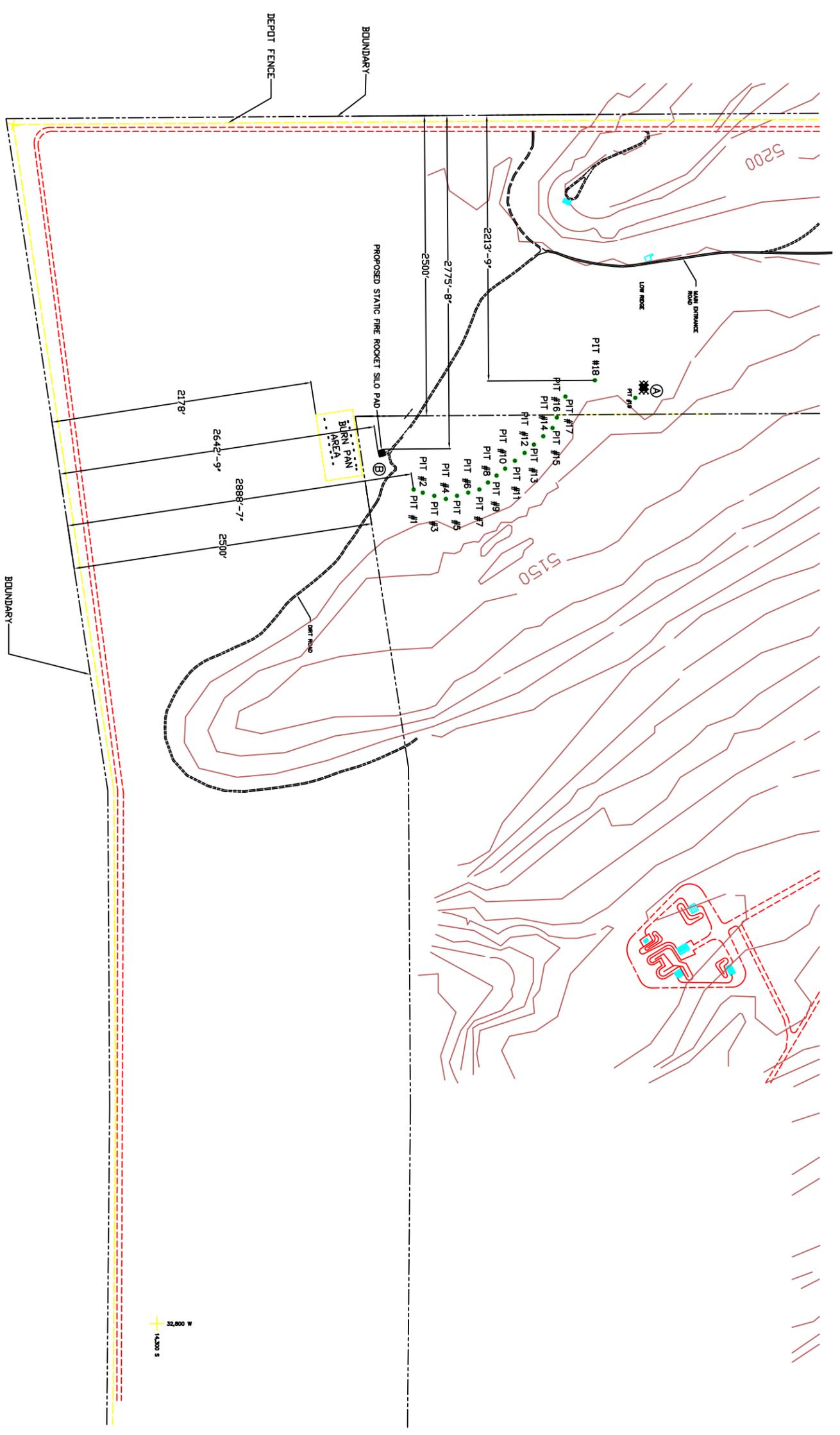
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Intentionally left blank for Table 1.

8 7 6 5 4 3 2 1

ZONE	REV	DESCRIPTION	DATE	APPROVED
C-7	A	RELOCATED TO SOUTHWEST OF PIT 1	3/13/98	
B-6	B	AS STAKED ORIENTATION 345° AZIMUTH	3/23/98	



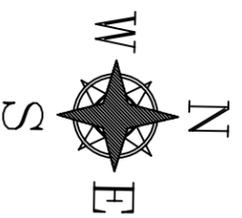
REVISION	DESCRIPTION	DATE	APPROVED
A	RELOCATED SILO ADJACENT TO MUNITION PAN	3/13/98	

**FACILITIES ENGINEERING DIVISION**  
**TOOELE ARMY DEPOT**

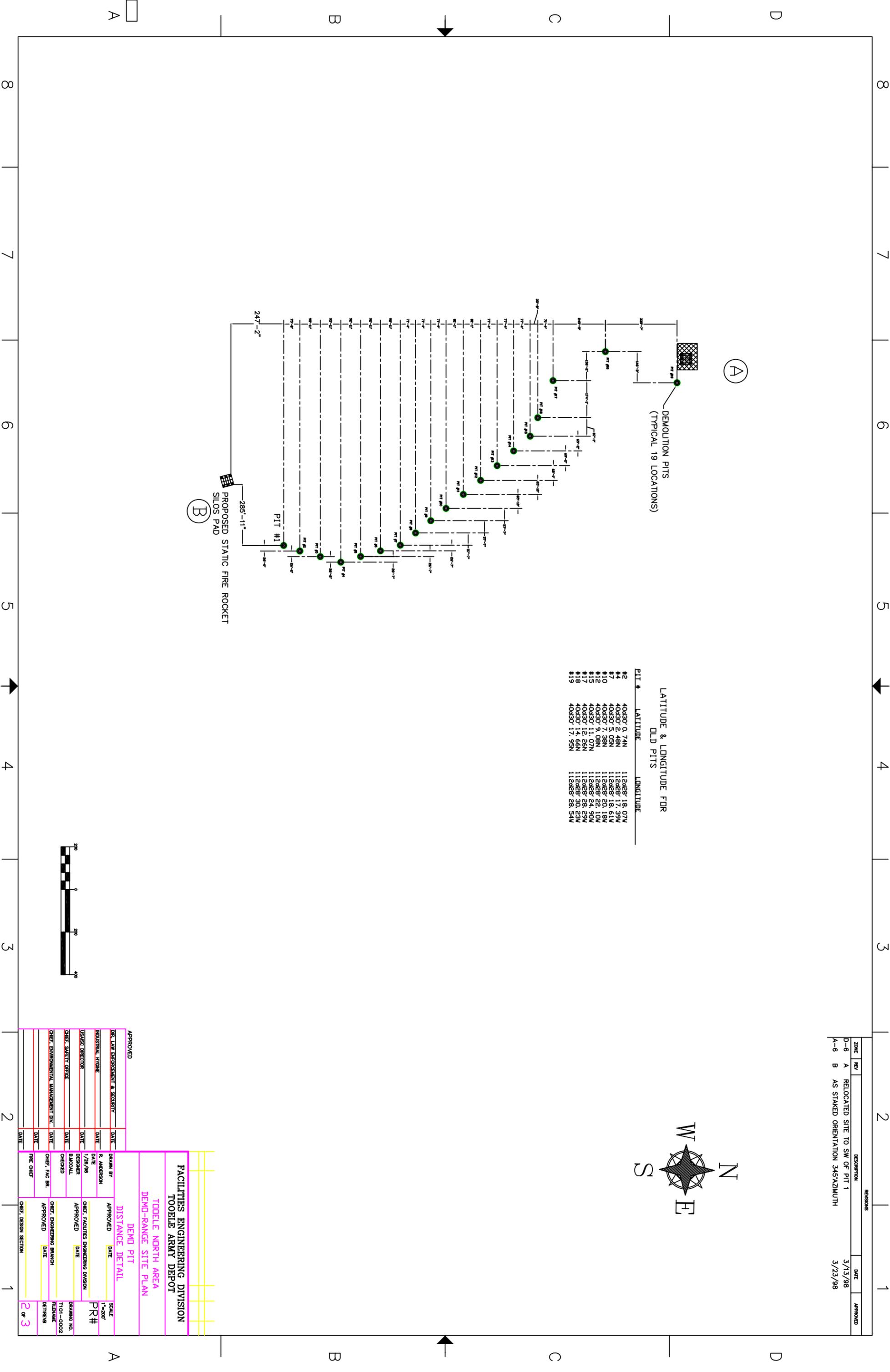
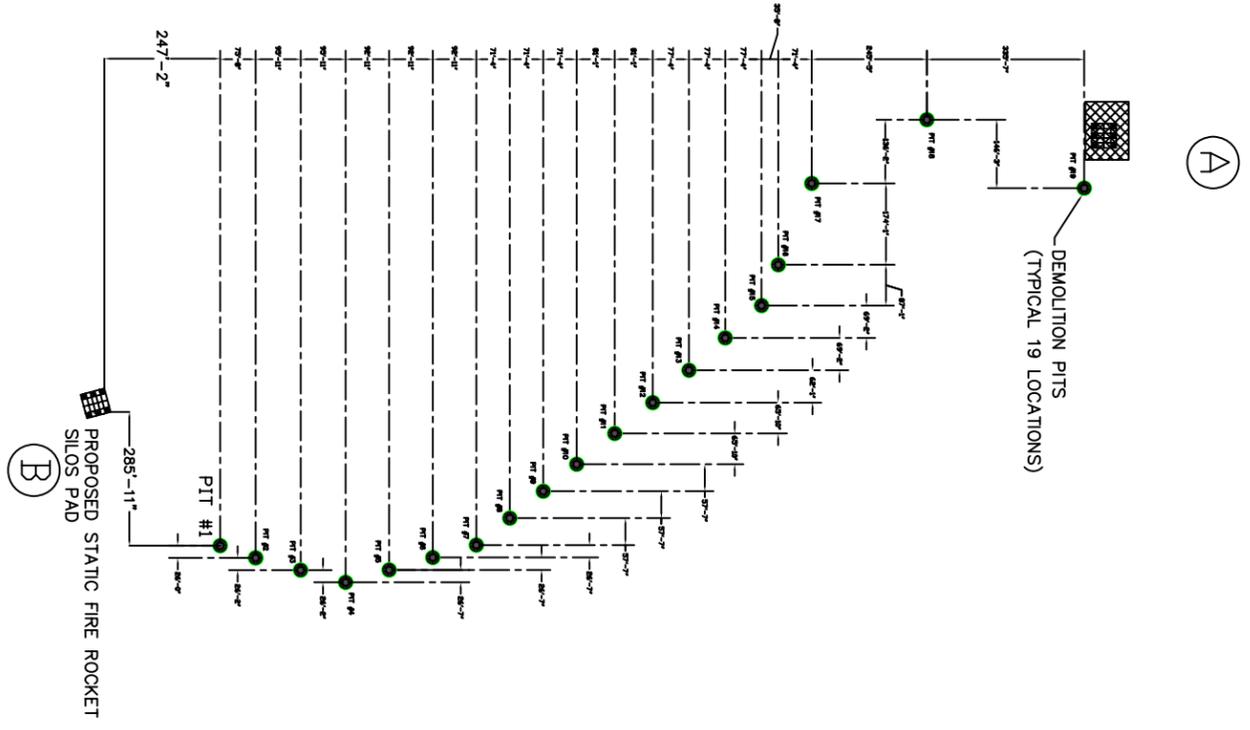
**TIDOLE NORTH AREA**  
**DEMO-RANGE SITE PLANE**  
**NEW PIT LOCATIONS**  
**MAP**

DR. LAW ENFORCEMENT & SECURITY	DATE	DRAWN BY	DATE	APPROVED	DATE	SCALE
INDUSTRIAL HYGIENE	DATE	R. ANDERSON	DATE			1"=400'
ISSUES DIRECTOR	DATE	1/29/98	DATE			PR#
CHIEF SAFETY OFFICE	DATE	DESIGNER	DATE			DRAWING NO.
CHIEF ENVIRONMENTAL MANAGEMENT DIV.	DATE	IN/CHECK	DATE			T101-0001
	DATE	CHECKED	DATE			FILENAME
	DATE	CHIEF, FAC BR.	DATE			T10-0018
	DATE	FIRE CHIEF	DATE			1 of 3

ZONE	REV	DESCRIPTION	DATE	APPROVED
D-6	A	RELOCATED SITE TO SW OF PIT 1	3/13/98	
A-6	B	AS STAKED ORIENTATION 345°AZIMUTH	3/23/98	



PIT #	LATITUDE	LONGITUDE
#2	40d30' 0.74N	112d28' 18.07W
#4	40d30' 2.48N	112d28' 17.39W
#7	40d30' 5.05N	112d28' 18.61W
#10	40d30' 6.38N	112d28' 20.18W
#11	40d30' 7.08N	112d28' 22.50W
#12	40d30' 11.087N	112d28' 22.90W
#13	40d30' 12.26N	112d28' 28.29W
#17	40d30' 14.66N	112d28' 30.23W
#18	40d30' 14.66N	112d28' 28.54W
#19	40d30' 17.95N	112d28' 28.54W



**FACILITIES ENGINEERING DIVISION**  
**TOOELE ARMY DEPOT**

TODELE NORTH AREA  
DEMOM-RANGE SITE PLAN

DEMOM PIT  
DISTANCE DETAIL

DR. LAW ENFORCEMENT & SECURITY INDUSTRIAL HYGIENE ISSUES DIRECTOR CHIEF SAFETY OFFICE CHIEF ENVIRONMENTAL MANAGEMENT DIV.	DRAWN BY R. ANDERSON DATE 1/29/98 DESIGNER B.MCCALL CHECKED CHIEF, FAC BR. DATE CHIEF, ENVIRONMENTAL BRANCH APPROVED DATE CHIEF, DESIGN SECTION
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APPROVED

SCALE: 1"=200'

PR#

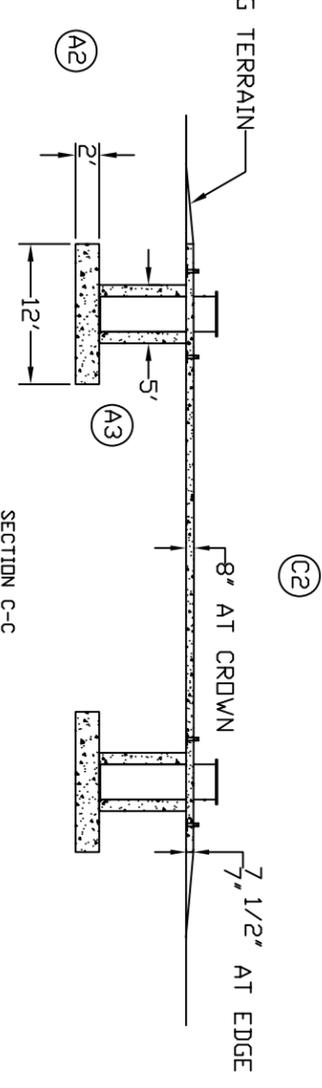
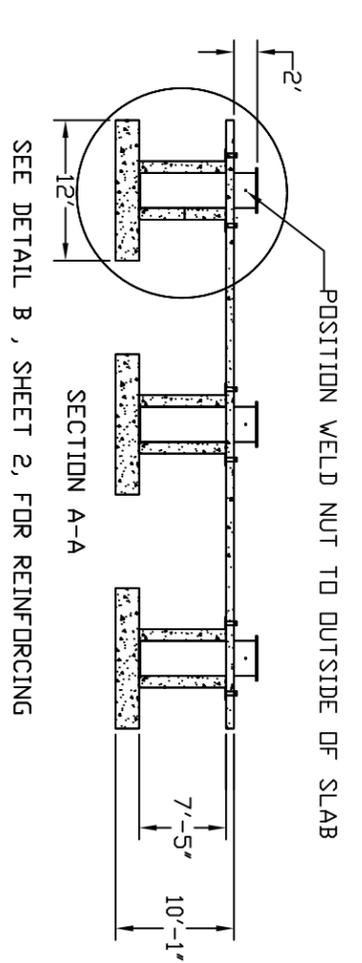
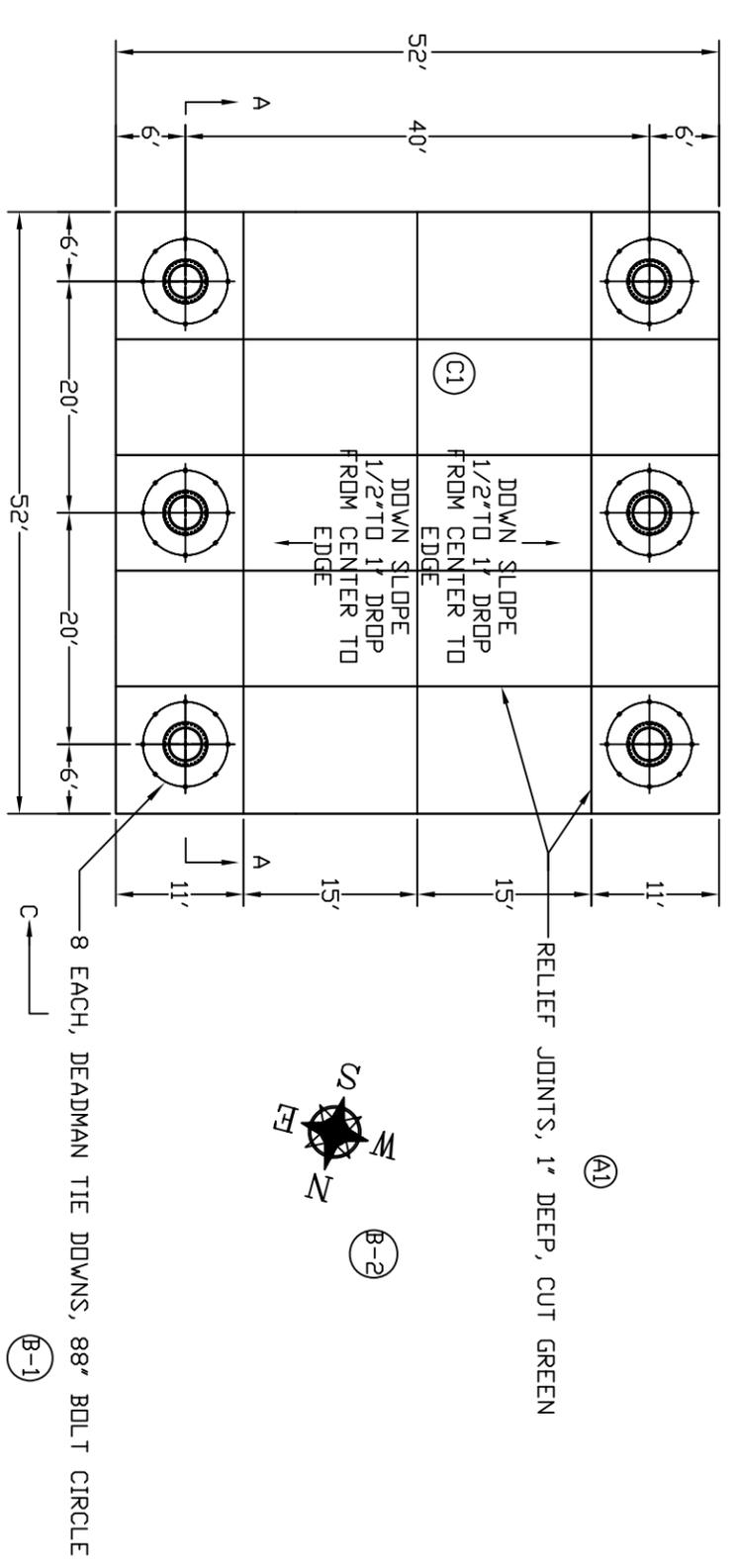
DRAWING NO. T101-0002

FILENAME: DETNEM8

2 of 3



ZONE	REV	DESCRIPTION	DATE	APPROVED
C-5	A1	CHANGED FROM 2' TO 1' DEEP	3/18/98	
B-3	A2	ADDED 2' DIMENSION	3/18/98	
B-3	A3	ADDED 5' DIMENSION	3/18/98	
B-4	B1	CHANGED B.C. FROM 96' TO 88'	5/4/98	
C-3	B2	ADDED N ARROW	5/4/98	
C-6	C1	CHANGED SLOPE	5/28/98	
B-2	C2	ADDED 8' 7' 1/2' AND 7' DIM	5/28/98	



- NOTES:
1. SILO TUBES AND DEADMAN TIE DOWNS TO BE FURNISHED BY TODELE ARMY DEPOT. SEE DWGS T101-0007 AND T101-0008 FOR FABRICATION DETAILS.
  2. SEE DWG T101-0006 FOR GROUNDING PROTECTION DETAILS.

TODELE NORTH AREA  
STATIC FIRE ROCKET SITE  
OVERALL DESIGN

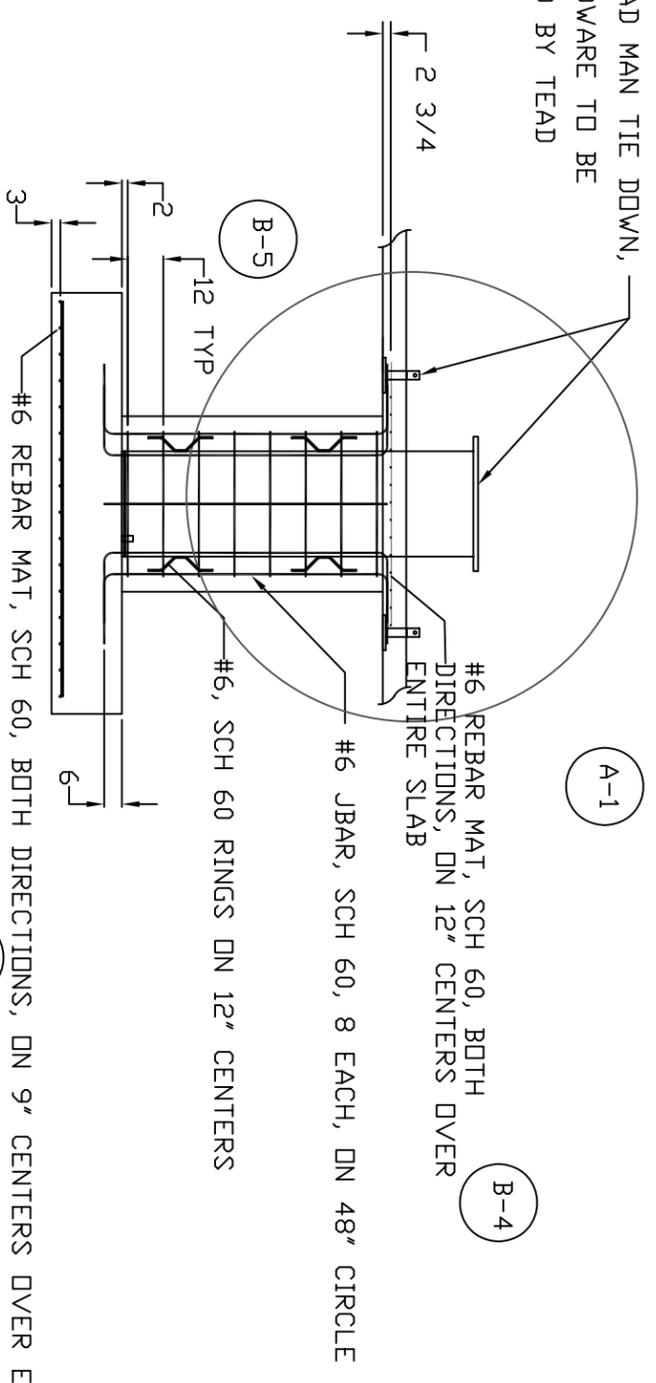
FACILITIES ENGINEERING DIVISION  
TODELE ARMY DEPOT

APPROVED	DATE	SCALE
DIR. LAW ENFORCEMENT & SECURITY	DATE	1/4"=1'-0"
INDUSTRIAL HYGIENE	DATE	PR#
ISSUE DIRECTOR	1/28/98	DATE
CHIEF SAFETY OFFICE	DATE	DRAWING NO. T101-0004
CHIEF ENVIRONMENTAL MANAGEMENT DIV.	DATE	FILENAME T101-0004C
CHIEF FAC BR.	DATE	1 of 2
CHIEF DESIGN SECTION	DATE	

ZONE	REV	DESCRIPTION	REVISIONS	DATE	APPROVED
C-6	A-1	ADDED SPUDS		3/18/98	
C-3	A-2	ADDED DETAIL E		5/6/98	
B-5	B-1	CLARIFIED REBAR NARRATIVE		5/6/98	
C-1	B-2	ADDED 1 1/2" DIM		5/6/98	
D-2	B-3	CLARIFIED SLOT NARRATIVE		5/6/98	
C-5	B-4	CLARIFIED REBAR NARRATIVE		5/6/98	
C-7	B-5	ADDED 2" AND 12" DIM		5/6/98	
D-3	C	ADDED 26" AND 21" DIM		5/28/98	

TUBE, DEAD MAN TIE DOWN,  
AND HARDWARE TO BE  
PROVIDED BY TEAD

SEE DETAIL D

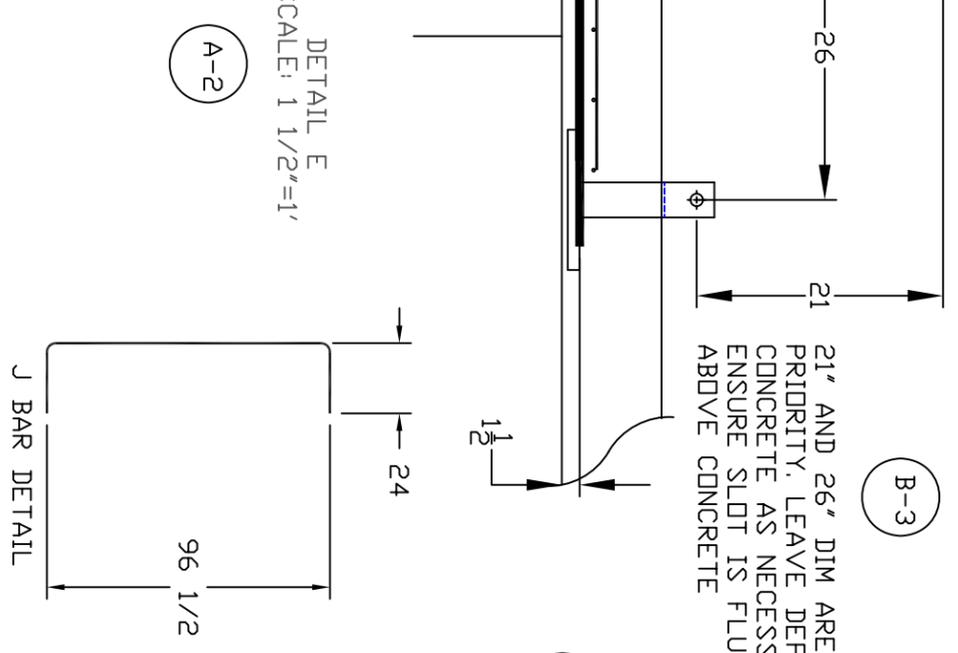


DETAIL B  
REINFORCING

B-1

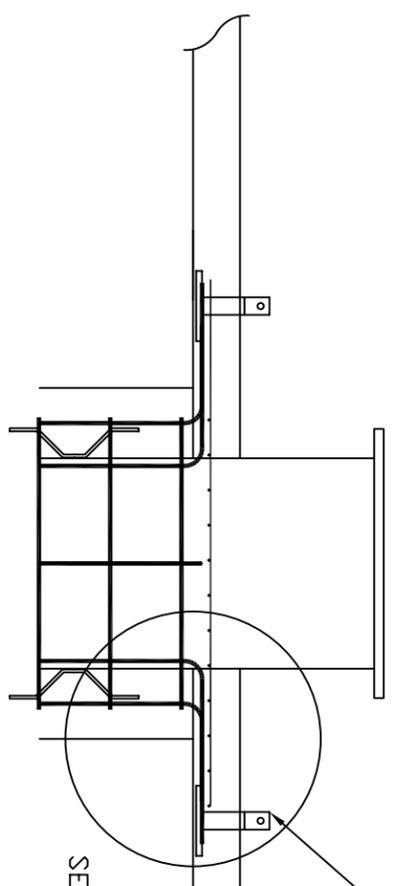
DEADMAN, TIE DOWN, T101-0008, 8 EACH  
BOLT, HEX HEAD, 1"-8UNC, 4 1/2" LONG, GR 8, CAD DR ZN PLTD, MS90728-240, 8 EACH  
NUT, SELF-LOCKING, 1"-8UNC, ZN DR CAD PLTD, MS17829-16C, 8 EACH

DETAIL E  
SCALE: 1 1/2"=1'



J BAR DETAIL

A-2



DETAIL D  
SCALE: 3/4"=1'

SEE DETAIL E

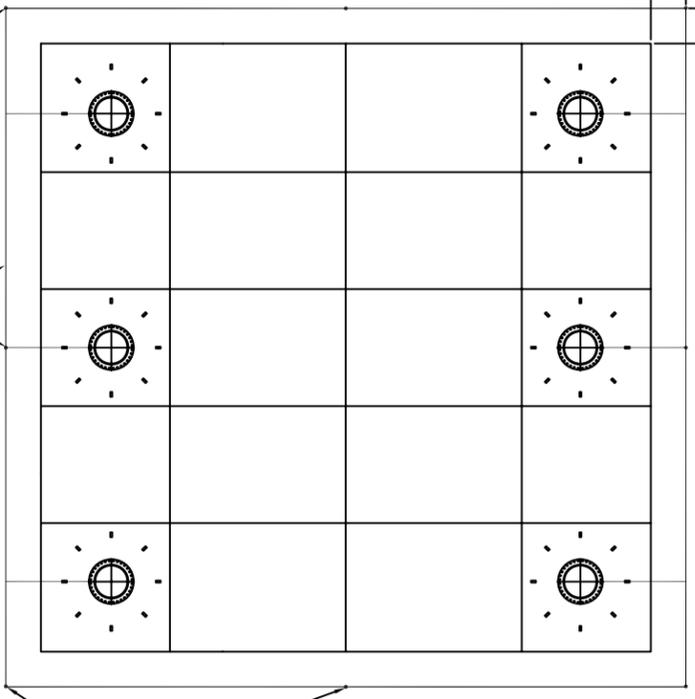
<b>FACILITIES ENGINEERING DIVISION</b> <b>TOOELE ARMY DEPOT</b>		<b>TIDDELE NORTH AREA</b> <b>STATIC FIRE ROCKET SITE</b> <b>REINFORCING STEEL DETAIL</b>	
APPROVED DIR. LAW ENFORCEMENT & SECURITY DATE INDUSTRIAL HYGIENE DATE ISSUES DIRECTOR DATE CHIEF SAFETY OFFICE DATE CHIEF ENVIRONMENTAL MANAGEMENT DIV. DATE CHIEF FAC BR. DATE CHIEF DATE	DRAWN BY BLM/CALL DATE 1/28/98 DESIGNER BLM/CALL CHECKED CHIEF, ENVIRONMENTAL BRANCH APPROVED DATE CHIEF, DESIGN SECTION DATE	SCALE 3/4" = 10' <b>PR#</b> DRAWING NO. T101-0008 FILENAME T101-0008C	<b>2</b> <b>2</b>

ZONE	REV	DESCRIPTION	REVISIONS	DATE	APPROVED
C-4	A-1	CHANGED NO. OF RODS FROM 4 TO 8		5/11/98	
C-3	A-2	CHANGED TO MINIMUM 6" FROM APPROX 6" FROM		5/11/98	
B-7	A-4	CHANGED TO 12" MINIMUM BELOW BOTTOM OF SLAB		5/11/98	
C-5	A-5	REMOVED OPTIONAL MID POINT GROUNDING RODS		5/11/98	



ATTACH PIGTAIL TO SILD USING COPPER COMPRESSION LUG, 3/8" BOLT AND TOOTH WASHERS  
ALLOW FOR MINIMUM 6" SLACK AFTER CONCRETE POUR

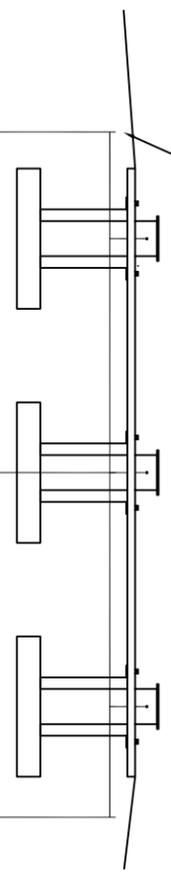
DETAIL C  
SCALE: 1/16"=1'-0"



GROUNDING ROD, 3/4" DIA X 10' LONG, COPPER CLAD STEEL, 8 TOTAL

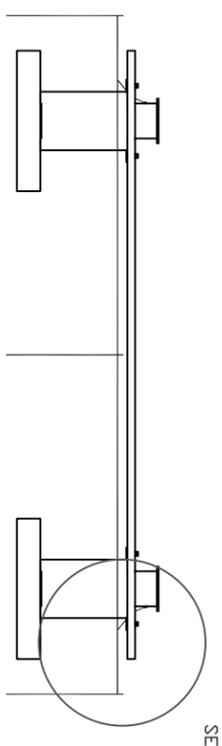
ALL TEE, GROUND ROD, AND SPLICES TO BE CAD WELDED

ALL WIRE TO BE 1/0 AWG, SOFT DRAWN, STRANDED COPPER



SECTION A-A

TOP OF ROD MINIMUM OF 12" BELOW BOTTOM OF SLAB



SECTION B-B

SEE DETAIL C

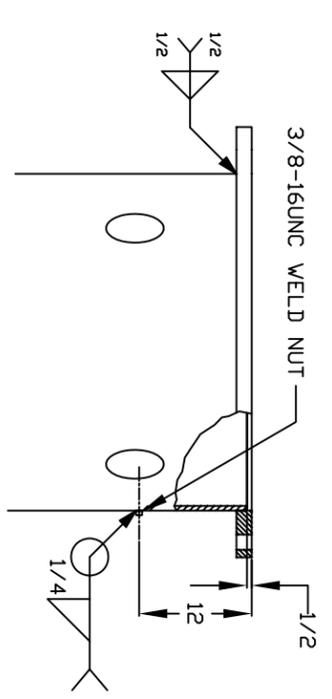
- NOTES:
1. RESISTANCE TO EARTH TESTING SHALL BE PERFORMED BY TODELE ARMY DEPOT IAW DA PAMPHLET 385-64, TABLE 6-1, FOOT NOTE 8a. AND APPENDIX B, PARA B-4.
  2. ~~FOR FOUR ADDITIONAL PADS MAY BE GIVEN AND COVERED TO THE MIDPOINT OF THE PERIMETER TO BE TESTED THE MAXIMUM EXCEEDS RESISTANCE~~
  3. ROD TO GROUND RESISTANCE SHALL BE PERFORMED AFTER BACK FILL OF SITE BUT PRIOR TO CONCRETE POUR OF THE SURFACE SLAB.

APPROVED		SCALE 1/8"=1'-0"	
DR. LAW ENGAGEMENT & SECURITY	DATE	APPROVED	DATE
INDUSTRIAL HYGIENE	DATE	DESIGNER	DATE
ISSUE DIRECTOR	DATE	CHECKED	DATE
CHIEF SAFETY OFFICE	DATE	CHIEF, FAC BR.	DATE
CHIEF ENVIRONMENTAL MANAGEMENT DIV.	DATE	CHIEF, ENVIRONMENTAL BRANCH	DATE
	DATE	CHIEF, DESIGN SECTION	DATE

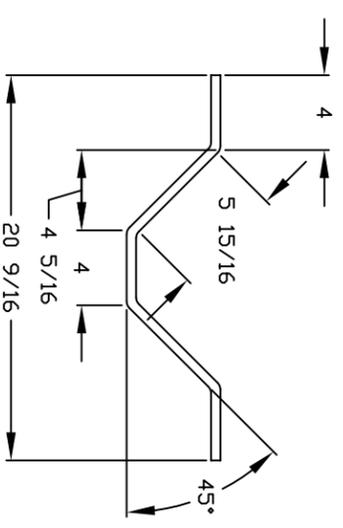
FACILITIES ENGINEERING DIVISION  
TODELE ARMY DEPOT  
TODELE NORTH AREA  
STATIC FIRE ROCKET SITE  
GROUNDING SYSTEM DETAILS

PR#  
DRAWING NO. T101-0006  
FILENAME T101-0006A

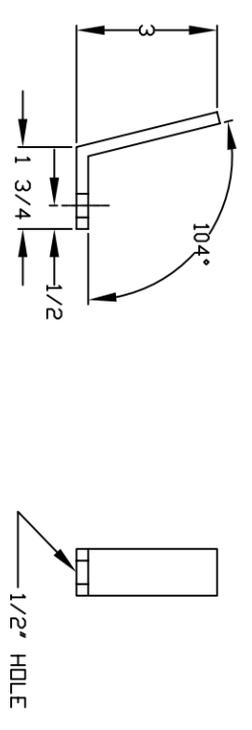
ZONE	REV	DESCRIPTION	DATE	APPROVED
B-6	A-1	ADDED SPUDS AND DETAILS	3/18/98	
B-5	A-2	ADDED TANGS AND DETAILS	3/18/98	



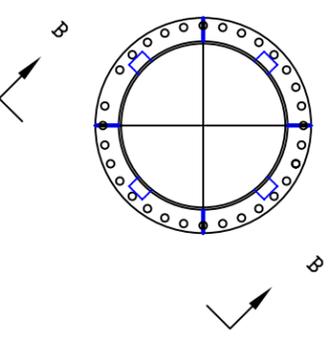
DETAIL A  
SCALE: 1/10



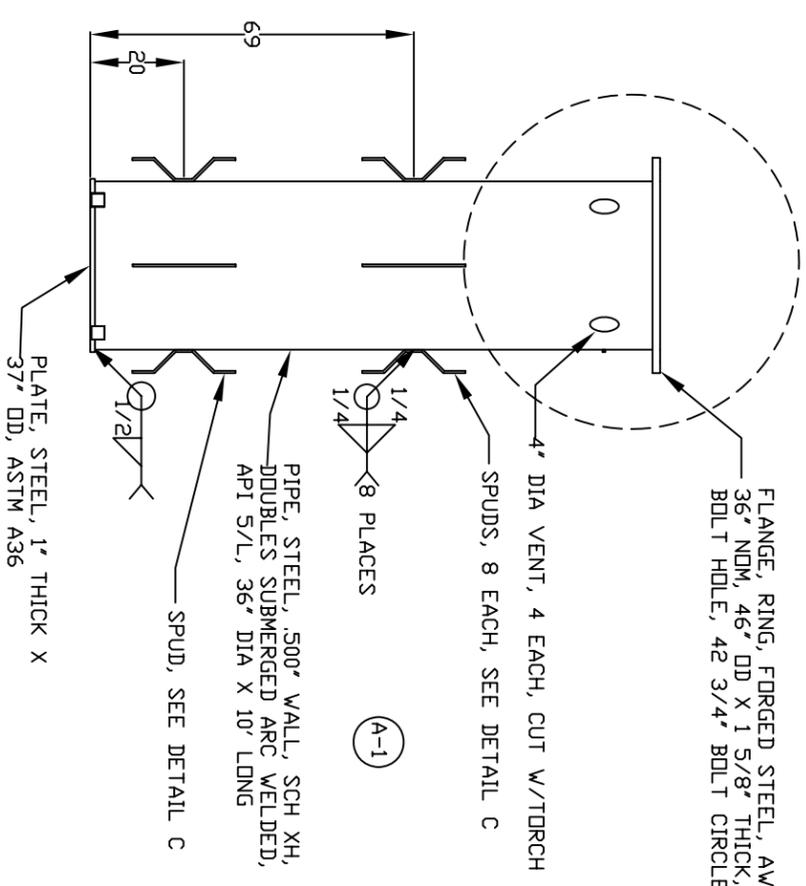
MATERIAL: REBAR OR ROUND, STEEL, 1/2" DIA,  
APPROX 24" LONG  
DETAIL C  
SCALE: 1/5



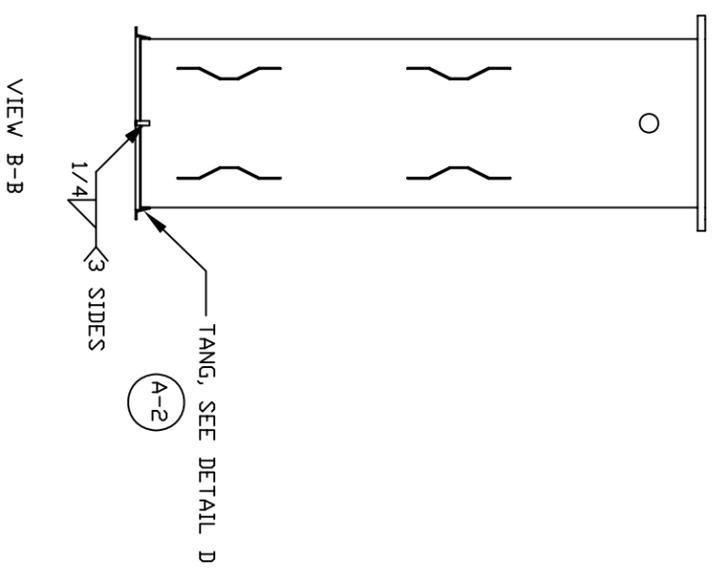
MATERIAL: STRIP, STEEL, 1" WIDE X 4 3/4"  
LONG X 1/4" THICK  
DETAIL D  
SCALE: 1/2



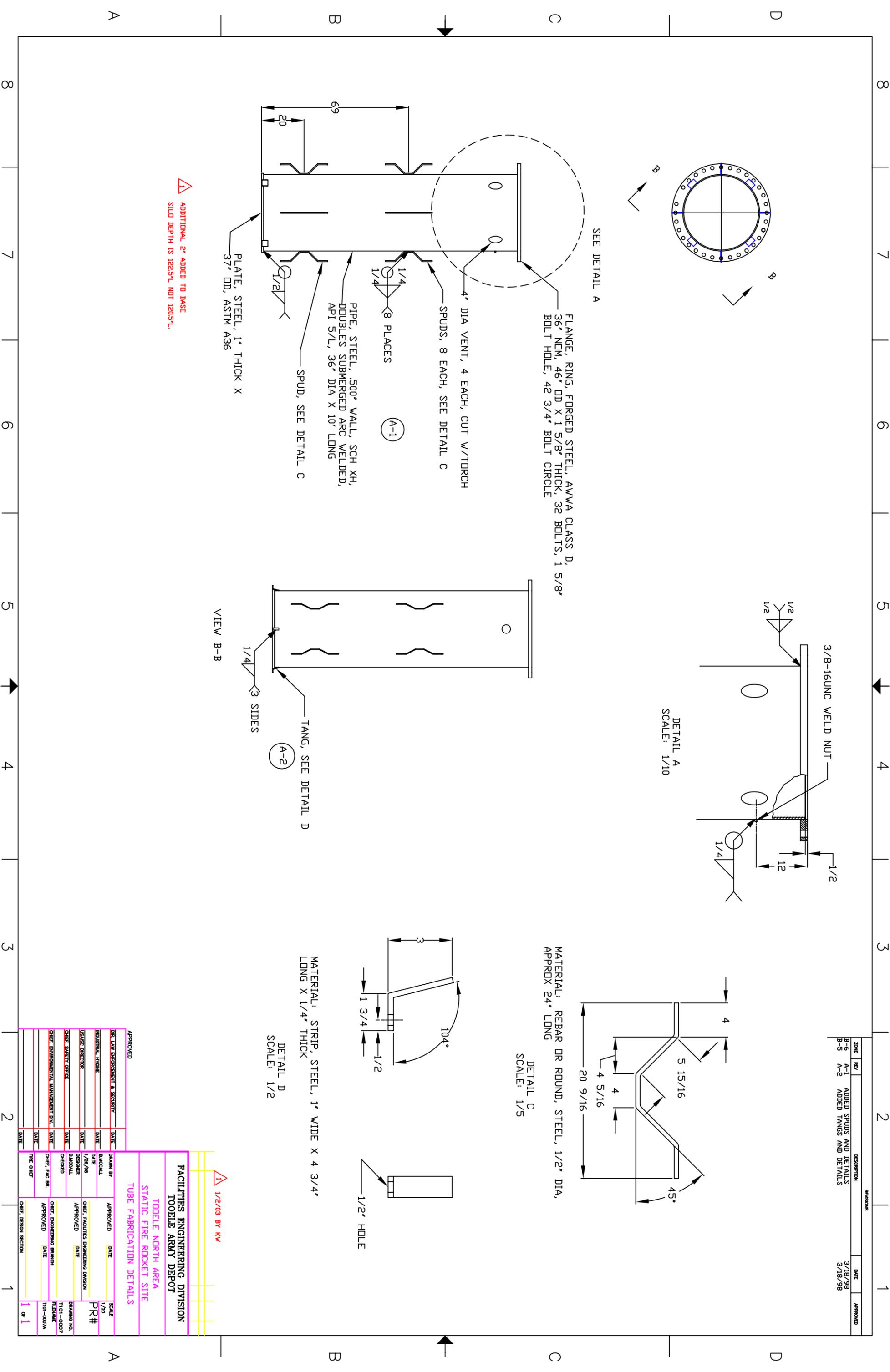
SEE DETAIL A



ADDITIONAL 2" ADDED TO BASE  
SILLO DEPTH IS 122.5" L. NOT 120.5" L.



VIEW B-B

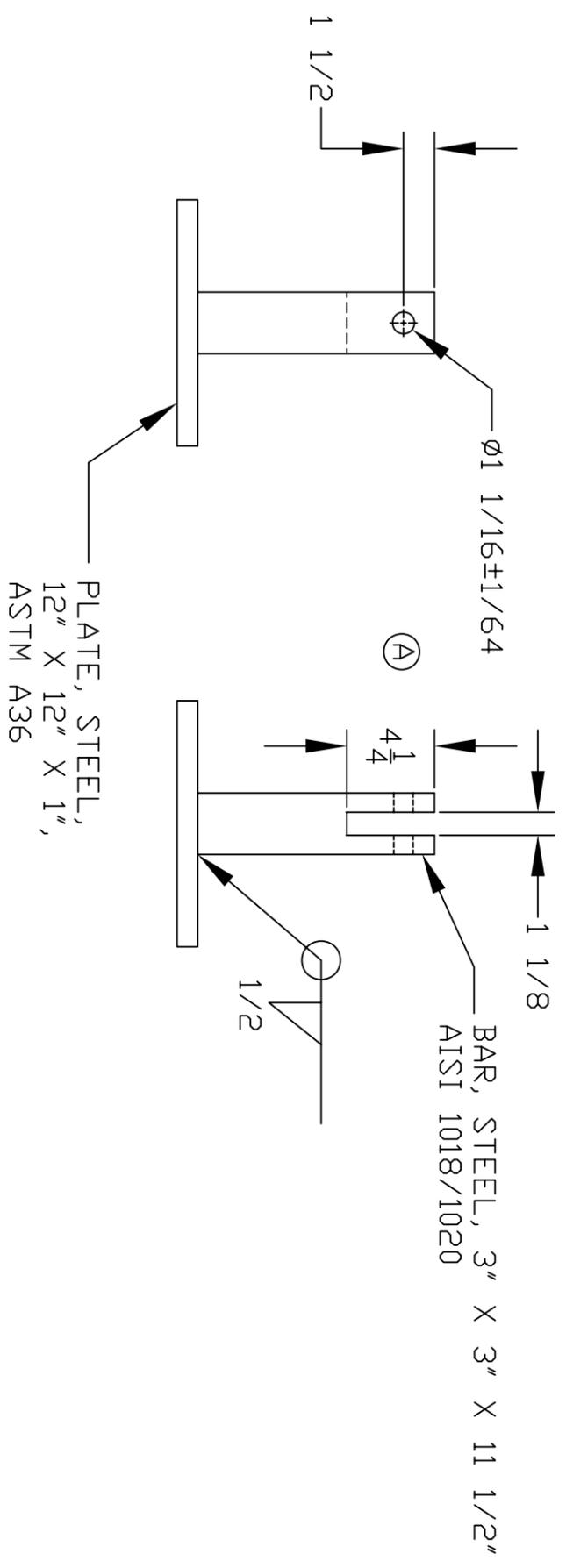


<b>APPROVED</b> DIR. LAW ENFORCEMENT & SECURITY INDUSTRIAL HYGIENE ISSUES DIRECTOR CHIEF SAFETY OFFICE CHIEF ENVIRONMENTAL MANAGEMENT DIV.		DATE DATE DATE DATE DATE		DRAWN BY DATE DESIGNER CHECKED CHIEF, FAC BR. CHIEF, ENVIRONMENTAL MANAGEMENT DIV.		DATE DATE DATE DATE DATE	
<b>APPROVED</b> TIDDELE NORTH AREA STATIC FIRE ROCKET SITE TUBE FABRICATION DETAILS		APPROVED DATE SCALE 1/20		APPROVED DATE DRAWING NO. T101-0007		APPROVED DATE FILENAME T101-0007A	

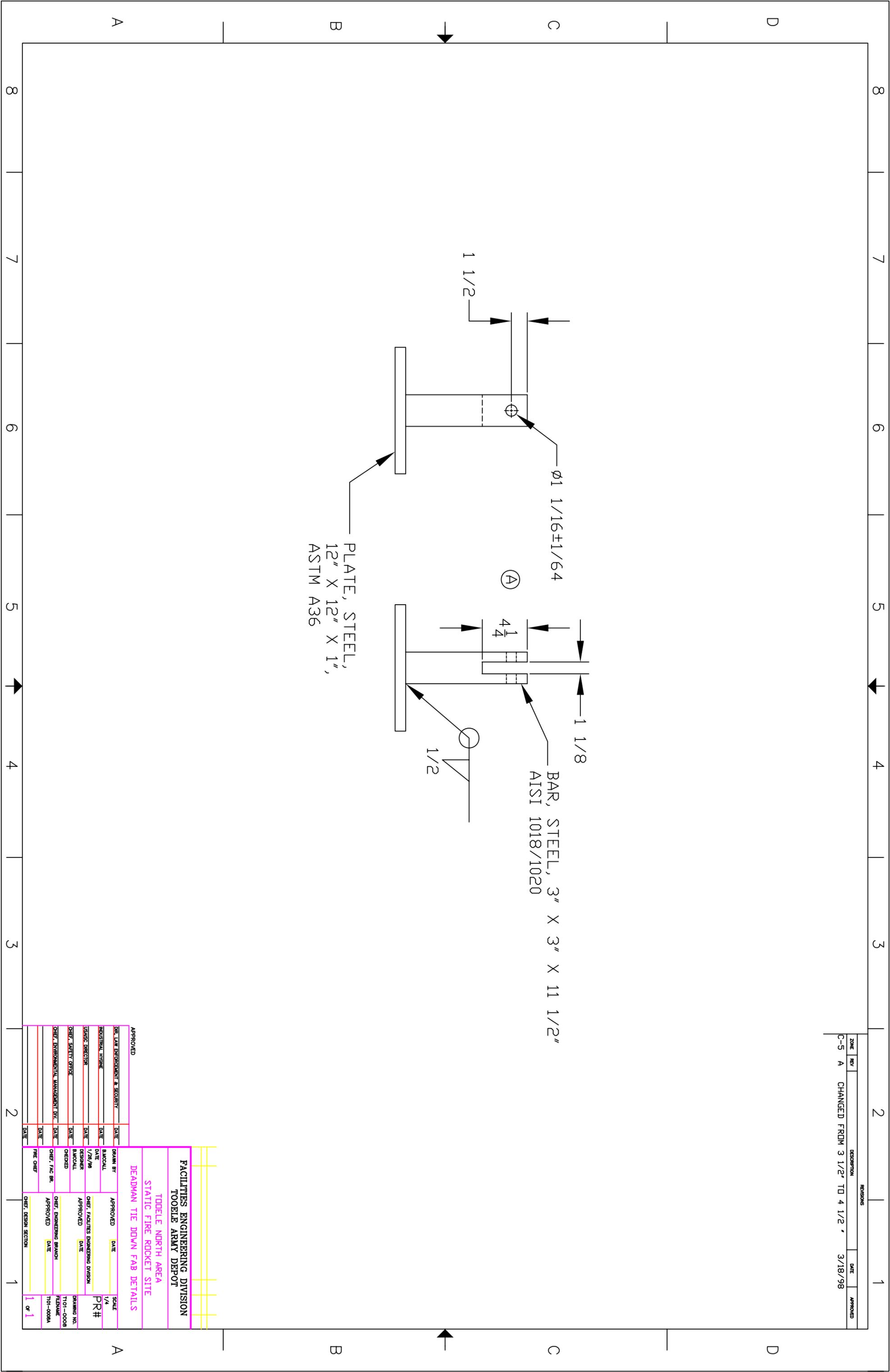
<b>APPROVED</b> FACILITIES ENGINEERING DIVISION TOOELE ARMY DEPOT		DATE DATE DATE DATE DATE		DRAWN BY DATE DESIGNER CHECKED CHIEF, FAC BR. CHIEF, ENVIRONMENTAL MANAGEMENT DIV.		DATE DATE DATE DATE DATE	
<b>APPROVED</b> TIDDELE NORTH AREA STATIC FIRE ROCKET SITE TUBE FABRICATION DETAILS		APPROVED DATE SCALE 1/20		APPROVED DATE DRAWING NO. T101-0007		APPROVED DATE FILENAME T101-0007A	

1/2/03 BY KV

ZONE	REV	DESCRIPTION	DATE	APPROVED
C-5	A	CHANGED FROM 3 1/2" TD 4 1/2"	3/18/98	



APPROVED		DRAWN BY		APPROVED		SCALE	
DIR. LAW ENFORCEMENT & SECURITY	DATE	BACCOLI	DATE	DATE	DATE	1/4"	PR#
INDUSTRIAL HYDNE	DATE		DATE	CHEF, FACILITIES ENGINEERING DIVISION	DATE		
ISSUE DIRECTOR	DATE	1/29/98	DATE	DESIGNER	DATE		DRAWING NO.
CHEF, SAFETY OFFICE	DATE		DATE	BACCOLI	DATE		T101-0008
CHEF, ENVIRONMENTAL MANAGEMENT DIV.	DATE		DATE	CHEKED	DATE		FIDNAME
	DATE		DATE	CHEF, FAC BR.	DATE		T01-008A
	DATE		DATE	FIRE CHEF	DATE		
	DATE		DATE	CHEF, DESIGN SECTION	DATE		1 of 1



REVISIONS		DATE	APPROVED
ZONE	REV	DESCRIPTION	
-	A	CHANGED CAROUSEL TO CURRENT DESIGN	3/18/98
-	B	REPAIRMAN V/DEADMAN DN 88" VS 96" B.C.	5/6/98

MACHINE, EYEBOLT, SHOULDER, FORGED STEEL,  
ZN PLTD OR GALVANIZED, 3/4-10UNC, 4 EACH

NIKE HERCULES, MSE1 ROCKET MOTOR (REF)

RING, RETAINING, CAROUSEL, T101-0014

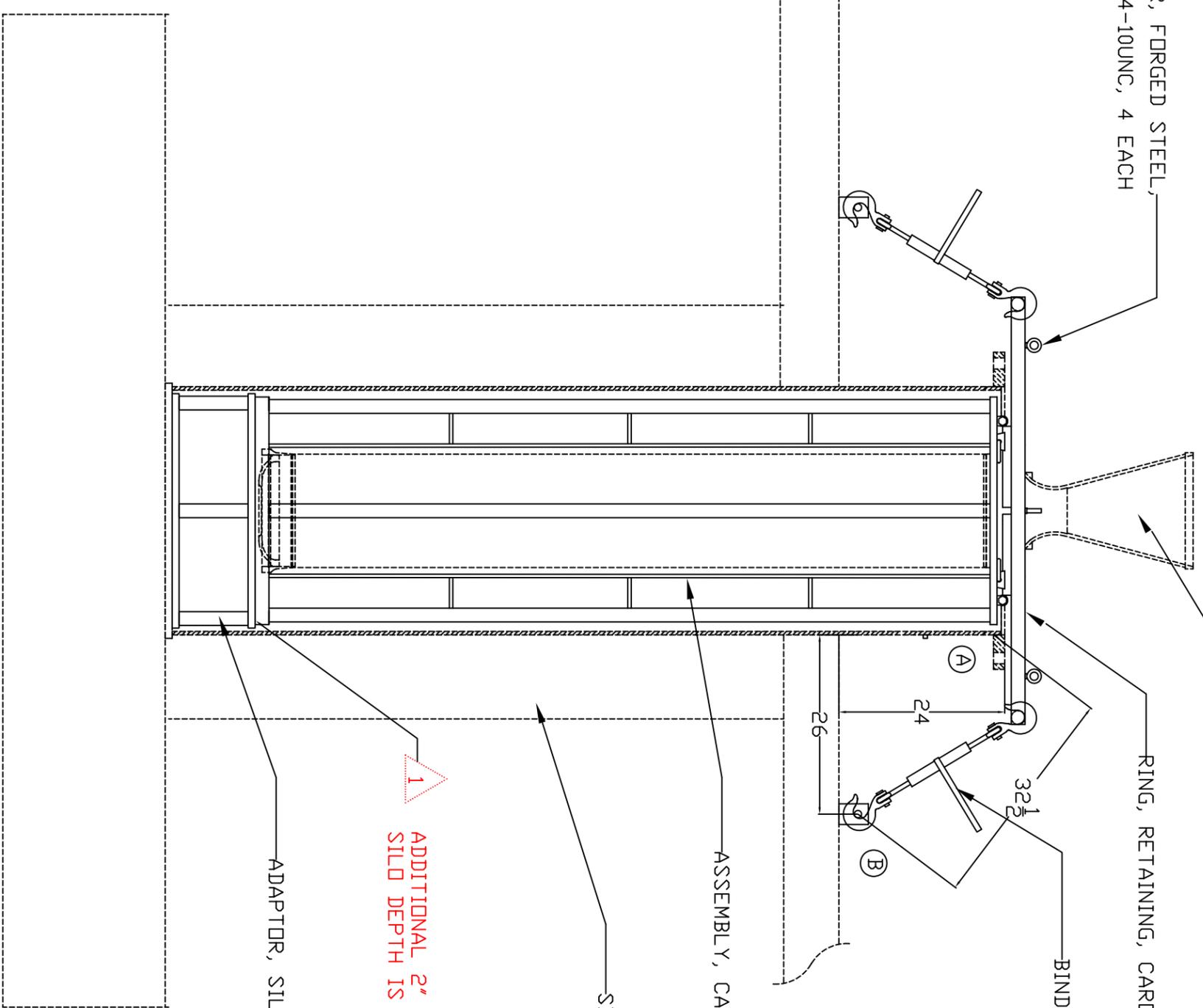
BINDER, RATCHET, T101-0016, 8 EACH

ASSEMBLY, CAROUSEL, T101-0010

SILD, T101-0004 (REF)

ADAPTOR, SILD, T101-0015

1 ADDITIONAL 2" ADDED TO BASE  
SILD DEPTH IS 122.5"L NDT 120.5"L.



APPROVED		DATE	APPROVED
DIR. LAW ENFORCEMENT & SECURITY		DATE	
INDUSTRIAL HYGIENE		DATE	
ISSUE DIRECTOR		DATE	
CHIEF SAFETY OFFICE		DATE	
CHIEF ENVIRONMENTAL MANAGEMENT DIV.		DATE	
CHIEF, FAC BR.		DATE	
CHIEF, DESIGN SECTION		DATE	

1/2/03 BY KW

FACILITIES ENGINEERING DIVISION  
TOOELE ARMY DEPOT

TIDDELE NORTH AREA  
STATIC FIRE SILD ASSEMBLY  
MSE1, NIKE HERCULES

SCALE 1/8"

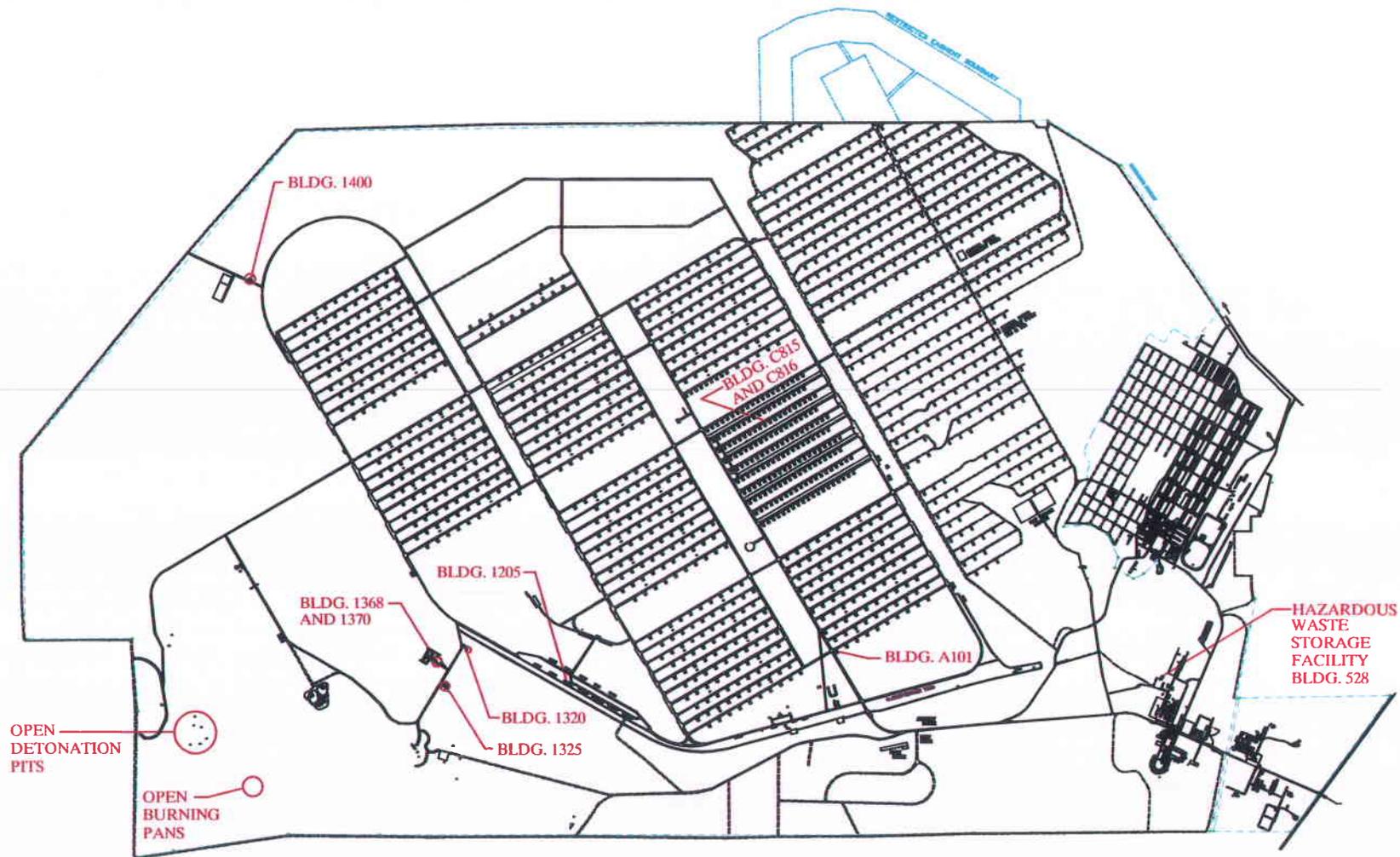
PR#

DRAWING NO. T101-0009

FILENAME SLD0009

1 of 1

Figure 2 General Site Map



## MODULE IV - INCINERATION

The incinerator consists of an oil fired rotary kiln with an oil-fired afterburner. The off-gas pollution control system consists of a cyclone dust separator between the kiln and afterburner, and a high temperature cast ceramic filter baghouse prior to the high temperature draft fan and exhaust stack. Waste is fed through an interlocked waste feed monitoring system to a single conveyor which empties into a feed hopper, which empties into the kiln. The solid waste exits the rotary kiln at the discharge/burner end. It is removed by the discharge conveyor and collected in drums. Additional details on the design of the system are found in Attachment 14.

### IV.A. OPERATION AND MAINTENANCE

- IV.A.1. The Permittee shall maintain and operate the incineration system in accordance with the drawings, specifications, and procedures contained in Attachments 10, 11, 13, 14, and 15.
- IV.A.2. Modifications to the drawings and specifications for the incineration system shall be allowed only in accordance with the permit modification requirements in Condition I.D and UAC R315-3-4.3.
- IV.A.3. All process monitors, required pursuant to Conditions IV.E, shall be equipped with alarms operated to warn of deviation or imminent deviation from the limits specified in Condition IV.D.
- IV.A.4. The Permittee shall maintain the incinerator and ancillary equipment in good repair. Routine maintenance shall be performed at sufficient frequency to ensure the incinerator remains in good repair. Malfunctions and deterioration shall be corrected as expeditiously as possible.
- IV.A.5. The Permittee shall maintain the incineration system such that when it is operated in accordance with the requirements in this permit, it will meet the performance standards specified in Condition IV.B.

### IV.B. PERFORMANCE STANDARDS

- IV.B.1. The incinerator shall achieve a destruction and removal efficiency (DRE) of at least 99.99% for each of the principal organic hazardous constituents (POHCs) designated below.
- a. hexachlorobenzene (HCB)
  - b. dinitrotoluene (DNT)
  - c. nitroglycerin (NG)

$$DRE = \frac{W_{in} - W_{out}}{W_{in}} * 100\%$$

The DRE shall be calculated in accordance with the formula given below.

Where:  $W_{in}$  = mass feed rate of one POHC in the waste feeding the incinerator  
 $W_{out}$  = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere

The DRE may not be rounded up to meet the required standard of 99.99%.

IV.B.2. The incinerator shall not emit particulate matter in excess of 180 milligrams per dry standard cubic meter (0.08 grains per dry standard cubic foot) when corrected to 7% oxygen in accordance with the formula given below.

$$P_c = P_m * \frac{14}{21 - Y}$$

Where:  $P_c$  = corrected concentration of particulate matter

$P_m$  = measured concentration of particulate matter

$Y$  = measured O<sub>2</sub> concentration (%) in the stack gas on a dry basis

IV.B.3. The Permittee shall control hydrogen chloride (HCl) emissions, such that the rate of emissions is no greater than the larger of either 1.8 kilograms per hour (4.0 pounds per hour) or one percent of the HCl in the combustion gas prior to entering any pollution control equipment.

IV.B.4. The Permittee shall control emissions of products of incomplete combustion from the stack such that the carbon monoxide (CO) level in the stack, corrected to 7% oxygen in accordance with the formula given below, shall not exceed 100 ppmv, dry basis, over a one hour rolling average and shall not exceed 500 ppmv, dry basis, for more than one minute at any time.

$$CO_c = CO_m * \frac{14}{21 - Y}$$

Where:  $CO_c$  = corrected CO concentration (ppmv) on a dry basis

$CO_m$  = measured CO concentration (ppmv) on a dry basis

$Y$  = measured O<sub>2</sub> concentration (%) in the stack gas on a dry basis

IV.B.5. The Permittee shall control metal emissions from the stack such that the rate of emission for each metal is no greater than the maximum allowable emission rate specified herein.

<u>Metal</u>	<u>Maximum Emission Rate</u>	
	(lb/hr)	(g/hr)
Antimony	0.03086	14

Arsenic	0.00024	0.11
Barium	0.5291	240
Beryllium	0.00044	0.2
Cadmium	0.00057	0.26
Chromium	0.000088	0.04
Lead	0.0150	6.8
Mercury	0.03086	14
Silver	0.3086	140
Thallium	0.03086	14

IV.B.6. Compliance with the operating conditions specified in Condition IV.D of this permit shall be regarded as compliance with the required performance standards identified in Conditions IV.B.1 through IV.B.5. However, if it is determined that compliance with the operating conditions in Condition IV.D is not sufficient to ensure compliance with the performance standards specified in Conditions IV.B.1 through IV.B.5, the permit may be modified, revoked, or reissued, pursuant to UAC R315-3-4.2.

IV.C. **FEED LIMITATIONS**

IV.C.1. The Permittee may only feed propellant, explosive and pyrotechnics (PEP) reactive waste munitions. No other wastes except incidental wrappings, holders and PEP containers may be incinerated.

IV.C.2. Only one type of waste munition or propellant shall be incinerated at a time.

IV.D. **OPERATING REQUIREMENTS AND FEED RATE LIMITS**

The Permittee may feed the wastes described in Condition IV.C. to the incinerator only under the following conditions:

IV.D.1. The combustion gas temperature at the kiln exit shall be maintained below 680°F. The kiln gas exit temperature shall be monitored and recorded continuously.

IV.D.2. The kiln rotation shall not be less than 1.0 rpm. The maximum kiln rotation shall not exceed 3.3 rpm. The kiln rotation speed shall be monitored and recorded continuously.

IV.D.3. The pressure within the kiln combustion zone shall not be above -0.10 inches water column for more than 15 seconds or below -0.50 inches water column for more than 5 seconds. The combustion zone differential pressure shall be monitored and recorded continuously.

IV.D.4. The combustion gas temperature at the outlet of the afterburner shall be maintained between 1580-1720°F. This temperature shall be monitored and recorded continuously.

- IV.D.5. The carbon monoxide (CO) concentration in the stack exhaust gas, corrected to seven percent oxygen in accordance with the formula specified in Condition IV.B.4, shall not exceed 100 ppmv, dry basis, over a one hour rolling average, and shall not exceed 500 ppmv, dry basis, for more than 60 seconds at any time. The uncorrected and corrected CO concentration in the stack and the one-hour rolling average shall be monitored and recorded on a continuous basis. The oxygen concentration in the stack shall also be monitored and recorded on a continuous basis.
- IV.D.6. The combustion gas temperature at the inlet of the baghouse shall not exceed 1200°F or be less than 790°F. The baghouse temperature shall be monitored and recorded continuously.
- IV.D.7. The pressure drop across the baghouse shall not be less than 3.5 inches W.C. (inches H<sub>2</sub>O). Pressure drop across the baghouse shall be monitored and recorded continuously.
- IV.D.8. Combustion gas velocity, measured at the stack, shall not exceed 53 feet per second. The combustion gas velocity at the stack shall be monitored and recorded on a continuous basis.
- IV.D.9. The Permittee shall limit the total PEP feed rate to 229 pounds per hour.
- IV.D.10. The total potential particulate generation rate of items fed to the incinerator shall not exceed 43.420 pounds per hour. The potential particulate generation rate for the items fed is calculated by the following method: (1) A particulate generation factor (mass of potential particulate emissions per mass of reactant) is obtained from Attachment 12 for each component in the feed. (2) These factors are then multiplied by the feed rates of their respective components to obtain a potential particulate generation rate for each component. (3) The potential particulate generation rate for each component is then summed for a total potential particulate generation rate.
- IV.D.11. The total chloride fed to the system shall not exceed 3.410 pounds per hour.
- IV.D.12. The Permittee shall not exceed the maximum metal feed rates to the incinerator as specified herein.

<u>Metal</u>	<u>Maximum feed rate (lb/hr)</u>
Antimony	0.109
Antimony (elemental)	3.146
Arsenic	0.00024
Barium	5.939
Beryllium	0.00044
Cadmium	0.00057
Chromium	0.01
Lead	0.279
Lead (elemental)	154.14

Mercury	0.031
Silver	0.31
Thallium	0.031

IV.D.13. The speed of the feed conveyor and the cycle frequency of the waste feed rate monitoring system shall be set such that no more than one batch of feed is on the feed conveyor at any given time.

IV.E. **MONITORING, RECORDKEEPING, AND CALIBRATION REQUIREMENTS**

IV.E.1. Hazardous wastes may be fed to the incinerator only when all instruments required by this condition are on-line and operating properly.

IV.E.2. The Permittee shall maintain and operate the monitoring and recording equipment and record the data specified in Conditions IV.D.1 through 8 and Conditions IV.E.5 through 6 while burning hazardous wastes. The data shall be monitored and recorded as specified in Conditions IV.D and IV.E. The monitoring equipment shall provide accurate data.

IV.E.3. The oxygen concentration and uncorrected CO concentration shall also be recorded continuously during the daily calibration checks.

IV.E.4. The monitoring instruments shall be calibrated in accordance with Attachment 13. Records shall be maintained of any calibrations or maintenance performed on any of these instruments.

IV.E.5. The munition feed rate shall be monitored and recorded. This shall be accomplished by recording the time the system is feeding waste and the number of items and/or the weight fed during each batch. The type of munition fed shall also be recorded. The feed rate shall be quantified in pounds per hour.

IV.E.6. The feed rate of all waste materials shall be monitored and recorded on a daily basis. The feed rate shall be quantified in pounds per hour.

IV.E.7. Prior to incinerating any munition, the Permittee shall have sufficient waste analysis data for that material to demonstrate that the feed rates specified in Conditions IV.D.9 through 12 will be met at the programmed munition feed rate. This information must be available for review by the Executive Secretary at the incinerator whenever the material is being incinerated.

IV.E.8. Alarms generated by the plant control system shall be recorded and made available for review by the Executive Secretary.

IV.E.9. The Permittee shall record the date and time of all automatic waste feed cut-offs, including the triggering parameter(s), reason for the cut-off, and corrective action(s) taken. The Permittee shall also record all failures of the automatic waste feed cut-off system to function properly and corrective actions taken.

IV.E.10. The Permittee shall comply with UAC R315-14-7, which incorporates 40 CFR 266 Appendix IX, Section 2.1, *Performance Specifications for Continuous Emission Monitoring of Carbon Monoxide and Oxygen for Incinerators, Boilers, and Industrial Furnaces Burning Hazardous Waste*, by reference.

IV.E.11. Copies of the data collected under this condition shall be provided to the Executive Secretary upon request. The data shall be provided in electronic format if requested.

IV.F. **WASTE FEED CUT-OFF REQUIREMENTS**

The Permittee shall operate and maintain the systems to automatically cut-off the hazardous waste feed to the incinerator under any of the following conditions:

SYSTEM PARAMETER	IMMEDIATE CUTOFF LIMIT	DELAYED CUTOFF LIMIT	DELAY PERIOD
1. Kiln temperature	>680EF	N/A	N/A
2. Kiln rotation	< 1.0 rpm	N/A	N/A
3. Kiln rotation	>3.3 rpm	N/A	N/A
4. Kiln pressure	N/A	>-0.10" W.C.	15 seconds
5. Kiln pressure	N/A	<-0.50" W.C.	5 seconds
6. Afterburner temperature	<1580EF	N/A	N/A
7. Afterburner temperature	>1720EF	N/A	N/A
8. Baghouse temperature	<790EF	N/A	N/A
9. Baghouse temperature	>1200EF	N/A	N/A
10. Baghouse pressure drop	<3.5" W.C.	N/A	N/A
11. CO concentration in the stack (corrected to 7% O <sub>2</sub> , dry basis)	>100 ppmv (one hour rolling ave.)	>500 ppmv	60 seconds
12. Stack gas velocity	>53 fps	N/A	N/A
13. Kiln burner flame out	loss of flame	N/A	N/A
14. Afterburner flame out	loss of flame	N/A	N/A
15. CO/O <sub>2</sub> gas monitor	Failure	N/A	N/A
16. Waste feed scale	Failure	N/A	N/A
17. Retort combustion air fan	Failure	N/A	N/A

SYSTEM PARAMETER	IMMEDIATE CUTOFF LIMIT	DELAYED CUTOFF LIMIT	DELAY PERIOD
18. Retort burner controls	Failure	N/A	N/A
19. Afterburner controls	Failure	N/A	N/A
20. Afterburner combustion air fan	Failure	N/A	N/A
21. Draft fan	Failure	N/A	N/A
22. Draft fan controller	Failure	N/A	N/A

IV.F.26. In addition to the waste feed cut-off systems and associated set points specified in Conditions IV.F.1 through 23, the Permittee shall construct and maintain additional systems to manually or automatically cut-off the waste feed to the incinerator under any of the following conditions:

IV.F.26.a. Any mechanical malfunction with either the incinerator system or controls which would compromise the integrity of the system.

IV.F.26.b. Air pollution control device waste residue collection bins, hoppers, or containers are full and additional waste feeds would cause these receptacles to overflow.

IV.F.27. The waste feed rate monitoring system shall be programmed so that the combination of weight allowed per cycle and the cycle frequency will not allow the feed rates specified in Conditions IV.D.9 through IV.D.12 to be exceeded.

IV.F.28. In the case of a malfunction of the automatic waste feed cut-off system, the Permittee shall immediately initiate the furnace shut down procedure as described in Attachment 11. The Permittee shall not restart the waste feed until the problem causing the malfunction has been identified and corrected.

IV.F.29. If the automatic waste feed cut-off system fails to function properly, the Permittee shall notify the Executive Secretary in writing within seven days indicating the reason for the malfunction and also describing corrective measures taken by the Permittee to preclude future occurrences.

IV.F.30. The Permittee shall test the emergency waste feed cut-off system and associated alarms listed in Conditions IV.F.1 through 23 at least weekly to verify operability. For purposes of this waste feed cutoff test, weekly is defined as 168 hours of operation on hazardous waste. Shutting off the fuel supply at each of the burners will be considered sufficient for testing the cutoff systems associated with Conditions IV.F.13 through 14. Additionally, the waste feed cutoff test may be run with the afterburner low temperature interlock set at 1300EF.

IV.G. **TESTING REQUIREMENTS**

IV.G.1. The Permittee shall conduct periodic sampling and analysis of the waste and exhaust emissions to verify that the operating requirements established in the permit achieve the performance standards. This sampling and analysis or subsequent performance testing shall be performed during each odd calendar year (i.e. 2001, 2003, etc.) or more often if requested in writing by the Executive Secretary. The performance testing, as required by this condition, is not for the purpose of establishing new permit limits. The Permittee must follow the modification procedures in Condition 1.D and UAC R315-3-4.3, which incorporates 40 CFR 270.42 by reference, and conduct a trial burn for establishing new limits. If a trial burn is conducted during an odd calendar year, the Permittee may petition the Executive Secretary to allow it to count for that year's required performance test. If a trial burn is conducted during an even calendar year, the Permittee may petition the Executive Secretary to allow it to count for the following year's required performance test.

IV.G.2. At least six months prior to a scheduled performance test, the Permittee shall submit a test plan describing the parameters to be tested for, the sampling and analytical methods to be used, the quality assurance/quality control procedures to be followed, and any other necessary information for approval from the Executive Secretary. Within 90 days of the conclusion of the performance test (defined as the last day that samples were collected at the site) a report shall be submitted to the Executive Secretary. The report will include a copy of all data collected during the performance test and calculations and determinations to show whether the performance standards outlined in Condition IV.B. were met. The calculations and supporting data shall also be submitted electronically.

#### IV.H. **INSPECTION REQUIREMENTS**

IV.H.1. On at least a daily basis, when in operation, the Permittee shall thoroughly, visually inspect the incinerator, afterburner, off-gas pollution control system, and associated equipment (piping, valves, ducting, feed systems, etc.) and containment systems for leaks, spills, fugitive emissions, deterioration, excessive wear, and signs of tampering per Attachment 4. These inspections shall be accurately documented.

IV.H.2. On at least a daily basis, when in operation, the Permittee shall thoroughly, visually inspect the monitoring instrumentation for out of tolerance and recorded operational data. These inspections shall be accurately documented.

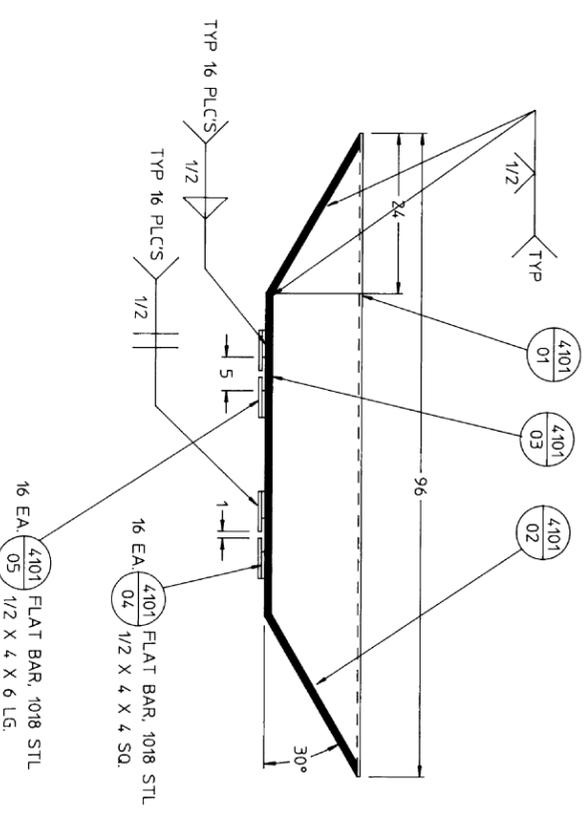
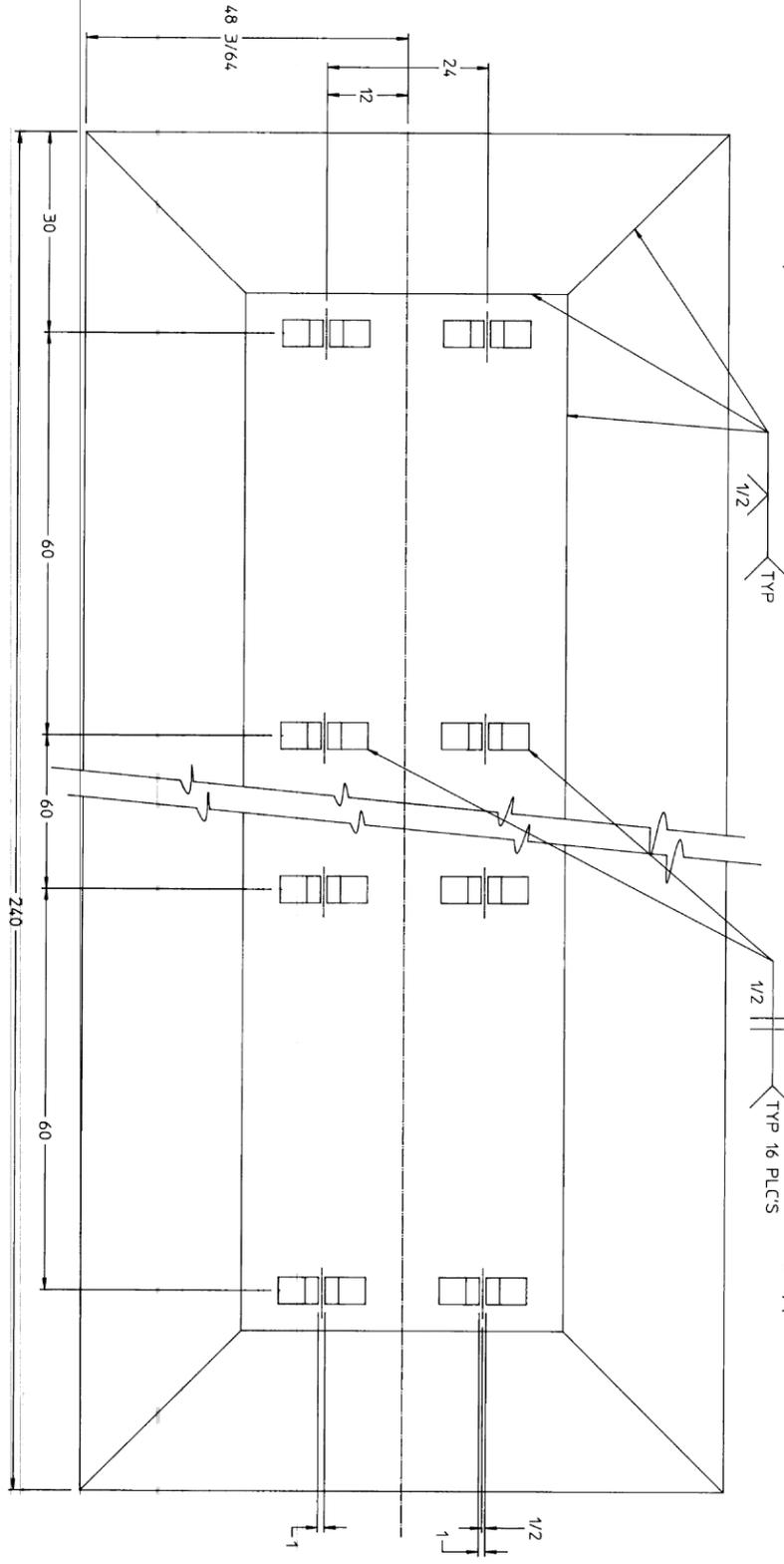
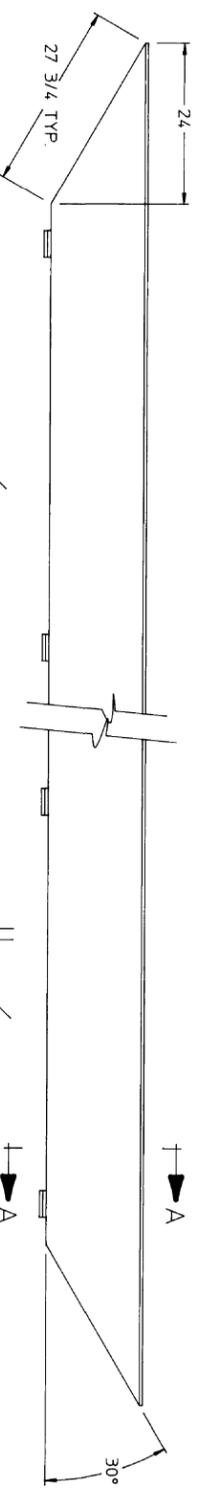
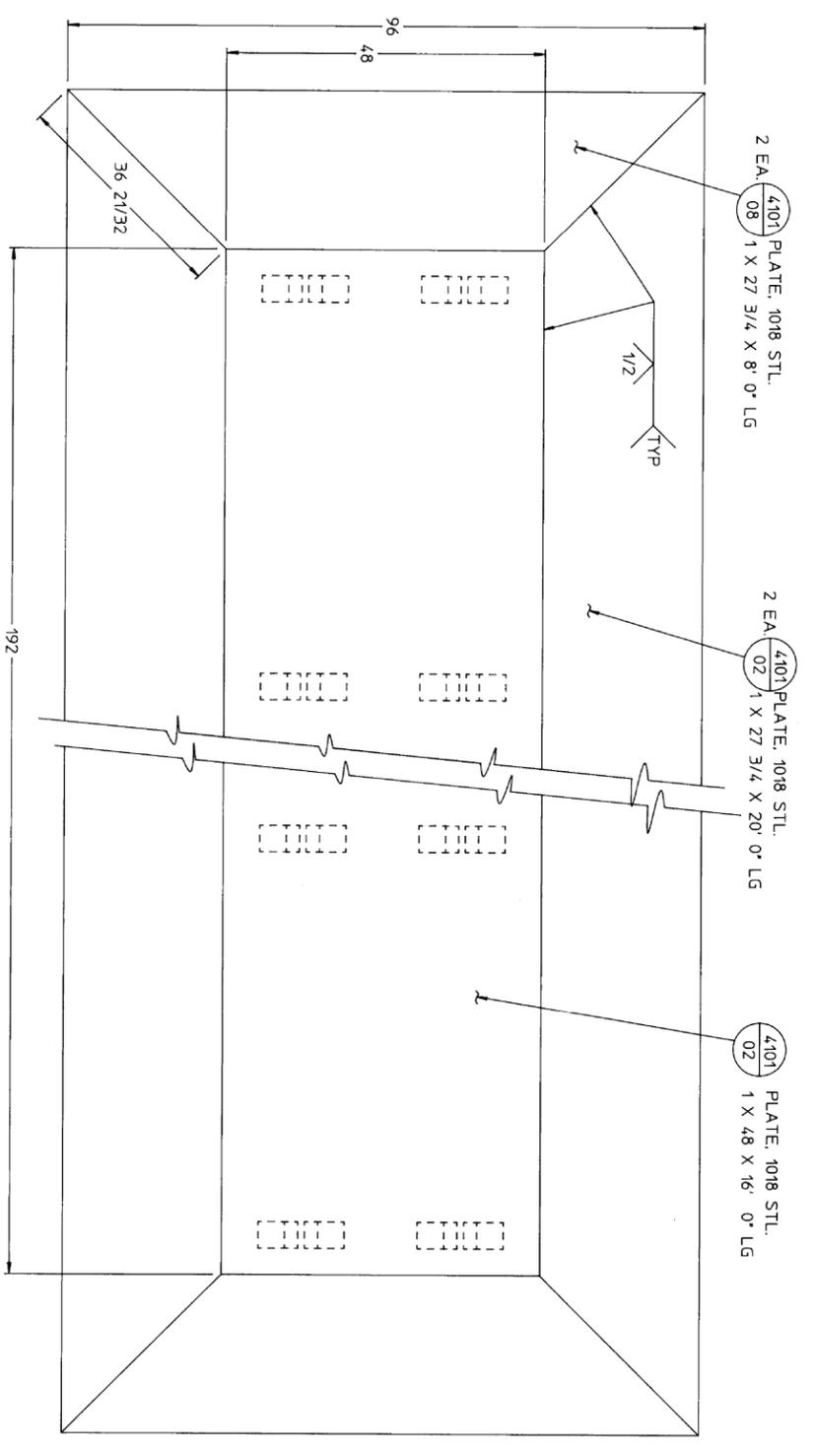
IV.H.3. The metal and ash residues from the discharge of the incinerator shall be separated and inspected before these items are removed from the paved area of Building 1320. This inspection shall be performed within the next twenty-four hour operating period or within seven calendar days following the incineration of the hazardous waste. Ash residues shall be placed in a container and managed as a hazardous waste. Any un-detonated munition shall be recycled back into the incinerator. This event, along with the quantity and type of un-detonated munition, shall be recorded in the operating log.





PART NO.	QTY	UNIT	MANUFACTURER	CODE	PART NUMBER
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PARTS LIST CONTINUED ON SHEET 5 OF 8



SECTION AA

SCANNED DWG

REV.	DATE	BY	DESCRIPTION	ZONE	CHG	APP'D
1	08-08					

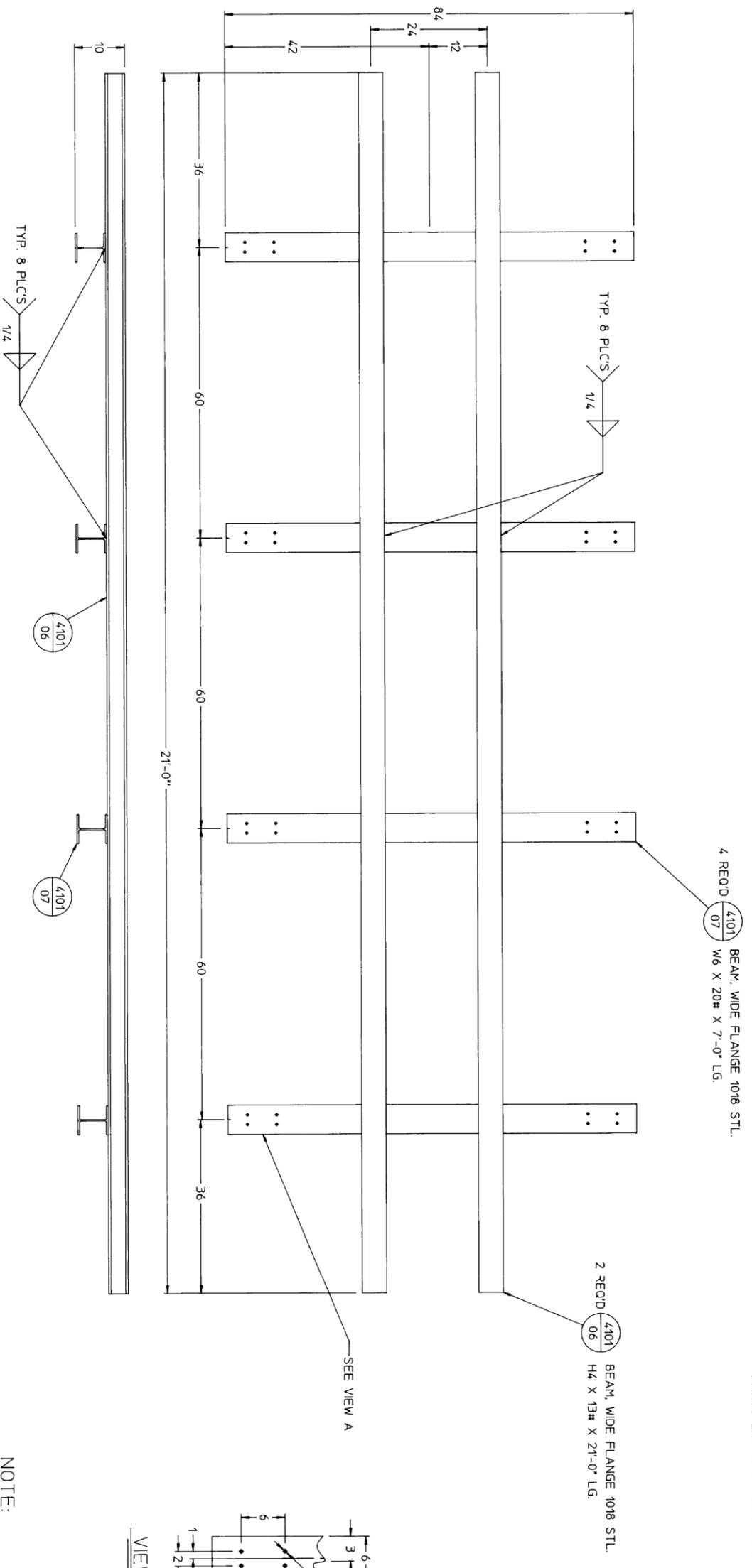
NEXT ASSEMBLY TOLERANCES EXCEPT AS NOTED DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED DECIMALS TO THREE PLACES FRACTIONS TO SIXTEENTHS ANGLES IN DEGREES	DESIGNED BY CHECKED BY DRAWN BY PROJECT ENGINEER PROJECT COORDINATOR	AUTHORITY TOOLS AND EQUIPMENT MATERIALS SAFETY APPROVAL SAFETY APPROVAL SAFETY APPROVAL SAFETY APPROVAL	DATE 21624 F 19JAN95	SCALE 3/32"=1	SHEET 3 OF 8
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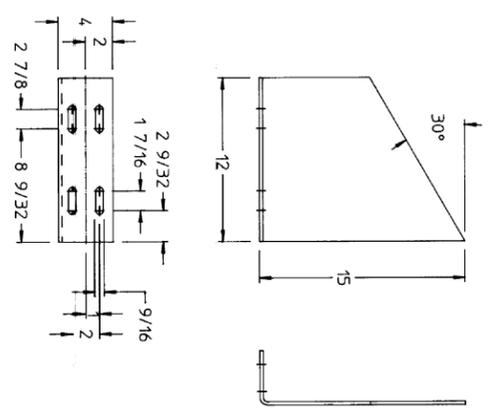
BURNING TRAY HEAVY PAN WELDMENT AND DETAILS	US ARMY ARMAMENT, MOUNTINGS & CHEMICAL COMMAND AMMUNITION PRODUCTION EQUIPMENT
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FIG. NO.	QTY	UNIT	MANUFACTURER CODE	PART NUMBER
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PARTS LIST CONTINUED ON SHEET 5 OF 8



NOTE: LOCATE ON ASSEMBLY



4101 PLATE, 1018 STL  
08 1/4 X 12 X 15 LG.

SCANNED DWG

REVISIONS	DATE	BY	DESCRIPTION
1	21024	SK-88-41	ARMAMENT MOUNTING & CHEMICAL COMMAND BURNING TRAY TRAY SUPPORT FEET WELDMENT AND DETAILS

DESIGN	DATE	BY	DESCRIPTION
1	21024	SK-88-41	ARMAMENT MOUNTING & CHEMICAL COMMAND BURNING TRAY TRAY SUPPORT FEET WELDMENT AND DETAILS

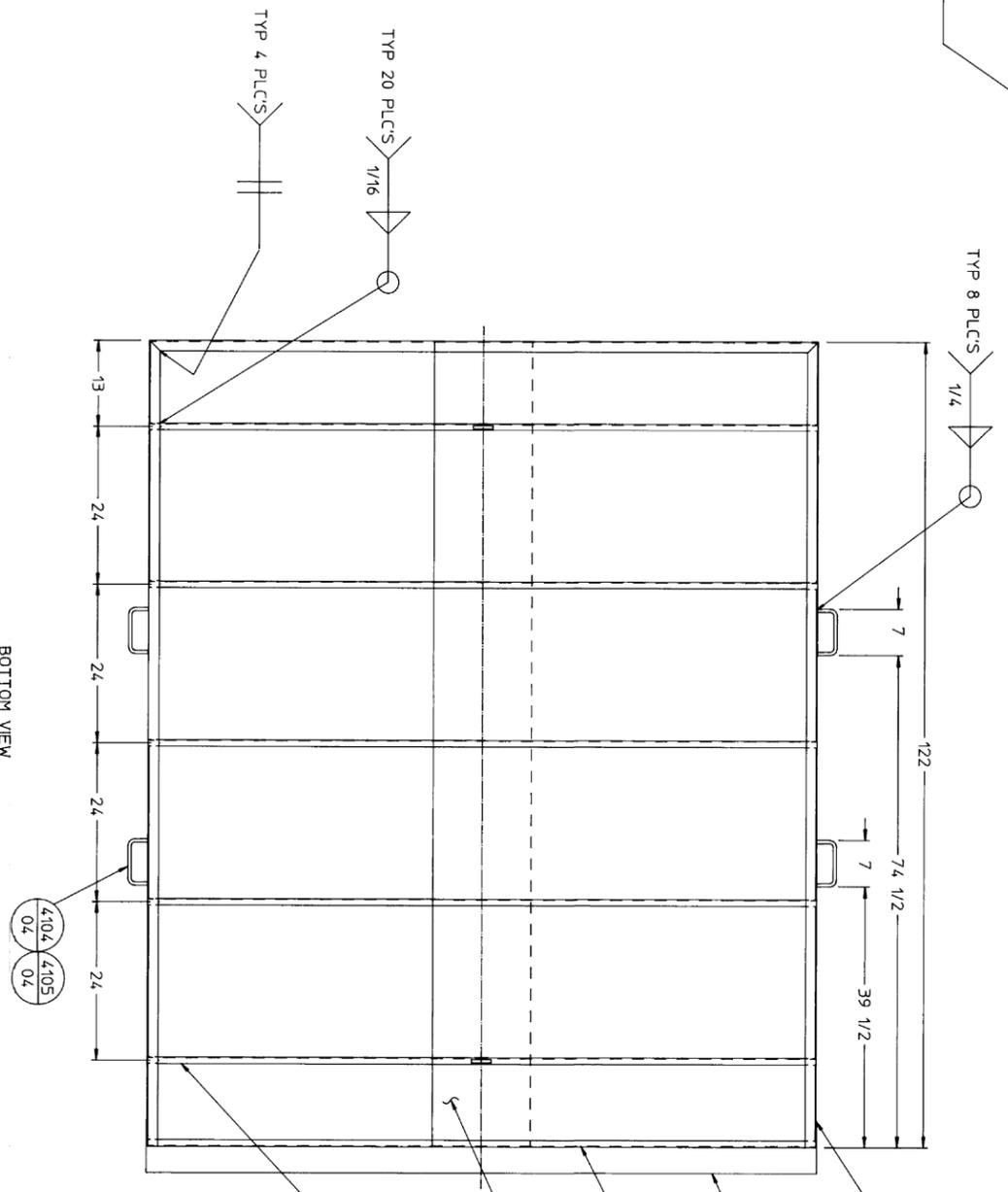
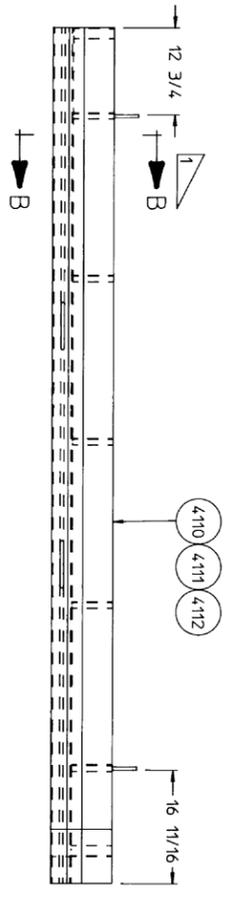
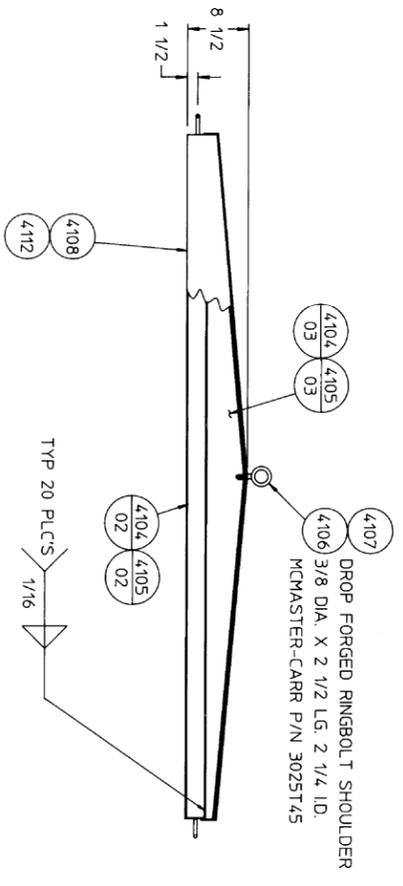
REVISIONS	DATE	BY	DESCRIPTION
1	21024	SK-88-41	ARMAMENT MOUNTING & CHEMICAL COMMAND BURNING TRAY TRAY SUPPORT FEET WELDMENT AND DETAILS

REVISIONS	DATE	BY	DESCRIPTION
1	21024	SK-88-41	ARMAMENT MOUNTING & CHEMICAL COMMAND BURNING TRAY TRAY SUPPORT FEET WELDMENT AND DETAILS

PART NO.	QTY	UNIT	NOMENCLATURE	MUFACTURER CODE	PART NUMBER
4104-01	1		COVER, LIPPED TRAY		SK884104
4105-01	1		COVER, TRAY		SK884105
4106	4		RINGBOLTS, DROP FORGED.		
4107	8		WASHERS, 3/8 NOM. SIZE.		

PARTS LIST CONTINUED ON SHEET 7 OF 8



BOTTOM VIEW

- NOTES:
- SECTION A-A IS ON SHEET 6 OF 8.
  - ITEM #4109 IS TO BE ASSEMBLED TO TRAY COVER ITEM #4104 ONLY.

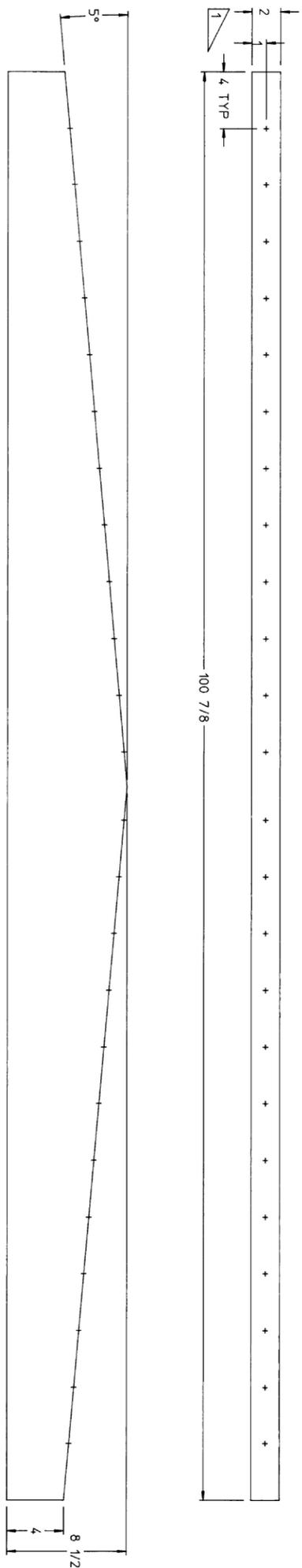
SCANNED DWG

NEXT ASSEMBLY		TOLERANCES EXCEPT AS NOTED		REVISIONS		DESCRIPTION		ZONE		CHG		APP'D	
DESIGN	DATE	BY											
TITLE: BURNING TRAY TRAY SUPPORT FFFFT ASSEMBLY AND DETAILS DRAWN BY: [Signature] CHECKED BY: [Signature] DATE: 21024 SCALE: 3/32=1 SHEET: 5 OF 8				SUBMITTED TO: [Signature] AUTHORITY: [Signature] DATE: 19JAN95				PROJECT: [Signature] DATE: 19JAN95					



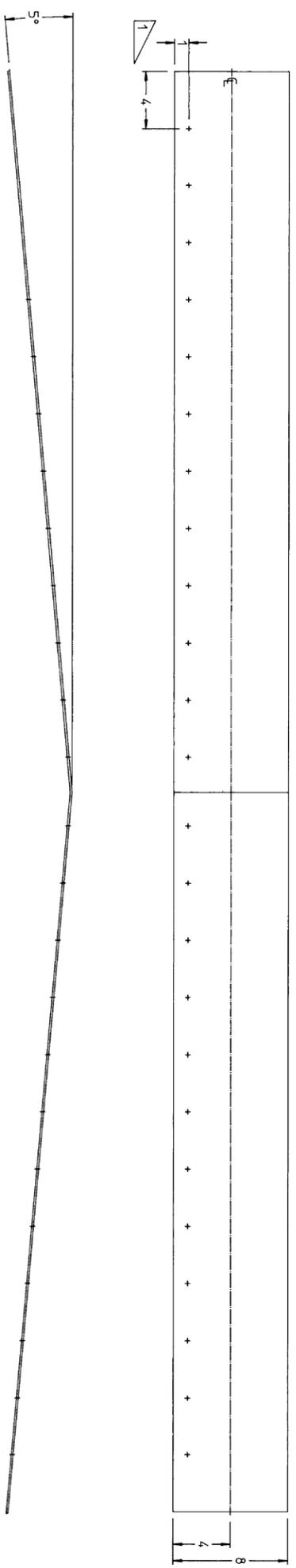
PARTS LIST				
PART NO.	QTY	UNIT	MANUFACTURER CODE	PART NUMBER
2		CAP. END		SK884108
1		EXTENSION, COVER		SK884109

PARTS LIST CONTINUED ON 8 OF 8



2 REQ. (4108) SHEET, ALUM. 3003  
11 GA. X 12 1/2 X 100 7/8" LG.

NOTE:  
1 SUGGESTED SPACING FOR SELF TAPPING SEALER SCREWS.



(4109) SHEET, ALUM. 3003  
11 GA. X 8 X 101 1/2" LG.

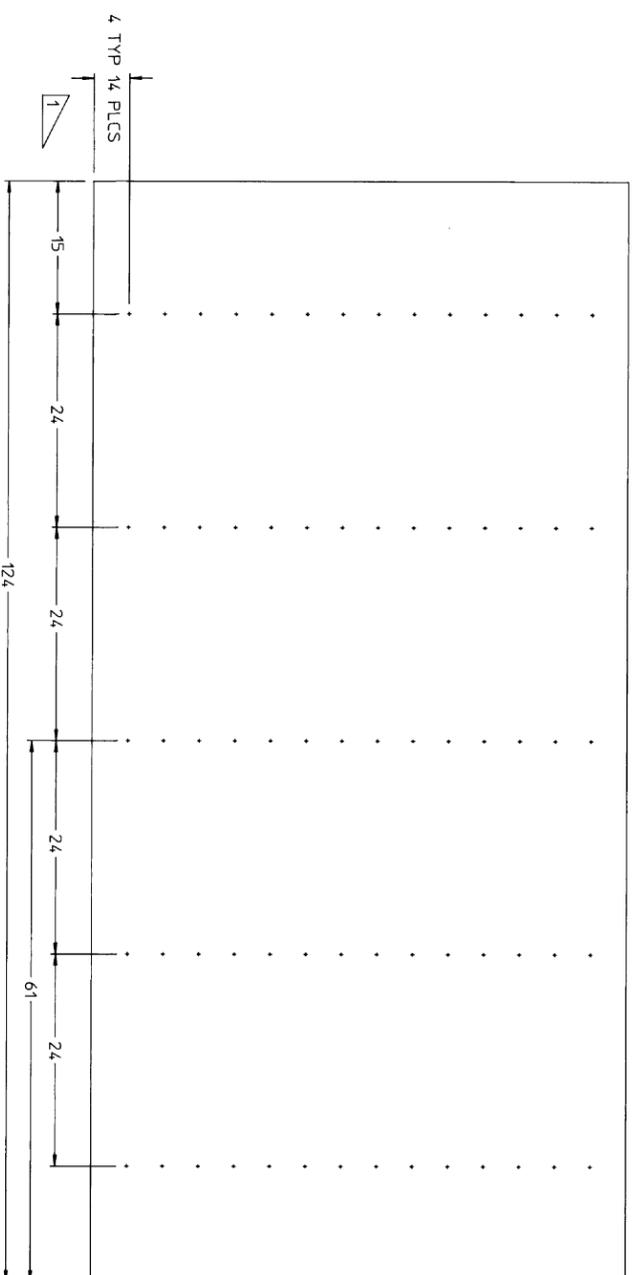
SCANNED DWG

NEXT ASSEMBLY	TOLERANCES EXCEPT AS NOTED	REV.	DATE	BY	DESCRIPTION	ZONE	CHD	APP'D
	THREE PLACES ± 1/32 RADIUS ± 0° 30'	1			ARMAMENT, MAINTENANCE & CHEMICAL COMMAND AMMUNITION PRODUCTION EQUIPMENT			
DESIGNED BY	PROJECT ENGINEER	BURNING TRAY COVER HEAVY PAN DETAILS						
TRACER	PROJECT ENGINEER	DATE 19JAN95						
PTG CHECK	PROJECT ENGINEER	SCALE 1/4"=1'						
PROJECT COORD	PROJECT COORD	SHEET 7 OF 8						

FIG. NO.	QTY	UNIT	DESCRIPTION	MANUFACTURER CODE	PART NUMBER
	2		SKIN, RIGHT SIDE COVER		SK884110
	2		SKIN, LEFT SIDE COVER		SK884111
4112	AS REQ'D		SCREW HEX. SELF DRILL RUBBER WASHER 1/4 X 1/4 X 1 LG. NSN 1123900082Y698		

PARTS LIST

NOTE:  
 SUGGESTED SPACING FOR SELF TAPPING SEALER SCREWS.



2 REQ. (4110) ONE THUS  
 SHEET, ALUM. 3003  
 16 GA. X 60 X 122 LG.

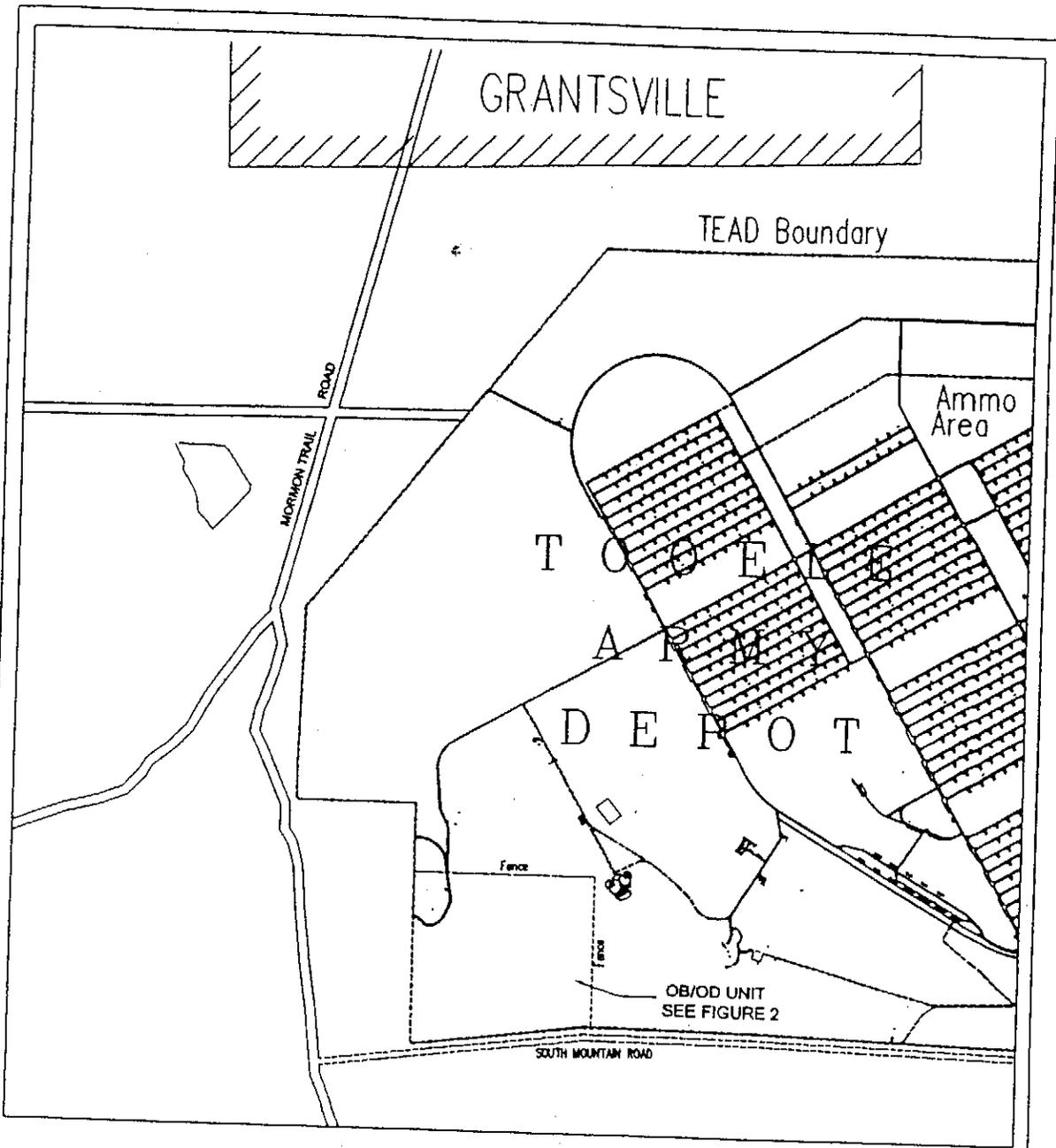
2 REQ. (4111) ONE OPPOSITE  
 SHEET, ALUM. 3003  
 16 GA. X 60 X 122 LG.

SCANNED DWG

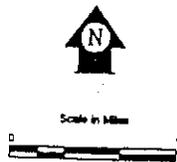
NEXT ASSEMBLY		TOLERANCES EXCEPT AS NOTED	
DESIGNER	DATE	BY	DATE
TRACER	DATE	BY	DATE
PROBLOT OPER.	DATE	BY	DATE
PROBLOT COORD.	DATE	BY	DATE
REVISIONS		DESCRIPTION	
NO.	DATE	BY	DESCRIPTION
1	19 JAN 95	SK-88-41	BURNING TRAY COVER HEAVY PAN DETAILS

US ARMY  
 AMMUNITION REGULATION COMMAND  
 AMMUNITION REGULATION EQUIPMENT

DATE 19 JAN 95 SCALE 1/8"=1" SHEET 8 OF 8



G:\GIS\CADD\TOOELE\LATA\LATA\_1



**Figure 1**

Location of OB/OD Unit at TEAD

June 1998

REV 1

PROJECT: TO-0020

## MODULE I - STANDARD PERMIT CONDITIONS

### I.A. EFFECT OF PERMIT

I.A.1. The Permittee is allowed to store hazardous waste in containers and to treat hazardous waste by incineration, by initiating primers and by Open Burn and Open Detonation (OB/OD) at the Tooele Army Depot, in accordance with the conditions of this Permit. Any storage, treatment or disposal of hazardous waste not authorized in this Permit, or the *TEAD Post Closure Permit for Post Closure Monitoring and Corrective Action of Solid Waste Management Units* is prohibited.

I.A.2. For the purposes of this Permit, treatment shall not include operations at the Tooele Army Depot that involve the mechanical separation of military munitions or components for the purpose of recovery of the propellant or other components. Treatment shall include initiating primers in the Small Caliber Disassembly Process in building 1325.

I.A.3. Compliance with this Permit constitutes compliance, for purposes of enforcement, with the Utah Solid and Hazardous Waste Act. Specifically, compliance with this Permit, during its term, constitutes compliance for purposes of enforcement with applicable sections of Utah Administrative Code (UAC) R315 only for those management practices specifically authorized by this Permit.

I.A.4. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations.

### I.B. ENFORCEABILITY

I.B.1. Violation of this Permit may be considered a violation subject to UAC R315-102, the Penalty Policy. Violations duly documented through the enforcement process may result in penalties of up to the maximum allowed in the Penalty Policy.

### I.C. OTHER AUTHORITY

I.C.1. The Executive Secretary expressly reserves any right of entry provided by law and any authority to order or perform emergency or other response activities as authorized by law.

I.D.            **PERMIT ACTIONS**

- I.D.1.        This Permit may be modified, revoked and reissued, or terminated for cause, as specified in UAC R315-4-1.5 and UAC R315-3-4.4.
- I.D.2.        The filing of a request for a Permit modification, revocation and reissuance or termination, or the notification of planned changes, requiring prior approval, or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any Permit condition.
- I.D.3.        All Permit conditions supersede conflicting statements, requirements or procedures found within the Attachments.
- I.D.4.        If a conflict exists between conditions within this Permit, the most stringent condition, as determined by the Executive Secretary shall be met.
- I.D.5.        The Executive Secretary may modify this Permit in accordance with UAC R315-3-4.2.
- I.D.6.        This Permit may be modified at the request of the Permittee in accordance with the procedures of UAC R315-3-4.3.
- I.D.7.        In accordance with the Utah Solid and Hazardous Waste Act, U.C.A., 19-6-108(13), this Permit shall be reviewed no later than five years from the date of issuance or renewal and modified, if necessary.

I.E.            **SEVERABILITY**

- I.E.1.        The provisions of this Permit are severable and if any provision, or the application of any provision to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any state or federal statutory or regulatory provision which forms the basis for any condition of this Permit does not affect the validity of any other State or federal statutory or regulatory basis for said condition.

I.F.            **DUTIES TO COMPLY**

- I.F.1.        The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an Emergency Permit issued in accordance with UAC R315-3-6.2. Any Permit noncompliance, other than noncompliance authorized by an Emergency Permit, constitutes a violation of the Utah Solid and Hazardous Waste Act, and is grounds for enforcement action, Permit modification, revocation and reissuance termination, or denial of a

Permit renewal application, or a combination of an enforcement action and any of the other listed remedies.

- I.F.2. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3007, 3008, 3013, or 7003 of RCRA (42 U.S.C. Sections 6927, 6928, 6934 and 6973), Section 106(a), 104, or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9606(a), 9604, and 9607, commonly known as CERCLA) as amended by the Superfund Amendments and Re-authorization Act of 1986 (SARA), or any other state or federal law providing for protection of human health or the environment from any imminent and substantial endangerment to human health or the environment.

I.G. **DUTY TO REAPPLY**

- I.G.1. If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall apply for a new Permit in accordance with UAC R315-3-3.1(b) a minimum of 180 calendar days prior to the expiration date.

I.H. **PERMIT EXPIRATION**

- I.H.1. This Permit shall be effective for ten years from the renewal date.

I.I. **CONTINUATION OF EXPIRING PERMIT**

- I.I.1. This Permit, and all conditions herein, shall continue in force until the effective date of a new Permit, if the Permittee has submitted a timely and complete application under the applicable requirements of UAC R315-3 and R315-4, and through no fault of the Permittee, the Executive Secretary has neither issued nor denied a new Permit under UAC R315-3-5.2 on or before the expiration date.

I.J. **NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE**

- I.J.1. It shall not be a defense, for the Permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

I.K. **DUTY TO MITIGATE**

- I.K.1. In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment resulting from the

noncompliance, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I.L. **PROPER OPERATION AND MAINTENANCE**

I.L.1. The Permittee shall, at all times, properly operate and maintain all facilities, treatment systems and ancillary controls (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. This provision requires the operation of back-up or auxiliary equipment or similar systems when necessary to achieve compliance with this Permit.

I.M. **DUTY TO PROVIDE INFORMATION**

I.M.1. The Permittee shall furnish to the Executive Secretary, within a reasonable time, any relevant information which the Executive Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee shall also furnish to the Executive Secretary upon request, copies of records required to be kept by this Permit.

I.N. **INSPECTION AND ENTRY**

I.N.1. Pursuant to the Utah Solid and Hazardous Waste Act, Utah Administrative Code 19-6-109, the Permittee shall allow the Executive Secretary, or their authorized officer, employee, or representative, upon the presentation of credentials and other documents, as may be required by law, to:

I.N.1.a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept as required by the conditions of this Permit;

I.N.1.b. Have access to and copy, at reasonable times, any records that are kept as required by the conditions of this Permit;

I.N.1.c. Inspect, at reasonable times, any portion of the facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;

I.N.1.d. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance, or as otherwise authorized by the Utah Solid and Hazardous Waste Act, any substances or parameters at any location; and

I.N.1.e. Make a record of the inspection by photographic, electronic, videotape, or any other reasonable medium. All photographic and video recordings shall comply with national security requirements.

I.O. **MONITORING AND RECORDS**

I.O.1. The Permittee shall retain records of all sampling, monitoring and waste analysis information, including calibration and maintenance records and, where applicable, all original strip chart recordings (or equivalent recordings) for continuous monitoring instruments, copies of all reports and records required by this Permit, the waste minimization certification required by UAC R315-8-5.6(g) and records of all data used to comply with the conditions of this Permit, including any and all data to support the human health and ecological risk assessments for operations at the OB/OD unit. All of the above referenced material shall be retained for a period of at least three years from the date of the sample, measurement, report, certification, or recording unless a longer retention period for certain information is required by other conditions of this Permit. The three-year period may be extended by the Executive Secretary at any time by written notification to the Permittee. The retention times are automatically extended during the course of any unresolved enforcement action regarding the facility to three years beyond the conclusion of the enforcement action. Recordkeeping may be accomplished using original documents, xerographic copies, document replicas, electronic facsimiles, electronic disk, CD-ROM computer drive files, microfilm, microfiche, photograph, magnetic tape or any other reasonable medium or similar recordkeeping technique. Any recordkeeping system shall be capable of reproducing complete, accurate and legible records.

I.O.2. Pursuant to UAC R315-3-3.1(j)(3), records of monitoring information shall specify at a minimum:

I.O.2.a. The date(s), exact place, and times of sampling or measurements;

I.O.2.b. The name(s), title(s), and affiliation of individual(s) who performed the sampling or measurements;

I.O.2.c. The date(s) analyses were performed;

I.O.2.d. The individual(s) who performed the analyses;

I.O.2.e. The analytical techniques or methods used; and

I.O.2.f. The results of such analyses.

- I.O.3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed shall be the appropriate method from UAC R315-50-6 or an equivalent method approved by the Executive Secretary. Laboratory methods shall be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846 (prevailing edition, hereafter referred to as SW-846), or Standard Methods of Examination of Water and Wastewater (prevailing edition). Other alternate methods approved in this Permit, or an equivalent method, in accordance with Condition I.O.4. of this Permit will be allowed if approved by the Executive Secretary.
- I.O.4. When requesting substitute or additional analytical methods, the Permittee shall submit to the Executive Secretary a request for substitution of an analytical method(s) which is equivalent to the method(s) currently approved or listed in UAC R315-50. The request shall provide information demonstrating that the proposed method(s) requested is equivalent or superior in terms of sensitivity, accuracy, and precision (e.g., reproducibility).
- I.O.5. This permit contains and refers to documents and forms on which information and data is recorded. The Permittee may reformat documents and forms as necessary to carry out administrative duties. The Permittee may use alternative forms or add language to the forms and documents so long as the alternative forms or additions do not eliminate or change information this Permit requires the Permittee to record. Changes pertaining to a document or form that changes the required information shall only be changed in accordance with the provisions of Condition I.D.6.

I.P. **REPORTING PLANNED CHANGES**

- I.P.1. The Permittee shall give written notice to the Executive Secretary prior to any planned physical alterations or additions to any HWMU or system being permitted or previously permitted in accordance with UAC R315-3-3.1(f). and UAC R315-3-3.1(1). Planned physical alterations or additions shall include all changes in any hazardous and solid waste activities, and to any non-waste underground storage tanks regulated under UAC R315-202 (40 CFR 280). Neither construction nor operation of new or modified hazardous waste units shall begin unless the provisions of UAC R315-4-1.5 are met. Failure to comply with this condition may result in penalties in accordance with UAC R315-102.

I.Q. **REPORTING ANTICIPATED NONCOMPLIANCE**

- I.Q.1. The Permittee shall give advance notice to the Executive Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with requirements of this Permit. Advance notice shall not constitute a defense for any noncompliance.

I.R.           **CERTIFICATION OF CONSTRUCTION OR MODIFICATION**

I.R.1.           The Permittee shall not commence storage, treatment, or disposal of hazardous waste in a new HWMU or in a modified portion of an existing permitted HWMU (except as provided in UAC R315-3-4.3), until:

I.R.1.a.           The Permittee has submitted to the Executive Secretary:

I.R.1.a.i.           A letter signed by the Permittee, and a registered professional engineer qualified by experience and education in the appropriate engineering field, certifying that the unit(s) has been constructed or modified in compliance with this Permit; and

I.R.1.a.ii.           As-built engineering drawings and specifications as appropriate; and

I.R.1.a.iii.           The Executive Secretary or designated representative has reviewed and inspected the modified or newly constructed unit(s) and has notified the Permittee in writing that the unit(s) was found to be in compliance with the conditions of this Permit; or

I.R.1.a.iv.           If within 15 calendar days of the date of receipt of the letter required by Condition I.R.1.a.iii., the Permittee has not received notice from the Executive Secretary, of the intent to inspect, a prior inspection is waived and the Permittee may commence treatment, storage, or disposal of hazardous waste in the permitted unit certified in accordance with Condition I.R.1.

I.S.           **TRANSFER OF PERMIT**

I.S.1.           This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to UAC R315-3-4.1 and UAC R315-3-4.2(a) – (c). Prior to transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator, in writing, of the requirements of UAC R315-3, UAC R315-8 and this Permit.

I.T.           **TWENTY-FOUR HOUR REPORTING**

I.T.1.           In accordance with UAC R315-3-3.1(l)(6)(i), the Permittee shall orally report to the Executive Secretary any noncompliance with this Permit which may endanger human health or the environment. Any such information shall be reported as soon as possible, but not later than 24 hours from the time the Permittee becomes aware of the noncompliance.

I.T.2.           In accordance with UAC R315-9-1(b), the Permittee shall orally report to the Executive Secretary any spill of any hazardous waste or material which, when spilled becomes a hazardous waste if the spilled quantity exceeds 100 kilograms

or a lesser amount if there is a potential for endangerment to human health or the environment. Any such information shall be reported as soon as possible, but not later than 24 hours from the spill occurrence.

- I.T.3. The oral report shall include, but not be limited to, the following:
  - I.T.3.a. Information concerning the release of any hazardous waste which may endanger public drinking water supplies; and
  - I.T.3.b. Any information of a release or discharge of hazardous waste, or of a fire, or explosion at the facility, which could threaten human health or the environment.
  - I.T.3.c. The description of the occurrence and its cause shall include:
    - I.T.3.c.i. Name, title, and telephone number of individual reporting;
    - I.T.3.c.ii. Name, address, and telephone number of the owner or operator;
    - I.T.3.c.iii. Name, address, and telephone number of the facility;
    - I.T.3.c.iv. Date, time, and type of incident;
    - I.T.3.c.v. Location and cause of incident;
    - I.T.3.c.vi. Name and quantity of materials involved;
    - I.T.3.c.vii. The extent of injuries, if any;
    - I.T.3.c.viii. An assessment of actual or potential hazard to the environment and human health, when this is applicable;
    - I.T.3.c.ix. Description of any emergency action taken to minimize a threat to human health and the environment;
    - I.T.3.c.x. Estimated quantity and disposition of recovered material that resulted from the incident; and
    - I.T.3.c.xi. Any other information necessary to fully evaluate the situation and to develop an appropriate course of action.
- I.T.4. Within 15 days of the time the Permittee is required to provide the oral report, as specified in Conditions I.T.1. through I.T.3., the Permittee shall provide to the Executive Secretary a written report.
  - I.T.4.a. The written report shall include, but not be limited to, the following:
    - I.T.4.a.i. The name, title, address, and telephone number of the individual reporting;

- I.T.4.a.ii. A description including the date, time, location and nature of the reported incident;
- I.T.4.a.iii. The extent of injuries, if any;
- I.T.4.a.iv. The name and quantity of material(s) involved in the spill;
- I.T.4.a.v. An estimated quantity and disposition of recovered material;
- I.T.4.a.vi. An assessment of actual or potential hazards to human health and the environment, where this is applicable. The report shall also include whether or not the results of the incident remain a threat to human health and the environment (whether the noncompliance has been corrected and the release has been adequately cleaned up); and
- I.T.4.a.vii. If the release or noncompliance has not been adequately corrected or cleaned, the Anticipated time that the noncompliance or remediation is expected to continue; the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and/or the steps taken or planned to adequately remediate the release.

I.U. **MONITORING RECORDS**

- I.U.1. Monitoring information shall be recorded and maintained as specified in Condition I.O.

I.V. **COMPLIANCE SCHEDULES**

- I.V.1. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 days following each scheduled date.

I.W. **MANIFEST DISCREPANCY REPORT**

- I.W.1. Manifest discrepancies shall be defined as differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste the permittee actually receives. Significant discrepancies in quantity are: (1) for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload, and (2) for bulk waste, variations greater than 10 percent in weight. Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper. If a significant discrepancy is discovered on a manifest, the Permittee shall attempt to reconcile the discrepancy. If not resolved

within 15 days, the Permittee shall submit a written report, including a copy of the manifest, and efforts to reconcile the discrepancy, to the Executive Secretary in accordance with UAC R315-8-5.4

I.X. **UNMANIFESTED WASTE REPORT**

I.X.1 This report shall be submitted to the Executive Secretary within 15 days of receipt of unmanifested waste in accordance with UAC R315-8-5.7

I.Y. **BIENNIAL REPORT**

I.Y.1. A biennial report shall be submitted covering facility activities during odd numbered calendar years. This report shall be submitted by March 1 of the following even numbered year in accordance with UAC R315-8-5.6

I.Z. **OTHER NONCOMPLIANCE**

I.Z.1 The Permittee shall report all other instances of noncompliance with this Permit not otherwise required to be reported in accordance with Condition I.T., within seven days of discovering the noncompliance. The reports shall contain the information listed in Condition I.T. of this Permit. Reporting shall not constitute a defense for any noncompliance.

I.AA. **OTHER INFORMATION**

I.AA.1. Whenever the Permittee becomes aware that it failed to submit any relevant facts in a permit modification, or submitted incorrect information in a permit modification, or in any report submitted to the Executive Secretary, the Permittee shall submit such facts or corrected information within seven working days.

I.BB. **SIGNATORY REQUIREMENT**

I.BB.1. All reports, notifications, submissions or other information required by this Permit, requested by or submitted to the Executive Secretary shall be signed and certified in accordance with UAC R315-3-2.2.

I.CC. **CONFIDENTIAL INFORMATION**

I.CC.1. The Permittee may claim confidential any information required to be submitted by this Permit in accordance with Utah Code 63-02, the Government Records Access and Management Act.

I.DD. **REPORTS, NOTIFICATIONS, AND SUBMISSIONS**

I.DD.1. All reports, notifications, or other submissions which are required by this Permit to be transmitted to the Executive Secretary should be sent by certified mail or other means of proof of delivery to:

Executive Secretary  
Utah Solid and Hazardous Waste Control Board  
Division of Solid and Hazardous Waste  
P.O. Box 144880  
Salt Lake City, Utah 84114-4880  
Phone (801)-538-6170

During normal business hours (8 am to 5 pm, Monday through Friday, except Utah State holidays) required oral notifications shall be given only to the Executive Secretary or an employee of the Executive Secretary. Notifications made at other times shall be made to the 24-hour answering service at 801-538-4123. Notifications made to the 24-hour answering service shall include all applicable information required by this Permit. The Permittee shall give oral notification to the Executive Secretary or an employee of the Executive Secretary on the first business day following notification to the 24-hour answering service.

I.EE. **DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE**

I.EE.1. The Permittee shall maintain at the facility, for the periods specified, current copies of the following documents and amendments, revisions and modifications to these documents:

I.EE.1.a. Waste Analysis Plans (Attachment 2), as required by UAC R315-3-2.5(b)(3) and this Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.b. Inspection logs (Attachment 4), as required by UAC R315-3-2.5(b)(5). and this Permit, for a period of three years in accordance with UAC R315-8-2.6(d).

I.EE.1.c. Personnel training documents (Attachment 5), and records, as required by UAC R315-8-2.7(d) and this Permit until closure for current employees, or for a period of three years for former employees in accordance with UAC R315-8-2.7(e)

- I.EE.1.d. Contingency Plan (Attachment 7), as required by UAC R315-8 -4-and this Permit until closure is certified in accordance with II.N.7.
- I.EE.1.e. Operating record, as required by UAC R315-8-5.3 and this Permit until closure is certified in accordance with Condition II.N.7.
- I.EE.1.f. Closure Plan (Attachment 8), as required by UAC R315-8-7 and this Permit until closure is certified in accordance with Condition II.N.7.
- I.EE.1.g. Cost estimates for the closure and post-closure are not required since this is a Federal facility and it is exempt from this reporting requirement according to UAC R315-8-8.
- I.EE.1.h. Manifest copies, as required by UAC R315-8-5 and this Permit for at least three years from the date the waste shipment was accepted at the facility.
- I.EE.1.i. A copy of the Permittee's waste minimization statement until closure is certified in accordance with Condition II.N.7.

I.FF. **PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT**

- I.FF.1. Pursuant to Section 3005(C)(3) of RCRA (Section 212 of HSWA) and R315-3-3.3(b)(2) [40 CFR 270.32(b)(2)], this Permit contains those terms and conditions determined necessary to protect human health and the environment.

## MODULE V – MISCELLANEOUS MUNITIONS PROCESSING OPERATIONS

This module addresses the requirements for various munitions treatment processes at the facility. These include the small caliber ammunition disassembly line located in Building 1325.

### V.A. **Small Caliber Ammunition Disassembly Line**

The Small Caliber Ammunition Disassembly Line is a process which removes the projectile, recovers the propellant (for recycling) and initiates the primer. The disassembly line is configured to process 20 and 25 mm cartridges. The process includes ancillary feed equipment prior to a continuous motion pull-apart turret that separates the projectiles from the cartridge case filled with propellant. The projectile is containerized and transferred to the deactivation furnace for treatment. The cartridge cases continue to a dump cubical where they are inverted and the propellant drops out and is collected for recycling. The empty case with the primer then continues on to the primer firing module where the primer is initiated. Emissions from this part of the process are pulled by fans through a pollution abatement system. The pollution abatement system includes a Uni-Wash Model UC-10 wet type dust collector that removes particulate matter followed by a dry cell to remove excess moisture; a Mac Environmental Model FT30 cyclone separator; and a MIASMACT Model 4M2S automatic-cleaning HEPA filtering system.

The first part of this process (the pull apart machine and propellant dump cubicle) is not covered by this permit as it is exempt under 40 CFR 266.202(a)(2). The emissions and pollution abatement system are regulated by an Approval Order issued by the Utah Division of Air Quality and is therefore not subject to the requirements of this permit. This permit covers the operation of the primer firing module and the storage of wastes associated with this process.

#### V.A.1. **OPERATION AND MAINTENANCE**

- V.A.1.a. The Permittee shall maintain and operate the disassembly line in accordance with the drawings and specifications contained in Attachment 22.
- V.A.1.b. Modifications to the drawings and specifications for the disassembly line shall be allowed only in accordance with the permit modification requirements in Condition I.D and R315-3-4.3, which incorporates 40 CFR 270.42 by reference.
- V.A.1.c. The Permittee shall maintain the disassembly line and ancillary equipment in good repair. Routine maintenance shall be performed at sufficient frequency to ensure the disassembly line remains in good repair. Malfunctions and deterioration shall be corrected as expeditiously as possible.

V.A.2. **PERFORMANCE STANDARDS**

Empty cases with the primer shall be processed through the primer firing module as they are generated from the propellant recovery operation. Alternatively, they may be accumulated and processed in the deactivation furnace. Primers that are not initiated in the first pass, shall be run through the process again, up to three additional passes, until they are initiated. Any primers that are not initiated shall be accumulated and processed in the deactivation furnace or another appropriate permitted facility.

V.A.3. **FEED LIMITATIONS AND OPERATING REQUIREMENTS**

- V.A.3.a. The Permittee may only feed 20 and 25 mm cartridges to the disassembly line.
- V.A.3.b. The maximum inventory that may be stored in building 1325 is 50,000 rounds.
- V.A.3.c. Projectiles removed from the cartridge will be packaged and labeled as hazardous waste and stored in accordance with 40 CFR 262.30 until they can be treated in the deactivation furnace or another appropriate permitted facility.
- V.A.3.d. Primers that are not initiated in the first pass, will be run through the process again, up to three additional passes, until they are initiated and/or packaged and labeled as hazardous waste until they can be treated in the deactivation furnace or another appropriate permitted facility.
- V.A.3.e. The primer firing module shall be equipped with an acoustical detector and a means of separating the cartridge cases with primers that did not initiate from those that did.
- V.A.3.f. Each cartridge case will be visually inspected prior to removal from the depot for recycling purposes and certified as explosive free. The certification will be documented on DD Form 1348. This inspection and certification shall be done before these items are removed from building 1325, the paved area around building 1325, or the paved area of Building 1320. Containers of cartridge cases which have been inspected and certified as explosive free shall be clearly labeled to distinguish them from containers of cartridge cases which have not yet been inspected. Any primers that are discovered to have not been initiated shall be packaged and labeled as hazardous waste and treated in the deactivation furnace or another appropriate permitted facility.
- V.A.3.g. Recovered propellant will be stored as product until it can be recycled/reused. Should propellant fail stability tests or other Army criteria for safety, it will be treated in the OB/OD facility in accordance with hazardous waste regulations.

V.A.4. **MONITORING, RECORDKEEPING, AND CALIBRATION REQUIREMENTS**

- V.A.4.a. Empty cartridge cases with the primer may be fed to the primer firing module only when all equipment and instruments required by this condition are on-line and operating properly.
- V.A.4.b. The acoustical detector and cartridge separating device shall be calibrated in accordance with Attachment 13. Records shall be maintained of any calibrations or maintenance performed.
- V.A.4.c. The hours of operation and the amount of waste fed to the primer firing module shall be monitored and recorded on a daily basis.
- V.A.4.d The number of primers found during the visual inspection to have not initiated shall be recorded in the operating log.
- V.A.4.d. Copies of the data collected under this condition shall be provided to the Executive Secretary upon request.

V.A.5. **WASTE FEED CUT-OFF REQUIREMENTS**

The Permittee shall cease feed to the disassembly line under any of the following conditions:

- V.A.5.a. Any mechanical malfunction with either the disassembly line or controls which would compromise the integrity of the system.
- V.A.5.b. Waste residue collection bins, hoppers, or containers are full and additional waste feeds would cause these receptacles to overflow.

V.A.6. **REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE**

The Permittee shall comply with all applicable provisions of DoD 6055.9-STD, *DoD Ammunition and Explosives Safety Standards*.

V.A.7. **INSPECTION REQUIREMENTS**

On at least a daily basis, when in operation, the Permittee shall thoroughly, visually inspect the disassembly line and associated equipment (conveyors, ducting, feed systems, etc.) and containment systems for leaks, spills, fugitive emissions, deterioration, excessive wear, and signs of tampering per Attachment 4. These inspections shall be accurately documented.