ATTACHMENT 1

FACILITY DESCRIPTION

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ACRONYMS

ATLIC	Area 10 Liquid Incinerator
BCS	Bulk Chemical Storage
BRA	Brine Reduction Area
CAL	Chemical Assessment Laboratory
CAMDS	Chemical Agent Munitions Disposal System
CFR	Code of Federal Regulations
CHB	Container Handling Building
CMO	Control Module
CSB	Communication Switch Building
CSDP	Chemical Stockpile Disposal Program
CUB	CAMDS Utilities Building
CWC	Chemical Weapons Convention
DSHW	Division of Solid and Hazardous Waste
DVS	Drum Ventilation System
DVSSR	Drum Ventilation System and Sorting Room
DFS	Deactivation Furnace System
ECF	Entry Control Facility
GA	Tabun; dimethylphosphoramidocyanidic acid ethyl ester
GB	Sarin, Isopropyl methylphosphonofluoridate
H/HD/HT	Sulfur Mustard[1] /Distilled Sulfur Mustard/Distilled Mustard with 40% Bis-[2-(2-chloroethylthio)-ethyl] ether
HEPA	High Efficiency Particulate Air
HVAC	Heating, Ventilation, Air Conditioning
JACADS	Johnston Atoll Chemical Agent Disposal System
L	Lewisite; dichloro(2chlorovinyl)arsine
LIC	Liquid Incinerator
LPG	Liquefied Petroleum Gas
MDB	Munitions Demilitarization Building
MSB	Monitor Support Building
MPF	Metal Parts Furnace
NDAA	National Defense Authorization Act
NFPA	National Fire Protection Association
OSIA	On Site Inspection Agency
PAS	Pollution Abatement System
PMB	Personnel Maintenance Building
PMCD	Program Manager for Chemical Demilitarization
POT	Potable Water System
PRW	Process Water System
PSB	Personnel Support Building
PUB	Process and Utility Building
SAF	Site Analytical Facility
SWMU	Solid Waste Management Unit
T	Bis-[2-(2-chloroethylthio)-ethyl] ether
Tooele Army Depot South	TEAD-S
TCB	Treaty Compliance Building
TMA	Toxic Maintenance Area

[1] Sulfur Mustard = Bis(2-Chloroethyl) Sulfide or 2.2' Dichlorodiethyl Sulfide

TOCDF	Tooele Chemical Agent Disposal Facility
UPA	Unpack Area
VX	O-ethyl-S-(2-diisopropylaminoethyl) methyl phosphonothiolate
WTS	Water Treatment System

1.1 GENERAL DESCRIPTION [R315-3-2.5(b)(1)]

1.1.1 Introduction

1.1.1.1 The Tooele Chemical Agent Disposal Facility (TOCDF) is a multi-incinerator hazardous waste treatment and storage facility located within the federally owned Tooele Army Depot South (TEAD-S). The TOCDF has been decommissioned pending closure except for the Munition Demilitarization Building (MDB) Filter System which will be completely decommissioned when the Unventilated Monitoring Testing (UMT) of the MDB is completed.

1.1.1.2 The TOCDF was designed and constructed for the treatment of the chemical agents and munitions stockpile currently stored at the TEAD-S Area 10. Area 10 is immediately adjacent and physically connected to the northern end of the TOCDF.

1.1.1.3 The Area 10 Liquid Incinerator (ATLIC) is EG&G operated, but located in TEAD-S Area 10, separate from the TOCDF site. The ATLIC was built to treat the chemical nerve agent GA and the blister agent Lewisite (L) and has been decommissioned pending closure. The ATLIC and other EG&G operated facilities are described in paragraph 1.1.2.4.

1.1.2 Facility Location and Setting

1.1.2.1 The TEAD-S is in the State of Utah on about 7,900 hectares, located approximately 26 kilometers (16 miles) south of the City of Tooele, off State Highway 36 at latitude 40° 18' 00" North and longitude 112° 20' 00" West. TEAD-S is approximately 56 kilometers (35 miles) southwest of Salt Lake City, approximately 48 kilometers (30 miles) south of the Great Salt Lake, approximately 48 kilometers (30 miles) west of Utah Lake, and approximately 61 kilometers (38 miles) west of the city of Provo. The locations of the TOCDF and EG&G facility operated facilities are within the TEAD-S installation boundaries as shown in Drawing TE-16-C-2.[2]

1.1.2.2 Several types of chemical agents were stored at TEAD-S in a variety of ammunition configurations, including ton containers, projectiles and mortars. These munitions were stored in Area 10.

1.1.2.3 The processing area at the TOCDF, which is enclosed by a security fence, is comprised of approximately 40 acres. The distance from TOCDF demilitarization site to the nearest TEAD-S boundary (due north) is approximately 2 miles.

1.1.2.4 There are seven TOCDF-operated facilities, in addition to the TOCDF plant, on the TEAD-S installation, but outside the site boundaries of TOCDF:

1.1.2.4.1 The administration building located at 11600 Stark Road, approximately 3 miles northeast of the TOCDF. This building houses administrative offices only.

[2] All drawings referenced in this Attachment are on file with the Utah Division of Solid and Hazardous Waste (DSHW).

1.1.2.4.2 The Chemical Assessment Laboratory (CAL). This facility is located approximately 1.5 miles southwest of the TOCDF. The CAL has laboratory quantities of chemicals and dilute solutions of chemical agents on location, but not in quantities sufficient to pose a danger to persons or the environment beyond the boundaries of the lab.

1.1.2.4.3 The area known as Area 2 contains a number of warehouses. TOCDF controls eight of the warehouses in Area 2. These warehouses are used for storage of various items such as office furniture, tools, brick, product chemicals, and construction materials. Warehouses used by TOCDF are buildings 4001, 4002, 4012, 4057, 4058, 4108, 4109, and 4110. TOCDF may use other buildings for the storage of material and equipment. Area 2 is located approximately 2 miles east-southeast of the TOCDF.

1.1.2.4.4 The Transfer Yard is located approximately 1.5 miles east/northeast of the TOCDF.

1.1.2.4.5 Storage Igloos 1633, 1634, 1635, 1636, Igloo 1632[(Drum Ventilation System (DVS) and Drum Ventilation System Sorting Room (DVSSR) Operations and Container Storage)], Igloo 1631 (Autoclave Operations), and 1639/ATLIC Room [Area 10 Liquid Incinerator (ATLIC)] are located within TEAD-S Area 10 which is immediately adjacent to and physically connected to TOCDF. The balance of Area 10 is permitted under a separate Part B RCRA permit administered by TEAD-S. Note the DVS, DVSSR, Autoclave, and ATLIC are no longer operational and have been decommissioned.

1.1.2.4.6 The Chemical Agent Munitions Disposal System (CAMDS) a former chemical agent treatment facility located in the southwest quadrant of TEAD-S. Closure of this facility has been completed. The CAMDS, which was located approximately 1 mile southwest of the TOCDF, occupied approximately 15 acres enclosed by a security fence. The CAMDS was located within the TEAD-S installation boundaries as shown in Drawing TE-16-C-2.

1.1.3 Chemical Weapons Destruction Program Overview

1.1.3.1 The U.S. Army maintains a stockpile of chemical agents and munitions for the Department of Defense. This stockpile was established to deter other countries from using chemical weapons on U.S. or allied troops. In 1968, the U.S. stopped manufacturing chemical weapons. The stockpile is no longer deemed necessary for national security.

1.1.3.2 In November 1985, the U.S. Congress approved the Department of Defense Authorization Act (Public Law 99-145) which directed and authorized the destruction of 90 % of the total U.S. stockpile of unitary chemical munitions and agents by 30 September 1994.

1.1.3.3 The Act was first amended on 15 March 1988 when the Army submitted the Chemical Stockpile Disposal Program (CSDP) implementation plan to Congress in which the deadline for destruction of the unitary chemical weapons stockpile was extended to 30 April 1997. This amendment also allowed more full-scale testing of the Johnston Atoll Chemical Agent Disposal System (JACADS) facility.

1.1.3.4 On 28 October 1992, the National Defense Authorization Act (NDAA) for fiscal year 1993 directed the Army to dispose of the entire unitary chemical weapons stockpile by 31 December 2004. The NDAA supersedes Public Law 99-145.

1.1.3.5 In April 1997, the Chemical Weapons Convention (CWC) was ratified by the United States and supersedes the NDAA. The CWC indicates that destruction of the unitary chemical weapons stockpile must be complete not later than 10 years after entry into force of this Convention (i.e., the year April 2007).

1.1.3.6 Chemical weapons are stored at eight separate sites throughout the continental United States, including the TEAD-S.[3] At the beginning of agent destruction activities in 1996, TEAD-S had the largest portion of the nation's chemical agent stockpile. Table 1-1 shows the makeup of the TEAD-S stockpile that was or has been destroyed at TOCDF or EG&G operated facilities.

Table 1-1
TEAD-S STOCKPILE OF CHEMICAL WEAPONS
TO BE DESTROYED AT TOCDF or EG&G OPERATED FACILITIES

Agent	Item	Quantity[4]	Pounds[5]
HT-Blister	4.2" Mortars	62,590	363,020
HD-Blister	4.2" Mortars	976	5,860
	Ton Containers	6,398	11,383,420
H-Blister	155mm Projectiles	54,663	639,540
L-Blister	Ton Containers	10	25,924
L-Blister*	Transparency Tons	10	0
GA-Nerve	Ton Containers	4	4,110
GB-Nerve	105mm Cartridges	119,400	194,620
	105mm Projectiles	679,303	1,107,260
	M55 Rockets	28,945	309,720
	M56 Rocket Warheads	1,066	11,406
	155mm Projectiles	89,141	579,417
	MK-116 Bombs	888	308,140
	MC-1 Bombs	4,463	981,860
	Ton Containers	5,709	8,598,200

[3] The seven other sites are: Pine Bluff Chemical Activity, Arkansas; Anniston Chemical Activity, Alabama; Umatilla Chemical Depot, Oregon; Newport Chemical Depot, Indiana; Edgewood Chemical Activity (Aberdeen Proving Ground), Maryland; Blue Grass Chemical Activity, Kentucky; and Pueblo Chemical Depot, Colorado.

[4] The Army's Chemical Stockpile Disposal Program began destroying the chemical stockpile at the TOCDF in August 1996. These numbers do not reflect chemical weapons destroyed since operations began. The destruction of the chemical stockpile stored at TEAD-S was completed the first quarter of 2012.

Table 1-1 TEAD-S STOCKPILE OF CHEMICAL WEAPONS TO BE DESTROYED AT TOCDF or EG&G OPERATED FACILITIES			
VX-Nerve	155mm Projectiles	53,216	319,300
	M23 Land Mines	22,690	238,240
	M55 Rockets	3,966	39,660
	M56 Rocket Warheads	3,560	35,600
	TMU-28 Spray Tanks	862	1,168,880
	Ton Containers	640	910,960

* Transparency ton containers may have previously held Lewisite agent but did not contain a recoverable amount of Lewisite agent and were not included in the chemical stockpile. They were treated (decontaminated) at the TOCDF operated facilities.

1.1.3.7 The TEAD-S stockpile of chemical agents includes organophosphate nerve agents and blister agents as listed below:

1.1.3.7.1 Nerve agent VX

1.1.3.7.2 Nerve agent Sarin (GB)

1.1.3.7.3 Blister agent's mustard (H, HD, and HT)

1.1.3.7.4 Nerve agent tabun (GA)

1.1.3.7.5 Blister agent Lewisite (L), an arsine compound.

1.1.3.8 Information on chemical agent characteristics are briefly described in Table 1-2.

Table 1-2 CHEMICAL AGENTS FOR DESTRUCTION BY EG&G	
Agent	**Description**
GB	GB (Sarin) is a rapid-acting nerve agent. The action within the body is the inactivation of cholinesterase. The hazard from GB is that of vapor absorption through the respiratory tract, although it can be absorbed through any part of the skin, through the eyes, and through the gastrointestinal tract by ingestion. The agent absorption rate is accelerated through cuts and abrasions in the skin. When dispersed as large droplets, GB is moderately persistent; it is nonpersistent when disseminated as a cloud of very fine particles.
VX	VX is a rapid-acting nerve agent. The action within the body is the inactivation of cholinesterase. The hazard from VX is primarily that of liquid absorption through the skin, although it can be absorbed through the respiratory tract as a vapor or aerosol and through the gastrointestinal tract by ingestion. VX is slow to evaporate and may persist as a liquid for several days.
Mustard	Mustard is a persistent and powerful blister agent. It acts principally by

Table 1-2
CHEMICAL AGENTS FOR DESTRUCTION BY EG&G

Agent	Description
(TOCDF)	poisoning the cells in the surfaces contacted. Both liquid and vapor cause intense inflammation and may cause severe blistering of both the skin and mucous membranes. Mustard is only moderately volatile. Mustard is designated H, HD, and HT. H is mustard made by the Levinstein process. It contains up to 25 percent by weight of impurities, chiefly sulfur, organosulfur, and polysulfides. HD (distilled mustard) is mustard purified by washing and vacuum distillation, which reduces the impurities to about 5 percent. HT is a 60:40 mixture by weight of HD and T. T is an abbreviation for Bis-[2-(2-chloroethylthio)-ethyl] ether.
GA (ATLIC)	GA (tabun) is a rapidly-acting nerve agent that inactivates cholinesterase shortly after contact. The hazard from GA is that of vapor absorption through the respiratory tract, although it can be absorbed through any part of the skin, through the eyes, and through the gastrointestinal tract (ingestion). The agent absorption rate is accelerated through cuts and abrasions in the skin. When dispersed as large droplets, GA is moderately persistent; it is nonpersistent when disseminated as a cloud of very fine particles.
L (ATLIC)	Lewisite is a powerful irritant and blistering agent that immediately damages the skin, eyes, and respiratory tract. The biggest hazard of L is that of vapor absorption through the respiratory tract, although it can be absorbed through skin, eyes, and gastrointestinal tract (ingestion). Because it contains arsenic, Lewisite has some effects that are similar to arsenic poisoning, including stomach ailments and low blood pressure.

1.1.3.9 The chemical agents were stored at the TEAD-S Area 10.[5] The chemical agents were contained in mortars, artillery projectiles, and ton containers. Information on the munitions and bulk items is summarized in Table 1-3.

1.1.3.10 Agent/munitions operations summarized in this permit description occured at the TOCDF. The CAMDS has been closed.

[5] Area 10, with the exception of Igloos 1631, 1632, 1633, 1634, 1635, 1636, and 1639 is permitted under a separate part B permit and administered by DCD.

Table 1-3
COMPOSITION OF MUNITIONS AND BULK ITEMS

Munition	Agent	Fuse	Burster	Propellant	Dunnage
4.2 in. mortars	HD, HT	Yes	Yes	Yes	Yes
155-mm projectiles	H	No	Yes[6]	No	Yes
Ton Containers	H, HD, L, GA	No	No	No	No

1.1.4 **Chemical Agent Demilitarization Process Overview**

1.1.4.1 The TOCDF system involved reverse assembly of chemical agent-filled munitions and included four incinerators for agent destruction.

1.1.4.2 The EG&G operated ATLIC included a Liquid Incinerator (LIC) for thermal destruction of chemical agents GA and L, which were stored in ton containers at TEAD-S Area 10.

1.1.4.2 The treatment processes were based on the destruction of chemical agents and energetic materials by incineration. The primary processes employed at TOCDF and ATLIC are briefly discussed below.

1.1.4.3 Munitions Processing

1.1.4.3.1 The munitions processing at the TOCDF included initial separation of explosives and draining of the chemical agent. The Deactivation Furnace System (DFS) processed explosives removed from mortars, and projectiles. The Metal Parts Furnace (MPF) thermally decontaminated all drained bulk items, projectiles, and mortars from which the energetic components had been removed.

1.1.4.3.2 The ATLIC disposed of GA & L from Ton Containers, Transparency ton containers rinsates, spent decontamination (spent decon) and rinse solutions; there were no explosives involved.

1.1.4.4 Agent Processing

1.1.4.4.1 The TOCDF drained chemical agent mustard from bulk items and munitions is burned in the Liquid Incinerators (LICs), along with spent decontamination solution and miscellaneous waste liquids.

1.1.4.4.2 The drained Lewisite agent from the ton containers was stored in a tank and burned in the ATLIC, the GA agent was drained from the ton containers and directly fed to the ATLIC. Spent Decontamination, and rinse solutions were burned in accordance with Modules V and VI.

1.1.4.5 Pollution Abatement System

[6] While the majority of these items contained bursters, some were stored without these components.

1.1.4.5.1 The flue gases from the DFS, MPF, and LICs were treated via separate wet Pollution Abatement Systems (PAS). The scrubber liquid (brine) from the wet scrubbers was pumped to storage tanks and transported off site for treatment and disposal.

1.1.4.5.2 ATLIC exhaust gases were treated in a unique PAS that is both wet and dry. Exhaust gases first passed through a quench tower, which causes them to cool and become saturated with water. The gases next passed through a series of packed-bed scrubbers that had chilled scrubber solution flowing through them. The chilled scrubber solution caused the water in the exhaust gas to condense. The gases later passed through an electric re-heater which ensured the gases were at a temperature higher than the dew point. The remainder of the ATLIC PAS downstream of the gas re-heater was a dry PAS and equipped accordingly with a pulverized activated carbon (PAC) injection system and baghouse.

1.1.4.5.3 Spent scrubber brines were collected in tanks and baghouse residues were collected in containers and transported off-site to a Subtitle C TSDF for treatment and disposal.

1.1.4.6 Plant Operation

1.1.4.6.1 The TOCDF was operated 24 hours per day, 7 days per week, and 52 weeks per year when destruction of the TEAD-S stockpile was occurring.

1.1.4.6.2 The ATLIC operated 24 hours per day, 7 days per week.

1.1.5 **Hazardous Waste Disposal/Generation**

1.1.5.1 Chemical Agents and Munitions

1.1.5.1.1 The destruction of the TEAD-S chemical stockpile was completed during the first quarter of 2012.

1.1.5.2 Potentially Hazardous Wastes Generated at TOCDF, ATLIC and CAMDS

1.1.5.2.1 Potential hazardous wastes generated during the UMT, the final decommissioning of the MDB Filter System, and demolition of the ATLIC and TOCDF include, but are not limited to:

1.1.5.2.1.1 Spent pre- and High Efficiency Particulate Air (HEPA) filters removed from the MDB Filter System.

1.1.5.2.1.2 Spent Activated Carbon removed from the MDB Filter System.

1.1.5.2.1.3 MDB and ATLIC demolition debris.

1.1.5.3 RCRA Hazardous Waste Treatment and Storage Units that are Permitted

1.1.5.3.1 All hazardous waste treatment units located at the TOCDF and ATLIC have been decommissioned.

1.1.5.3.2 The TOCDF will utilize two permitted hazardous waste container storage locations until the MDB is demolished, those being the Toxic Maintenance Area C area located in the MDB and in Building S-2.

1.2 TOPOGRAPHIC MAP [R315-3-2.5(b)(19)]

1.2.1 General

1.2.1.1 The following drawings are used to satisfy specific facility description requirements:

1.2.1.1.1	TE-16-C-2	Overall Site Plan & Vicinity Map
1.2.1.1.2	TE-16-C-3	Topographic Map (restricted access - protected record)
1.2.1.1.3	TE-16-C-4	Site Work Area 1 Plot Plan
1.2.1.1.4	TE-16-C-5	Site Work Area 2 Plot Plan
1.2.1.1.5	TE-16-C-6	Site Work Area 3 Plot Plan
1.2.1.1.6	EG-16-C-7402	Site Work Storm Drain Plan
1.2.1.1.7	TE-22-C-10	Sewage Lagoon Site & Grading Plan
1.2.1.1.8	TE-22-C-13	Reservoir Site and Grading Plan
1.2.1.1.9	Reserved	
1.2.1.1.10	Reserved	
1.2.1.1.11	Reserved	
1.2.1.1.12	Reserved	
1.2.1.1.13	Reserved	
1.2.1.1.14	TE-16-C-3	Area 10 Layout
1.2.1.1.15	EG-22-C-8212	ATLIC Detailed Layout

1.2.1.2 Drawing TE-16-C-3 (restricted access - protected record) is a Topographic Map of the TOCDF site and includes the local surrounding area to a distance of at least 1,000 feet from the site perimeter. Map scale is 1 inch equals 100 feet and the contour interval is 5 feet.

1.2.2 Map Scale and Date

1.2.2.1 The current revision and date of each drawing is indicated in the lower right-hand title block. The current date of each drawing is indicated in the lower right-hand corner. Likewise the scale of each map is shown, unless otherwise noted.

1.2.2.2 Drawings TE-16-C-2 and TE-16-C-3 are drawn to a scale of 1 inch equals 100 feet. The TEAD-S portion of Drawing TE-16-C-3 is drawn to a scale of 1-inch equals 2500 feet. Drawing EG-22-C-8212 does not indicate scale

1.2.3 100-Year Flood Plain

1.2.3.1 The TEAD-S has not been mapped for the National Flood Insurance Program and thus there are no 100-year floodplain maps for the installation. The floodplain standard is discussed in further detail in section 1.3.2.

1.2.4 Surface Waters

1.2.4.1 Deseret Chemical Depot, including TOCDF, ATLIC and the CAMDS sites are located at an elevation (approximately 5170 feet, 5120 feet and 5040 feet respectively)[7] overlooking a relatively flat and arid lowland basin known as Rush Valley. The TOCDF buildings are approximately 140 feet higher in elevation than the valley floor and more than 7,000 feet horizontally distant.[8] The CAMDS is located approximately 7,000 feet southwest of the TOCDF. The CAMDS buildings are approximately 10 feet higher in elevation than the valley floor and approximately 2,000 feet distant. Area 10 (ATLIC) is built on an evenly-graded site, relatively unpaved, minimizing runoff. The ATLIC did not impact surface waters since the entire facility was enclosed, including the PAS.

1.2.4.2 Water-related features pertinent to the TOCDF, ATLIC and the CAMDS sites are minor in importance, primarily because of their absence. Surface waters in Rush Valley include Rush Lake, Faust Creek and Reservoir, Vernon Creek and Reservoir, Ophir Creek, Clover Creek, and shallow ponds east of the town of Rush Valley. Several seasonal small streams, which originate in the Oquirrh, Stansbury, Onaqui, Tintic, and Sheeprock Mountains, disappear on the dry Rush Valley floor. No surface waters leave the valley. Runoff in Tooele Valley, which lies north of Rush Valley, drains to the northwest and into the Great Salt Lake. Most groundwater recharge occurs through infiltration of precipitation in the mountains, and to a lesser degree, from stream recharge and irrigation. The topography of the drainage basin is generally smooth and uniform, sloping to the west from the TOCDF to the Rush Valley floor. The valley floor drains to Rush Lake, which is located approximately 11 miles northwest from the TOCDF and the CAMDS.[9]

1.2.4.3 The 460-square mile Rush Valley drainage basin is characterized as having poorly drained alkaline soils of moderately consolidated and unconsolidated layers of sand, gravel, silt, and clay.[10] Nevertheless, floods do not occur because of the arid climate and the storm water drainage system installed at the TOCDF and the CAMDS. The lack of intermittent streams or defined flow paths in the valley confirms the lack of flooding potential. The elevation of the TOCDF and the CAMDS above the valley floor further protect them from flood threats.

---

[7] Precise TOCDF site brass cap monument elevation markers are indicated on Drawings TE-16-C-5 and TE-16-C-6. CAMDS elevations are indicated on Drawing TCDS 40-100-01.

[8] The brass cap monument markers located on the commercial railway due west of the TOCDF indicate an elevation of 5030 feet. (United States Geological Survey, Saint John Quadrangle, edited 1993).

[9] The elevation of Rush Lake is estimated to be approximately 5000 feet.

[10] The Rush Valley is an elongated, north-south oriented, intermountain basin located between the Oquirrh Mountains to the east, the Stansbury and Onaqui Mountains to the west, and the Shiprock Mountains to the south. Rush Valley is located in the eastern Basin and Range physiographic province and is representative of intermountain basins within the province. Rush Valley is partially filled with alluvial sediments and lake beds. Geologic formations in the vicinity consist of Paleozoic sedimentary rock, along with gravel, sand, and clay. The TOCDF and the CAMDS sites are located near the base of the Oquirrh Mountains, where the land surface consists of relatively porous colluvial and alluvial deposits containing sand and gravel, with some conglomerate and clay.

1.2.5 **Surrounding Land Uses**

1.2.5.1 The location of the TOCDF within the TEAD-S installation boundaries is shown on Drawing TE-16-C-2. Also located on TEAD-S property are the Chemical Agent Munitions Disposal System (CAMDS) facility, ATLIC, the CAL and associated TOCDF operated facilities described in 1.1.2.3. TEAD-S (except Igloos 1631, 1632, 1633, 1634, 1635, 1636, and 1639) operates separately and independently of the TOCDF and is not addressed in this document; however, the CAL, SAF, GA/L Laboratories play an integral part in TOCDF and ATLIC demilitarization operations. TEAD-S also oversees other activities that relate to the overall operation of the Depot. Other areas within TEAD-S that are not specified herein are open range and are controlled by the military. The majority of the land surrounding TEAD-S is likewise federally owned.

1.2.5.2 Much of the 6,919 square mile Tooele County, where TEAD-S is located, is sparsely populated. TEAD-S was constructed in 1942 in Rush Valley. Originally, TEAD-S was a relatively remote area, accessible only by a railroad that was used for collection and distribution of munitions. Access to Rush Valley is possible on State Highway 36 from the north and State Highway 73 from the east.

1.2.5.3 Year 2000 population figures estimate the population for all of Tooele County at approximately 40,000. Presently, the majority of the county's population is concentrated north of the South Mountain geologic land formation, which separates Rush Valley from Tooele Valley.[11]

1.2.5.4 A few small communities, including Stockton, Rush Valley, and Ophir, ranches, and mines are located between a 10-kilometer to 25-kilometer (6-mile to 15-mile) radius of the TOCDF, ATLIC and CAMDS. No city or town lies within 10 kilometers (6 miles) of the TOCDF, ATLIC or CAMDS.

1.2.5.5 Land use outside the TEAD-S is dominated by livestock grazing. Beef cattle lead as the primary livestock, followed by sheep.

1.2.5.6 Cropland accounts for only a minute fraction of the agricultural land use around TEAD-S. Only 2.9% of the Rush Valley Basin has been cultivated for growing crops. Crops grown in the area include wheat, barley, corn, oats, and alfalfa. Since rainfall in the valley is limited, irrigation is a common practice among the agricultural sector. Water is obtained from nearby streams and water storage reservoirs.

1.2.6 **Wind Rose**

1.2.6.1 The wind rose for the TOCDF, ATLIC, and CAMDS is included on Drawing TE-16-C-3 (restricted access - protected record). The wind rose plot is from data collected at the TEAD-S weather station located in Building 5108 and reflects 1997-year end data from Weather Station 9. The prevailing winds at the TOCDF area follow the orientation of the

[11] Year-end population estimates are as provided by Utah Department of Workforce Services.

mountain ranges flanking either side of the facility.[12] Winds are prevalent from the south through southeast in the summer and from the north through northwest in the winter.

1.2.6.2 The wind rose reference above is applicable to all facilities within the TEAD-S boundary since mountains flank the entire boundary of TEAD-S.

1.2.7 **Map Orientation**

1.2.7.1 All drawings referenced in Paragraph 1.2.1 have a north arrow direction indicator.

1.2.8 **Legal Boundaries of the Facility**

1.2.8.1 Drawing TE-16-C-2 shows the legal boundaries of the TOCDF. The legal boundaries of the TOCDF are defined as the area enclosed by the outer security fence and the portion of the existing fence along Heart Street that connects the TOCDF to Area 10 perimeter fence. The only waste management units in the immediate vicinity of the TOCDF plant are those units located at the facility itself and Igloos 1631, 1632, 1633, 1634, 1635, 1636, and 1639 within TEAD-S Area 10, located adjacent to and connected with TOCDF. The boundaries of CAMDS are shown on drawing TCDS 40-100-02.

1.2.9 **Access Control**

1.2.9.1 Access to the TEAD-S is via County Road 198, connecting State Highway 73 to the Main (North) Gate, and via State Highway 73 directly connecting to the Doolittle Road and the East Gate.

1.2.9.2 Entry to the TOCDF is controlled through the Entry Control Facility (ECF) located at the southern end of the facility. Entry to CAMDS is controlled through one gate at Building 7001 (Security) located at the northern end of the facility. Attachment 4 (Security) provides a detailed narrative describing the security measures that are in place at the TOCDF and CAMDS and how access is controlled. All personal vehicles are parked outside of the TOCDF and CAMDS and do not impact the traffic within the fence. Entry to the ATLIC is controlled through Area 10 ECF located at the northwest end of Area 10. Security is provided by the TEAD-S and falls under the TEAD-S RCRA Permit.

1.2.9.3 Generally, all traffic (including government vehicles, commercial carriers, and privately owned vehicles) follows the primary traffic route. Only security vehicles, conventional-munitions transportation vehicles, and maintenance vehicles travel off of the primary route.

1.2.9.4 As shown in Drawing TE-16-C-2, the TOCDF is immediately adjacent to and physically connected to Area 10, and therefore, the area becomes a contiguous restricted area. Consequently, there are no over-the-road transport or demilitarization items outside of this area. The ATLIC is inside Area 10, and there are no over-the-road transports or demilitarization items outside this area.

[12] The Oquirrh Mountains lie to the east and the Onaqui and Stansbury Mountains to the west of the TOCDF.

1.2.10 **Local Well Information and Groundwater Conditions**

1.2.10.1 There are no injection or withdrawal wells located at the TOCDF or ATLIC. There are six groundwater monitoring wells located near the TOCDF sewage lagoon.

1.2.10.2 Groundwater occurs in three distinct aquifers in Rush Valley. The most extensive aquifer is the basin-fill aquifer. The overlying, relatively impermeable, clay-sized lacustrine sediments confine this aquifer, and restrict hydraulic communication between it and the playa surfaces. The sand and gravel of the alluvial fans along the flanks of the mountains compose the second alluvial-fan aquifer. The highest quality groundwater obtainable in Rush Valley is contained in this aquifer. The third is an unconfined, shallow-brine aquifer, which lies just below the valley surface. Groundwater quality in the Rush Valley ranges from fresh to briny.

1.2.10.3 Recharge to Rush Valley is almost entirely provided by rainfall and snow melt from the surrounding mountains. The basin-fill aquifer is recharged by subsurface inflow from adjacent alluvial fans and underlying Tertiary or Paleozoic rocks.

1.2.10.4 A southwest-to-northwest trending groundwater divide, which passes through the TEAD-S, separates the flow of groundwater in Rush Valley into two distinct regions. Precipitation entering the ground water beneath the TOCDF, ATLIC and CAMDS can flow either toward South Mountain or the Thorpe Hills, depending upon which side of the divide they enter the aquifer.

1.2.11 **Buildings/Structures**

1.2.11.1 Drawing TE-16-C-2 shows all existing buildings, roads, railroads and fences in the vicinity of the TOCDF. Major buildings/structures located inside the TOCDF security fence include the following: Container Handling Building (CHB); Entry Control Facility (ECF); Monitor Support Building (MSB); Treaty Compliance Building (TCB); Pollution Abatement System (PAS); Personnel Maintenance Building (PMB); Process and Utility Building (PUB); Various craft shops and supply warehouses; Brine Reduction Area Pollution Abatement System (BRA PAS); Heating, Ventilation, Air Conditioning (HVAC) Filters; and Munitions Demilitarization Building (MDB).

1.2.11.2 Major components of the TOCDF MDB include the following: Deactivation Furnace System (DFS); Metal Parts Furnace (MPF); Two Liquid Incinerators (LICs); Control Room; and various disassembly and support areas essential for processing the full range of the TEAD-S's unitary stockpile of agents and munitions.

1.2.11.3 Major buildings/structures located outside the TOCDF security fence include the following: Chemical Assessment Laboratory (CAL); Communication Switch Building (CSB); Personnel Support Building (PSB); On-Site Inspection Agency (OSIA); Warehouse Buildings S-7 and S-8, and Area 10 Igloos 1631, 1632, 1633, 1634, 1635, 1636, and 1639 are within the Area 10 security fence.

1.2.12 **Sewers (Storm, Sanitary, Process)**

1.2.12.1 There are no sanitary or process sewage systems within the 1,000-foot radius of the TOCDF, other than the one constructed for the TOCDF. Location of the TOCDF Sewage

Lagoon is shown on Drawing TE-22-C-10. Locations of CAMDS sewage lagoons are shown on drawing TCDS 40-101-01. Area 10 sewers are covered by the TEAD-S RCRA Permit.

1.2.13 **Loading/Unloading Areas**

1.2.13.1 The chemical agents stored at the TEAD-S Area 10 are stored in mortars, artillery projectiles, and ton containers. The munitions or bulk containers are loaded into overpacks in Area 10, placed on specialized trucks, and taken to the TOCDF CHB.[13] The overpacks are moved from the CHB by conveyor to the Unpack Area (UPA) of the MDB. At the UPA, the air inside the overpack is monitored for agent, which would indicate a leaking container. CAMDS agent/munitions operations have ceased. Therefore, no munitions or bulk containers are brought to the CAMDS facility.

1.2.13.2 A second TOCDF unload area involves the transfer of fuel and bulk chemicals from trucks to the 1) TOCDF Bulk Chemical Storage (BCS) facilities and 2) out-of-service TOCDF Liquefied Petroleum Gas (LPG) tank.[14] The BCS facilities house the concentrated chemical solutions from which the decontamination, caustic wash, and neutralization solutions are made. The bulk chemicals used at TOCDF are sodium hydroxide (18% by weight) and sodium hypochlorite (12% or less by weight). LPG and each bulk chemical have its own storage tank or tanks, its own supply pumps, and its own distribution system. Tanker trucks supply the feedstock for the bulk chemicals or LPG. The trucks supply the TOCDF with bulk chemical stock solutions in the concentrations shown above.

1.2.13.3 Igloo 1639(ATLIC) was selected to house the Area 10 Liquid Incinerator because of its close proximity to the Area 10 GA/L ton container storage. Delivery of these tons to Igloo 1639 will be accomplished by open-bed truck and forklift. These tons will not be in overpacks because of the short transfer distance and the small number of tons to be processed at the ATLIC.

1.2.14 **Fire Control Facilities**

1.2.14.1 The TOCDF MDB interior fire systems are designed to meet National Fire Protection Association (NFPA) standards. The fire water storage requirement is 330,000 gallons. Portable fire extinguishers, a sprinkler system, dry chemical systems, Halon system, and FM-200/FE-227 system are all built into the facility to minimize the threat of fire.

1.2.14.2 Water for the TOCDF, ATLIC and CAMDS is pumped from two wells located north of Stark Road (approximately 2 $^{1}/_{4}$ miles northeast of the TOCDF).[15] Pumps are installed at the existing TEAD-S withdrawal wells to produce the anticipated 616,000 gallons per day required at TEAD-S. The TEAD-S withdrawal wells are located east-northeast of the TOCDF and more than 5 miles distant. The well pumps supply water to the two existing

[13] See Drawing TE-16-C-5.

[14] See Drawing TE-16-C-4.

[15] See Drawing TE-16-C-2.

reservoirs (with a combined capacity of 1 million gallons). Army Regulation, Mil 1008C, prescribes the volume of reserve water provided for fire fighting as 337,000 gallons. The two TEAD-S 500,000 gallon water tanks serve as the emergency fire water reserve for TOCDF, ATLIC and CAMDS.

1.2.14.3 The water is chlorinated at the wellhead and then moves to the two 500,000 gallon TEAD-S water tanks. Water flows from the TEAD-S water tanks to the TOCDF via 12" and 20" diameter water lines. A 12" diameter pipe loop around the TOCDF supplies fire-fighting water to the site and to the fire suppression systems in the CHB, PMB, and MDB. A pipe from this loop supplies water for the Water Treatment System (WTS, located in the PMB). Softened water from the WTS feeds the Potable Water System (POT) and Process Water Systems (PRW).

1.2.14.4 CAMDS Fire Detection and Protection consists of hand-held portable fire extinguishers, fire hydrants, and four National Fire Protection Association (NFPA) "Clean Agent" fire extinguishing systems that protect the CMO, the SAF Lab, the SAF chemical storage room, and the CUB. The portable hand-held extinguishers are distributed throughout the buildings that remain standing (e.g., have not been decommissioned, demolished and closed yet). All personnel are authorized to use portable fire extinguishers to extinguish small fires and are familiar with extinguisher locations. Additional fire detection is provided by 4-hour periodic fire watch inspections.

1.2.14.5 The ATLIC Fire Detection and Prevention System is described in Attachment 9 (Contingency Plan) section 9.1.4.9.

1.2.15 **Flood Control and Drainage Barriers**

1.2.15.1 Drawings TE-16-C-2 and TE-16-C-3 are topographic maps of the TOCDF and the local surrounding area. Drawing TCDS 40-101-01 is a topographical map of CAMDS and the surrounding area; Area 10 is depicted in the former drawings. (**Note:** TE-16-C-3 and 40-101-01 are considered "restricted access – protected record.") Drainage from these facilities is westerly. The overall drainage gradient for the TOCDF, ATLIC and the CAMDS is 1% or greater. The topography of each facility is generally smooth and uniform, allowing no chance for ponding or pooling of runoff waters. Natural drainage channels exist and do not direct water onto the facility.

1.2.15.2 The TOCDF and CAMDS cover approximately 40 and 15 acres, respectively and are largely covered by dirt, gravel, and impermeable surfaces (for example, buildings, asphalt, and concrete paving). Runoff from the facilities is controlled by the slope of the asphalt and concrete pavement and is directed towards storm drains, ditches, and culverts. All on-site surface runoff at TOCDF is collected in an underground drainage system and routed to the storm drain detention pond.[16] The pond is sized for the 100-year storm. Temperatures as well as types and amounts of precipitation are discussed in paragraph 1.2.15.3 below. No surface waters are used as public water supplies in the immediate vicinity of TOCDF and CAMDS. Surface water is used primarily for agricultural purposes in Rush Valley. The ATLIC flood control and drainage barriers are covered by the TEAD-S RCRA permit.

[16] The storm water detention pond lies approximately 200 feet due west of the TOCDF as indicated on Drawing TE-16-C-3.

1.2.15.3 The climate of the TEAD-S is characterized as dry continental and is heavily influenced by the mountains surrounding the facility. Temperatures are frequently above 32°C (90°F). High temperatures of 37°C (100°F) and low temperatures of -17°C (0°F) occur. The area is noted for plentiful sunshine, low relative humidity, and light precipitation. Annual rainfall varies between 25-30 centimeters (10-12 inches), distributed primarily from mid-fall through late spring. April is the wettest month, with an average of 2.00 inches of rain. July is the driest month, with an average of 0.64 inches. Snow averages 40 inches per year, with the maximum (13.2 inches average) in January, and snowfall greater than 1 inch during each month from October through April.

1.2.15.4 There is minimal tornado exposure (no known touchdowns in the valley since 1984) and minimal earthquake exposure.

1.2.16 **Run-off Control Systems**

1.2.16.1 The location of the TOCDF and ATLIC is such that it is virtually devoid of surface water features or intermittent streams.[17] The access road to the North and East of TOCDF acts as a barrier to divert runoff from higher elevations. Drawings TE-16-C-32, -33, -34 and EG-16-C-7402 detail the storm drainage features of the TOCDF.

1.2.17 **Proposed New and Existing Hazardous Waste Management Units**

1.2.17.1 The only waste management units in the immediate vicinity of the TOCDF plant were those units located at the facility itself and Igloos 1631 (Autoclave), 1632 (Drum Ventilation System/Drum Ventilation System Sorting Room and Container Storage) and 1633, 1634, 1635, and 1636 (Container Storage) and 1639 (ATLIC) located in Area 10 immediately adjacent to TOCDF.[18]

1.2.18 **Spill Sites**

1.2.18.1 Module VII provides information regarding TOCDF spill sites.

1.3 **LOCATION INFORMATION**

1.3.1 **Seismic Standard [R315-3-2.5(b)(11), R315-8-2.9(a)]**

1.3.1.1 The TEAD-S is located in Tooele County, which is one of the counties listed in 40 CFR 264 Appendix VI. Since the installation is located in a political jurisdiction listed in Appendix VI, a geologic evaluation of the area has been performed in accordance with R315-3-2.5(b)(11).

1.3.1.2 Findings were presented in a report to the U.S. Army Engineering Division, Huntsville, Alabama, and the Office of the Program Manager for Chemical Demilitarization

[17] See paragraphs 1.2.4 through 1.2.4.2 for a discussion of surface water features in Rush Valley.

[18] See Drawing TE-16-C-3.

(PMCD), (which were the designated agencies in 1986). The findings of the report[19] are as follows:

1.3.1.2.1 One inferred fault occurs within a 3,000-foot radius of the site. The fault is inferred, presumably because geologic field evidence for the fault is unclear.

1.3.1.2.2 No direct geologic information is provided in geologic literature on the absolute age of the most recent fault displacement for the inferred fault.

1.3.1.2.3 Interpretation and evaluation of the available geologic literature indicate that the inferred fault could have had displacement sometime during the past 15,000 years. The Holocene epoch began 10,000 years ago.

1.3.1.3 On the basis of these findings, a geologic study was performed to:

1.3.1.3.1 evaluate geologic evidence for the inferred fault,

1.3.1.3.2 explore for other faults associated with the inferred fault in the area of the site, and,

1.3.1.3.3 obtain field data that may refine current estimates as to the age of the most recent displacement.[20]

1.3.1.4 The field study resulted in the identification of faults at three locations along a 2,250-foot-long trench. Geologic mapping of the deposits offset by the faults and development of age criteria for the deposits indicate that none of the identified faults is younger than 14,500 years. This determination is supported, in general, by the absence in the project area of land forms that are characteristic of youthful faulting. It is concluded that fault displacement has not occurred at the project site during the Holocene Epoch (i.e., the past 10,000 years), and that the site is acceptable according to 40 CFR 264 and 270 and UAC R315.

1.3.2 **Floodplain Standards [R315-3-2.5(b)(11)(iii), R315-8-2.9(b)]**

1.3.2.1 The TEAD-S has not been mapped for the National Flood Insurance Program and thus there are no 100-year floodplain maps for the installation. However, it has been determined that the site is outside of the 100-year floodplain and is not subject to flooding, based on the following:

1.3.2.2 There is no history of flooding in the area. No floods have occurred at TEAD-S since the depot came into existence in 1942.

[19] "Geologic Evaluation for Compliance with Seismic Location Standard 40 CFR 270.14(b)(11) for Siting a Chemical Agent Munitions Disposal System (CAMDS) at the Tooele Army Depot, South Area, Tooele County, Utah." The report is dated June 5, 1986.

[20] See, "Geologic Field Analysis for Siting a Chemical Agent Stockpile Disposal System at the Tooele Army Depot, South Area, Tooele County." The report is dated December 15, 1986.

1.3.2.3 The overall drainage gradient for the entire TOCDF and ATLIC areas are 1% or greater. The topography is generally smooth and uniform, allowing no chance for ponding or pooling of runoff waters. The lacks of intermittent streams or defined flow paths in Rush Valley confirm the lack of flooding potential. The location of the TOCDF is such that it is virtually devoid of surface water features or intermittent streams. The closest body of surface water (i.e., 3-4 foot wide Ophir Creek) is located more than 1000 feet north of the TOCDF fence and does not appear on the topographic maps.

1.3.2.4 Drainage for the entire TEAD-S is westerly, and the low area is more than 170 feet lower in elevation, and approximately 11 miles distant (i.e., Rush Lake) from the TOCDF.

1.3.2.5 Few well-defined natural drainage channels exist in the vicinity; there are none that would carry or direct water to or through the site.

1.3.2.6 All on-site surface runoff is collected in an underground drainage system and routed to the storm drain detention pond sized for the 100-year storm.

1.3.2.7 No significant vegetation exists to retain runoff waters.

1.3.2.8 The area is arid to semi-arid and receives little precipitation. The 100-year 24-hour precipitation event is less than 3.3 inches.

1.3.2.9 Due to local drainage at the site, the Rational Method was used to establish the 100-year frequency peak flow. The Rational Method is a simple, but accurate, hydrologic estimating technique generally used in small drainage area such as the local flow area at the TOCDF and ATLIC. There was no hydrologic study performed for the Rush Valley floor, given the site's history of no flooding and the relative height of the TOCDF above the valley floor. No computer modeling was performed for hydraulic analysis.

1.3.2.10 Because of the unique characteristics of each watershed in arid regions such as Utah, it would not be appropriate to predict floods from the 460-square mile Rush Valley drainage area by the Rational Method or any method other than historic records at the site. Since there is no history of flooding in Rush Valley, it is expected that the "100-year flood" would be practically insignificant. The TOCDF and ATLIC elevation of 100 to 200 feet above the valley floor puts them well beyond any expected flood level.

1.3.2.11 For local flooding, conservative "n" values or 0.035 were used to compute flood depths in channels. For bare earth channels, roughness would be lower, producing lower flood depths. In Rush Valley, roughness coefficient estimates were not needed because of the lack of flood potential. There are no bridges or stream channels in the vicinity of the TOCDF or ATLIC for analysis.

1.3.3 **On-site Drainage**

1.3.3.1 The TOCDF occupies approximately 40 acres and is largely covered by a variety of surfaces (i.e., buildings, asphalt, gravel, and concrete paving) such that runoff drains overland to the west. Runoff from the TOCDF is controlled by the slope of the asphalt and concrete pavement towards storm drains, ditches, and culverts within the TOCDF. All on-site surface runoff is collected in an underground drainage system, which drains to the storm drain detention pond. The site has been carefully graded so that water does not

run towards any building and has a generally constant gradient of greater than 1%. The 100-year, 24-hour precipitation is less than 3.3 inches and poses no flood threat to the TOCDF from local ponding. Area 10 drainage is covered by the TEAD-S RCRA Permit.

1.3.3.2 The TOCDF site access road also acts as a barrier to runoff from the north and east of the site. There is no site run off expected from any other direction. A culvert allows some drainage to flow toward the TOCDF plant site. Approximately 36 cubic feet/second of runoff will flow across the northern end of the TOCDF parallel to the existing exclusion fence. This drainage flows in a culvert where it passes under the security fence, and in an open ditch within the site. All other off-site drainage is diverted around the southern end of the site. The direction of surface water runoff flow is shown by bold arrows on the Topographic Map, TE-16-C-3 (restricted access - protected record).

1.3.3.3 The CAMDS site occupied approximately 15 acres and is largely covered by a variety of surfaces (i.e., buildings, asphalt, gravel, and concrete pavement) such that runoff drains overland to the south.

1.4 TRAFFIC PATTERNS [R315-3-2.5(b)(10)]

1.4.1 General Depot Traffic

1.4.1.1 Access to the TEAD-S is via County Road 198, connecting State Highway 73 to the Main (North) Gate, and via State Highway 73 directly connecting to the Doolittle Road and the East Gate.[21] Both State Highway 73 and County Road 198 are two-lanes, undivided, asphaltic concrete roads zoned from 55 to 65 mph. Neither highway is heavily traveled. The intersections of State Highway 73 and County Road 198 as well as the Doolittle Road with State Highway 73 are simple interchanges. Traffic control at the Highway/Doolittle interchange is via a stop sign on County Road 198. Traffic control at the Doolittle Road/Highway 73 interchange is by a stop sign on Doolittle Road.

1.4.1.2 The TEAD-S West Gate is used at the discretion of TEAD-S and the gate is kept locked. Access to the West Gate is via State Highway 36 onto Harrison Road. State Highway 36 is a two-lane, undivided, asphaltic concrete road. The Highway 36/Harrison Road intersection is a simple interchange with traffic control by a stop sign on Harrison Road.

1.4.1.3 The TOCDF and Area 10 road systems consist of undivided, asphaltic concrete roads. There are no one-way streets, traffic control devices, or signs within the TOCDF or the ATLIC. Entry to the TOCDF and Area 10 is controlled through separate ECFs located at each facility. All personal vehicles are parked outside of the TOCDF or Area 10 and do not impact the traffic within those facilities.

1.4.1.4 Generally, all traffic, including government vehicles, commercial carriers, and privately owned vehicles, follow the primary traffic route. Only security vehicles and maintenance vehicles travel off of the primary route.

1.4.1.5 As shown in Drawing TE-16-C-2, the TOCDF is immediately adjacent to and physically connected to Area 10, and therefore, the area becomes a contiguous restricted area. The

[21] See Drawing TE-16-C-2.

ATLIC is within Area 10. Consequently, there is no over-the-road transport of demilitarization items outside of these areas. Internal traffic movement between the storage and the demilitarization operating area is discussed in paragraph 1.4.2.

1.4.1.6 Traffic patterns on site for the transportation of hazardous wastes generated during closure follow the primary traffic route discussed in paragraph 1.4.1.3 from the facility plants to the depot boundary. Volumes and frequency of shipments are discussed in paragraph 1.4.3.

1.4.2 Traffic Control

1.4.2.1 Because of the low volume of traffic at TEAD-S, traffic control measures are simple. Speed is restricted to 30 mph unless otherwise posted (e.g., office areas and parking lots), and 45 mph is posted for most of the primary traffic route. All blind or hazardous turns are marked and posted at reduced speeds. Yield signs and stop signs control traffic at all major intersections. All railroad grade crossings are marked with signs. Traffic control enforcement is by security personnel.

1.4.3 Estimated Volume and Frequency of Shipments

1.4.3.1 During the operation of the TOCDF it was estimated that 500 vehicles passed the security gate daily. Of the estimated 500 vehicles, 10 to 15were estimated to be commercial carriers (semis or truck-trailers) traveling almost exclusively to the TOCDF area. An additional 35 to 40 vehicles (including security and maintenance) were estimated to travel to other destinations throughout the TEAD-S. The ATLIC is located within Area 10, shipments of spent scrubber brine occurred on a daily basis during operations. During the demolition of the TOCDF and ATLIC commercial carrier traffic will increase for a period of bout seven months.

1.4.4 Road Surfacing and Load Bearing Capacity

1.4.4.1 Roads, parking areas, and driveways are paved. In general, all main access routes serving the TOCDF, ATLIC and CAMDS areas are of asphalt. The roads have 12-foot-wide lanes with a minimum cross slope of 2 percent and 3-foot-wide dirt/gravel shoulders.

1.4.4.2 The maximum load assumed for design is the American Association of State Highway and Transportation Official's H20 loading:

1.4.4.2.1 18,000 pound axle load,

1.4.4.2.2 32,000 pound maximum axle group,

1.4.4.2.3 80,000 pound maximum vehicle weight.

1.4.5 Restricted Area Traffic

1.4.5.1 Total associated two-way traffic on the roads used for the transport of the PAS Brines, DFS, ATLIC and MPF ash, and metal residue from the facility plants to the storage area ranges between 10 to 28 vehicles per day, depending on the type of munition or bulk containers being processed. The truck traffic moving munitions between Area 10 and the

CHB varies daily depending on the munition being processed. This estimate does not include traffic associated with Area 10 maintenance, operations, and security, which is estimated at an additional 10 vehicles per day.