


HAZARDOUS WASTE

A. INTRODUCTION

The LSAAP property was been in active use since the early 1940s as a government-owned, contractor operated facility producing conventional munitions. Radiological or chemical munitions were never produced at LSAAP. However, non-nuclear weapons containing small amounts of nuclear materials were produced at LSAAP from 1961 to 1977. The RRAD-WEP scheduled for transfer is primarily used for completed munitions storage. Finished munitions were stored in igloos and in open storage areas located between the igloos. Approximately 158 igloos and 65 open storage areas have been identified in the area.

Information for this report has been extracted from the Environmental Condition of Property Reports prepared for the United States Army by URS Corporation, information provided by the Army Environmental Center and from discussions with ELM Consulting, retained by the Red River Development Authority to provide professional environmental services to the Authority.

There are seven categories that are used to evaluate the properties at LSAAP and RRAD-WEP. These categories are:

- Category 1 - areas where no release or disposal of hazardous substances or petroleum products or their derivatives has occurred and areas where there has been no migration of such substances from adjacent areas.
- Category 2 - areas where only the release or disposal of petroleum products has occurred.
- Category 3 - areas where the release, disposal and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
- Category 4 - areas where release, disposal and/or migration of hazardous substances have occurred and all removal and/or remedial actions necessary to protect human health and the environment has taken place.
- Category 5 - areas where release, disposal and/or migration of hazardous substances have occurred and removal and/or remedial actions are under way, but have not yet taken place.
- Category 6 - areas where release, disposal and/or migration of hazardous substances has occurred, but the required remedial action has not begun.
- Category 7 - areas that are not evaluated or require further evaluation.

Appendix 5-1 through 5-4 were obtained from the Environmental Condition of Property report prepared by URS in the fall of 2006, and shows the location of hazardous substance releases and petroleum disposal, as well as explosives hazards in the LSAAP and RRAD-WEP. A full accounting of these hazardous sites is provided in the appendix section of this report.

1. Lone Star Army Ammunition Plant

Approximately ten percent of the property at LSAAP has been characterized to date, with additional characterization planned prior to property transfer. The identified landfill areas will require minimal additional characterization. Characterization will include assessing building interiors for asbestos, lead-based paint, PCB-based paint, assessing production areas for former pink water settling ponds, assessing utility corridors and surface water for constituents of concern, assessing soils for explosive constituents and sampling soils for perchlorate and metals. ¹

2. Red River Army Depot-West Excess Property

Much of the area of the RRAD land to be transferred has had little or no use during its operations as a depot and therefore, the environmental impacts are limited. Additional characterization of this property will be limited to the Northwest and Southwest Surveillance Ranges and to seven smaller areas of concern (ca. 300 acres). The surveillance ranges will be surveyed for munitions and explosives of concern as well as for unexploded ordnance. If any of these are found they will be removed and properly disposed. Soil sampling will consist of sampling for explosives, metals and perchlorates. A determination will be made as to whether site operations have impacted the subsurface. The smaller sites will be characterized by surface and subsurface sampling. No further investigation is required at the Ordnance Training Center. ²

Environmental Characterization

LSAAP - The priority for characterization will be in those areas where environmental impacts are most likely to have occurred. These include the thirteen usable production lines, the storage igloos, the test ranges, the burning ground, the demolition area and general maintenance, storage and laboratory areas.

RRAD-WEP - Much of the area of the RRAD land to be transferred has had little or no use during its operations as a depot and therefore, the environmental impacts are limited.

B. SUMMARY OF MAJOR FINDINGS AND CONCLUSIONS

- A significant portion of the RRAD-WEP (approximately 3,835 acres) is undeveloped and is considered to be Category 1 land. In these areas there is no known documented release, disposal or mitigation from adjacent properties of hazardous substances or petroleum products.
- Nine sites, ranging in size from less than one acre to about 172 acres, have some form of contamination or potential contamination where remediation activities are in place, have taken place or are under consideration. The most significant of these areas are two test ranges used for small arms testing. The Northwest Surveillance Range encompasses about 22 acres and the Southwest Surveillance Range is about 100 acres. The remaining sites are small and isolated. Characterization and remediation of these sites should be easily accomplished.

¹ Hazardous Waste: Lone Star Ammunition Plant & Red River Army Depot, Bowie, TX, ELM Consulting LLC, February 2007, Page 1

² Ibid.

- The Ordnance Training Center landfill has already been characterized and capped. It is currently being monitored, long-term, for groundwater contamination. This is less than 10% of the total property under consideration for transfer.¹
- Approximately 13,130 acres of land at LSAAP are Category 1 lands. This parcel of land primarily consists of undeveloped land, outside of the production areas. Of this large parcel of land 1,950 acres include the storage igloos and surrounding property.
- Category 2 parcels at LSAAP include 11.57 acres and are currently being addressed under Texas Commission on Environmental Quality's (TCEQ) Leaking Petroleum Storage Tank Program.
- Category 3 lands at LSAAP include 20 parcels and 301 acres. These parcels are being addressed under the Installation Restoration Program.
- Category 4 parcels at LSAAP include seven areas and 77 acres. These areas are being addressed under the Installation Restoration Program.
- Category 5 lands consist of four parcels and 145 acres.
- No parcels of land are present at LSAAP under Category 6.
- Category 7 lands at LSAAP consist of 39 parcels and 1,879 acres. Most of these acres are in and around the production areas, the High Explosive Burning Ground, the High Explosive Demolition Ground and the test range.²

C. INVESTIGATION AND REMEDIATION OVERVIEW

1. Lone Star Army Ammunition Plant

There are 57 sites at LSAAP in the Installation Restoration Program. Restoration activities and/or long-term management are being performed at 10 of these sites. The remaining 46 sites have been closed or their functions transferred to other environmental programs. Perchlorate was used at LSAAP and it is unclear if it has been characterized in all sites at LSAAP where it was used. Characterization of perchlorate will be a part of the proposed sampling plan. Low levels of metals and explosives have been found in the groundwater at several locations on LSAAP, but due to the local geology it is unlikely that groundwater run-off will pose any off-site risk.

Forty-eight sites at LSAAP have been listed as site response complete. However, 15 sites may require additional work due to potential risk under a property transfer action and 6 sites have encumbrances if transferred.³

The sites that require further action are:

- Eastern Active Landfill

¹ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Page 5-2

² U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Pages 5-2 to 5-4

³ *Ibid.*, Page 4-17

- High Explosives Demolition Ground
- Container Storage Areas (4)
- Chemical Burial Site
- Salvage Yard
- Bulk Fuel Storage Area
- XX Test Area
- P-29 Area (perchlorate handling area)
- Sanitary Sewer System
- Pink Water Treatment Facilities and Auxiliary Equipment
- Lead Wastewater Treatment Facility and Auxiliary Equipment
- Chromium Wastewater Treatment Facility and Auxiliary Equipment

The sites that have or may have land use controls are:

- Eastern Inactive Landfill
- Abandoned Landfill
- Chrome Plating Area
- Landfill Near Area W (2)
- B-8 Battery Washdown Sump

2. Red River Army Depot-West Excess Property

There are 88 restoration sites at RRAD-WEP, including 10 sites addressed under the Military Munitions Response Program (MMRP). Only the Ordnance Training Center landfill addressed under the Installation Response Program (IRP) is located in the RRAD-WEP area intended for property transfer. The landfill has already been characterized and capped and is currently being monitored, long-term, for groundwater contamination. ⁴

D. LANDFILLS

1. Lone Star Army Ammunition Plant

There are 13 identified potential buried landfills at LSAAP that are inactive or abandoned. One identified site, the Old Demolition Area (ODA), was placed on the National Priority List in July 1987 because of metals and explosive contamination (nitroglycerin, pentaerythrotol tetranitrate). The ODA covers about 17 acres in the south-central portion of LSAAP. It was used in 1943-44 for the disposal of a variety of munitions. A Remedial Investigation/Feasibility Study was completed in 1997 and a Record of Decision (ROD) was signed in 1999. The ROD specified that soil cover, erosion control measures, and groundwater monitoring should occur at the site. Long-term management of the site will consist of reviews every 5 years, land use controls and cap maintenance. This will continue for an indefinite period of time.

The Western Sanitary Landfill is a 26-acre inactive landfill located on the western boundary of LSAAP. It was used from mid-1940s until 1973 by both RRAD-WEP and LSAAP for the disposal of non-hazardous wastes. In 2001 Monitoring Natural Attenuation began when groundwater sampling results showed the presence of 1,2 dichloroethylene (DCE), trichloroethylene (TCE), benzene and vinyl chloride above groundwater protection standards. Testing in 2005 indicated concentrations of arsenic, DCE, benzene and vinyl chloride above the protective concentration limit,

⁴ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Page 4-3

but the monitoring natural attenuation process is working. Groundwater monitoring and natural attenuation will continue for an unknown period of time.

The Abandoned Construction Landfill is located on LSAAP south of the inactive and capped 1313 landfill. No documentation exists as to the exact contents of the landfill, but it is presumed to contain building demolition debris and buried drums containing construction materials. Phase I and Phase II sampling was completed in 2002. Groundwater sampling indicated that there were no concentrations above the applicable cleanup standards. Soil sampling indicated concentrations of arsenic and mercury. The site was closed in December 2005. The road to the area has been fenced to limit access. Land Use Controls have been recorded for this area and will remain in place indefinitely.

An Abandoned Landfill covering about 5 acres near Area W in the southwest quadrant of LSAAP is filled with construction debris, soil and steel drainage piping from the demolition of a Plumbing Shop and Chemistry Lab. Initial sampling indicated contamination with Volatile Organic Compounds (VOCs) and arsenic. Later sampling indicated no detection of contaminants of concern. Access to the site has been limited with posted signs and land use controls will be continued indefinitely.

Numerous holding ponds were created in the 1940s for industrial purposes. Area G Ponds were used between 1942 and 1972 to hold spent sulfuric acid, chromic acids, nitric acids, sodium hydroxide, and rinse water. Underground piping carried acidic wastewaters from the Area G production facility to the ponds. The ponds' wastewater was treated with sodium hydrogen sulfite and sodium hydroxide to precipitate the metals. The Area G Ponds were closed and capped and a closure plan was approved in 1983. Subsequently these units were reinvestigated because the unit was closed with the sludge in place. Long-term monitoring of the groundwater began in 2003 and will continue until 2023. Cap maintenance will continue indefinitely.

Seven Area O Ponds were used to treat pink water and washdown water from 1942 until 1978. Explosive residues were HMX, RDX and TNT. The unit was closed and capped in 1982. Groundwater monitoring will continue until 2022 and cap maintenance will continue indefinitely.

LSAAP has two active landfills in operation. The Area A landfill is a Type 1 landfill that serves both RRAD-WEP and LSAAP. It has a 2-foot clay liner and can accept Municipal Wastes and Class II Industrial Wastes. It is also permitted to accept material contaminated with up to 1,500 ppm total petroleum hydrocarbons. The landfill is approximately 10% full and will require monitoring for 30 years after the closure of the landfill.

The Old Boston Road landfill, also known as the Eastern Active Landfill, is located at the eastern boundary of LSAAP on the northeast corner of the Old Boston Road. This landfill is registered with the State of Texas, but is not permitted and does not require a closure plan. The landfill contains construction materials and asbestos. The landfill's size can be increased by adding additional cells to the landfill. Approximately one million pounds of asbestos waste is buried at the landfill in separate asbestos cells. Most of the asbestos waste came from RRAD-WEP. ⁵

2. Red River Army Depot-West Excess Property

The Ordnance Training Center (OTC) Landfill is the only authorized Resource Conservation and Recovery Act (RCRA) unit located within the RRAD-WEP. The compliance monitoring plan requires

⁵ U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Pages 4-19 to 4-12

at least 30 years of post-closure care. The OTC Landfill was officially closed on December 23, 1983. The OTC landfill/burial site is located in the northwest portion of RRAD-WEP in the transfer area. From 1942 to 1982 there were many different uses of the site. Big Creek flows along the west side of the area. Between 1972 and 1982 four burial sites were created at the landfill that received containerized compounds, including solvents, pentachlorophenol and heavy metals. Closure for the site was accomplished by installing a RCRA cap over the entire site in 1983. Volatile Organic Compounds (VOCs), including 1,1-dichloroethylene (DCE), 1,1,1 trichloroethane and trichloroethylene (TCE) have been released and detected in the groundwater in the area.

In March 2006, TCEQ approved a corrective measures implementation for a Plume Management Zone (PMZ) and a Compliance Plan permit modification for the area. Groundwater samples are being collected and analyzed for VOCs on a semi-annual basis. Long-term monitoring will continue for at least 30 years. Land use controls will restrict the use of groundwater and excavating activities in this portion of the RRAD-WEP. ⁶

No active landfills are located within the RRAD-WEP.

E. BUILDINGS

Buildings 1545 and 1548 are located in the northwest section of LSAAP. They were built in the 1940s and used through 1988 for the removal of rubber from wheels. Phase I and Phase II RCRA Facility investigation have been completed indicating low levels of solvents in the groundwater and metals and polycyclic aromatic hydrocarbons in the surface soil. Soil removal was scheduled to be completed in 2006 at which time the area will be submitted to TCEQ for closure. ⁷

F. DEMOLITION AREAS

1. Lone Star Army Ammunition Plant

The High Explosives Burning Ground is located in the center of LSAAP. It has been in use since the late 1940s to destroy items contaminated by high explosives through open burning. Until the mid-1970s, four earthen pits were used as burning areas. These pits were replaced by metal pans at that time. The site is still active, but cleanup must address the contamination (antimony, cadmium, lead, mercury, chromium, selenium, nickel and zinc) left from the burning activities prior to the use of the metal pans. Munitions and Explosives of Concern were identified also beyond the berm area. Phase II sampling found no groundwater contamination requiring cleanup. Soils will be removed from the area and groundwater monitoring began in 2004. Groundwater monitoring will continue because of on-going demolition activities. ⁸

2. Red River Army Depot-West Excess Property

A preliminary assessment of demolition areas was conducted in 2002 under the Military Munitions Response Program. The preliminary assessment identified two closed ranges in the RRAD-WEP. Remedial actions that may include unexploded ordnance (UXO) removal and soil

⁶ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Pages 4-3 to 4-4

⁷ U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Page 4-20

⁸ *Ibid.*, Page 4-22

remediation/removal will be determined following further investigation of the two sites scheduled for 2007.

The Northwest Surveillance Function Test Range is located in the northwest corner of the RRAD-WEP. The area is approximately 22 acres in size and was used between 1953 and 1960. The first known function of the site was for the testing of the "simulator hand grenade M116." Aerial photographic evidence from 1968 indicates that this site was no longer in use. An investigation of the site for munitions and explosives of concern was conducted in April 1996. Recent findings and historical evidence indicate that there is a potential of munitions and explosives of concern at the site, although no metals related to munitions have been detected in the area in excess of background levels.⁹

The Southwest Surveillance Function Test Range is located in the southwest portion of the RRAD-WEP. The exact acreage of the site is unknown and estimates range from 40 to 106 acres in size. The range was operated from the late 1940s into the 1980s. There appears to be two areas on the site where munition items were tested – a mine/grenade stand and a flare/signal stand. A review of historical records indicates that the following munitions and explosives of concern are associated with the site: pyrotechnics, grenade launcher ground signals, hand-held position marker PM-4, grenade fuses, trip flares, and M2 and M16 Series anti-personnel mines.¹⁰

G. EXPLOSIVES

No explosives contamination is expected to be found in the RRAD-WEP with the exception of potential residue in the vicinity of Magazine A7-07, which was destroyed by explosion and fire in 1996. However, explosive residue that has not been characterized or quantified may be present in the igloos. The explosive classification for these buildings is limited, defined as a low possibility of traces of spilled explosives.¹¹

Explosives residue may be present in all parts of the production areas at LSAAP. In addition, industrial and sanitary sewer lines, sumps, and settling tanks remain in the ground and have the potential to be contaminated with explosives residue and/or to have contaminated surrounding soils. These areas have not been characterized or quantified, but a plan has been proposed to sample these areas.¹²

H. STORAGE TANKS

1. Lone Star Army Ammunition Plant

LSAAP has a total of 23 registered and 6 unregistered Underground Storage Tanks (UST). All of the tanks have been removed. All but two of the tanks contained petroleum products and one tank was empty. Six Leaking Underground Storage Tank sites were identified by TCEQ and were located in production areas F, G and I.

⁹ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Page 4-4

¹⁰ *Ibid.*, Page 4-5

¹¹ *Ibid.*, Page 4-11

¹² U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Page 4-72

LSAAP has had a total of 33 Above Ground Storage Tanks of which only 5 are currently active. Three of them are currently being used at a vehicle refueling station and include two 10,000 gallon tanks for gasoline and one 10,000-gallon tank for diesel fuel. The other two ASTs are one 6,000-gallon and one 10,000-gallon tank containing road oil for asphalt.

Four 125,757 gallon tanks were permanently removed due to deterioration and 14 smaller tanks containing diesel were removed at an unknown time. Five boiler houses each have two inactive ASTs. These ASTs have been emptied, cleaned and disconnected from the boilers.

Seventeen Oil/Water Separator Tanks are located on LSAAP. These tanks are partially below-ground tanks for used oil collection and are located adjacent to air compressor buildings and at various vehicle wash and maintenance buildings. All of the tanks are active except one.

Several concrete and/or steel sumps and tanks were constructed at LSAAP during the 1940s for the collection, treatment and/or transfer of "pink water" (water contaminated by explosives). Soil around these tanks has been removed due to the detection of explosives at concentrations above action levels.¹³

2. Red River Army Depot-West Excess Property

No permits for Underground Storage Tanks (UST) or Above Ground Storage Tanks (AST) have been issued for the RRAD-WEP. No current or historic USTs were identified within the RRAD-WEP. No current ASTs were identified within the RRAD-WEP.

Two 7,000-gallon ASTs containing fuel oil were located in the area west of the former OTC hospital. The OTC hospital was located in the northern area of RRAD above Area A of the igloos. It is estimated that the ASTs were removed in the late 1950s or early 1960s based on the fact that the Ordnance Unit Training Center was deactivated in the 1950s. However, there is no documentation available to verify the exact date of the destruction of the hospital. Underground piping from the ASTs is still located within the RRAD-WEP. This piping will have to be removed as part of the remediation plans.¹⁴

I. PETROLEUM PRODUCTS

1. Lone Star Army Ammunition Plant

LSAAP originally had 23 petroleum-containing registered USTs and three known heating oil USTs. According to installation personnel, there are currently no active USTs at LSAAP and all 26 tanks were removed between 1992 and 1995. In addition, a 500-gallon butane backup generator UST was also removed in 1992. In the past, the 26 USTs contained gasoline, diesel, and various fuel oils that were identified by LSAAP. There are currently three permitted ASTs and six additional ASTs in use at LSAAP. Current petroleum product storage at LSAAP includes ASTs containing diesel, gasoline, and fuel oil.

In addition to storage tanks, waste oils including motor oil are generated at LSAAP. Areas that generate waste oil discharge to Oil/ Water Separator Tanks. The waste oil is then pumped out by

¹³ *Ibid.*, Pages 4-8 to 4-11

¹⁴ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Page 4-2

a subcontractor and containerized in 55-gallon drums. Drums are stored at accumulation points located throughout LSAAP. The drums are then disposed of according to applicable regulations.

2. Red River Army Depot-West Excess Property

There is no indication that petroleum products were stored or used in the RRAD-WEP.

J. POLYCHLORINATED BIPHENYLS (PCBS)

1. Lone Star Army Ammunition Plant

Most of the buildings and facilities at LSAAP were opened in 1942. Based on that date the paint used at LSAAP may contain PCBs. No paint surveys have been completed to determine that potential.

All transformers at LSAAP have been sampled for PCB content. Of the 482 transformers inventoried, all contain PCBs at some level; 82 have PCB concentration between 50 and 500 parts per million (ppm) and the remaining have PCB content of 50 ppm or less. Building A-8 is an active permitted storage area for PCB equipment. Excess transformers containing PCBs are stored in this facility until they are disposed. They can be stored in the building for up to one year. In addition to Building A-8, an active transformer storage area is located in the I-39 Yard. None of these transformers contain PCBs.

Two inactive PCB storage areas have also been identified. The first location is the Salvage Yard, near the north central boundary of LSAAP, and the second location was behind the Old Electric Shop (Building G-36). The transformer storage area includes G-110, G-111, and G-112. Transformers in this area were stored on the ground. Following a visual inspection of area G-110, there was no indication of leaks or staining.

Various minor spills of PCBs have occurred as the result of transformer removal and/or maintenance activities. All spills have been remediated by the removal of soils.¹⁵

2. Red River Army Depot-West Excess Property

Electrical, water, and waste water systems at RRAD have been transferred to the Red River Redevelopment Authority. Upon transfer of the utilities, the Army indicated that none of the electrical transformers contained PCBs. There is no historical documentation that identifies any PCB-containing items or spills located in the RRAD-WEP.

K. ASBESTOS

1. Lone Star Army Ammunition Plant

A survey for Asbestos Containing Materials was conducted at LSAAP in 1991. Non-friable asbestos-containing materials are located in roofing and siding throughout the facility. Friable asbestos-containing materials are included in pipe insulation and joints throughout LSAAP. Additional asbestos-containing materials include vinyl floor tiles, fire doors, linoleum flooring, tar roofing and ceiling tiles.¹⁶

¹⁵ U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Page 4-64

¹⁶ *Ibid.*, Page 4-68

2. Red River Army Depot-West Excess Property

In 1989 and 1990, a survey was conducted at RRAD to determine asbestos materials in buildings constructed before 1976. Buildings constructed between 1976 and 1985 were not part of the survey and may contain asbestos. The survey did not include any structures in the RRAD-WEP.

Asbestos-containing material is present in the waterproofing of the igloos. The weather-proofing consisted of multiple layers of tar that contained asbestos and was then covered with earth. The igloo doors are also constructed of asbestos-containing material. ¹⁷

L. LEAD BASED PAINT

1. Lone Star Army Ammunition Plant

Since most of the facilities at LSAAP were constructed in the 1940s, they likely are to contain one or more coats of lead-based paint. No comprehensive survey has been conducted at LSAAP to determine which buildings may have lead-based paint. During a visual inspection of the buildings in 2006, both interior and exterior paint coatings were observed to include multiple paint chips. Due to the operations in some buildings at LSAAP, construction of these buildings includes lead floors. The two water towers at LSAAP have not been painted with lead-based paint.

2. Red River Army Depot-West Excess Property

In 1978, the Department of Defense (DoD) banned the use of lead-based paint. Most of the buildings and structures at RRAD were built prior to this time and likely are to contain one or more coats of lead-based paint. Lead-based paint was used on the inside of the igloo doors. During the visual inspection that was conducted in 2006, it was observed that the paint showed minor cracking and peeling.

M. PERMITS

1. Lone Star Army Ammunition Plant

LSAAP currently manages hazardous waste in accordance with the RCRA permit for Solid Waste Management. LSAAP is a large quantity generator. There are currently 12 RCRA permitted units and several temporary storage units (less than 90 days). The permit is scheduled to expire in September 2013.

LSAAP has a permitted storage area, the Hazardous Waste Container Storage Facility. It was built at the High Explosive Burning Ground to allow for storage of more than 90 days. The permit allows LSAAP to open burn/open detonate items produced in the line areas at the High Explosive Burning Ground and at the High Explosive Detonation Ground.

LSAAP currently has a National Pollution Discharge Elimination System permit and a corresponding permit with TCEQ. The contractor at LSAAP is currently in the process of renewing the permit. LSAAP has six permitted discharge locations, of which only five currently are in use. Discharges are made in the Sulphur River, to a sanitary sewer or Wright Patman Lake.

¹⁷ U.S. Army BRAC 2005, Environmental Condition of Property Report, Red River Army Depot, Texarkana, TX, URS, November 30, 2006, Page 4-9

LSAAP operates a non-transient/non-community water system permitted by TCEQ. The facility contractor holds the permit under the Clean Air Act. They currently are in attainment for all criteria pollutants. A list of LSAAP active permits are contained in Table 5-1

Table 5-1
Regulatory Permits
Lone Star Army Ammunition Plant

| | |
|--|--|
| RCRA for Industrial Solid Waste Management Large Quantity Generator: | Permit No. HW-50292-001; (Exp.9-15-13) Identification No. TX-7213821631 |
| RCRA-Part D for Area A Landfill | Permit No. MSW-1898 |
| National Pollutant Discharge Elimination System | Permit No. TX0000124 |
| Texas Pollutant Discharge Elimination System | Permit No. WQ 0002263000 |
| Texas Pollutant Discharge Elimination System, General Permit for Stormwater Discharge | Permit No. TXR050000 |
| Stormwater | Permit Nos. TXR05L095 and TX R158473 |
| Public Water Supply System | TCEQ Permit No. 0190087 |
| U.S. Nuclear Regulatory Commission | ARA No. P42-142918-11-LSAAP |
| Clean Air Permits held by Day and Zimmerman Operating Permit | Permit No. 989 |
| Replacement of Halogenated Solvent Degreasing Fluid Degreasers | Standard Permit No. 73873 Construction Permit No. 38095 |
| Pollution Control Project | Standard Permit No. 71558 |
| Grand-fathered Facility Permit | Permit No. 56227 |

Source: Environmental Condition of Property Report, Lone Star Army Ammunition Plant,
Texarkana, TX, URS, October 18, 2006, Pages 4-1 to 4-7

2. Red River Army Depot-West Excess Property

The Ordnance Training Center Landfill is the only authorized RCRA unit located within the RRAD-WEP. Compliance monitoring will last until at least December 2013. The RRAD currently has a National Pollution Discharge Elimination System permit and a corresponding permit with TCEQ. The RRAD-WEP has two permitted storm water monitoring points located in the area of the Ordnance Training Center Landfill. No other permits impact the RRAD-WEP.

A list of active permits at RRAD are contained in Table 5-2

Table 5-2
Regulatory Permits
Red River Army Depot

| | |
|--|---|
| RCRA for Industrial Solid Waste Management Large Quantity Generator | Permit No. HW-50178-000 (Exp. 2011) Identification No. TX-3213820738 |
| OTC Landfill Compliance (Long-term Monitoring Until 12/36) | TCEQ Unit No. 11 |
| National Pollutant Discharge Elimination System | Permit No. TX0000132 |
| Texas Pollutant Discharge Elimination System | Permit No. WQ 0002206000 |
| Texa Pollution Discharge Elimination System | General Permit No. TXR05000 |

Source: Environmental Condition of Property Report, Red River Army Depot,
Texarkana, TX, URS, November 30, 2006, Pages 4-1 to 4-3

N. NUCLEAR REGULATORY COMMISSION LICENSES

1. Lone Star Army Ammunition Plant

LSAAP was a major site for the assembly of Light Anti-Tank Weapons (LAW) from 1961 to 1977. LAWs contained Promethium Sights, which contained 3 millicuries of Promethium-147. Promethium-147 has a half-life of 2.64 years. Based on the information concerning dates of assembly, Promethium-147 has decayed through more than 10 half-lives. There is no indication that any explosions occurred during the production of the LAWs and that no LAWs were buried.

LSAAP held two Nuclear Regulatory Commission Licenses for sealed sources related to non-destructive testing and quality control. One license was terminated in September 1987 and the other in September 1993. There are remaining nuclear materials that are held at LSAAP under the Army Radiation Authority. Closeout for these materials will be required when operations at LSAAP are terminated. The radioactive materials are: Polonium-210, Cesium-137, depleted Uranium, Nickel-63, Tritium, Sodium-22, Manganese-54, and Cobalt-58. ¹

2. Red River Army Depot-West Excess Property

No permitted radiological activities are associated with the RRAD-WEP.

O. OTHER

1. Lone Star Army Ammunition Plant

- LSAAP has a Pest Management Plan that uses a variety of pesticides and herbicides. Building BB-27 was used for the storage and mixing of pesticides and herbicides.
- Each of the production areas at LSAAP contained unlined pink water settling ponds during WWII. While the pink water settling ponds at production areas G and O have been identified, the remaining areas have not been identified. The potential for explosives contamination remains in areas B, C, E, F, G, J, K, M, O, and R. The proposed sampling plan will focus on characterization of these areas.
- Historically, building decontamination at LSAAP consisted of washing down explosive load line operating equipment and then sweeping the wash water out of the buildings and onto the surface areas located near the buildings. The potential for explosives contamination near doorways and all exterior openings exist. The sampling plan will look at the potential for these contaminants.
- Wastewater from demilling and production operations was routinely discharged at unlined pits in the ground at LSAAP, as well as sumps and settling basins. Wastewater contained explosives residues, oil and grease, heavy metals and solvents. The unlined pits, sumps and settling basins were located throughout the installation, but high concentrations were in Areas B, C, D, E, F, G, J, K, M, P, Q and R. The pits were usually connected to ditches, which acted as drains for overflow. The disposal of these contaminated wastewaters into unlined pits and ditches may have resulted in contaminated soils in these areas. Most of the pits and ditches have been filled in, but not closed under any

¹ U.S. Army BRAC 2005, Environmental Condition of Property Report, Lone Star Army Ammunition Plant, Texarkana, TX, URS, October 18, 2006, Page 4-70

approved environmental restoration plan. Many of the sumps and settling basins have been identified and closed or removed in accordance with standard environmental practices. However, the contaminated soil surrounding the sumps and basins has not been addressed. The sampling plan will characterize the presence or lack of these wastes.

- Area BB in the northwest corner of LSAAP has several identified historical buildings. No closure information has been provided concerning these buildings and there is a potential for explosives, VOCs, SVOCs, POL and metals contamination around or underneath these old building foundations.
- A carload of 37mm high explosives exploded in C-line at LSAAP. Munitions and explosives of concern are possible in this area.
- The Oil/Water Separators (OWS) have historically been a concern at LSAAP. The potential for release of oil from the OWS, particularly those installed in the 1940s and 1950s, to soil, groundwater and surface waters is probable.
- Several chemical burial sites have been identified on LSAAP. With one exception, these sites have not been investigated.
- Mercury contamination may exist within sewer drainpipes located in the hospital area, located along the northern boundary of LSAAP.
- Two explosive accidents occurred in 1969 at LSAAP, one at Area T, Igloo 3, Row 2 and the other in Area V, Igloo 7, Row 3. Signs posted in each of these areas indicate that there is a potential for explosive contamination. Based on this information, a potential for munitions and explosives of concern contamination may exist.

2. Red River Army Depot-West Excess Property

There is a very remote possibility that Chemical Agent Identification Sets could be found on the RRAD-WEP. Although no historic documentation indicates any evidence of this situation since the deactivation of the Ordnance Unit Training Center in the 1950s. If they were used on the site, it was common practice to bury these sets following use. The U.S. Army is in the process of identifying where these sets were used and removing the sets for proper disposal when found.

The RRAD has a Pest Management Plan. The pest control facility is not located in the RRAD-WEP. In the early 1990s approximately 300 gallons of herbicide was spilled on an arterial road on the RRAD-WEP. The contaminated soil was removed and there is no indication that any contamination remains as a result of the spill.

Radon is not a concern at the RRAD-WEP or LSAAP.

P. CONCLUSIONS

1. Lone Star Army Ammunition Plant

The Munitions and Explosives of Concern at LSAAP are typical of other ammunition plants located throughout the country, where successful remediation has already occurred. The methods for remediation of these lands are well documented. The geology at LSAAP is such that groundwater contamination should not be an issue. It is suspected that no large groundwater plumes currently exist and no migration of contaminated groundwater has occurred previously at LSAAP.

Assessments for munitions and explosives of concern will be conducted at several areas at LSAAP. Based on known information about LSAAP remediation, while it will take some time, should be straightforward and conventional.

2. Red River Army Depot-West Excess Property

The RRAD-WEP is scheduled for transfer has had little or no use, and therefore, the environmental impacts are negligible. The test ranges have been identified and will be characterized. The remaining areas that have yet to be characterized are small in area and isolated. There should be no unique issues that would prevent remediation of these sites.

FACTORS INFLUENCING THE ACHIEVEMENT OF BASE REUSE GOALS

- **Encourage Coordination with Texas Commission on Environmental Quality (TCEQ)** – The RRRRA has worked closely with the TCEQ to prepare for the early transfer of both LSAAP and RRAD-WEP.
- **Initiate an Early Transfer** – The RRRRA is preparing to undertake a full characterization of the LSAAP and RRAD-WEP. In conjunction with the Department of the Army and the TCEQ, an early transfer is being pursued.