U.S. ARMY CORPS OF ENGINEERS
FORT WORTH DISTRICT

# REMEDIAL INVESTIGATION REPORT

Former Laredo Air Force Base Shotgun Range Site
FUDS Project Number: K06TX021308

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# ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ABS.d | dermal absorption factor |
| ADAS | age-dependent adjustment factor |
| amsl | above mean sea level |
| APAR | Affected Property Assessment Report |
| AT | averaging time |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| B(a)P | Benzon(a)pyrene |
| BRA | baseline risk assessment |
| CDI | chronic daily intake |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COPC | chemical of potential concern |
| CSM | Conceptual Site Model |
| DPT | direct-push technology |
| DU | decision unit |
| EC | Exposure calculation |
| ED | exposure duration |
| EPC | exposure point concentration |
| °F | degrees Fahrenheit |
| FS | Feasibility Study |
| FSI | Focused Site Inspection |
| ft bgs | feet below ground surface |
| FUDS | Formerly Used Defense Sites |
| gpm | gallon per minute |
| $^{GW}GW$ | Groundwater PCL |
| $^{GW}GW_{Class3}$ | Groundwater PCL for a Class 3 Groundwater |
| $^{GW}Soil$ | PCL for Surface and Subsurface Soil to Protect Groundwater |
| $^{GW}Soil_{Class3}$ | PCL for Surface and Subsurface Soil to Protect Class 3 Groundwater |
| HEAST | Health Effects Assessment Summary Tables |
| HHRA | human health risk assessment |

| | |
|---|---|
| HI | hazard index |
| HQ | hazard quotient |
| IDW | investigation-derived waste |
| IRIS | Integrated Risk Information System |
| ISM | Incremental Sampling Methodology |
| ITRC | Interstate Technology and Regulatory Council |
| IUR | Inhalation Unit Risk |
| LAFB | Laredo Air Force Base |
| LIA | Laredo International Airport |
| $\mu g/m^3$ | microgram per cubic meter |
| mg/kg | milligram per kilogram |
| mg/kg-day | milligram per kilogram of body weight per day |
| mg/L | milligram per liter |
| NCP | National Contingency Plan |
| PAH | polycyclic aromatic hydrocarbon |
| PbB | blood lead level |
| PCL | Protective Concentration Level |
| PEF | particulate emission factor |
| ppm | parts per million |
| PPRTV | Provisional Peer-Reviewed Toxicity Value |
| RAGS | Risk Assessment Guidance for Superfund |
| RAL | Residential Assessment Level |
| RBAF | Relative Bioavailability Factor |
| RCRA | Resource Conservation and Recovery Act |
| RfC | reference concentration |
| RfD | reference dose |
| RI | Remedial Investigation |
| ROE | right of entry |
| ROW | right-of-way |
| RPF | relative potency factor |
| RRR | Risk Reduction Rule |

| | |
|---|---|
| RRS2 | RRR Standard No. 2 |
| SARA | Superfund Amendments and Reauthorization Act |
| SCAPS | Site Characterization and Analysis Penetrometer System |
| SF | slope factor |
| SGR | Shotgun Range |
| SLERA | screening level ecological risk assessment |
| SPLP | synthetic precipitation leaching procedure |
| SSL | soil screening level |
| TAC | Texas Administrative Code |
| TCEQ | Texas Commission on Environmental Quality |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TDS | total dissolved solids |
| $^{Tot}Soil_{Comb}$ | PCL for the combined exposure pathway of soil ingestion, dermal contact, inhalation volatiles and particulates, and ingestion of aboveground and below-ground vegetables |
| TRRP | Texas Risk Reduction Program |
| TSCA | Toxic Substances Control Act |
| UCL | Upper Confidence Limit |
| U.S. | United States |
| USACE | United States Army Corps of Engineers |
| USEPA | United States Environmental Protection Agency |
| USGS | United States Geological Survey |
| VF | volatilization factor |
| WDA | Waste Disposal Area |

# EXECUTIVE SUMMARY

Arcadis U.S., Inc. (Arcadis) prepared this Remedial Investigation (RI) Report for the Former Laredo Air Force Base (LAFB) Shotgun Range (SGR; the site) on behalf of the United States (U.S.) Army Corps of Engineers (USACE), Fort Worth District under Contract Number W912PP-10-D-0022 (Task Order Number DY01). The LAFB is eligible for Formerly Used Defense Sites (FUDS) funding based on its former use by the Department of Defense. FUDS projects are required to follow the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. This RI Report is consistent with the United States Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (USEPA 1988). In addition, because the site is in Texas, certain requirements of the Texas Risk Reduction Program (TRRP) Rule (30 Texas Administrative Code, Chapter 350) have been included with CERCLA requirements for defining the nature and extent of contamination. The RI was conducted in accordance with the field investigation procedures presented in the Final Shotgun Range Remedial Investigation Work Plan, except for field changes that were required based on the site conditions.

The SGR was operated from 1942 to 1947 to train gunnery crews in the use of different types of machine guns and small arms, and the original northward facing firing line for the skeet ranges was located along the present-day East Hillside Road. However, based on aerial photographs, two of the World War II skeet ranges along East Hillside Road appear to have been active during the reactivation of LAFB for the Korean War in 1952 and into the early 1960s. The site is now primarily occupied by residential properties, with commercial properties along the eastern and western boundaries.

The overall objective of the RI was to determine the extent and risk of chemicals of potential concern (COPCs) in soil present at the site as a result of previous land use. (A COPC is any chemical that has been released at a site that has the potential to be harmful to human or ecological receptors.) COPCs investigated during the RI were polycyclic aromatic hydrocarbons (PAHs) and lead. RI investigation activities included performing Incremental Sampling Methodology (ISM) soil sampling at 91 decision units (DUs) to evaluate the current exposure scenario; discrete soil sampling in nine planting beds to evaluate special use areas; soil boring installation and composite sampling to a depth of 12 feet below ground surface (ft bgs) within the front yards of 49 DUs, to evaluate the future exposure scenario and provide vertical delineation; and sampling within the street right-of-way (ROW) south of East Hillside Road. Groundwater was assessed during earlier investigations at the site, and those results are relied upon for the RI.

To determine the extent of COPCs in environmental media at the site, the analytical results obtained during the RI were compared to TRRP risk-based Protective Concentration Levels (PCLs). (The Texas Commission on Environmental Quality [TCEQ] defines a PCL as the concentration of a COPC that can remain in the environment and not cause adverse health effects to human or ecological receptors.) Analytical results were compared to both the Tier 1 PCLs (conservative, non-site-specific PCLs published by the TCEQ) and the Tier 2 PCL developed for lead based on the soil to groundwater leaching pathway. The comparisons of analytical results to the PCLs were used to develop the limits of the Affected Property. Although Tier 2 PCLs were developed for the direct exposure pathway for certain PAHs based on inputs from the 2014/2015 PAH Bioavailability Study, because the SGR follows the CERCLA process, a baseline risk assessment was performed to determine whether COPC concentrations represent an unacceptable risk or hazard. Therefore, critical PCLs were not determined, and no Tier 2 PCLs for the direct exposure pathway are presented in this RI Report. Instead, the RI analytical results were used to complete the human health risk assessment (HHRA) and the screening level ecological risk assessment (SLERA) for the site. The TRRP PCL screening was used solely to determine which of the COPCs required evaluation in the HHRA, and for certain PAHs, the inputs from the 2014/2015 PAH Bioavailability Study were used in the calculation of cancer risks and non-cancer hazards in the HHRA. Site-specific dermal absorption fractions (ABS.d) and the relative bioavailability factors (RBAFs) for carcinogenic PAHs were incorporated into the daily intake estimates used to calculate potential risks to human health.

The findings of the RI are as follows:

- The uppermost groundwater-bearing unit below the SGR is classified as Class 3 groundwater under TRRP. Class 3 groundwater resources are not considered usable as sources of drinking water. No PAH constituents were detected in groundwater samples collected from the site. Metal constituents were either not detected or were present at concentrations below the residential Tier 1 Class 3 groundwater PCLs.
- Horizontal and vertical delineation of COPCs to residential assessment levels (RALs) was completed using ISM and soil boring results. Although assessment levels are used to determine the extent of environmental media affected by releases of COPCs, they are not cleanup levels and are not used to determine the extent of environmental media requiring a remedy.
    - All COPCs identified as part of the LAFB SGR RI were fully delineated horizontally and vertically.
    - Benzo(a)pyrene was used as an indicator compound for PAHs, and concentrations above the RAL were delineated within the site boundary.
    - Lead was detected at a concentration above the RAL in only one of the 964 samples collected from the site during the RI.
- Two Affected Property areas were identified based on the COPC delineation. The Affected Properties include non-sampled DUs adjacent to DUs with sample results exceeding the RAL and backyards of DUs within the High Probability Target Fragment Area, which are adjacent to DUs with RAL exceedances from the soil boring data set**.**
- Several PAHs and lead were identified as COPCs in soil and evaluated in the HHRA.
- The hazard indices (HIs) for direct contact exposure to PAHs in soil at all evaluated DUs are equal to or less than the target HI of 1 for current/future residents.
- The excess lifetime cancer risks for current/future residents at each evaluated DU are within the National Contingency Plan’s acceptable risk range of 1E-06 to 1E-04.
- Lead was evaluated at all DUs sampled, and concentrations in soil are unlikely to represent a health concern.
- A Screening Level Ecological Risk Assessment in the form of a Tier 1 Ecological Exclusion Criteria Checklist was completed for the site. The SGR meets the Tier 1 Exclusion Criteria, and further ecological evaluation is not warranted.

The conclusion of this RI is that delineation of COPCs has been completed, and no further investigation of the site is required. Because the existing concentrations of COPCs at the site do not pose carcinogenic risk or non-carcinogenic hazard to human health that exceed regulatory levels of concern under CERCLA, no response action will be required at the SGR, and a Feasibility Study will not be performed. It is therefore recommended that the site proceed with additional steps required to complete the CERCLA process including establishing the administrative record and public repository, preparing a Proposed Plan, performing public participation tasks, and preparing the Decision Document.

# 1 INTRODUCTION

This Remedial Investigation (RI) Report describes the field investigation conducted by Arcadis U.S., Inc. (Arcadis) at the former Laredo Air Force Base (LAFB) Shotgun Range (SGR; the site) for the United States (U.S.) Army Corps of Engineers (USACE), Fort Worth District under Contract Number W912PP-10-D-0022 (Task Order Number DY01). The RI was conducted in accordance with the field investigation procedures presented in the Final Shotgun Range Remedial Investigation Work Plan (Arcadis/Mirador 2015), except for field changes that were required based on the site conditions.

## 1.1 Objectives and Scope of Investigation

The overall objective of the RI was to determine the extent and risk of chemicals of potential concern (COPCs) in soil present at the site as a result of previous land use. A COPC is any chemical that has been released at a site that has the potential to be harmful to human or ecological receptors. The results of the RI presented in this report are used to update the conceptual site model (CSM) for the site and to evaluate the potential for risk to human health from COPCs in soil. The RI results will also be used in the future to present technical conclusions to the stakeholders. This RI report is being provided to the Texas Commission on Environmental Quality (TCEQ) and the City of Laredo.

## 1.2 Chemicals of Potential Concern

As described in the Shotgun Range Remedial Investigation Work Plan, dated July 2015 (Arcadis/Mirador 2015), the results of the Focused Site Inspection (FSI) were used to develop the RI COPC list. The COPCs for the SGR include antimony, arsenic, lead, and select polycyclic aromatic hydrocarbons (PAHs).

Antimony and arsenic are common hardening agents for lead shot and are present in shot at low levels (between approximately 0.5 and 1 percent). Without impacts to soil from lead associated with lead shot, no adverse impacts are expected from trace hardening agents such as antimony and arsenic. While antimony and arsenic were also found at concentrations above Protective Concentration Levels (PCLs) at the SGR, each occurrence was collocated with lead concentrations above the PCL. As such, lead is a proxy for arsenic and antimony, and lead was the only metal analyzed for in the soil samples collected during the RI.

The following 17 PAHs were analyzed for during the RI:

| | |
|---|---|
| Acenaphthene | Benzo(k)fluoranthene |
| Acenaphthylene | Chrysene |
| Anthracene | Dibenz(a,h)anthracene |
| Benz(a)anthracene | Fluoranthene |
| Benzo(a)pyrene | Fluorene |
| Benzo(b)fluoranthene | Indeno(1,2,3-cd)pyrene |
| Benzo(e)pyrene | Phenanthrene |
| Benzo(g,h,i)perylene | Pyrene |
| Benzo(j)fluoranthene | |

## 1.3 Regulatory Framework

The Former LAFB is eligible for Formerly Used Defense Sites (FUDS) funding based on its former use by the Department of Defense. The project falls within the geographic boundaries of the USACE Fort Worth District, which is responsible for the overall management of the project. FUDS projects are required to follow the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. This RI Report is consistent with the U.S. Environmental Protection Agency (USEPA) Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (USEPA 1988).

Although this RI was performed under CERCLA, the Former LAFB is located in Texas. In Texas, assessments and any subsequent response to a release of COPCs to the environment are implemented in accordance with the requirements of the Texas Risk Reduction Program (TRRP) Rule (30 Texas Administrative Code, Chapter 350). Therefore, certain requirements from the TRRP have been included with CERCLA requirements for defining the nature and extent of contamination at the SGR and in preparation of this report as follows:

- PCLs. The PCL is a concentration of a COPC that can remain in the environment and not cause adverse health effects to human or ecological receptors. TRRP PCLs are determined using a tiered process that includes: Tier 1, in which generic (non-site specific) PCLs are established using equations and input parameters specified in the rule and are published by the TCEQ; Tier 2, in which PCLs are established using equations provided in the rule and guidance and site-specific input parameters; and Tier 3, in which PCLs are established using user-defined PCL equations/input variables, providing the greatest number of site-specific considerations.

- COPC Screening. TRRP residential PCLs were used to screen analytical results obtained during the RI and are included in the report data tables and figures. Analytical results were compared to both residential Tier 1 PCLs and the residential Tier 2 PCL developed for lead for the soil-to-groundwater leaching pathway.

- Horizontal Delineation. Constituent concentrations were delineated horizontally to the TRRP Residential Assessment Levels (RALs; the lowest, most conservative PCLs for human receptors). For the SGR, the RALs were based on the Tier 1 residential direct exposure PCLs. **Section 4.2.1** presents a detailed discussion of the RALs. **Figures 1-1** through **1-4** presents the extent of the Affected Property, which is the extent of environmental media containing concentrations above the RALs.

- Critical PCLs. In TRRP, the critical PCL is the lowest protective concentration level for a COPC within a source medium and is determined from all of the applicable human health exposure pathways. Critical PCLs are used to determine when and where a response action is necessary for a site within the TRRP. As discussed in **Section 1.4.3.7**, Tier 2 PCLs were developed for the direct exposure pathway for certain PAHs based on inputs from the 2014/2015 PAH Bioavailability Study. However, because the SGR follows the CERCLA process, a baseline risk assessment was performed to determine whether COPC concentrations represent an unacceptable risk or hazard instead of using critical PCLs. Therefore, critical PCLs were not determined, and no Tier 2 PCLs for the direct exposure pathway are presented in this RI Report.

A baseline human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA) have been performed to meet CERCLA requirements and are included in this report. The TRRP PCL screening was used to determine which of the COPCs required evaluation in the HHRA. In addition, for certain PAHs, the inputs from the 2014/2015 PAH Bioavailability Study were used in the calculation of cancer risks and non-cancer hazards in the HHRA. As discussed in **Section 6**, site-specific dermal absorption fractions (ABS.d) and the relative bioavailability factors (RBAFs) for carcinogenic PAHs were incorporated into the daily intake estimates used to calculate potential risks to human health.

## 1.4 Site Background

### 1.4.1 Site Location and Description

The SGR is part of the Former LAFB in Laredo, Webb County, Texas. The site is located approximately 0.5 mile west of the Laredo International Airport (LIA; 99°28'38.17"W and 27°32'46.942"N). The site is bounded by McPherson Road on the west, Hibiscus Avenue on the north, Daugherty Road on the east, and East Hillside Road on the south. The site location map is presented on **Figure 1-1**.

The land was formerly owned and operated by the U.S. Army Air Force as a gunnery training school from 1942 to 1947. However, based on aerial photographs, two of the original skeet ranges along East Hillside Road appear to have been active during the reactivation of the facility by the U.S. Air Force as the LAFB in 1952 and into the early 1960s. The LAFB was deactivated in 1973, and the site was developed for residential and commercial use. The former SGR land is a 52.1-acre site currently owned by multiple residential and commercial landowners and the City of Laredo.

### 1.4.2 Operational History

#### 1.4.2.1 Laredo Army Air Base

In 1942, the U.S. Government acquired 2,085 acres of land northeast of the City of Laredo for use as an Army Air Force gunnery school during World War II. The site was initially named the Laredo Army Airfield and later renamed the LAFB. LAFB was used for aviation training from 1942 until the installation was decommissioned in 1947. LAFB was reactivated for the Korean War in 1952 and again was used for aviation training until 1973, when the military installation was permanently deactivated, and the land was transferred. The Former LAFB is presently used as the LIA, residential subdivisions, an elementary school, a church, city offices, and commercial and industrial properties.

#### 1.4.2.2 Shotgun Range

A site chronology for the SGR is presented in **Table 1-1**. The SGR, which was a part of the LAFB, was operated as a gunnery training area during World War II. The gunnery crews were trained to fire at moving targets using shotguns at the SGR portion of the facility. Crews were subsequently trained in the use of different types of weaponry (e.g. machine guns) at other training areas not located at the SGR. Based on historical aerial photographs, the original firing line was located along the present-day East Hillside Road, with the firing line facing north. The SGR firing line extended from present-day Cypress Drive on the west to North Bartlett Road on the east (**Figure 1-2**). Primary use of the SGR for aerial gunnery training was from 1942 to 1947. However, based on aerial photographs, two of the skeet ranges along East Hillside Road appear to have been active during the reactivation of LAFB for the Korean War in 1952 and into the early 1960s (**Figure 1-3**).

The conceptual layout of the SGR is presented on **Figure 1-4** with current land use. The likely fan area aligned in 15 semicircles with 50-foot radii. Generally, shotgun ranges at air stations during the World War II timeframe were used to train personnel with simulation of aerial combat by firing at moving targets. Clay targets were launched laterally across the skeet field from the high and low skeet houses, and personnel would fire at them. In this case, personnel fired north. Skeet ranges typically are established with a surface danger zone, which represents the maximum distance lead pellets fired from a shotgun could potentially travel from the firing point (Interstate Technology and Regulatory Council [ITRC 2003]). The majority of lead pellets fired at a skeet range fall within the "High Probability Shot Area," usually found between 375 and 600 feet from the firing point and indicated by the orange arc on **Figure 1-4**. At the SGR, the maximum distance at which lead pellets were expected to be found is indicated by the green arc on **Figure 1-4**.

Target fragments were expected to be found between 65 and 260 feet from the firing point, indicated by the yellow arc on **Figure 1-4.** The light blue arc on the figure indicates the "Maximum Target Fragment Line;" this is the location at which the most target fragments were expected to be found at the site. This layout is typical of historical, as well as current, skeet range boundaries (ITRC 2003).

#### 1.4.2.3 Property Release

By the 1970s, the SGR property was still owned by the U.S. Government and had been developed into a golf course. The U.S. Government released the SGR property in 1974. Construction of residential subdivisions, roads, and a school began in approximately the mid-1980s. The site now primarily consists of residential properties located within the Vista Hermosa Subdivision and includes commercial properties along the eastern and western boundaries.

### 1.4.3 Previous Investigations

#### 1.4.3.1 CH2M Hill Site Inspection

The USACE Tulsa District contracted CH2M Hill to conduct a Site Inspection for the SGR. The Site Inspection field work took place between May and June 1999, and the Site Inspection Report was finalized in July 2000. During the Site Inspection, 33 soil samples were analyzed for total lead, eight of which were also analyzed for lead by the synthetic precipitation leachate procedure (SPLP). The analytical results for the soil samples were compared to the Texas Natural Resource Conservation Commission Risk Reduction Rule (RRR) Standard No. 2 (RRS2) medium-specific concentrations. Lead was detected in soil, and one sample result exceeded the residential RRS2. The soil samples with the highest concentrations of lead were collected within the vicinity of the original firing line (north of East Hillside Road). The Site Inspection report stated that it was suspected that a "piece of lead shot or fragment of bullet within the aliquot of soil [was] analyzed by the laboratory." (CH2MHILL, 2000) Based on the results of the SPLP analyses, the Site Inspection Report concluded that "significant leaching of the lead into the subsurface is not taking place." The report concluded that lead migration to groundwater was not likely as a result of the presence of clay and caliche, the soil pH, and the limited rainfall in the area.

#### 1.4.3.2 2003 Malcolm Pirnie Environmental Investigation

The USACE Tulsa District contracted Malcolm Pirnie, Inc. (Malcolm Pirnie) to perform a series of environmental investigation activities at the SGR in 2003, which included a Site Characterization and Analysis Penetrometer System (SCAPS) investigation in May, groundwater monitoring well installation and groundwater sampling in June, a yard sampling investigation in September, and a trenching investigation for clay fragments in October. Results were documented in two reports prepared by Malcolm Pirnie (Malcolm Pirnie 2004a and 2004b). Each of these investigations is discussed below.

##### *1.4.3.2.1 May 2003 SCAPS Investigation*

In May 2003, 24 soil samples were collected from eight soil borings installed using a SCAPS in the street rights-of-way (ROWs) within the SGR site boundary. The soil samples were analyzed for lead.

The highest concentration of lead detected from the soil samples collected during the May SCAPS investigation was 34.8 milligram per kilogram (mg/kg) at boring SGR04 from 10 to 12 feet below ground surface (ft bgs). This concentration did not exceed the RRS2 residential screening level of 150 mg/kg, based on groundwater with a total dissolved solids (TDS) concentration greater than 10,000 milligrams per liter (mg/L).

##### *1.4.3.2.2 June 2003 Groundwater Investigation*

Four monitoring wells were installed on June 6 and 7, 2003 in the SGR. Borings were installed using hollow-stem auger techniques. Sixteen soil samples were collected during the installation of the monitoring wells and analyzed for lead and arsenic.

Three of the monitoring wells were completed to 20 ft bgs, and one well was completed at 15 ft bgs. During drilling, groundwater was encountered between 6 and 8 ft bgs in two wells and between 7 and 9 ft bgs in the other two wells. The elevation of the uppermost groundwater at the site ranged between 441.83 ft and 472.15 ft above mean sea level (amsl) in June 2003. The general shallow groundwater flow direction was to the west with a gradient of approximately 0.02 foot/foot.

A discussion of the groundwater sampling results is presented in **Section 4.3.3** of this report.

##### *1.4.3.2.3 September 2003 Yard Investigation*

Yard sampling took place between September 17 and 19, 2003. The yard sampling program was dependent on the number of right of entry (ROE) approvals gained at the public meeting in May 2003. During the sampling event, 97 surface soil samples were collected from 47 residences in and around the former shooting ranges. A minimum of two samples was collected from residences within the ranges, and generally one sample was collected at each residence outside the range boundaries.

Results indicated the following:

- Approximately 50% of the surface soil sample results exceeded state background concentrations for lead (15 mg/kg), arsenic (5.9 mg/kg), and mercury (0.04 mg/kg). However, the state background concentration for each of these metals is less than the RAL for human health direct contact exposure.
- Results from one subsurface sample exceeded state background concentrations for lead.
- Fragments of clay pigeon targets were visible in several areas that were sampled.

##### *1.4.3.2.4 October 2003 Trenching Investigation for Clay Target Fragments*

On October 24, 2003, eight test pits were excavated, and surface soil samples were collected to determine the presence of clay target fragments. If fragments were present, the objective was to obtain representative soil and clay target fragment samples. The test pits were excavated to a maximum depth of 4 ft bgs or to a depth with a visible layer of clay target fragments. Soil samples were collected from the clay target fragment/soil interface and from 3, 6, and 12 inches below the interface. The interface sample was sieved in the field using a No. 4 sieve. The sieved clay target fragment aliquot was analyzed for lead and PAHs, and the soil samples were analyzed for PAHs by SPLP.

Clay target fragments were not found in the first two test pits excavated in the backyard of the home on Wildrose Circle. Another test pit was excavated near the fence in the backyard. Scattered clay target fragments were observed, and a sample was collected. No fragments were observed in a hand auger boring installed in the front yard. However, a surface soil sample and a clay target fragment sample were collected from below the hedges along the eastern property boundary, approximately 15 ft from the edge of the street, where fragments were visible.

Three test pits were excavated in the City ROW along East Hillside Road. The three test pits showed only superficial, scattered clay target fragments. The center test pit, located approximately 23 to 26 ft south of the corner of Greenway Lane and Dogwood Avenue, was sampled.

#### 1.4.3.3 2004 Additional Malcolm Pirnie Investigation Activities

An additional sampling effort was performed to delineate the horizontal and vertical extent of soil and clay target fragment layers on Wildrose Circle and Dogwood Avenue, near East Hillside Road. Between February 24 and 25, 2004, soil samples were collected from 29 locations along the City of Laredo ROW at the SGR. Visible pieces of clay target fragments and shot were removed from the samples before placing soil in the sample jars, and the samples were analyzed for PAHs and metals. Concentrations of PAHs were greater than the TRRP Tier 1 residential PCLs. Surface samples of clay target fragments were also collected from one home (1401 Hibiscus Lane) and two locations on the City ROW on Cactus Drive and Dogwood Avenue north of East Hillside Road and south of Wildrose Lane. The clay target samples were analyzed for PAHs and Resource Conservation and Recovery Act (RCRA) Metals by the SPLP Method (SW-846 Method 1312), the Toxicity Characteristic Leaching Procedure (TCLP) Method (SW-846 Method 1311), and the 7-Day Leachate Test Method (Texas Method published in 30 Texas Administrative Code [TAC] Chapter 335 Subchapter R, Appendix 4).

#### 1.4.3.4 2005 Groundwater Sampling

Groundwater samples were collected from the four SGR groundwater monitoring wells in March 2005. During this sampling event, the elevation of the groundwater at the site ranged between 443.2 ft and 474.2 ft amsl. The general shallow groundwater flow direction was to the west, with a gradient of approximately 0.02 ft/ft. Arsenic, lead, mercury, and PAHs were either not detected in the groundwater samples or were present at concentrations below their respective Tier 1 PCLs. A detailed discussion of the groundwater sampling results is presented in **Section 4.3.3** of this report.

#### 1.4.3.5 2008 Malcolm Pirnie Bioavailability Evaluation Development Report

The Bioavailability Evaluation Development Report (Malcolm Pirnie 2008a) was prepared to summarize current bioavailability approaches for assessing exposure to PAHs and other complex organic compounds. If a chemical is not bioavailable, it would not enter the bloodstream of human or ecological receptors and would not circulate to specific organs or tissues. The chemical would therefore not be harmful to the receptor. The document served as a research reference summarizing Malcolm Pirnie's finding concerning the likelihood of successfully developing an approach for a site-specific study to evaluate the bioavailability of PAHs in fragments of clay targets from the SGR, to determine whether the PAHs present in the clay target fragments may be harmful to people currently living and working at the site. The report was submitted to the TCEQ to receive official comments on the bioavailability approach.

#### 1.4.3.6 2010 Malcolm Pirnie FSI

The USACE Tulsa District contracted Malcolm Pirnie to perform an FSI at the SGR site (Malcolm Pirnie 2010). The overall objective of the FSI was to assess the presence of COPCs in soil from previous land use and evaluate the potential exposure of residents to those COPCs. COPCs were the metals typically used in ammunition (antimony, arsenic, copper, lead, and zinc) and PAHs found in coal tar and petroleum pitch, which were typically used to produce clay targets at the time during which the SGR was active. The PAHs included: acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(e)pyrene, benzo(g,h,i)perylene, benzo(j)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.

Soil samples were collected during the FSI to:

- Determine if COPCs are present in the adherable fraction of soils particles (250-micron size or less) at concentrations above the TCEQ TRRP Tier 1 Residential PCLs (direct contact exposure pathway) for PAHs and Tier 2 PCLs (soil-to-groundwater exposure pathway) for select metals.
- Determine the range of COPC concentrations in surface soil samples associated with clay target fragments across the site.
- Determine whether the distribution of COPCs in site soils can be predicted from previous land use based on the CSM and the presence of visible clay target fragments.

Fifty soil borings were drilled to 8 ft bgs using a tractor-mounted direct-push technology (DPT) rig within the City of Laredo ROW from May 11, 2010 through May 13, 2010. Soil samples were collected from each 2-foot interval from ground surface to the total depth. Once the samples were received at the laboratory, the samples were air-dried and sieved using No. 10 and No. 60 sieves to separate adherable-sized particles (the adherable fraction) from larger particles (the coarse fraction). The analytical results indicate the following:

- Adherable Fraction: PAHs were present in the adherable fraction at concentrations above the Tier 1 Residential PCLs in soil. Antimony, arsenic, and lead were present at one location at concentrations above Tier 1 Residential PCLs. Target fragments and the highest concentrations of metals and PAHs were found to be present primarily in the top 2 ft of soil.
- Course Fraction: PAHs were present at concentrations above the Tier 1 Residential PCLs in the coarse fraction (larger than 250 microns) of samples from the 0 to 2 ft and 2 to 4 ft intervals. No metals concentrations exceeded the PCLs in the coarse fractions of samples.

The distribution of COPCs in site soils was not limited to the areas of visible clay target fragments. The soil concentrations of PAHs greater than their screening levels include samples collected from locations without visible fragments present on the ground surface or within the sample core. Therefore, the presence or absence of clay target fragments did not necessarily correlate with the presence or absence of PAH concentrations above the screening levels.

One of the objectives of the FSI was to test the assumptions of the CSM for the SGR. Based on the field observations and chemical concentrations obtained, the CSM assumptions follow the FSI, which contains the assumptions presented in **Table 1-2**.

**Table 1-2. CSM Assumptions and FSI Results**

| CSM Assumption | FSI Results |
| --- | --- |
| Clay targets were fired from 15 skeet arcs; target fragments and shot were deposited in fan-shaped arcs that are within standard distances from firing locations reported by the ITRC. | Generally correct. Of 24 locations where targets were observed, 17 were within the Maximum Target Fragment Line. Four were beyond the Maximum Target Fragment Line, and three were at or behind the former shotgun trap locations. |
| Development of the golf course did not significantly alter the distribution of target fragments. | Based on the results above, this was shown to be generally correct. |
| Clay target fragments are the source of PAHs detected in soil samples from the site. | Samples of clay targets analyzed during previous investigations contain PAHs. The clay targets are assumed to be the source. |
| The PAHs are bound in target fragments but are found in soil samples that do not contain visible target fragments (greater than 1 centimeter). | PAH concentrations were detected in soil in the presence of visible target fragments, but they were also found in soils of both fine and coarse fractions in areas without visible target fragments. |
| The exposure medium for COPCs at the site is adherable particles (250 microns or less) in surface soils. | The assumption that the exposure medium is adherable soil particles was not changed as a result of the FSI findings. |
| For the site, surface soils are located between the ground surface and the top of the uppermost groundwater-bearing unit (7 to 9 ft bgs). Residential exposure will generally occur in the upper 2 ft of soil. | This is the depth of exposure based on residential gardening activities. Target fragments and highest concentrations were found to be present primarily in the top 2 ft of soil during the FSI. |

| CSM Assumption | FSI Results |
|---|---|
| If lead is present, it should also be found at the strata corresponding to ground surface when SGR activities ended in the 1960s. | This assumption could not be proved. A distinct 'native soil strata' was not identified in the borings. No shot was observed in any of the soil cores up to a depth of 8 ft bgs. |
| Potential receptors are subdivision residents, workers in the right-of-way, and visitors. | No other potential receptors have been identified. |

### 1.4.3.7 2014/2015 Malcolm Pirnie PAH Bioavailability Pilot Study

#### *1.4.3.7.1 Purpose*

The results of the 2010 FSI revealed a potential exposure risk based on exceedance of residential Tier 1 PCLs and, under the CERCLA process, the site was required to proceed to the RI phase. Historically, the USACE assumed that PAHs in clay target fragments were not bioavailable based on information published by the Interstate Technology and Regulatory Council (ITRC 2003). Because under the TRRP, the TCEQ only allows for bioavailability adjustments using site-specific information, the USACE performed a pilot study for the Former LAFB. The purpose of this pilot study was to perform bioavailability testing on soil samples from the site and analyze the results to generate site-specific inputs that could then be applied to Tier 2 PCL calculations and/or human health cancer risk and non-cancer hazard calculations. The Tier 2 PCLs would account for the bioavailability of PAHs in the coal tar pitch/limestone matrix of the clay target fragments.

#### *1.4.3.7.2 Approach*

The USACE contracted Malcolm Pirnie to perform a Bioavailability Pilot Study for PAHs in clay target fragments in soil at the SGR as part of RI planning for the site. Data were collected as part of the pilot study to develop a site-specific RBAF for use in calculation of PCLs for PAHs in soil under the TRRP (30 TAC §350.74(j)(1)(C)). The pilot study included collection of bulk soil samples from surface soil in areas exhibiting high densities of target fragments within the City ROWs at the SGR site, to serve as a basis for preparation of soil test articles to be used in bioavailability testing.

Soil test articles (250-micron sieved soil samples that have been tested for PAH concentrations and approved for use in diet preparation) were used to prepare test diets with known concentrations of PAHs for oral administration to test animals. Soil extract test articles were then prepared from a subsample of the soil test article (soil extract test article refers to the methylene chloride extracts of the soil test article that have been combined, tested for PAH concentrations, and approved for diet preparation). Soil and soil extract test articles were used to develop test diets that could reliably be used to estimate doses to test animals.

*In vivo* testing was performed using the test diets that provided known doses to test animals. The concentrations of PAH metabolites in urine were measured through analysis of samples from the exposed animals. The relative concentrations of urinary PAH metabolites between the test group exposed to PAHs in soil-based diets and the test group exposed to PAHs in the extract-based diet were used to calculate the site-specific RBAF for PAHs. The site-specific RBAF was then placed in the equation for calculating the residential, direct-contact PCLs ($^{Tot}Soil_{Comb}$) for PAHs under TRRP.

Results of the bioavailability study included the following:

- Conservative estimate RBAFs for PAHs at the Former LAFB are:
  - 0.2 for benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene;
  - 0.23 for benz(a)anthracene; and
  - 0.28 for chrysene.
- PCLs for PAHs increase by approximately a factor of 2 above the published Tier 1 PCLs based solely on application of site-specific RBAFs.
- PCLs for PAHs may increase as much as by a factor of 5 above published Tier 1 PCLs based on both site-specific RBAFs and the potential ABS.d*.

  *Note: The bioavailability pilot study at Former LAFB was conducted concurrent with studies at the Former Foster Air Force Base (AFB) in Victoria, Texas. The Main Study for the Former Foster AFB includes assessment of dermal absorption as well as oral bioavailability, and the results of the Former Foster AFB dermal absorption testing indicated that the absorption factor is at or below 0.01 for the seven high molecular weight PAHs. The final PAH Bioavailability Report for the Former Foster AFB was submitted to TCEQ on October 19, 2017 (Arcadis 2017a). The TCEQ approved the Former Foster AFB Bioavailability Report in correspondence dated November 21, 2017, which is presented in **Appendix A**.*

Based on the calculations performed during the Bioavailability Pilot Study for the SGR site, the PCL selection for PAHs is driven by benzo(a)pyrene with Tier 2 $^{Tot}Soil_{Comb}$ PCLs ranging from 4.1 mg/kg based on Tier 1 default parameters to 19 mg/kg based on the site-specific RBAFs and an ABS.d of 0.01. The Final PAH Bioavailability Pilot Study Report (Arcadis 2017b) was prepared and submitted to the TCEQ for review. In a letter dated November 10, 2017, the TCEQ approved the Final PAH Bioavailability Pilot Study Report and the specific bioavailability factors (RBAF and ABS.d), which are used below in the human health cancer risk and non-cancer hazard calculations. The TCEQ's November 10, 2017 approval letter is presented in **Appendix A**.

# 2 SITE PHYSICAL CHARACTERISTICS AND CSM

## 2.1 Geography

The SGR is located in Laredo, Texas. Laredo is situated on the north bank of the Rio Grande and is the largest city in Webb County. Webb County borders the State of Nuevo Leon and the State of Coahuila, Mexico, which is northwest of the City of Laredo. Laredo is the only city to operate international bridges between two Mexican states (the Mexican State of Tamaulipas at Nuevo Laredo and the Mexican State of Nuevo León at Colombia). Laredo is the U.S. principal port of entry into Mexico, located on the Pan American Highway that stretches from Canada into Central and South America (City of Laredo undated).

## 2.2 Physiography

The SGR site is located in the northeast portion of the City of Laredo, approximately 0.5 mile west of LIA. The land was formerly owned and operated by the U.S. Air Force but is currently owned by multiple residential and commercial landowners and the City of Laredo. The site is bounded by McPherson Road on the west, Hibiscus Lane on the north, Daugherty Road on the east, and East Hillside Road on the south. The site is mainly occupied by residential homes, with some commercial properties along the eastern and western boundaries. Commercial and residential properties surround the SGR, with commercial properties located east, south, and west of the SGR. Residential properties are located north, south, and west of the SGR. The topographical setting of the SGR is shown on **Figure 2-1**.

## 2.3 Climate

Laredo Texas receives a limited amount of rainfall per year, with an average annual precipitation of 20.2 inches (NOAA 2018). The average minimum temperature in January is 46.1 degrees Fahrenheit (°F), with an occasional winter freeze, and the average maximum temperature in August is 99.9°F (NOAA 2018). The region's climate is typical of the interior plains' climate.

## 2.4 Topography

The site topography is shown on **Figure 2-1**. The topography of the site is gently sloping from the northwest to the southeast. The site has been regraded from its original topography due to the former golf course and current residential development at the site. The general drainage pattern for the site is along streets and storm sewers with a flow direction of east-to-west.

## 2.5 Geology

The Laredo Formation, which underlies and outcrops in the majority of the Laredo area, is composed of interbedded sandstones and glauconitic sandstones, separated by shale, clay, and some fossiliferous limestone sequences. The sediments were deposited during the Tertiary period (Eocene epoch). Isolated areas of alluvial terrace deposits of unknown thickness consisting of gravels, sands, silt, and clay overlie the Laredo Formation along the Rio Grande.

The Laredo Formation is part of the Claiborne Group. The Claiborne Group, deposited during the Tertiary period (Eocene epoch), contains the following formations in descending order (most recent age to oldest): Yegua Formation, Laredo Formation, El Pico Clay, Bigford Formation, and Carrizo Sand. The Yegua Formation is absent in the Laredo area (Texas Bureau of Economic Geology 1976).

## 2.6 Soils

The surface soil at the SGR site is characterized as Copita-Verick, which are loamy soils. The Copita series soils are well drained and form in calcareous, loamy sediments over sandstone. Verick series soils are also well drained, loamy soils and form in calcareous loamy residuum over sandstones (USDA 1985).

Based on borings installed during previous investigations, the following soils were observed at the site:

- A fine silt to silty clay is present from 0 to 5 ft bgs. These soils are described as dry with some calcareous deposits.
- A fine sand to silt is present at 5 to 10 ft bgs.
- Groundwater was encountered between 7 and 9 ft bgs during drilling activities.
- Gypsum was observed between 10 and 11 ft bgs.
- Between 10 and 14 ft bgs, a large grain sand to gravel layer is present.
- Below 14 ft bgs, soils generally consist of clayey sand. The clayey sand is described as orange-brown, slightly dense, and moist.

## 2.7 Hydrogeology

The Laredo aquifer lies within the Laredo Formation, dips to the southeast, and ranges in thickness from about 1 ft to about 1,510 ft. The net sand thickness of the aquifer ranges between 1 to 570 ft. The aquifer is bounded downdip by the overlying Yegua Formation (not present in the Laredo area) and the underlying El Pico confining unit. Laredo aquifer wells yield 5 to 170 gallons per minute (gpm) of fresh to moderately saline water. Generally, groundwater within the Laredo aquifer is not useful for large groundwater production. Some wells have been constructed within the Laredo area with total depths between 260 ft to 460 ft bgs. All but one of these wells are used for irrigation.

The El Pico confining unit is composed of shales, shaley sands, and coals. Lower El Pico Clay consists of clays interbedded with thin lenses of sandstone and lignite. This confining unit ranges in thickness from 1 ft to 1,710 ft.

The Bigford Formation consists of the Queen City-Bigford aquifer. If present, the aquifer will generally yield less than 50 gpm of water that is considered non-potable.

The Wilcox Group underlies the Claiborne Group and consists of Tertiary period (Eocene and Paleocene epochs) deposits. The Wilcox Group and the overlying Carrizo Sand form a hydrologically connected system known as the Carrizo-Wilcox aquifer. The system parallels the Gulf Coast and dips towards the coast. Downdip, the aquifer ranges in thickness from less than 200 ft to more than 3,000 ft and is confined throughout most of Webb County. The Carrizo-Wilcox aquifer is the uppermost groundwater-producing aquifer that could be reasonably developed for municipal purposes beneath the Laredo area.

This aquifer generally yields between 150 and 200 gpm of fresh groundwater in Webb County (Groat 1976; Hook and Warwick 1999; Klemet et al. 1976; Lambert Undated; Texas Water Development Board Undated).

The uppermost groundwater-bearing unit below the study area, encountered within the upper 30 ft of the Laredo Formation, is composed of low-permeability soils, fine-grained sands, and siltstone. The groundwater-bearing unit is considered part of the upper weathered surface of the Laredo Formation. The elevation of the uppermost groundwater at the site ranged between 443.2 ft and 474.2 ft amsl in March 2005. The general shallow groundwater flow direction was to the west-northwest with a gradient of 0.02 ft/ft.

## 2.8 Groundwater Usage

The uppermost groundwater-bearing unit below the SGR is classified as Class 3 groundwater under TRRP (see discussion of groundwater resource classification in **Section 4.3.3.1**). Class 3 groundwater resources are not considered usable as sources of drinking water. The TRRP Rule defines a Class 3 groundwater resources as one that:

- Produces less than 150 gallons per day from a 4-inch diameter well or equivalent, or
- Has a TDS concentration greater than 10,000 mg/L.

A Class 3 groundwater resource determination also requires that groundwater from the affected groundwater-bearing unit is not used within 0.5 mile in a manner that could result in human or ecological exposure.

The closest groundwater wells are the on-site monitoring wells, which are shown on **Figure 2-2**. Additionally, there are two potable water wells within a 1-mile radius of the site (**see Figure 2-1**). However, the potable water wells are reportedly screened between 200 and down to 420 ft bgs, which is approximately 180 ft below monitoring well screened intervals at the site. Information for the potable wells within the 1-mile radius is presented in **Table 2-1**. The water well to the south of the SGR is listed as an industrial use well, and the well located to the northwest of the site is listed as a stock well.

## 2.9 Surface Water

There are no surface water bodies within the SGR site boundaries. The nearest waterbody to the site is Zacata Creek, located northwest of the property. Zacata Creek is channelized, sometimes lined with concrete, and shown on United States Geological Survey (USGS) maps as an intermittent channel. The apparent use of Zacata Creek is storm water drainage. The only permanent surface water body in the area is Casa Blanca Lake, located approximately 1 mile east of LIA, approximately 2.5 miles east of the SGR.

## 2.10 Preliminary Conceptual Site Model

A CSM is a planning tool used for identifying chemical sources, complete exposure pathways, and potential receptors on which to focus the remedial investigation and risk assessment. The CSM describes the network of relationships among chemicals released from a site and the receptors that may be exposed to those chemicals through potential or existing pathways. A preliminary CSM was developed for the SGR during the RI planning stages by integrating information from previous investigations and includes the updated CSM assumptions developed during the FSI (discussed previously) and results of the 2014/2015 PAH Bioavailability Study. The data collected during the RI have been incorporated into the revised CSM, which is presented in **Section 8.**

The preliminary CSM for the SGR, presented in **Table 2-2** below, provided the basis for identifying data collection needs during the RI.

**Table 2-2. Former LAFB SGR Preliminary CSM**

| Profile Type | Site Characterization |
|---|---|
| **Site Profile** | **Area and Layout**<br>The SGR is part of the Former LAFB in Laredo, Webb County, Texas. The site is located approximately 0.5 mile west of LIA. |
| | **Former Site Use**<br>The site was formerly owned and operated by the United States Army Air Force as a World War II gunnery training school from 1942 to 1947. The original firing line was located along the present-day East Hillside Road, with the firing line facing north. The SGR firing line extended from present-day Cypress Drive on the west to North Bartlett Road on the east (**Figure 1-2**). Aerial photographs indicate that two of the World War II skeet ranges along East Hillside Road appear to have been active during the reactivation of LAFB for the Korean War in 1952 and into the early 1960s. By 1970, the SGR was developed into a golf course. The government released the property in 1974, and construction for its current use began by the mid-1980s. |
| | **Current Structures**<br>The site is characterized by buildings, pavement and roadways, and landscaped areas. Current structures primarily consist of residences and a church. Commercial buildings are present along the eastern and western boundaries. |
| | **Boundaries**<br>The site is bounded by McPherson Road on the west, Hibiscus Avenue on the north, Daugherty Road on the east, and East Hillside Road on the south. |
| **Land Use and Exposure Profile** | **Current Land Use**<br>The site has been developed for primarily residential land use (Vista Hermosa Subdivision) and contains a church. Commercial land use is present on the eastern and western boundaries of the SGR. |
| | **Potential Future Land Use**<br>The SGR has been fully redeveloped, and the anticipated future land use is the same as the current land use. The most conservative land use (unrestricted, residential) was assumed for evaluating risk as part of the RI. |
| | **Human Receptors** |

| Profile Type | Site Characterization |
| --- | --- |
| | Human receptors include residents of the Villa Hermosa Subdivision, visitors, workers, and church members. Future human receptors are expected to be the same. |
| **Ecological Profile** | **Ecological Receptors**<br>The site is characterized by human presence and activities, and any ecological habitat that may have once existed has been altered, impacted, or reduced to a degree such that it is no longer conducive to utilization by ecological receptors. |
| **Release Profile** | **Source Material**<br>Clay target fragments from skeet shooting remain on and beneath the ground surface. No shot has been observed in any of the soil cores up to the maximum investigation depth of 8 ft bgs |
| | **Associated COPCs**<br>Samples of clay targets analyzed during previous investigations contain PAHs. Soil at the SGR contains PAHs, which are assumed to be associated with the clay target fragments. Target fragments and the highest concentrations in soil samples were found to be present primarily in the top 2 ft of soil during the FSI.<br>Lead from shot is a COPC commonly found at skeet range sites. However, during the FSI, no shot was observed, and all lead concentrations detected were below the RAL. |
| | **Release Mechanism**<br>Deposition<br>The conceptual layout of the Former LAFB SGR is presented on **Figure 1-4**, along with current land use. The likely fan area for the skeet range was aligned in 15 semicircles, with 50-foot radii. Clay targets would have been launched laterally across the skeet field from high and low skeet houses. At the SGR, personnel fired north from a firing line positioned approximately along the current location of East Hillside Road.<br>Based on a layout that is typical of historical and current skeet range boundaries:<br>• The majority of lead pellets fired at a skeet range fall within the "High Probability Shot Area," usually found between 375 and 600 feet from the firing point and indicated by the orange arc on **Figure 1-4**. However, no lead shot was found at the SGR during the FSI.<br>• Target fragments are expected to be found between 65 and 260 feet from the firing point, indicated by the yellow arc on **Figure 1-4**. The light blue arc on the figure indicates the "Maximum Target Fragment Line;" this is the location at which the most target fragments were expected to be found at the site. Properties along Hillside Road would contain locations behind, directly beneath, and directly in front of the firing line. Properties facing Greenway Lane and south of Wildrose Lane would have been primarily within the High Probability Target Fragment area.<br>Release to Exposure Medium |

| Profile Type | Site Characterization |
| --- | --- |
| | The PAHs are bound in target fragments but become part of the exposure medium for COPCs in surface soil when reduced to the adherable particle size (250 microns or less) through mechanical processes. At the SGR, PAH concentrations were detected in soil in the presence of visible target fragments, but they were also found in areas without visible target fragments in surface soils. |
| **Transport/ Migration Profile** | **Transport Mechanisms**<br>The primary transport mechanisms evaluated for both the clay target fragments and soils containing PAHs is disturbance by human and ecological receptors. The site surface changed with redevelopment of the skeet range to a golf course; however, the FSI concluded that development of the golf course did not significantly alter the distribution of target fragments. The FSI also concluded that under the current site configuration target fragments are generally present within the standard distances from firing locations.<br><br>Current movement of fragments and soil at the site occur due to erosion from wind and water run off (during storm events) and digging/earth moving during yard work and landscape maintenance, etc. |
| | **Migration Routes**<br>The primary migration routes evaluated for the SGR include the following:<br>• <u>Surface Soil</u>: Precipitation leading to COPC infiltration from surface soil to subsurface soil and/or to groundwater.<br>• <u>Surface Water</u>: Surface water containing COPC infiltration to subsurface soil and groundwater. Surface water carrying clay targets and/or COPCs downgradient through drainages after heavy rain events. |
| **Exposure Pathway Analysis** | **Skeet Fragments**<br>Exposure to clay fragments occurs through handling, treading on, and other disturbance by human or ecological activities. |
| | **COPCs**<br>The COPC primary exposure pathways for human and ecological receptors is through direct contact, ingestion, and dust inhalation due to disturbance of soil by human or ecological activities.<br><br>The groundwater beneath the SGR is a Class 3 groundwater resource and is therefore not considered usable as a source of drinking water. |

# 3 REMEDIAL INVESTIGATION ACTIVITIES

RI activities were performed in accordance with the Shotgun Range Remedial Investigation Work Plan, dated July 2015 (Arcadis/Mirador 2015) during four field events in January, May, July, and November 2016. A map showing an overview of the RI sample types and locations is presented on **Figure 3-1**.

## 3.1 Constituents of Potential Concern

All RI soil samples were analyzed for the complete COPC list, including 17 PAHs (identified in **Section 1.2**) and lead. Analyses were performed using the following methods:

- PAHs - USEPA SW-846 Method 8270 SIM (sample preparation by SW-846 Method 3550C).
- Lead - USEPA SW-846 Method 6020A (sample preparation by SW-846 Method 3050B).
- Incremental Sampling Methodology (ISM) samples – sample preparation by SW-846 Method 8330B (Appendix A of the method).
- Decision units (DUs) and property access.

Soil sampling was completed at individual DUs, which consist of a parcel containing a single-family residence or a sub-parcel for a larger property (e.g., an apartment or church) that was subdivided into areas approximately equivalent in size to a residential lot. **Figure 3-1** is a site map that displays the Vista Hermosa Subdivision and surrounding area. The sample identification for all samples collected from a property contains the DU number, regardless of sampling methodology. A summary of the DU identification numbers and their corresponding physical addresses is provided in **Table 3-1**.

The majority of the RI field work was completed on private property within the Vista Hermosa Subdivision, and an ROE agreement was executed with each property owner before the start of sampling activities. An ROE agreement was also completed with the LIA for the City-owned property to the west of Bartlett Avenue.

## 3.2 Soil Sampling

Soil sampling activities were completed during four separate field events. The subsequent events were performed after data evaluation to fill in data gaps and complete delineation activities. As described in **Sections 3.3.1** through **3.3.4**, sampling activities included ISM sampling to evaluate the current exposure risk scenario, stratification sampling to evaluate risk in special use areas, soil boring sampling to evaluate the future exposure risk scenario and provide vertical delineation, and ROW sampling originally intended to provide horizontal delineation south of East Hillside Road. A summary of the sampling completed for each DU sampled during 2016 is presented in **Table 3-1**.

Before the start of field work, Arcadis filed a Texas One-Call Ticket, and the utilities were cleared. Before performing soil sampling in a DU, Arcadis field staff interviewed the property owner or their representative to review the scope of work to be completed, identify utilities not marked by Texas One-Call (e.g., sprinkler lines and power lines), and complete a site sketch identifying surficial features and utilities at the DU. After completion of field work, Arcadis field staff again met with the owner to review the property and obtain acceptance of the post-sampling condition. Additionally, the presence of potential target fragments, if identified, were recorded on the sample log.

The voids left from ISM and stratification sampling were allowed to collapse in on themselves after sample collection. The boreholes created from the Future Exposure soil borings were backfilled with bentonite chips to approximately 5 ft bgs and then backfilled with new topsoil.

### 3.2.1 ISM Sampling (Current Exposure Scenario)

ISM samples were collected from 91 DUs during 2016. Three ISM samples were collected from each property sampled, except for DU019-04, DU019-05, DU023, and DU465 due to a limited surface area to sample, and DU010-07 and DU191, where there was no yard to sample due to landscaping. ISM sampling was completed at the DUs shown on **Figure 3-1** and summarized in **Table 3-1**.

Each ISM sample consisted of 50 soil aliquots collected along a serpentine path through the DU's green space. Impervious surfaces and landscaped areas (areas containing gardens, shrubbery, or trees) were not sampled. Each aliquot was collected using an EVC Multi-Increment Sampler tool. The aliquots were placed into a self-closing plastic bag, and grass, roots, rocks, and other debris were removed from the sample. Following collection of the 50 aliquots, the bag was sealed, a sample label was placed on the bag, the bag was vacuum-sealed to prevent moisture from entering the sample during shipment, and the sample was placed on ice for shipment.

### 3.2.2 Stratification Sampling (Special Use Areas)

During the May 2016 sampling event, stratification samples were collected from planting beds in nine DUs randomly selected from the 91 DUs included in the ISM sampling program. This equals collection of stratification samples from approximately 10 percent of the properties with ISM sampling, as specified in the Work Plan. At each DU selected for stratification sampling, Arcadis field staff identified four to five planting areas that were separate from the main lawn green space. One discrete soil sample was collected from each planting area, from a depth of 0 to 6 inches bgs. The samples were collected using sampling trowels and placed into soil sample jars. Stratification samples at each DU were consecutively identified (e.g., STRAT1, STRAT2, STRAT3). The jars were labelled, placed in self-sealing bags, and then placed on ice for transport to the laboratory.

Stratification samples were collected from the DUs shown on **Figure 3-1** and summarized in **Table 3-1**. Stratification sample locations within each DU are presented on **Figure 3-2**.

### 3.2.3 Soil Boring Sampling (Future Exposure Scenario and Vertical Delineation)

#### 3.2.3.1 Boring Locations

Future Exposure soil borings were installed and sampled in 49 DUs during the May, July, and November 2016 field events. The soil borings were completed at the DUs shown on **Figure 3-1** and summarized in **Table 3-1**. The soil borings were installed in the front yard for DUs with residential structures, and throughout the entire DU for non-residential locations.

A total of nine boring locations were drilled in each DU. Three of the borings were identified as set A, three were identified as set B, and three were identified as set C. The borings were located within the DU and sampled as follows:

- The open front yard space within the DU in which the borings were to be located was divided into three separate sampling areas.
- In each of the three sampling areas, one A boring, one B boring, and one C boring were drilled. The boring locations were spread out across the subarea being sampled (i.e., the three borings were not collocated). For the first sampling area, the borings were identified as A1, B1, and C1.
- Samples were collected from 2-foot depth intervals and labelled with the boring and depth from which they were collected. An example of this would be Boring A1 (0-2 ft). This process was repeated for the second and third sampling areas.
- Soil samples from the same depth interval within a boring series were then composited into one sample. For instance, soil from the 0-2-foot depth interval from A1, A2, and A3 were combined into the A; 0-2-foot sample. This was repeated for each depth interval down to the total depth of the boring (8 or 10 ft bgs). The same process was performed for the B- and C-series borings.
- Based on this sample collection method, the A, B, and C samples for given depth intervals (0 to 2, 2 to 4, 4 to 6, 6 to 8, and 8 to 10 ft) within a DU are considered independent of one another. The compositing approach used for the soil boring program was implemented to provide sample concentrations for each depth interval representative of the entire area sampled within the DU and can be used in the risk evaluation.

In addition to the above sampling program, Arcadis returned to three DUs (DU010-04, DU046, and DU074) during November 2016 to install a discrete soil boring from 10 to 12 ft bgs to vertically delineate concentrations of PAHs above the Tier 1 PCL encountered in the 8 to 10 ft sampling interval. (Note that the Residential Tier 1 $^{Tot}Soil_{Comb}$ PCL for benzo(a)pyrene published by the TCEQ at the time of the investigation was 0.56 mg/kg.) The vertical delineation in soils was required as part of the nature and extent determination required by the TRRP Rule, and the delineation was performed based on discrete data. During a meeting with the TCEQ on August 11, 2016, the TCEQ stated that, for this site, vertical delineation was required only to a depth of up to 15 feet, and discrete delineation samples were preferred.

#### 3.2.3.2 Installation Procedure

The borings were installed at locations in the DU front yard that were accessible for a direct-push rig and that avoided intersecting utilities (water and sewer lines that entered most houses at the front or side of the structure) and sprinkler lines that could be crushed by the sampling tooling or the weight of the sampling rig. The soil borings were installed using a truck- or track-mounted direct-push rig with 4-foot-long and 2-inch-diameter sampling cores that advanced an acetate liner into the soil column. Soil samples were collected to a depth of either 8 or 10 ft bgs based on the distance of the DU from the firing line. Borings in DUs located within approximately 100 ft of the firing line were sampled to 10 ft bgs, and borings in DUs located greater than 100 feet north of the firing line were sampled to a maximum depth of 8 ft bgs. Boring logs are presented in **Appendix B**.

#### 3.2.3.3 Sampling Methodology

Samples were collected and composited in general accordance with the Work Plan. The composite samples consisted of three aliquots of soil from the same depth interval collected from each of the three soil borings in the set. The three aliquots for each depth interval were placed into a self-closing plastic bag to complete the sample. Grass, roots, rocks, and other debris were removed from the sample before sealing the bag, affixing a sample label on the bag, and then vacuum sealing the bag to prevent moisture from entering the sample during shipment.

### 3.2.4 ROW Sampling (Horizontal Delineation South of East Hillside Road)

Twenty borings were installed in the ROWs south of East Hillside Road, and discrete soil samples were collected to provide horizontal delineation to the RAL based on the delineation value (Residential Tier 1 $^{Tot}Soil_{Comb}$ PCL) published by the TCEQ at the time of the investigation. This ROW sampling was completed to delineate soil samples with concentrations of PAHs above Tier 1 PCLs at DUs within the Vista Hermosa Subdivision. Each ROW sample was collected as a discrete soil sample using a hand auger and a direct-push rig. Soil samples were collected from 0 to 0.5 ft, 0.5 to 2 ft, 2 to 4 ft, and 4 to 6 ft bgs.

## 3.3 Investigation-Derived Waste

Investigative-derived waste (IDW) collected at the site consisted of water used to decontaminate equipment between sample locations. The liquid IDW was staged in a poly-drum placed within the fenced City of Laredo vehicle parking lot located on Daugherty Avenue. The drum was removed from the site in April 2017, and the contents were disposed at Chemical Reclamation Services, Inc., in Avalon, Texas. A copy of the manifest is included as **Appendix C**. No soil waste was generated in the field, as all soil collected during the investigation was shipped to the laboratory for soil analysis.

# 4 NATURE AND EXTENT OF CONTAMINATION

## 4.1 Exposure Pathways

The exposure pathway is the course that a COPC takes from the source to the human or ecological receptor. The pathway includes the source area, the point at which the receptor comes into contact with the COPC (e.g., the exposure medium such as soil or groundwater), the manner in which the contact occurs (such as ingestion), and a transport mechanism from the source to the point of exposure, if applicable. PCLs are presented in the next section, and the PCL nomenclature reflects the information on the exposure pathway, including the exposure medium, the source medium, and the exposure route. The exposure medium appears first in superscript text, followed by the source medium in regular text and the exposure route in subscript text. Cross-media transfer is indicated when exposure occurs in a medium different from that of the source. Examples are:

- $^{GW}GW_{Ing}$ – PCL where groundwater is the source medium ($^{GW}$), groundwater is the exposure medium (GW), and ingestion is the exposure route ($_{Ing}$).
- $^{GW}Soil_{Ing}$ – Cross-media transport PCL where soil is the source medium and groundwater is the exposure medium, and ingestion of groundwater is the exposure route.

## 4.2 Assessment Levels

Assessment levels are used to determine the extent of environmental media affected by releases of COPCs (i.e., to provide horizontal and vertical delineation). Assessment levels are not cleanup levels, however, and they are not used to determine the extent of environmental media requiring a remedy.

The horizontal assessment level under TRRP is the RAL, which is the lowest PCL for a COPC where the human health PCL is established for residential land use and is based primarily on Tier 1 PCLs. However, the PCL for the soil-to-groundwater exposure pathway can be established for residential land use under Tier 1, 2, or 3. Additionally, when necessary, ecological PCLs are developed under Tier 2 and/or 3. A groundwater investigation was performed at the Former LAFB during previous investigations. Therefore, vertical delineation was performed to the RAL (instead of to the method detection limit or background).

The RALs for soil and groundwater at the SGR are presented below.

### 4.2.1 Soil

In accordance with the TRRP Rule, the surface soil interval for residential land use extends from 0 to 15 ft bgs or to the top of the uppermost groundwater-bearing unit (whichever is shallower). Land use at most of the SGR area is residential, and all RI soil samples were collected at depths less than 15 ft bgs; therefore, the surface soil assessment levels apply. As stated above, a groundwater assessment has been completed for the SGR; therefore, the vertical assessment was terminated at the depth at which the RAL was achieved (12 ft bgs).

The RALs were determined based on comparison of the residential Tier 1 $^{Tot}Soil_{Comb}$ PCLs (the PCLs for the combined exposure pathway of soil ingestion, dermal contact, inhalation volatiles and particulates, and ingestion of aboveground and belowground vegetables) for a 30-acre source and the residential $^{GW}Soil$ PCLs (the PCLs for surface and subsurface soil to protect groundwater) for a 30-acre source. Groundwater beneath the SGR is Class 3 (see **Section 4.3.3.1** for a discussion of the groundwater resource classification). Therefore, the $^{GW}Soil_{Class3}$ was used in the determination of the RALs.

Values for the RALs were determined as follows:

- Tier 1 PCLs were obtained from the April 2018 Tier 1 PCL Tables, published on the TCEQ's website (TCEQ, 2018).
- The Tier 1 $^{Tot}Soil_{Comb}$ PCL for benzo(j)fluoranthene was updated to reflect current toxicity values for benzo(a)pyrene and relative potency factors. The calculation of this PCL is presented in **Appendix A**.
- A Tier 2 $^{GW}Soil_{Class3}$ PCL was calculated for lead based on a site-specific pH value of 7.5. The calculation of this PCL is presented in **Appendix A**.

Based on comparison of the Tier 1 $^{Tot}Soil_{Comb}$ PCLs for all COPCs, the Tier 2 $^{GW}Soil_{Class3}$ PCL for lead, and the Tier 1 $^{GW}Soil_{Class3}$ PCLs for the 17 PAHs, the Tier 1 $^{Tot}Soil_{Comb}$ PCLs are the lower of the PCLs for all COPCs and are used as the RALs.

**Table 4-1** presents the RAL for each of the COPCs from the RI.

### 4.2.2 Groundwater

As discussed in **Section 4.3.3.1**, the groundwater beneath the SGR is classified as a Class 3 groundwater resource. Class 3 groundwater resources are not considered usable as drinking water and are therefore not subject to groundwater ingestion PCLs. Rather, Class 3 groundwater is subject to the $^{GW}GW_{Class\ 3}$ PCLs, which are equal to 100 times the $^{GW}GW_{Ing}$ PCLs. Therefore, the RAL for groundwater at the SGR is the residential, Tier 1 Class 3 groundwater PCL ($^{GW}GW_{Class3}$).

## 4.3 Extent of Affected Media

### 4.3.1 Source Material

Clay target fragments present in the soils have been identified as the source of PAHs detected in soil samples collected at the SGR. The presence of clay target fragments in surface soils represents a potential ongoing source of future PAH releases to soils, as the target fragments physically break down over time.

During RI activities, soils collected during sampling were examined for the presence or absence of target fragments. **Figure 4-1** presents a map showing the locations and maximum depth intervals at which target fragments were observed. As shown on **Figure 4-1**, target fragments have been observed across the site, most frequently at a depth of 1 to 2 ft bgs. The maximum depth at which target fragments were observed was 5 ft bgs. However, as discussed below, PAH concentrations exceeding the assessment levels were detected at depths up to the 8 to 10 ft bgs sample interval. Generally, PAH concentrations greater than the assessment levels extend deeper than the observed target fragments.

### 4.3.2 Soil Sampling Results

Analytical results for soil samples collected during the RI activities are presented in **Tables 4-2** through **4-4**. **Table 4-2** presents analytical results for the ISM samples (current exposure scenario), **Table 4-3** presents analytical results for stratification samples (special use areas), and **Table 4-4** presents analytical results for soil boring samples (Future Exposure scenario and vertical delineation). Each table presents the data by DU and provides the Tier 1 PCL (RAL) for each analyte. Analytical laboratory reports and associated data usability summary reports are presented in **Appendix D**.

Analytical results are discussed below. For each of the sample types (ISM, stratification, and soil borings), when PAHs are detected at concentrations above the RALs, benzo(a)pyrene is always present at a concentration above its RAL. Therefore, benzo(a)pyrene is used as an indicator compound for PAHs in the discussion below. Lead was the only metal analysed for during the RI and is the indicator compound for metals.

#### 4.3.2.1 ISM Sample Results (Current Exposure Scenario)

The ISM sample result represents the average concentration in the top 2 inches of soil in the front and back yards of the DU. As discussed in **Section 3.3.1**, three ISM replicates were collected per DU. The 95% upper confidence limit (UCL) on the mean of the replicate data from each DU was calculated using the Chebyshev Method for comparison to the action levels, which include the RAL for determining the extent of the Affected Property. The procedure for calculation of the 95% UCL for ISM data when there is a minimum of three results is presented in the ITRC guidance document for ISM (ITRC 2012). The Chebyshev UCL Calculator presented in this document was downloaded from the ITRC website, and the calculations are presented in **Appendix E**.

**Figure 4-2** presents the 95% UCL benzo(a)pyrene concentration for each DU sampled by ISM. Six DUs had a 95% UCL benzo(a)pyrene concentration that exceeded the Tier 1 PCL (RAL). As predicted by the CSM, these DUs are located within the High Probability Target Fragment Area.

None of the 95% UCL lead concentrations exceeded the Tier 1 PCL (RAL). Therefore, a figure presenting the lead ISM results is not included in the report.

#### 4.3.2.2 Stratification Sample Results (Special Use Areas)

Planting activities can bring soil from beneath the upper 2 inches (the current exposure scenario represented by the ISM samples) to the surface. Planting beds were therefore evaluated with stratification samples to determine if these special use areas represent an exposure scenario separate from the rest of the yard. Because the stratification samples were collected from the 0-6-inch depth interval, and site use in these areas involves interaction with soil media throughout this interval, the stratification sample results are evaluated as an alternative current exposure scenario in the risk assessment.

Stratification samples were collected from landscaping beds in nine DUs, and **Figure 4-3** presents the benzo(a)pyrene concentrations for these samples. Benzo(a)pyrene concentrations in stratification samples from two DUs (DU009 and D044) exceeded the Tier 1 PCL (RAL). DU044 is located directly in front of the former firing line, within the High Probability Target Fragment Area, and the front yard of DU009 is located at/behind the former firing line. The stratification samples from DU009 that exceeded the Tier 1 (STRAT4 and STRAT5, respectively) were collected in the northeast corner of the backyard, from locations potentially directly in front of the former firing line, where target fragments would have been deposited. Target fragments were observed at both DU044 and DU009 during the RI (see **Figure 4-1**).

##### *4.3.2.2.1 Comparison of Stratification Data to ISM and Soil Boring (0-2 foot) Data*

In accordance with the Work Plan, the stratification sample dataset was compared to the ISM and soil boring (0-2 ft) datasets to evaluate whether the concentrations in planting beds are significantly different from those in the main yards or subsurface. (Soil boring results are discussed in detail in **Section 4.3.2.3**, below.) **Table 4-5** presents a comparison of the range of benzo(a)pyrene concentrations in the stratification, ISM, and soil boring (0-2 ft) samples for the nine DUs with stratification sample results. The data in **Table 4-5** indicate the following:

- DU191 is unique in that only stratification samples were collected from this DU (no ISM or soil boring data are available for this location).
- Except for DU009, for the remaining DUs, the range of benzo(a)pyene concentrations in the ISM data and/or the soil boring (0-2 ft) datasets agree with the stratification sample results when compared to the Tier 1 PCL (RAL).
- For DU009, stratification sample results exceeded the Tier 1 PCL, while the ISM and soil boring (0-2 ft) results were both below the Tier 1 PCL.

Based on the above comparison, the stratification data appear to be in general agreement with ISM and/or soil boring (0-2 ft) data, except for two out of five stratification samples from DU009. A potential reason for the discrepancy in the data results at DU009 may be related to the depth of sample collection. ISM samples were collected from 0-2 inches bgs. Within this depth interval, it is likely that landscaping activities at the ground surface would include soil and mulching additives to promote growth. The stratification samples (0-6 inches) and soil boring samples (0-2 ft) both include media from a depth below which additives were likely mixed into the media. Consequently, the CSM would indicate that, within the High Probability Target Fragment Area in front of the firing line, soils from the 2-24 inch depth interval may contain higher benzo(a)pyrene concentrations than the top 2 inches bgs (sampled by the ISM dataset).

#### 4.3.2.3 Soil Boring Results (Future Exposure Scenario and Vertical Delineation)

Results for borings installed to evaluate the potential Future Exposure and to provide vertical delineation information are presented on **Figure 4-4** for benzo(a)pyrene and **Figure 4-5** for lead. The maximum concentration for each depth sampled is presented and compared to the RALs. Twelve of the 49 DUs with soil borings exhibited a maximum benzo(a)pyrene concentration above the Tier 1 PCL (RAL) at one or more depth intervals. One DU (DU134) also exhibited a maximum lead concentration above the Tier 1 PCL (RAL).

Except for DU140, DU134, and DU132, the DUs containing maximum soil boring concentrations above Tier 1 PCLs are located within the Maximum Target Fragment Line, within the High Probability Target Fragment Area, or beneath the former firing line (See **Figure 1-4).**

#### 4.3.2.4 ROW Sampling Results (Horizontal Delineation South of Hillside Road)

Soil borings were installed in the road ROWs to delineate the horizontal extent of PAH concentrations exceeding the RAL south of East Hillside Road based on the delineation value (Residential Tier 1 $^{Tot}Soil_{Comb}$ PCL) published by the TCEQ at the time of the investigation. Based on the current Residential Tier 1 $^{Tot}Soil_{Comb}$ PCLs published by the TCEQ in April 2018, use of the ROW dataset is not required to complete on-site delineation to the RALs. In addition, evaluation of the ROW dataset indicates that detection of PAHs further to the south of East Hillside Road originate from a different source and are not associated with the SGR. Because PAHs at these locations originate from a separate source, the ROW sampling results are not addressed within the body of the RI Report. Instead, a technical memo summarizing the ROW sampling results is presented in **Appendix F**.

### 4.3.3 Groundwater Data

#### 4.3.3.1 Groundwater Resource Classification

Data demonstrating a Class 3 groundwater resource classification were submitted to the TCEQ in the Affected Property Assessment Report (APAR) for the Waste Disposal Area (WDA), prepared by Malcolm Pirnie, Inc. and dated June 2008 (Malcolm Pirnie 2008b). Demonstration of a Class 3 groundwater resource is presented in Section 2.5 of the WDA APAR. The WDA, like the SGR, was part of the Former LAFB, and the SGR lies immediately to the south of the WDA. The southern boundary of the WDA extends almost to Hibiscus Lane, and Hibiscus Lane is the northern boundary of the SGR. Wells installed in the WDA and the SGR, as well as background wells installed to represent the various conditions of the uppermost water-bearing zone observed at different areas of the Former LAFB site, were used to classify the groundwater.

The WDA APAR (including the Class 3 groundwater resource classification) was approved by the TCEQ in a letter dated October 24, 2008. **Appendix G** presents the TCEQ approval letter for the 2008 WDA APAR.

#### 4.3.3.2 Groundwater Sampling Results

As discussed in **Section 1.4.3**, groundwater samples were collected from the SGR monitoring wells in June 2003 and March 2005. The samples were analyzed for PAHs, selected metals (arsenic, lead, and mercury), and TDS. Groundwater analytical results are presented in **Table 4-6**. Also presented in the table is the residential, Tier 1 Class 3 groundwater PCL ($^{GW}GW_{Class3}$) for each constituent.

Metals were detected in some of the samples. However, all detected metals concentrations were below the residential, Tier 1 Class 3 groundwater PCLs. PAHs were not detected in the groundwater samples. All laboratory reporting limits were below the Tier 1 Class 3 groundwater PCLs. **Figure 4-6** presents groundwater sampling results for detected metals.

## 4.4 Affected Property

The Affected Property is the extent of environmental media containing COPC concentrations equal to or greater than the assessment level applicable for residential land use and the groundwater classification for the site. Surface soil is the only environmental medium that contained COPCs at concentrations above the RALs, and **Figure 4-7** shows the horizontal extent of the Affected Property. The datasets used to delineate the Affected Property included:

- The 95% UCL concentrations for ISM soil samples
- The maximum concentration from soil boring samples
- Stratification soil sample concentrations.

Two Affected Property areas were identified based on 15 DUs with benzo(a)pyrene concentrations above the RAL and one DU with a lead concentration above the RAL. Lead was detected at a concentration above the RAL in only one of the 964 samples collected during the RI.  Un-sampled DUs adjacent to DUs with sample results exceeding the RAL were also included within the Affected Property areas. In addition, because data are not available from backyards at depths below 2 inches bgs, backyards of DUs within the High Probability Target Fragment Area adjacent to DUs with RAL exceedances from the soil boring dataset were also included in the Affected Property area.

The maximum depth of soil with a COPC concentration (benzo[a]pyrene) above the RAL was the 8-10 ft bgs sample interval, as shown on **Figure 4-4**.

# 5 FATE AND TRANSPORT OF CHEMICALS

The likely fate and transport mechanisms in the environment for COPCs found at the SGR are discussed in the following sections.

## 5.1 Potential Routes of Migration

The manner by which chemicals are transported through the environment is determined by the source medium and the characteristics of the COPCs themselves. The source medium for COPCs at the SGR is the coal tar pitch/limestone matrix of the clay target fragments in surface soil. As previously stated, COPCs in soil include PAHs and lead. PAHs typically have low solubility in water and low volatility. These COPCs generally adhere strongly to the soil matrix. Lead, on the other hand, can be soluble and may leach to groundwater depending on soil conditions. Migration routes for these COPCs from soil as they exist at the site include the following.

- Transport of COPCs from soil to groundwater. COPCs in soil at the site can partition into infiltrating water and impact groundwater. The PAH COPCs identified at the site are not readily soluble in water and adsorb strongly to soil. The soil-to-groundwater pathway, therefore, is not a significant migration pathway for PAHs. The fate of lead in soil depends on factors including soil pH, soil type, grain size, and organic carbon content. Most lead is retained strongly in soil and typically does not leach except under acidic conditions. The soil pH at the SGR is neutral (approximately 7.5); therefore, leaching to groundwater from soil is not a significant migration pathway for lead. As described in **Section 4.3.3.1**, the groundwater resource of the uppermost water-bearing unit at the site is classified as Class 3 groundwater. This pathway is evaluated by comparisons to Class 3 groundwater protection PCLs for soil ($^{GW}Soil_{Class3}$).
- Transport of COPCs to ambient air. COPCs at the site are present in surface soil and are evaluated assuming that they have potential to transport to air bound to fugitive dusts. The COPCs identified at the site have relatively low volatility; therefore, volatilization of PAHs and lead is not a significant migration pathway. The inhalation exposure pathway was evaluated in the HHRA.
- Transport of COPCs via surface runoff. COPCs at the site are present in surface soil, and the potential for migration and release to surface waters or to their associated sediments via surface runoff exists. However, as discussed in the Tier 1 Exclusion Criteria Checklist, the flat terrain and vegetative cover of the site minimizes the movement of COPCs from the Affected Property. Surface water is only present directly after a rain event, and the minimal runoff from the site will enter the drainage ditches and storm sewers associated with the streets that run throughout the neighborhood. Therefore, migration via surface runoff is not a significant migration pathway for COPCs in soil at the site.

## 5.2 Chemical Persistence

Similar to the transport of chemicals in the environment, persistence of chemicals in the environment is also determined by the source medium and the characteristics of the COPCs, as well as environmental conditions. The source medium for COPCs at the site being clay target fragments indicates that COPCs are typically exposed to aerobic conditions and neutral pH precipitation. As previously stated, COPCs include metals (primarily lead) and PAHs. The metals are persistent chemicals; however, PAHs do degrade in the environment in response to natural and biological processes. The principal PAH reported in soil at the site is benzo(a)pyrene, which does not degrade as readily as low molecular weight PAH compounds; however, its low solubility, low volatility, and strong affinity for organic material in soil limit the potential for migration of benzo(a)pyrene in the environment.

## 5.3 Chemical Migration

Groundwater is classified as a Class 3 groundwater resource. In Texas, because Class 3 groundwater resources are not considered a viable source of drinking water, they are not subject to groundwater ingestion PCLs. Soil concentrations detected during the site investigations were below the $^{GW}Soil_{Class\ 3}$ PCLs; therefore, cross-media transport from soil to groundwater is not a concern for this site.

# 6 HUMAN HEALTH RISK ASSESSMENT

The baseline risk assessment (BRA) for the SGR was completed as required under CERCLA regulations for completion of the RI. The BRA is composed of two parts: the HHRA and the SLERA. The HHRA is presented below, and the SLERA is presented in **Section 7**. The Site History is addressed in **Section 1.4**, and the Site Physical Characteristics and CSM are addressed in **Section 2** of this report. The HHRA risk calculations in the Risk Assessment Guidance for Superfund (RAGS) Part D format are presented in **Appendix H**.

## 6.1 Introduction

CERCLA of 1980 as amended in 1986 (the Superfund Amendments and Reauthorization Act [SARA]) is the federal program providing requirements for responding to the release of hazardous substances to the environment. The overarching mandate of the CERCLA program is to protect human health and the environment from uncontrolled releases of hazardous substances. CERCLA guidance documents provide the tools and decision framework to serve as the basis for determining whether releases to the environment have occurred and how to characterize such releases. The USEPA Guidelines for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA 1988) provides the framework for conducting an RI/Feasibility Study (FS) to characterize the nature and extent of environmental impacts from hazardous releases and the most effective means to address the impacted media. The USEPA RI/FS guidance document states that a risk evaluation as presented in the RAGS (USEPA 1989) is an integral part of the RI/FS. The USEPA RAGS indicates three components of the human health evaluation including: the HHRA, refinement of preliminary remedial goals, and the evaluation of remedial alternatives. The purpose of this section is to fulfill the requirements of the HHRA for the RI of the SGR.

The HHRA follows guidance outlined in the USEPA's RAGS: Volume I, Human Health Evaluation Manual, Part A (USEPA 1989) and other relevant USEPA and TRRP guidance cited throughout the assessment. Accordingly, the HHRA is presented in a series of tables in RAGS Part D format (provided in **Appendix H**) and consists of the following four components:

1. Hazard identification
2. Exposure assessment
3. Toxicity assessment
4. Risk characterization.

In the hazard identification, relevant data are compiled and COPCs are identified based on a comparison of maximum detected concentrations to conservative human health risk-based screening levels. In the exposure assessment, actual or potential chemical release and transport mechanisms are identified, potentially exposed human populations and possible exposure pathways and routes are described, COPC concentrations at points of potential human contact are determined, and human exposures to the COPCs are estimated. In the toxicity assessment, quantitative and qualitative toxicity data used to characterize the potential for adverse health effects are identified. In the risk characterization, the likelihood and magnitude of adverse health effects are estimated for each applicable exposure scenario. Sources of uncertainty in the HHRA are then noted and discussed.

## 6.2 Hazard Identification

The hazard identification in the CERCLA HHRA includes site history, evaluation of site characterization data with respect to potential environmental releases and potential exposure pathways, and a definition of COPCs by comparisons of site data to risk-based screening levels. The site history and data characterization have been discussed in this RI. The screening process and exposure pathways are discussed below.

### 6.2.1 Chemical of Potential Concern Definition

ISM is a structured composite sampling and processing protocol that reduces data variability and provides an improved estimate of mean chemical concentrations compared to discrete sampling. ISM samples were collected from 91 DUs across the SGR. Each DU was identified as either a residential or commercial property. The ISM data were evaluated to assess current exposure and potential risk at each DU under a residential (unrestricted) land use scenario. Maximum concentrations were compared to TRRP residential direct-contact PCLs ($^{Tot}Soil_{Comb}$) for COPC selection. The PCL values were multiplied by 0.1 to account for a target lifetime excess cancer risk of 1-in-1,000,000 ($10^{-6}$) for carcinogenic COPCs and to account for exposure to multiple non-carcinogenic COPCs. The adjusted PCLs are herein referred to as soil screening levels (SSLs). **Table 2.1 in Appendix H** provides a summary of the COPC selection for the current scenario. Thirty-two DUs reported PAH or lead concentrations in ISM surface soil (0-2 inches bgs) above their respective direct-contact SSLs.

An alternative current exposure scenario was evaluated using the stratification soil samples collected from nine DUs (003, 009, 038, 044, 066, 132, 146, 151, and 191). As discussed in **Section 3.3.2**, stratification samples were collected from planting beds from 0 to 6 inches bgs. The stratification data are intended to be used to assess exposure under a landscaping or gardening scenario where the exposure frequency to soil in the planting beds is less than the 350 days used to evaluate residential exposure. However, to be conservative, maximum concentrations of stratification samples were compared to residential SSLs for COPC selection. **Table 2.2 (Appendix H)** provides a summary of the COPC selection for the alternative current scenario (exposure to soils within planting beds). Seven DUs reported PAH or lead concentrations in stratification surface soil (0 to 6 inches bgs) above their respective direct-contact SSLs.

Discrete samples of native surface soils collected from the former LAFB were all collected within 12 ft of the ground surface. Under TRRP, the definition of residential surface soil is all soil occurring between 0 and 15 ft bgs. As a result, the entire dataset for discrete soil samples (0 to 12 ft bgs) was evaluated to assess future hypothetical exposure and potential risk at each DU under a residential (unrestricted) land use scenario. Maximum concentrations were compared to SSLs for COPC selection. **Table 2.3 (Appendix H)** presents a summary of the COPC selection for the future scenario. Thirty-six DUs reported PAH or lead concentrations in soil (0 to 12 ft bgs) above their respective direct-contact SSLs.

### 6.2.2 Exposure Assessment

The goal of the exposure assessment in CERCLA guidance is to estimate the types and magnitudes of potential exposures to chemicals in environmental media by human populations resulting from a release of hazardous substances. The USEPA exposure assessment includes:

- Characterization of the exposure setting
- Identification of complete exposure pathways
- Estimation of the exposure concentration
- Quantification of exposure using standardized intake assumptions.

Each of these items is addressed separately below.

#### 6.2.2.1 Characterization of Exposure Setting

The exposure setting is characterized under CERCLA by collecting and evaluating data concerning current and future land use, current and future populations, habitats, climate, surface water hydrology, and hydrogeology. This RI Report provides information on climate characteristics, land use, site geology and hydrogeology, regulatory programs, and potential off-site receptors.

Clay target fragments from historical military training activities present in the soils have been identified as the source of PAHs detected in soil samples collected at the SGR. Soils collected during sampling were examined for the presence or absence of the target fragments. To evaluate current exposures, the available ISM data are assessed by DU, each representing a separate exposure area. **Table 4-2** presents the ISM soil data by DU. To evaluate current exposure to soils within planting beds, stratification data collected from 0 to 6 inches bgs were assessed. **Table 4-3** presents stratification samples by DU. To evaluate potential future exposures, the entire soil boring sample dataset collected from 0 to 12 ft bgs was assessed for individual DUs (**Table 4-4**).

The former SGR is currently zoned for both residential and commercial land use. However, to be protective, a residential (unrestricted) land use scenario is evaluated in this HHRA.

#### 6.2.2.2 Identification of Complete Exposure Pathways

An exposure pathway under CERCLA describes a unique mechanism by which a population may be exposed to the chemicals at or originating from the site. Exposure pathways are identified based on consideration of the sources, releases, types, and locations of chemicals at the site; the likely environmental fate (including persistence, partitioning, transport, and inter-media transfer) of these chemicals; and the locations and activities of the potentially exposed populations. Exposure points (points of potential contact with the chemical) and routes of exposure (e.g., ingestion, inhalation) are identified for each exposure pathway. Exposure pathways for COPCs in soil under the current/future residential land use scenario include:

- Direct absorption of COPCs from soil
- Incidental ingestion of COPCs in soil due to hand-to-mouth activity
- Inhalation of COPCs adsorbed to fugitive dusts or volatilized from impacted soil (where applicable based on the physical-chemical properties of COPCs).

#### 6.2.2.3 Estimate of Exposure Concentration

CERCLA guidance for conducting risk assessments recommends using the average concentration of a chemical in samples of environmental media to be the appropriate exposure concentration term or exposure point concentration (EPC). The estimation of the average concentration for each DU is calculated based on the statistical 95% UCL of the average concentration. The use of the 95% UCL means that there is only a 5% chance that the true average concentration of this chemical is above the estimated value. UCLs were derived for all DUs that reported a COPC concentration above the SSL.

The 95% UCLs for COPCs in surface soil (current scenario) at the SGR were calculated using the ITRC Incremental Sampling Method UCL Calculator (http://www.itrcweb.org/ism-1/4_2_2_UCL_Calculation_Method.html). Two UCL calculation methods were evaluated for use with ISM samples: Student's-t UCL and Chebyshev UCL. The higher of the two estimates (95% Chebyshev UCL) was used as the EPC for the current scenario (**Table 3.1 in Appendix H)**.

For the alternative current scenario and future scenario, USEPA's ProUCL software (version 5.1) was used to calculate 95% UCLs for surface soil at each DU. EPCs for the alternative current (planting beds; 0 to 6 inches bgs) and future scenario (0 to 12 ft bgs) are presented in **Appendix H (Tables 3.2 and 3.3)**.

**Lead**

Due to the difference in approach for evaluating exposures to lead, the arithmetic mean lead concentrations were used as the EPCs for lead, where applicable.

**EPCs in Outdoor Air**

Concentrations of the non-volatile COPCs in outdoor air were estimated using a particulate emission factor (PEF). EPCs for the COPCs in soil were multiplied by the PEF, according to the following equation:

$$C_a\left(\frac{\mu g}{m^3}\right) = C_s\left(\frac{mg}{kg}\right) \times \frac{1}{PEF\ (m^3/kg)} \times \frac{10^3 \mu g}{mg}$$

Where:

$C_a$ = EPC in outdoor air

$C_s$ = EPC in soil

PEF = particulate emission factor

The PEF is based on simplified soil-to-air transmission relationships described in *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (USEPA 2002). The USEPA default PEF was used in this HHRA.

Several PAHs are considered volatile based on their physical-chemical properties. Volatilization factors (VFs) are calculated in **Table 4.2** (**Appendix H)**.

### 6.2.2.4 Quantification of Exposure

The final step of the exposure assessment is to quantify the chemical exposure by calculating intake using standard pathway-specific exposure equations and assumptions. The USEPA RAGS and other guidance for conducting exposure assessments (USEPA 1992) include basic equations to calculate chemical intake by environmental media type and assumptions affecting intake such as food, soil, and water ingestion rates, inhalation rates, body weights, exposure frequencies, exposure durations, and various modifying factors. The goal of the quantification of exposure is to relate a chemical concentration in an environmental medium to a chemical dose in human receptors. The exposure equations and receptor-specific parameter values used to estimate PAH intakes, dermally absorbed doses, and exposure concentrations are presented in **Table 4.1 (Appendix H)**. The potential for adverse health effects from exposure to lead is described separately in **Section 6.3.4**.

**Oral and Dermal Exposures**

For current/future residents, application of the exposure equations results in chronic daily intake (CDI) for ingestion exposure or absorbed dose for dermal contact exposure, expressed in milligrams per kilogram of body weight per day (mg/kg-day). The estimated daily intake is the amount of chemical at the exchange boundary (i.e., stomach for ingestion and skin for dermal absorption). A fundamental assumption in the estimate of the dermally absorbed dose is that absorption continues long after the exposure has ended (USEPA 2004). As such, the final absorbed dose ($DA_{event}$) is estimated to be the total dose dissolved in the skin at the end of the exposure. Application of these equations requires a constituent concentration, or the average concentration contacted over the exposure period (e.g., mg/kg soil). These equations also require a contact rate (i.e., the amount of COPC contacted per unit time or event), body weight (i.e., the average body weight over the exposure period), and averaging time (AT; i.e., the time period over which exposure is averaged).

The AT depends on the type of toxic effect being assessed. When evaluating exposures for potential non-cancer health effects, intakes are calculated by averaging over the period of exposure. This is equivalent to the receptor-specific exposure duration (ED) multiplied by 365 days/year. When evaluating potential cancer risks, intakes are calculated by prorating the total cumulative intake over a lifetime (i.e., lifetime average daily intake). For calculation purposes, this is equal to 70 years multiplied by 365 days/year (i.e., 25,550 days). This distinction is consistent with the hypothesis that the mechanism of action for each of these health effects endpoints is different. The approach for carcinogens is based on the assumption that a high dose received over a short period of time is equivalent to a corresponding low dose spread over a lifetime.

**Inhalation Exposure**

Application of the equation for estimating inhalation exposure results in the exposure calculation (EC), which is expressed in micrograms per cubic meter ($\mu g/m^3$) and is based on the EPC for each COPC in outdoor air. The EPCs were modified to account for receptor-specific exposure parameters but do not consider body weight or inhalation rate. This approach is different from that used to evaluate oral and dermal exposures in that the EC, rather than chemical intake, is the metric used to estimate risk. The USEPA believes "the amount of the chemical that reaches the target site is not a simple function of inhalation rate and body weight" but "is affected by factors such as species-specific relationships of exposure concentrations to deposited/delivered doses and physiochemical characteristics of the inhaled contaminant" (USEPA 2009).

The inhalation toxicity values used to assess both cancer risk and non-cancer hazard are derived from human equivalent concentrations extrapolated from experimental exposures.

The AT in the inhalation exposure equation is expressed in hours. Therefore, for evaluating potential cancer risks, the AT equals 613,200 hours (25,550 days x 24 hours/day). The AT for non-cancer health effects is equivalent to the receptor-specific ED (in years) multiplied by 365 days/year and 24 hours/day.

#### 6.2.2.5 Bioavailability

Site-specific adjustments to exposure estimates or toxicity values are preferable when the exposure medium in the risk assessment (i.e., soil) differs from the exposure medium in the study used as the basis for the toxicity value (USEPA 2018). The USEPA Superfund program discusses bioavailability and includes a Relative Bioavailability Factor (RBAF) in its equations "so that site assessors can use bioavailability data to make more informed cleanup decisions." TCEQ also specifically allows site-specific bioavailability adjustments by the use of a site-specific RBAF.

The slope factor (SF) for benzo(a)pyrene published in the Integrated Risk Information System (IRIS) database is based on laboratory experiments where mice were dosed with laboratory grade benzo(a)pyrene in the diet. PAHs in soil and within the coal tar pitch/limestone matrix of the clay target fragments at the site are absorbed differently compared to the PAHs added to diet in laboratory studies. A site-specific bioavailability study of PAHs in clay target fragments and soil from the site was performed to determine the oral RBAFs for individual PAHs (TCEQ approval letter located in **Appendix A**). RBAFs for carcinogenic PAHs ranged from 0.2 for benzo(a)pyrene to 0.28 for chrysene.

The site-specific bioavailability study for PAHs in soil and clay target fragments also examined the effect of the soil and target fragment matrices on dermal absorption of PAHs. The default assumption for dermal absorption of PAHs is 13% based on data reported in Rhesus monkeys by Wester et al. (1990). *In vitro* testing of the dermal absorption of PAHs from site soil was performed using fresh-frozen excised human split-thickness skin. The results of the dermal absorption testing are also presented in detail in The Former Foster Air Force Base Skeet Range PAH Bioavailability Study Report (**Appendix A**). Site-specific ABS.ds for PAHs ranged from 0.27% for chrysene to 1.1% for benzo(b)fluoranthene. Site-specific RBAFs and ABS.ds were used to determine daily intakes for benzo(a)pyrene and the seven PAHs classified as probable human carcinogens.

An inhalation bioavailability study was not performed as a component of this scope of work. As a result, the inhalation bioavailability of PAHs from the coal tar pitch/limestone skeet target matrix is conservatively assumed to be equivalent to that of the key toxicology studies relied on to derive the inhalation toxicity factors.

## 6.3 Toxicity Assessment

The purpose of the toxicity assessment is to weigh available evidence regarding the potential for a particular chemical to cause a carcinogenic and/or a non-carcinogenic response in an exposed individual and provide an estimate of the relationship between the dose of the chemical exposure and the severity of toxic response. The toxicity assessment provides chemical-specific information on the mechanism of toxicity, target tissues, and accepted toxicity factors for calculating the severity of toxic responses. These factors include verified reference doses (RfDs) or verified reference concentrations (RfCs) for the evaluation of non-carcinogenic health effects from chronic exposure to chemicals and cancer potency SFs and inhalation unit risk (IUR) factors for the evaluation of excess cancer risk from lifetime exposure to chemicals. Sources of toxicological information and toxicity values, in order of preference, consistent with current USEPA guidance (USEPA 2003a), include:

1. IRIS, an online USEPA database containing current toxicity criteria for many chemicals that have gone through a peer review and USEPA consensus review process (USEPA 2018)
2. Provisional Peer-Reviewed Toxicity Values (PPRTVs) developed by the USEPA Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (https://hhpprtv.ornl.gov/)
3. Additional USEPA and non-USEPA sources of toxicity information, including but not limited to the California Environmental Protection Agency toxicity values, the Agency for Toxic Substances and Disease Registry (ATSDR) minimum risk levels, and toxicity values published in the USEPA Health Effects Assessment Summary Tables (HEAST; USEPA 1997).

### 6.3.1 Adverse, Non-cancer Health Effects

The National Contingency Plan (NCP; USEPA 1990) indicates that acceptable exposure levels for chemicals with non-cancer health effects should represent concentration levels to which the human population, including sensitive subpopulations (e.g., the elderly, young children), may be exposed without adverse health effects during a lifetime or part of a lifetime, incorporating an adequate margin of safety. The potential for non-cancer health effects associated with oral and dermal exposures is evaluated by comparing an estimated chemical intake or dermally absorbed dose over a specified time period with an RfD derived for a similar exposure period. The RfD is an estimate of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime. Therefore, the ratio of the intake or dermally absorbed dose to the RfD, termed the hazard quotient (HQ), assumes there is a level of exposure (i.e., the RfD) below which it is unlikely for even sensitive subpopulations to experience adverse health effects.

RfDs are not available to evaluate dermal exposure. In their absence, oral RfDs were used and adjusted following USEPA (2004) guidance to reflect absorbed dose. This allows for comparison between exposures estimated as absorbed doses and toxicity values expressed as absorbed doses.

The potential for non-cancer health effects associated with inhalation exposures is evaluated by comparing COPC concentrations in air (i.e., ECs) to RfCs derived for a similar exposure period (USEPA 2009). HQs are estimated by calculating the ratio of the EC to the RfC.

**Tables 5.1 and 5.2 (Appendix H)** present the non-cancer toxicity data for the soil COPCs evaluated in this HHRA.

### 6.3.2 Carcinogenic Effects

Excess lifetime cancer risks were estimated by multiplying an estimated daily intake or dermally absorbed dose prorated over 70 years by the SF. The resulting risk estimate is expressed as a unitless probability (e.g., $2 \times 10^{-5}$ or 2 in 100,000) of an individual developing cancer. The unitless probability represents the incremental (or increased) lifetime cancer risk associated with the estimated exposure above the background risk of developing cancer. This linear equation is valid only at low risk levels (i.e., below estimated risks of 0.01). According to the USEPA (1989), this approach does not necessarily give a realistic prediction of risk. The true value of the risk at trace ambient concentrations is unknown and may be as low as zero.

USEPA has not derived SFs to evaluate dermal exposure. In their absence, SFs for oral exposure were used and adjusted per USEPA guidance to reflect absorbed dose. This allows for risk estimation based on exposures estimated as absorbed doses and SFs expressed as absorbed doses.

To evaluate inhalation exposures, IURs that relate cancer potency to a chemical concentration in air are used (USEPA 2009). Excess lifetime cancer risks are estimated by multiplying the EC by the IUR.

COPCs at the SGR include PAHs (benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[j]fluoranthene, benzo[k]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) and lead. Benzo(a)pyrene represents the principal COPC with respect to potential risks to human health. An assessment of the current data concerning toxicity and carcinogenicity of benzo(a)pyrene is discussed below.

The current IRIS database file (January 2018 accession) indicates that benzo(a)pyrene is classified as "carcinogenic to humans," while six other high molecular weight PAHs (benz[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene) are classified as Group B2 "probable human carcinogens." Potential cancer risk of individual carcinogenic PAHs is currently assessed using the published SF and IUR for benzo(a)pyrene (1 mg/kg-day$^{-1}$ and 0.0006 [µg/m$^3$]$^{-1}$, respectively) and relative potency factors (RPFs). The RPFs for these PAHs are 1 for dibenzo(a,h)anthracene; 0.1 for benz(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, and indeno(1,2,3-cd)pyrene; 0.01 for benzo(k)fluoranthene; and 0.001 for chrysene. Additionally, benzo(a)pyrene is evaluated for potential non-cancer adverse effects using an oral RfD and inhalation RfC of $3 \times 10^{-4}$ mg/kg-d and $2 \times 10^{-6}$ mg/m$^3$, respectively. These reference toxicity values were derived based on reproductive and/or developmental effects observed in animal bioassays following oral or inhalation exposure. Unlike cancer risk assessment, RPFs with which to scale the non-cancer potency of the other PAHs do not exist.

**Tables 6.1 and 6.2 (Appendix H)** present the cancer toxicity data for the soil COPCs evaluated in this HHRA.

According to USEPA, carcinogenic PAHs exhibit a mutagenic mode of action where early-life exposure to such chemicals can result in a greater contribution to cancers appearing later in life (USEPA 2005). Therefore, age-dependent adjustment factors (ADAFs) are used to estimate cancer risks for child receptors.

The USEPA default ADAFs have no toxicological relevance to benzo(a)pyrene because they are derived from chemicals other than benzo(a)pyrene despite the fact that data on benzo(a)pyrene are presented in the guidance document. As noted in the following quotations, the Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA 2005) states repeatedly that the default ADAFs should be used only for chemicals for which chemical-specific information is not available.

> "In summary, this analysis supports the conclusion that there can be greater susceptibility for the development of tumors as a result of exposures to chemicals acting through a mutagenic mode of action, when the exposures occur in early lifestages as compared with later lifestages. Thus, this Supplemental

Guidance recommends for chemicals with a mutagenic mode of action for carcinogenesis when chemical-specific data on early-life exposure are absent, a default approach using estimates from chronic studies (i.e., cancer slope factors) with appropriate modifications to address the potential for differential risk of early-lifestage exposure."

"When the data indicate a mutagenic mode of action, the available studies (discussed above) indicate higher cancer risks resulting from a given exposure occurring early in life when compared with the same amount of exposure during adulthood. However, chemical-specific data relating to mode of action (e.g., toxicokinetic or toxicodynamic information) may suggest that even though a compound has a mutagenic mode of action, higher cancer risks may not result. Such data should be considered before applying the age-dependent adjustment factors."

"Finally, as the adjustment factors are derived from a weighted geometric mean of the data evaluated, these adjustments will both over-estimate and under-estimate the potential potency for early-life exposure for chemicals with a mutagenic mode of action for carcinogenesis. An examination of the data in the tables demonstrates that some of the ratios were less than one, while others exceeded 10. For this reason, the Supplemental Guidance emphasizes that chemical-specific data should be used in preference to these default adjustment factors whenever such data are available."

"In general, the [USEPA] prefers to rely on analyses of data, rather than general defaults. When data are available for a susceptible lifestage, they should be used directly to evaluate risks for that chemical and that lifestage on a case-by-case basis."

"Note again, ADAFs are only to be used for agents with a mutagenic mode of action for carcinogenesis when chemical-specific data are absent. For all modes of action, when chemical-specific data are available for early-life exposure, those data should be used."

Data on benzo(a)pyrene are presented in the Supplemental Guidance. Specifically, Vesselinovitch et al. (1975) exposed mice to large single doses of benzo(a)pyrene by intraperitoneal injection at days 1, 15, and 42. Animals exposed on day 1 were newborn animals. A mouse at day 15 is equivalent to a human at 11 months of age. The authors then compared the tumor response of these animals dosed early in life to animals dosed at day 42. They found that the tumor response for animals dosed at days 1 and 15 did not significantly differ, but both differed significantly from the tumor response in animals dosed at day 42. USEPA calculated the cancer potency factors for all of the animal groups, and the average ratio of the potency factors of the animals exposed early in life to those exposed later in life was a factor of 4.6. The average ratio was not 10, which is the USEPA's default ADAF that is dominated by data on other chemicals, as noted above. The ADAF for 2- to 16-year-old receptors is derived in the same manner as those derived in USEPA (2005). 2.1 is half the difference between 1 and 4.6 on a logarithmic scale.

The following ADAFs apply to each of these age groups:

- ADAF for 0-2 years = 4.6
- ADAF for 2-6 years = 2.1
- ADAF for 6-16 years = 2.1, and
- ADAF for 16-30 years = 1.

### 6.3.3 Chemical Mixtures

USEPA guidance was also used to account for the overall potential for human health risk from exposure to multiple constituents. For the evaluation of adverse, non-cancer health effects, USEPA guidance assumes that sub-threshold exposures to several chemicals at the same time could result in an adverse health effect. The sum of the non-cancer HQs (for individual chemicals, exposure routes, exposure pathways, or potentially-exposed populations) is the hazard index (HI). Generally, HIs are only used in the evaluation of a mixture of chemicals that induce the same effect by the same mechanism of action or cause adverse effects to the same target organ or system. For this HHRA, the HIs of a mixture of constituents that can have different effects were used as a screening-level approach, as recommended by the USEPA (1989). This approach may overestimate the likelihood of adverse, non-cancer health effects.

For the evaluation of excess lifetime cancer risk, USEPA guidance indicates that the individual risks associated with exposure to each constituent can be summed. This approach was used in this HHRA and assumes independence of action by the constituents involved (i.e., that there are no synergistic or antagonistic interactions, and that all constituents produce the same effect: cancer).

### 6.3.4 Lead

The Toxic Substance Control Act (TSCA), Section 403, establishes standards for lead-based paint hazards in residential paint, dust, and soil for residential and child-occupied facilities. The rule establishes standards for lead-based paint hazards (including hazards from lead in dust and soil) in most pre-1978 housing and child-occupied facilities. Under these standards, lead is considered a hazard in soil when concentrations equal to or exceeding 400 parts per million (ppm) of lead in bare soil in children's play areas.

Exposure to lead is typically evaluated in terms of the increase in blood lead (PbB) concentrations following exposure. However, for this HHRA, USEPA's Adult Lead Methodology and Adult Lead Model, and USEPA's Integrated Exposure Uptake Biokinetic Model for Lead in Children were not used because the arithmetic average of lead in soil at all evaluated DUs is well below the standard of 400 mg/kg; therefore, lead is unlikely to represent a health concern at the site.

## 6.4 Risk Characterization

The final step in the HHRA process is the risk characterization, which combines exposure estimates with toxicity information to assess the potential for adverse health effects for each exposure scenario evaluated in the HHRA. In this section, the non-cancer hazards and cancer risks for each exposure scenario identified for the SGR are presented and discussed. A discussion of uncertainties associated with the HHRA process is presented in **Section 6.5**.

### 6.4.1 Non-Carcinogenic Hazard Estimates

As described in **Section 6.3**, the potential for non-cancer health effects is evaluated by calculating the ratio of an estimated intake, dermally absorbed dose, or EC over a specified time period with a chemical-specific RfD or RfC derived for a similar exposure period. The RfD or RfC is an estimate of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime. The non-cancer HQ therefore assumes there is a level of exposure below which it is unlikely for even sensitive subpopulations to experience adverse health effects. The total individual HQs are summed for each exposure pathway and scenario to yield HIs representative of the potential for adverse, non-cancer health effects from cumulative exposure.

RAGS Part D Table 7 series (see **Appendix H, Tables 7.1 through 7.6**) present the scenario and receptor-specific non-cancer HIs for each receptor at each DU. RAGS Part D Table 9 series (see **Appendix H**, **Tables 9.1 through 9.3**) present the scenario and receptor-specific non-cancer HIs summed across exposure routes for each DU.

As shown, the ranges of HIs for exposure to PAHs in soil are as follow:

- For a current resident exposed to surface soil (0 to 2 inches bgs) across all evaluated DUs: 0.004 to 0.1
- For a current resident exposed to planting bed soil (0 to 6 inches bgs) across all evaluated DUs: 0.004 to 0.2
- For a future resident exposed to soil (0-12 feet bgs) across all evaluated DUs: 0.002 to 0.4.

The highest HI for a current/future resident is less than the USEPA benchmark for an acceptable hazard. As a result, existing concentrations of PAHs in all evaluated DUs do not pose non-carcinogenic hazards to human health that exceed regulatory levels of concern.

### 6.4.2 Cancer Risk Estimates

As described in **Section 6.3**, individual cancer risks are expressed as unitless probabilities of a person developing cancer. The total individual (i.e., COPC-specific) cancer risks were summed for each exposure pathway and scenario to estimate the potential for cancer risk from cumulative exposure. For known or suspected carcinogens, the NCP established that acceptable exposure levels are generally concentration levels that represent an incremental upper-bound lifetime cancer risk in the range from $1\times10^{-4}$ (i.e., 1E-04 or 1 in 10,000) to $1\times10^{-6}$ (i.e., 1E-06 or 1 in 1,000,000) or less (USEPA 1990). The cancer risks estimated for each exposure scenario are therefore compared to this risk range established by the NCP.

RAGS Part D Table 7 series (see **Appendix H, Tables 7.1** through **7.6**) present the scenario and receptor-specific cancer risks for each receptor at each DU. RAGS Part D Table 9 series (see **Appendix H, Tables 9.1** through **9.3**) present the scenario and receptor-specific cancer risks summed across exposure routes at each DU.

As shown, the ranges of excess lifetime cancer risks for exposure to PAHs in soil are as follow:

- For a current resident exposed to surface soil (0 to 2 inches bgs) across all evaluated DUs: $3x10^{-7}$ to $2x10^{-5}$
- For a current resident exposed to planting bed soil (0 to 6 inches bgs) across all evaluated DUs: $4x10^{-7}$ to $2x10^{-5}$
- For a future resident exposed to soil (0-12 feet bgs) across all evaluated DUs: $2x10^{-7}$ to $5x10^{-5}$.

Total excess lifetime cancer risk estimates for exposure to PAHs simultaneously at each DU evaluated under current and future scenarios are within the acceptable range established in the NCP of 1 in

1,000,000 to 1 in 10,000. As a result, existing concentrations of PAHs in all evaluated DUs do not pose carcinogenic risk to human health that exceeds regulatory levels of concern.

## 6.5 Uncertainty Analysis

The uncertainty analysis for the HHRA of the SGR is focused on the COPC screening process and exposure assessment related to the ISM and discrete sampling results for soil.

### 6.5.1 Uncertainties Associated with the Sampling and Analysis

Selection of COPCs was based on the results of the sampling and analytical program established for the site. The factors that contribute to the uncertainties associated with the identification of COPCs are inherent in the data collection and data evaluation processes, including DU selection, appropriate sample locations, adequate sample quantities, laboratory analyses, data validation, and treatment of validated samples.

Maximum detected chemical concentrations were compared to SSLs. Chemicals with maximum concentrations below their respective SSLs were not carried through the assessment. It is unlikely that this screening would have excluded chemicals that would be of concern based on the conservative exposure assumptions and protective SSLs. Although following this methodology does not provide a quantitative risk estimate for all chemicals, it focuses the assessment on the chemicals accounting for the greatest risks, and the overall cumulative risk estimates would not be expected to be greater than these conservative screening values.

### 6.5.2 Uncertainties Associated with the EPC for the Future Scenario

Discrete soil data were collected from several depth intervals at each evaluated DU (i.e., 0 to 2 ft, 2 to 4 ft, 4 to 6 ft, 6 to 8 ft, 8 to 10 ft, and 10 to 12 ft). For this HHRA, EPCs (UCLs) for each DU were calculated using data from across all depth intervals to determine the exposure risk to future receptors. This is appropriate because the EPC based on the 0 to 12 ft interval represents a very protective estimate of the reasonably anticipated future exposure concentration. Most people will not be exposed to soils in the 0 to 12 ft interval. Although concentrations reported in each interval may or may not be higher than the overall UCL for a DU, it is unlikely that future exposure would only occur at a specific 2 ft interval (e.g., 4 to 6 ft interval or the 8 to 10 ft interval). However, future risks and hazards may be marginally underestimated in this HHRA if exposure were only to occur at intervals where reported concentrations are higher than the EPC.

### 6.5.3 Uncertainties Associated with the ISM Sample Results

As described in **Section 3.3.1**, ISM samples have been collected from each DU at the SGR to characterize the presence and nature of COPCs in surface soil over the site. The analytical results for ISM samples are presented in **Table 4-2**. ISM samples were analyzed for PAHs and lead due to their persistence in the environment. Results of ISM analyses represent a statistically derived average concentration for the sampled DU. These ISM samples were collected in triplicate to validate the results. These concentrations, therefore, can be compared directly to risk-based criteria without statistical analysis. However, as with any estimate derived from sampling, ISM results are subject to error, and understanding this error is accomplished with statistical analysis.

Two candidate UCL equations that can accommodate ISM datasets and that are expected to "bracket" the range of UCLs that may be calculated from a dataset are the Student's-t (representing the low end of the range) and Chebyshev (representing the high end of the range) UCLs (ITRC 2012). For this HHRA, the higher of the calculated UCLs (Chebyshev) was used in the risk calculations for the current scenario. These EPCs are conservative and likely overestimate the risk.

### 6.5.4 Uncertainties Associated Evaluation using Stratification Sample Data

Stratification samples were collected from planting beds at 10% of the DUs. This low sample frequency presents uncertainty within the risk assessment because a robust dataset across the site is not available. However, stratification data appear to be in general agreement with the soil boring data (0-2 ft bgs) used to evaluate the future scenario. Considering the entire soil dataset collected from the site including ISM, stratification, and boring data, the results of the risk assessment indicate that cancer risks and non-cancer hazards are acceptable for all DUs. In addition, the exposure frequency to soils within a planting bed is expected to be significantly less than exposure frequency of 350 days per year used in calculating cancer risks and non-cancer hazards for a resident. For example, USEPA uses an exposure frequency of 12 days/year (individuals assumed to contact soil from working in their gardens once per month, on average) in an example residential gardener scenario (USEPA 2003b).

## 6.6 HHRA Conclusions

The HHRA for the SGR was prepared consistent with USEPA guidance. The HHRA quantified potential cancer risks and non-cancer hazards associated with COPCs in surface soil at the site.

The total excess lifetime cancer risk estimates for exposure to all COPCs evaluated under current and future scenarios are within the acceptable range established in the NCP of 1 in 1,000,000 to 1 in 10,000. As a result, existing concentrations of COPCs at the site do not pose carcinogenic risk to human health that exceeds regulatory levels of concern under CERCLA.

The non-cancer HI estimates for exposure to all COPCs evaluated under current and future scenarios are less than the target HI of 1. As a result, existing concentrations of COPCs at the site do not pose non-carcinogenic hazards to human health that exceeds regulatory level of concern under CERCLA.

Average lead concentrations in soil at all evaluated DUs are well below the standard of 400 mg/kg; therefore, lead is unlikely to represent a health concern at the site.

# 7 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

A SLERA, in the form of Tier 1 Ecological Exclusion Criteria Checklist (30 TAC 350.77(b) Figure), was completed for the SGR site and is presented in **Appendix I**. The former SGR meets the Tier 1 Exclusion Criteria, and further ecological evaluation is not warranted based on the following conclusions from the checklist:

- The SGR was primarily developed as a residential neighborhood with a minor commercial component in the late 1970s. The Affected Property is characterized by buildings, pavement and roadways, landscaped areas, and otherwise disturbed ground.
- The area is characterized by human presence and activities, and any ecological habitat that may have once existed has been altered, impacted, or reduced to a degree such that it is no longer conducive to utilization by ecological receptors.
- There are no surface water bodies within the SGR site boundaries. The nearest waterbody to the site is Zacata Creek, located northwest of the property. Zacata Creek is intermittent, channelized, and partially lined with concrete. Due to anthropogenic activities and maintenance on this flood conveyance channel, Zacata Creek is not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, and other animals.

# 8 REVISED CONCEPTUAL SITE MODEL

The preliminary CSM for the SGR was developed during the RI planning phase by integrating information from previous investigations and is presented in **Section 2.10**. The CSM has been revised based on the data collected as part of the RI. The primary changes to the CSM include:

- The maximum depth of the investigation at the SGR was increased to 12 ft bgs.
- Sample depths at which exceedances of the Tier 1 PCL were observed were added.
- The conclusion that, within the High Probability Target Fragment Area in front of the firing line, soils below the top 2 inches may contain higher benzo(a)pyrene concentrations than the top 2 inches was added.

CSM details are presented in **Table 8-1** below.

**Table 8-1. Former LAFB SGR Revised CSM**

| Profile Type | Site Characterization |
|---|---|
| **Site Profile** | **Area and Layout**<br>The SGR is part of the Former LAFB in Laredo, Webb County, Texas. The site is located approximately 0.5 mile west of LIA. |
| | **Former Site Use**<br>The Site was formerly owned and operated by the United States Army Air Force as a World War II gunnery training school from 1942 to 1947. The original firing line was located along the present-day East Hillside Road, with the firing line facing north. The SGR firing line extended from present-day Cypress Drive on the west to North Bartlett Road on the east (**Figure 1-2**). Aerial photographs indicate that two of the World War II skeet ranges along East Hillside Road appear to have been active during the reactivation of LAFB for the Korean War in 1952 and into the early 1960s. By 1970, the SGR was developed into a golf course. The government released the property in 1974, and construction for its current use began by the mid-1980s. |
| | **Current Structures**<br>The site is characterized by buildings, pavement and roadways, and landscaped areas. Current structures primarily consist of residences and a church. Commercial buildings are present along the eastern and western boundaries. |
| | **Boundaries**<br>The site is bounded by McPherson Road on the west, Hibiscus Avenue on the north, Daugherty Road on the east, and East Hillside Road on the south. |
| **Land Use and Exposure Profile** | **Current Land Use**<br>The site has been developed for primarily residential land use (Vista Hermosa Subdivision) and contains a church. |

| Profile Type | Site Characterization |
|---|---|
| | Commercial land use is present on the eastern and western boundaries of the SGR. |
| | **Potential Future Land Use**<br>The SGR has been fully redeveloped, and the anticipated future land use for the is the same as the current land use. The most conservative land use (unrestricted, residential) was assumed for evaluating risk as part of the RI. |
| | **Human Receptors**<br>Human receptors include residents of the Villa Hermosa Subdivision, visitors, workers, and church members. Future human receptors are expected to be the same. |
| **Ecological Profile** | **Ecological Receptors**<br>The site is characterized by human presence and activities, and any ecological habitat that may have once existed has been altered, impacted, or reduced to a degree such that it is no longer conducive to utilization by ecological receptors |
| **Release Profile** | **Source Material**<br>Clay target fragments from skeet shooting remain on and beneath the ground surface. No shot has been observed in any of the soil cores up to the maximum investigation depth of 12 ft bgs |
| | **Associated COPCs**<br>Samples of clay targets analyzed during previous investigations contain PAHs. Soil at the SGR contains PAHs, which are assumed to be associated with the clay target fragments. Benzo(a)pyrene concentrations exceeding the Tier 1 residential PCL were observed in soil boring samples from each 2-foot sample interval from 0 to 10 feet bgs, with the highest concentration of benzo(a)pyrene observed in the 8-10-foot sample interval. The 8-10 ft bgs sample interval was the maximum depth of soil with benzo(a)pyrene concentrations above the RAL.<br><br>Lead from shot is a COPC commonly found at skeet range sites. However, no shot was observed during the FSI or RI, and lead was detected in soil at a concentration above the RAL in only one of the 964 samples collected from the site during the RI. |
| | **Release Mechanism**<br><br><u>Deposition</u><br>The conceptual layout of the Former LAFB SGR is presented on **Figure 1-4**, along with current land use. The likely fan area for the skeet range was aligned in 15 semicircles with 50-foot radii. Clay targets would have been launched laterally across the skeet field from high and low skeet houses. At the SGR, personnel fired north from a firing line positioned approximately along the current location of Hillside Road.<br><br>Based on a layout typical of historical and current skeet range boundaries:<br>• The majority of lead pellets fired at a skeet range fall within the "High Probability Shot Area," usually found |

| Profile Type | Site Characterization |
|---|---|
| | between 375 and 600 feet from the firing point and indicated by the orange arc on **Figure 1-4**. However, no lead shot was found at the SGR during the FSI or RI.<br>• Target fragments are expected to be found between 65 and 260 feet from the firing point, indicated by the yellow arc on **Figure 1-4**. The light blue arc on the figure indicates the "Maximum Target Fragment Line;" this is the location at which the most target fragments were expected to be found at the site. Therefore, properties along Hillside Road would contain locations behind, directly beneath, and directly in front of the firing line. Properties facing Greenway Lane and south of Wildrose Circle would have been primarily within the High Probability Target Fragment Area.<br><u>Release to Exposure Medium</u><br>The PAHs are bound in target fragments but become part of the exposure medium for COPCs in surface soil when reduced to the adherable particle size (250 microns or less) through mechanical processes. At the SGR, PAH concentrations were detected in soil in the presence of visible target fragments, but they were also found in soil areas without visible target fragments in surface soils.<br>Evaluation of the RI datasets for ISM (0-2 inch), stratification (0-6 inch), and soil boring (0-2 foot) from D009 indicate that, within the High Probability Target Fragment Area in front of the firing line, soils below the top 2 inches may contain higher benzo(a)pyrene concentrations than those in the top 2 inches. |
| **Transport/ Migration Profile** | **Transport Mechanisms**<br>The primary transport mechanisms evaluated for both the clay target fragments and soils containing PAHs is disturbance by human and ecological receptors. The site surface changed with redevelopment of the skeet range to a golf course; however, the FSI concluded that development of the golf course did not significantly alter the distribution of target fragments. The FSI also concluded that, under the current site configuration, target fragments are generally present within the standard distances from firing locations.<br>Current movement of fragments and soil at the site occurs due to erosion from wind and water runoff (during storm events) and digging/earth-moving during yard work and landscape maintenance, among other activities. |
| | **Migration Routes**<br>The primary migration routes evaluated for the SGR include the following:<br>• Surface Soil: Precipitation leading to COPC infiltration from surface soil to subsurface soil and/or to groundwater<br>• Surface Water: Surface water containing COPC infiltration to subsurface soil and groundwater. Surface water carrying clay targets and/or COPCs downgradient through drainages after heavy rain events. |

| Profile Type | Site Characterization |
|---|---|
| **Exposure Pathway Analysis** | **Skeet Fragments**<br>Exposure to clay fragments occurs through handling, treading on, and other disturbance by human or ecological activities. |
| | **COPCs**<br>The COPC primary exposure pathways for human and ecological receptors is through direct contact, ingestion, and dust inhalation due to disturbance of soil by human or ecological activities.<br><br>The groundwater beneath the SGR is a Class 3 groundwater resource and is therefore not considered usable as a source of drinking water. |

# 9 CONCLUSIONS AND RECOMMENDATIONS

The RI conclusions and recommendations are presented below.

## 9.1 Summary of Conclusions

### 9.1.1 Nature and Extent of Contamination

The COPCs identified for evaluation in the RI included PAHs and lead, and have been fully delineated in surface soil and groundwater consistent with requirements under CERCLA and TRRP as follows:

- Soil sampling was performed at each property for which a signed ROE agreement was obtained.
  - ISM samples were collected from 91 DUs to evaluate current exposure and provide horizontal delineation information. All COPCs identified as part of the current exposure scenario were fully delineated horizontally.
  - Discrete samples were collected from planting beds within nine DUs to evaluate special use areas. Stratification data appear to be in general agreement with the ISM and soil boring (0-2 ft) data, except for data from DU009.
  - Evaluation of the stratification, soil boring (0-2 ft), and ISM datasets from D009 indicate that, within the High Probability Target Fragment Area in front of the firing line, soils below the top 2 inches may contain higher benzo(a)pyrene concentrations than those in the top 2 inches (sampled by the ISM dataset).
  - Soil borings were installed and sampled in 49 DUs to evaluate future exposure and to provide vertical delineation information. All COPCs identified as part of the LAFB SGR RI were fully delineated vertically by the soil boring results.
- Groundwater samples have been previously collected from four monitoring wells installed in the SGR.
  - Groundwater at the site is classified as a Class 3 groundwater resource under TRRP.
  - There were no COPC detections in groundwater samples above the residential, Tier 1 Class 3 groundwater PCLs.
- Two Affected Property areas were identified based on benzo(a)pyrene and lead exceedances of the RAL in surface soils. Un-sampled DUs adjacent to DUs with sample results exceeding the RAL and backyards of DUs within the High Probability Target Fragment Area adjacent to DUs with RAL exceedances from the soil boring dataset were also included within the Affected Property areas. The maximum depth interval of soil with COPC (benzo[a]pyrene) concentrations above the RAL was from 8 to 10 ft bgs. Soil samples collected from 10 to 12 ft bgs vertically delineate COPC concentrations above RALs, as shown on **Figures 4-4** and **4-5.**

Conclusions of the Risk Assessment are presented below.

### 9.1.2 Fate and Transport

Transport of COPCs at the SGR is likely due to their presence in surface soil. COPCs at the site are typically adhered to soil particles and are available for migration via wind erosion as fugitive dust, which is therefore a complete pathway at the SGR. Additionally, COPCs in soil at the site are available to plants and animals for uptake into the food chain.

Migration via surface runoff is not a significant migration pathway for COPCs in soil due to flat terrain and vegetative cover. Additionally, because groundwater is classified as a Class 3 groundwater resource, it is not considered a viable source of drinking water. Soil concentrations detected during the site investigations were below the $^{GW}Soil_{Class\ 3}$ PCLs; therefore, cross-media transport from soil to groundwater is not a concern for this site, which is confirmed by groundwater data collected for the site.

The source medium for COPCs at the SGR is the coal tar pitch/limestone matrix of the clay target fragments present in surface soil. The presence of these clay target fragments represents a potential ongoing source of future PAH releases to soils, as the target fragments break down over time. Although PAHs do degrade in the environment in response to natural and biological processes, the principal PAH reported in soil at the site is benzo(a)pyrene, which does not degrade as readily as the relatively lower molecular weight PAH compounds.

### 9.1.3 Risk Assessment

The conclusions of the SLERA and HHRA were as follows:

- The SGR meets the Tier 1 Exclusion Criteria, and no further ecological evaluation is warranted.
- Total excess lifetime cancer risk estimates for exposure to all COPCs simultaneously at each DU evaluated under a current and future scenario are within the acceptable range established in the NCP of 1 in 1,000,000 to 1 in 10,000. As a result, existing concentrations of COPCs in all DUs do not pose carcinogenic risk to human health that exceeds regulatory levels of concern under CERCLA.
- Under the current and future exposure scenarios, the total HI for combined exposure to COPCs in soil at each DU does not exceed the target HI of 1. As a result, existing concentrations of COPCs at the site do not pose non-carcinogenic hazards to human health that exceed regulatory level of concern under CERCLA.

## 9.2 Data Limitations

The scope of the RI was limited to collection of soil samples from only those DUs for which signed ROE agreements could be obtained from the landowner. Therefore, the extent of the Affected Property was drawn to include un-sampled DUs adjacent to DUs with exceedances of the RAL. Soil boring and stratification samples were not collected from every DU sampled. (Soil borings were installed in approximately 50% of the DUs, and stratification samples were collected from 10% of the DUs). Additionally, soil borings were not installed in the backyards. Because no data from below 2 inches are available in the backyards, the Affected Property was drawn to include backyards of DUs within the High Probability Target Fragment Area adjacent to DUs with RAL exceedances.

## 9.3 Recommendations

Delineation of COPCs has been completed, and no further investigation of the site is required. Because the existing concentrations of COPCs at the site do not pose carcinogenic risk or non-carcinogenic hazard to human health that exceed regulatory levels of concern under CERCLA, no response action will be required at the SGR, and a Feasibility Study will not be performed. It is therefore recommended that the site proceed with additional steps required to complete the CERCLA process including establishing the administrative record and public repository, preparing a Proposed Plan, performing public participation tasks, and preparing the Decision Document.

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# FIGURES


Legend

Site Boundary


0 2,000 4,000

SCALE IN FEET

Imagery Source: ArcGIS Online Imagery

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

## Site Location Map

FIGURE

**1-1**

DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
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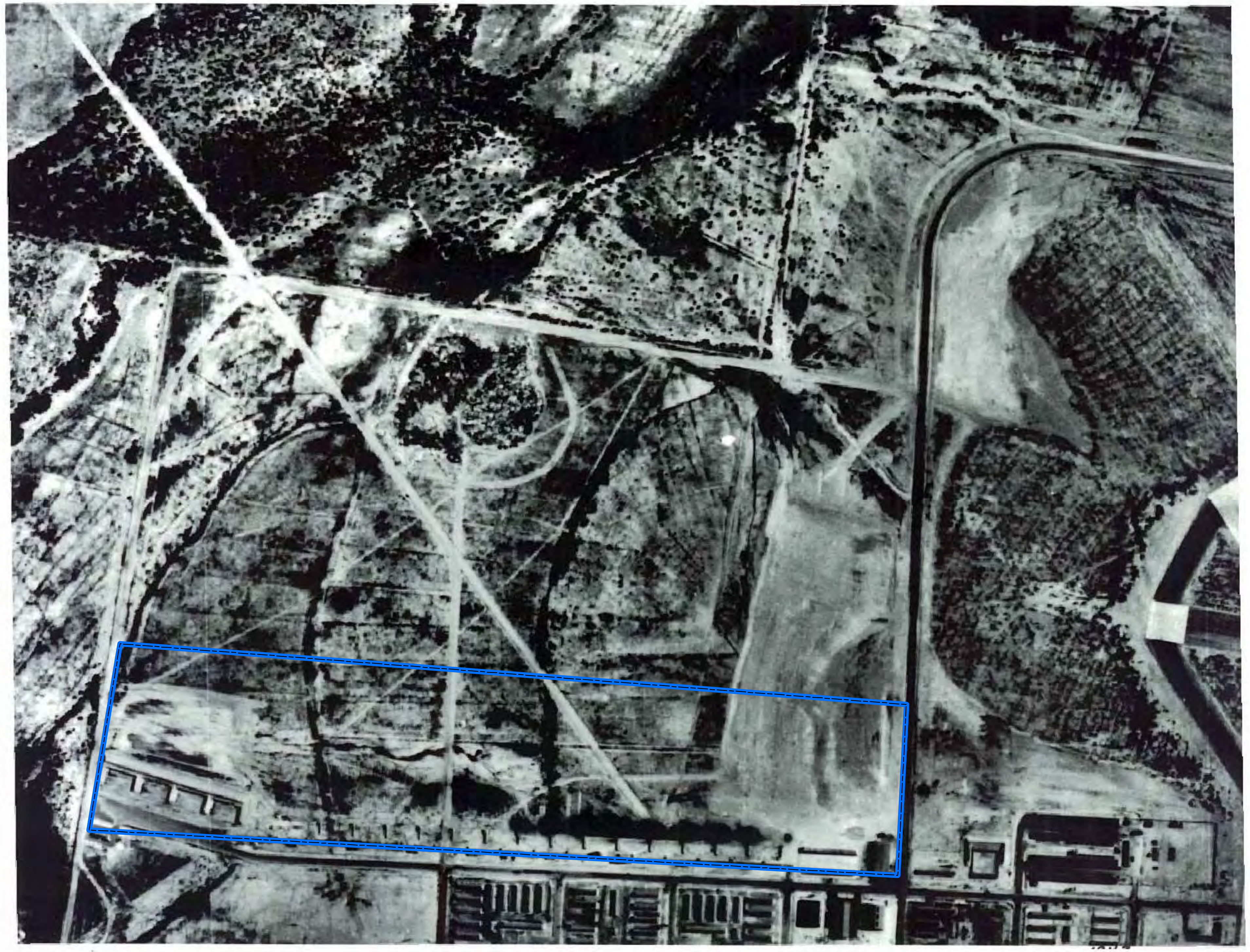

Legend

Site Boundary

0 500 1,000

SCALE IN FEET

Notes:
1) SGR = Shotgun Range
2) Alignment between historical aerial photograph and site boundary is approximate.

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**SGR Skeet Ranges at the Former Laredo Air Force Base - 1943**

FIGURE

**1-2**

DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F1-2 LaredoAFB RI Rpt - SGR Skeet Ranges 1943.mxd

Legend

Site Boundary

Notes:
1) Imagery Source: USGS 1964
2) SGR = Shotgun Range
3) Alignment between historical aerial photograph and site boundary is approximate.

0 500 1,000

SCALE IN FEET

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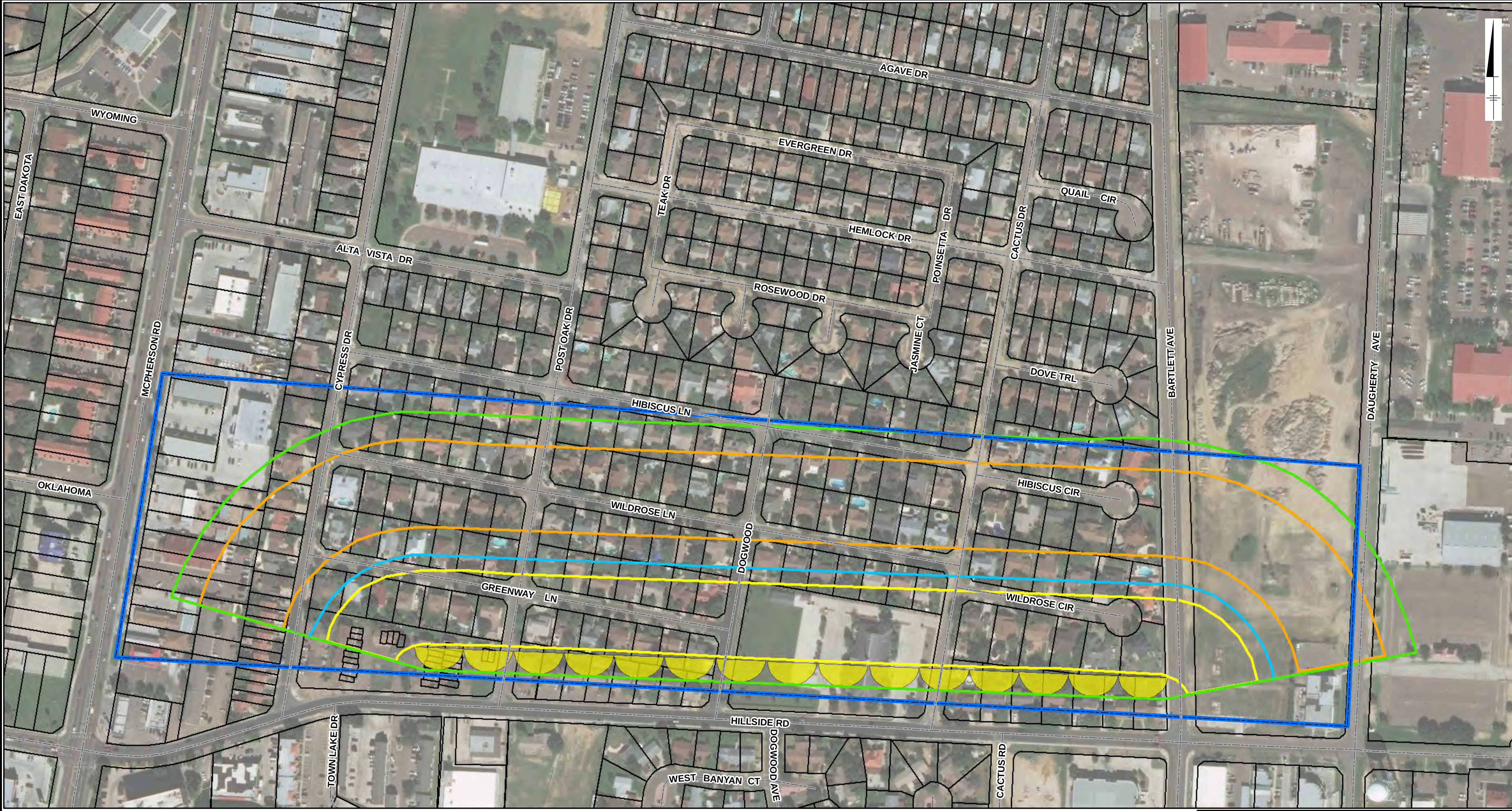
**SGR Skeet Ranges at the Former Laredo Air Force Base - 1964**

FIGURE

**1-3**

DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F1-3 LaredoAFB RI Rpt - SGR Skeet Ranges 1964.mxd




## Legend

- Site Boundary
- Maximum Shotfall Line
- Shotgun Traps
- High Probablility Shot Area
- High Probability Target Fragment Area
- Parcel Boundaries
- Maximum Target Fragment Line

0 240 480
SCALE IN FEET

Notes:
1) Imagery Source: ArcGIS Online Imagery
2) Parcel and road data obtained from the City of Laredo, Texas GIS

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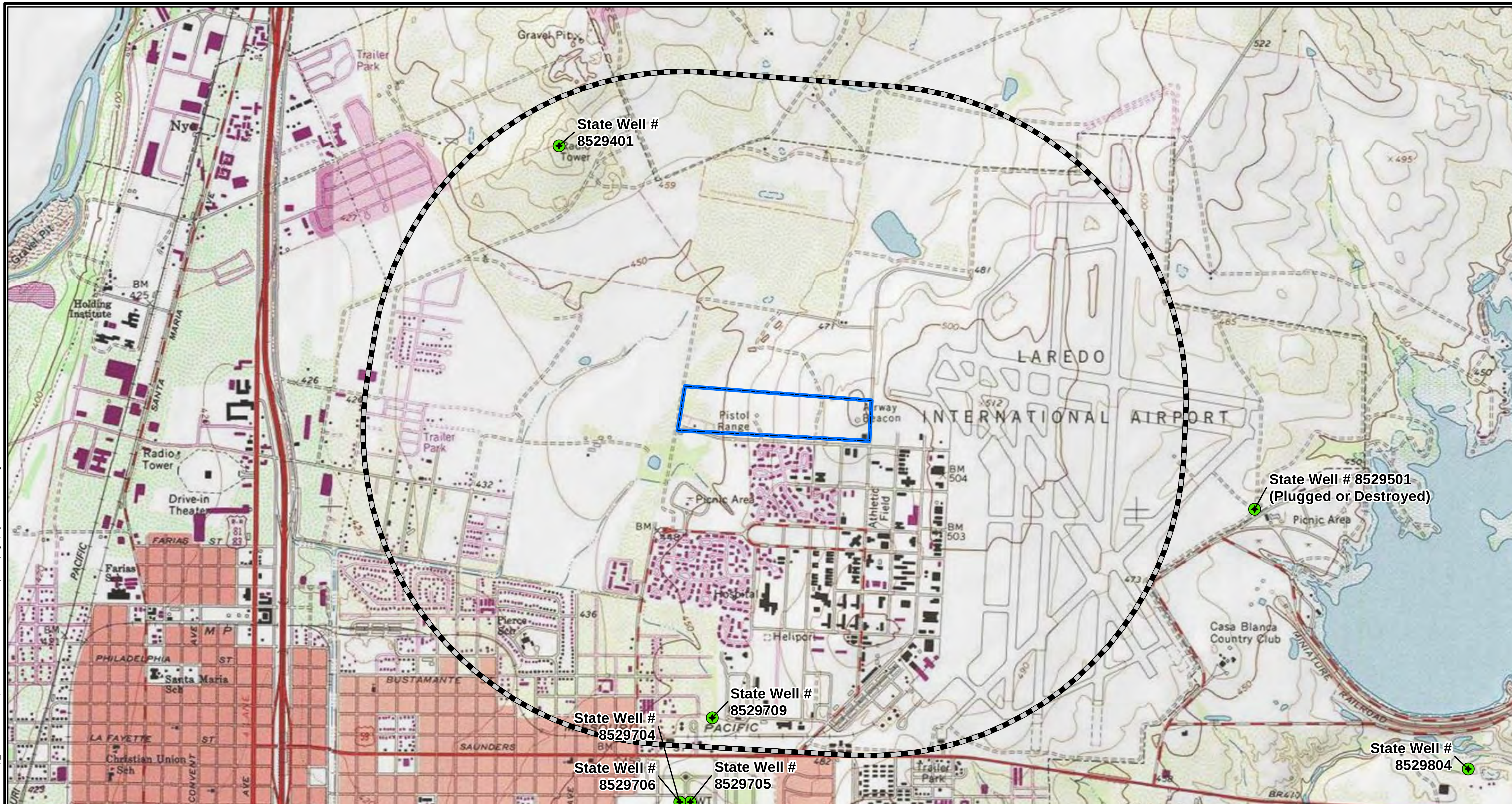
**Shotgun Range Layout**

FIGURE
**1-4**

DIV/GROUP: (ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F14 LaredoAFB RI Rpt - Shotgun Range Layout.mxd




Legend

- Site Boundary
- Site Boundary 1 Mile Buffer
- TWDB Groundwater Database Well Location

Notes:
1) Imagery Source: ArcGIS Online Imagery
2) TWDB = Texas Water Development Board
3) TWDB Water Well data obtained from the Texas Water Development Board.
4) TWDB data are of March 22, 2017.
5) According to the TWDB data, the two wells being shown within a 1 mile radius of the site are active water withdrawal wells used for industrial and stock purposes. See Table 2-1 for more information.
6) SGR = Shotgun Range

0 1,600 3,200
SCALE IN FEET

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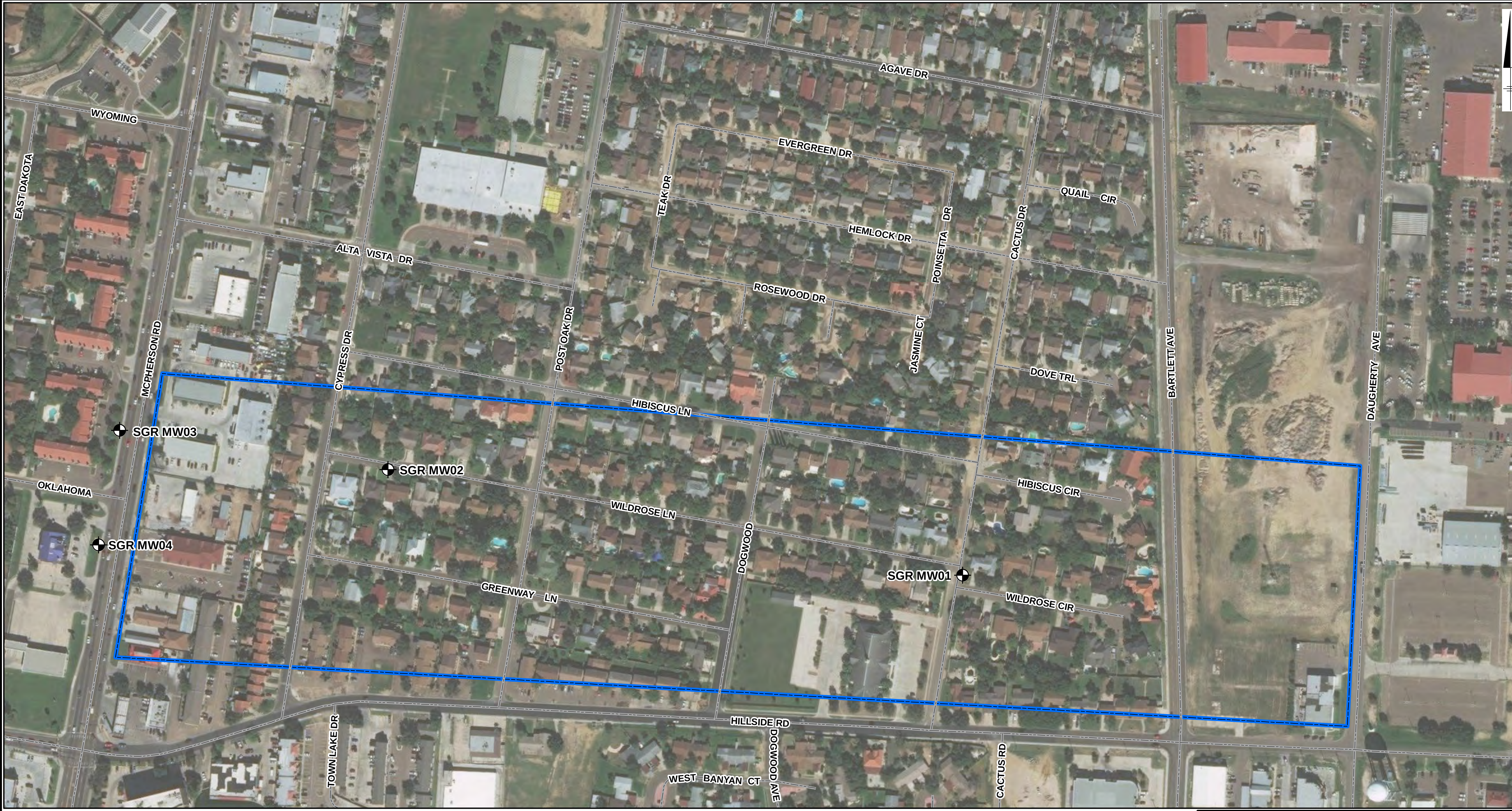
**Topography and Environmental Setting of the SGR**

FIGURE
**2-1**

DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F2-1 LaredoAFB RI Rpt - Topography And Env Setting of SGR.mxd




Legend

Shotgun Range Monitoring Well

Site Boundary

0 250 500

SCALE IN FEET

Notes:
1) Imagery Source: ArcGIS Online Imagery
2) All well locations are approximate.
3) SGR = Shotgun Range

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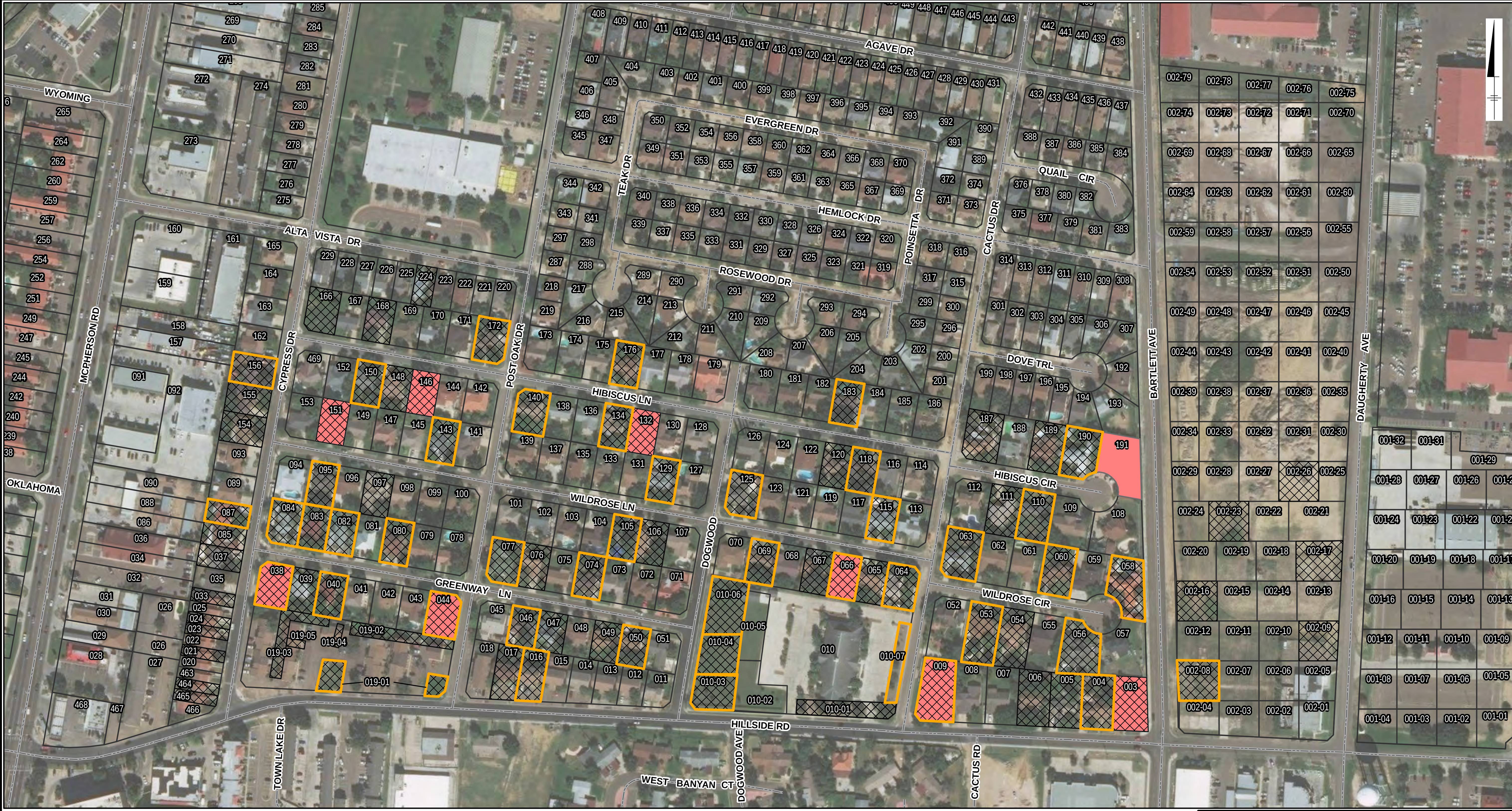
**Well Location Map**

FIGURE
**2-2**

DIV/GROUP: (ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F2-2 LaredoAFB RI Rpt - Well Location Map.mxd




## Legend

- Decision Units (DU)
- Future Exposure Soil Boring
- ISM Sampling Completed
- Stratification Sampling Completed

0 240 480
SCALE IN FEET

Notes:
1) Parcel and road data obtained from the City of Laredo, Texas GIS website.
2) ISM = Incremental Sampling Methodology

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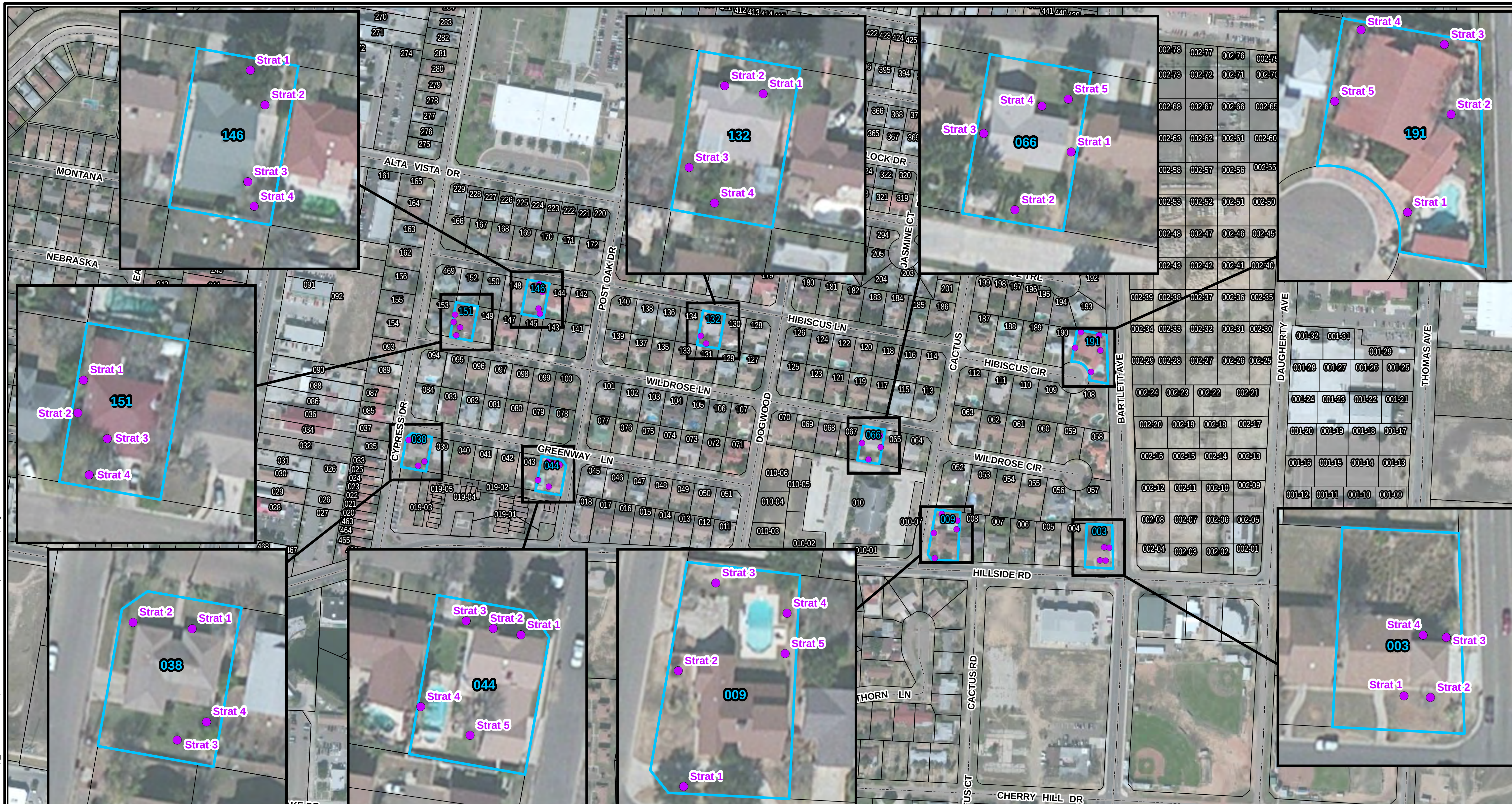
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Site Map and Investigation Overview**

FIGURE
**3-1**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GISArcMap_MXD\2017\RI Report Rev2\F3-1 LaredoAFB RI Rpt - Investigation Overview.mxd




**Legend**

- Stratification Sample - Approximate Location
- 019 Decision Unit (DU)
- 003 Decision Unit Where Stratification Sampling Was Conducted

0 65 130

ALL INSET MAPS SCALE IN FEET

0 300 600

PRIMARY MAP SCALE IN FEET

Notes:
1. Parcel and road data obtained from the City of Laredo, Texas GIS website.

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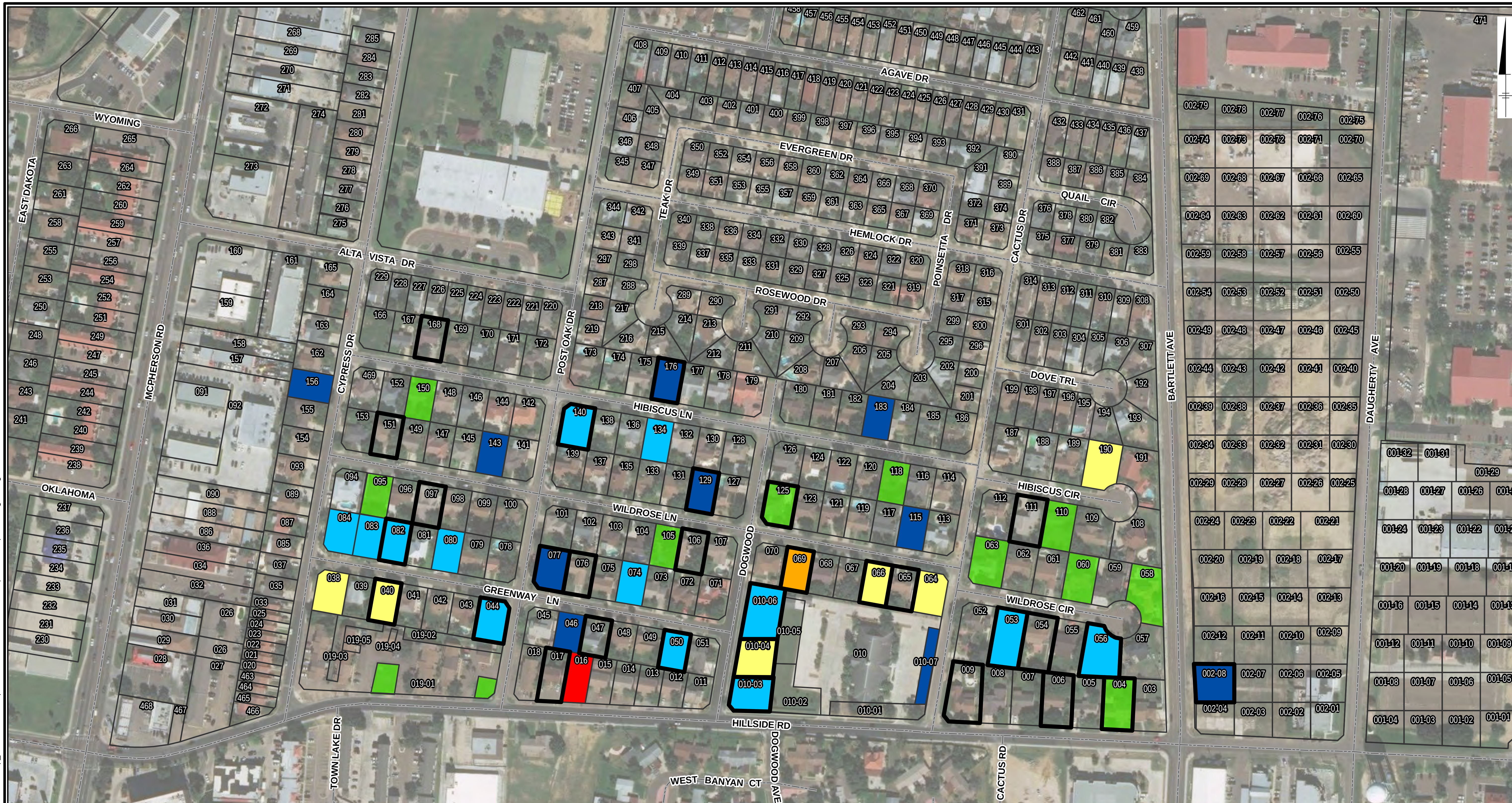
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Stratification Sampling Locations**

FIGURE
**3-2**




## Legend

- 019 Decision Units (DU)
- Subsurface Soil Boring Completed - No Target Fragments Observed
- Target Fragments Observed at Surface

**Maximum Target Fragment Depth**

- 0-1 ft bgs
- 1-2 ft bgs
- 2-3 ft bgs
- 3-4 ft bgs
- 4-5 ft bgs

0 250 500
SCALE IN FEET

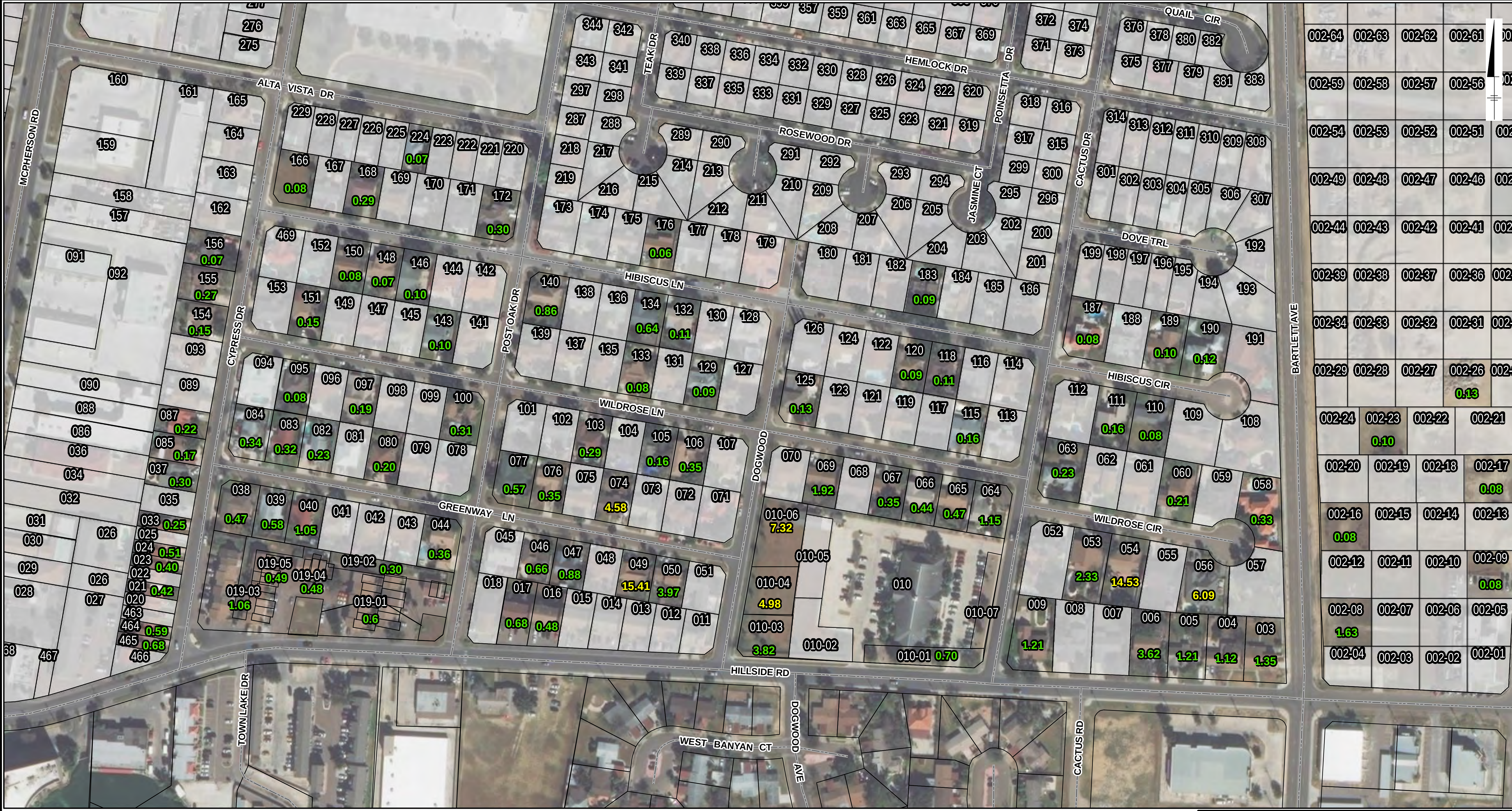
Notes:
1) Parcel and road data obtained from the City of Laredo, Texas GIS website.
2) ft bgs = feet below ground surface
3) Based on ISM, Stratification, and Future Exposure Boring investigations.
4) ISM = Incremental Sampling Methodology

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Maximum Depth Interval of Observed Target Fragments**

FIGURE
**4-1**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F4-1 LaredoAFB RI Rpt - Max Depth of Target Fragments.mxd




## Legend

019 Decision Unit (DU)

**Decision Unit Access Status**

No Response Received or Not Part of Current Investigation

0.15 95% UCL of Benzo(a)pyrene Concentration Less Than Residential Tier 1 PCL of 4.1 mg/kg

1.21 95% UCL of Benzo(a)pyrene Concentration Greater Than or Equal to Residential Teir 1 PCL of 4.1 mg/kg

0 200 400

SCALE IN FEET

Notes:
1) Parcel and road data obtained from the City of Laredo, Texas GIS website.
2) DU = Decision Unit
3) ISM = Incremental Sampling Methodology
4) ISM samples collected within the ground surface to 2 inches below ground surface.
5) A total of 3 ISM samples were collected throughout each DU (only 2 were collected at DU 023 and DU 465) and the maximum value from these DUs is displayed.
6) All values are displayed in milligrams per kilogram (mg/kg).
7) RAL = Residential Assessment Level (Residential Tier 1 PCL = 4.1 mg/kg)
8) UCL = Upper Confidence Limit

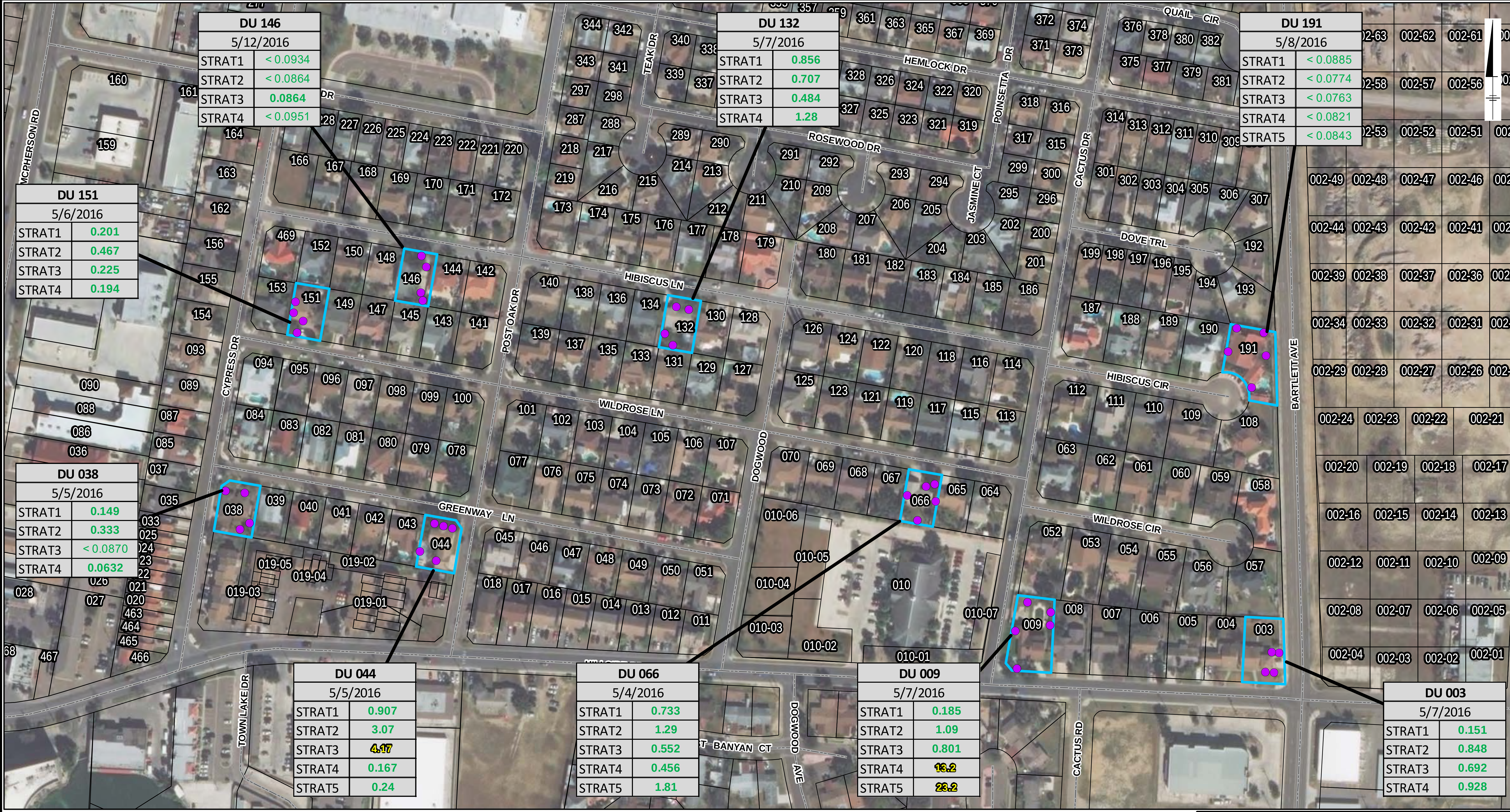
U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Current Exposure Scenario - ISM Soil Sampling Results for Benzo(a)pyrene (95% UCL Concentration)**

FIGURE

**4-2**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F4-2 LaredoAFB RI Rpt - 95 UCL ISM Results BaP.mxd




| DU 146 | |
|---|---|
| 5/12/2016 | |
| STRAT1 | < 0.0934 |
| STRAT2 | < 0.0864 |
| STRAT3 | 0.0864 |
| STRAT4 | < 0.0951 |

| DU 132 | |
|---|---|
| 5/7/2016 | |
| STRAT1 | 0.856 |
| STRAT2 | 0.707 |
| STRAT3 | 0.484 |
| STRAT4 | 1.28 |

| DU 191 | |
|---|---|
| 5/8/2016 | |
| STRAT1 | < 0.0885 |
| STRAT2 | < 0.0774 |
| STRAT3 | < 0.0763 |
| STRAT4 | < 0.0821 |
| STRAT5 | < 0.0843 |

| DU 151 | |
|---|---|
| 5/6/2016 | |
| STRAT1 | 0.201 |
| STRAT2 | 0.467 |
| STRAT3 | 0.225 |
| STRAT4 | 0.194 |

| DU 038 | |
|---|---|
| 5/5/2016 | |
| STRAT1 | 0.149 |
| STRAT2 | 0.333 |
| STRAT3 | < 0.0870 |
| STRAT4 | 0.0632 |

| DU 044 | |
|---|---|
| 5/5/2016 | |
| STRAT1 | 0.907 |
| STRAT2 | 3.07 |
| STRAT3 | 4.17 |
| STRAT4 | 0.167 |
| STRAT5 | 0.24 |

| DU 066 | |
|---|---|
| 5/4/2016 | |
| STRAT1 | 0.733 |
| STRAT2 | 1.29 |
| STRAT3 | 0.552 |
| STRAT4 | 0.456 |
| STRAT5 | 1.81 |

| DU 009 | |
|---|---|
| 5/7/2016 | |
| STRAT1 | 0.185 |
| STRAT2 | 1.09 |
| STRAT3 | 0.801 |
| STRAT4 | 13.2 |
| STRAT5 | 23.2 |

| DU 003 | |
|---|---|
| 5/7/2016 | |
| STRAT1 | 0.151 |
| STRAT2 | 0.848 |
| STRAT3 | 0.692 |
| STRAT4 | 0.928 |

**Legend**

- Stratification Sample - Approximate Location
- 019 Decision Unit (DU)
- 003 Decision Unit Where Stratification Sampling Was Conducted

| DU NUMBER | |
|---|---|
| DATE | |
| SAMPLE ID | Benzo(a)pyrene Result |

| B(a)P Result Less Than TIER 1 PCL of 4.1 mg/kg | B(a)P Result Greater Than or Equal to TIER 1 PCL of 4.1 mg/kg |
|---|---|

0 200 400

SCALE IN FEET

Notes:
1) Parcel and road data obtained from the City of Laredo, Texas GIS website.
2) DU = Decision Unit
3) BaP = Benzo(a)pyrene
4) All values are displayed in milligrams per kilogram (mg/kg).
5) PCL = Protective Concentration Level
6) Figure 3-2 shows the stratification sample location and identification number at a scale that provides clear detail.

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Special Use Area - Stratification Soil Sampling Results for Benzo(a)pyrene**

FIGURE

**4-3**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\LaredoAFB\GIS\ArcMap_MXD\2017\RI Report Rev2\F4-3 LaredoAFB RI Rpt - Special Use Area-BaP STRAT Results.mxd


**Legend**

019 Decision Units (DU)

**Future Exposure Representation for Benzo(a)pyrene Concentrations**

- Concentration Less Than Residential Tier 1 PCL of 4.1 mg/kg
- Concentration Greater Than or Equal to Residential Tier 1 PCL of 4.1 mg/kg

**Future Exposure Boring Representation**

Each Depth Interval Represents Results
For Three Composite Soil Borings

- 0.0-2.0 feet bgs
- 2.0-4.0 feet bgs
- 4.0-6.0 feet bgs
- 6.0-8.0 feet bgs
- 8.0-10.0 feet bgs
- 10.0 -12.0 feet bgs

0 180 360
SCALE IN FEET

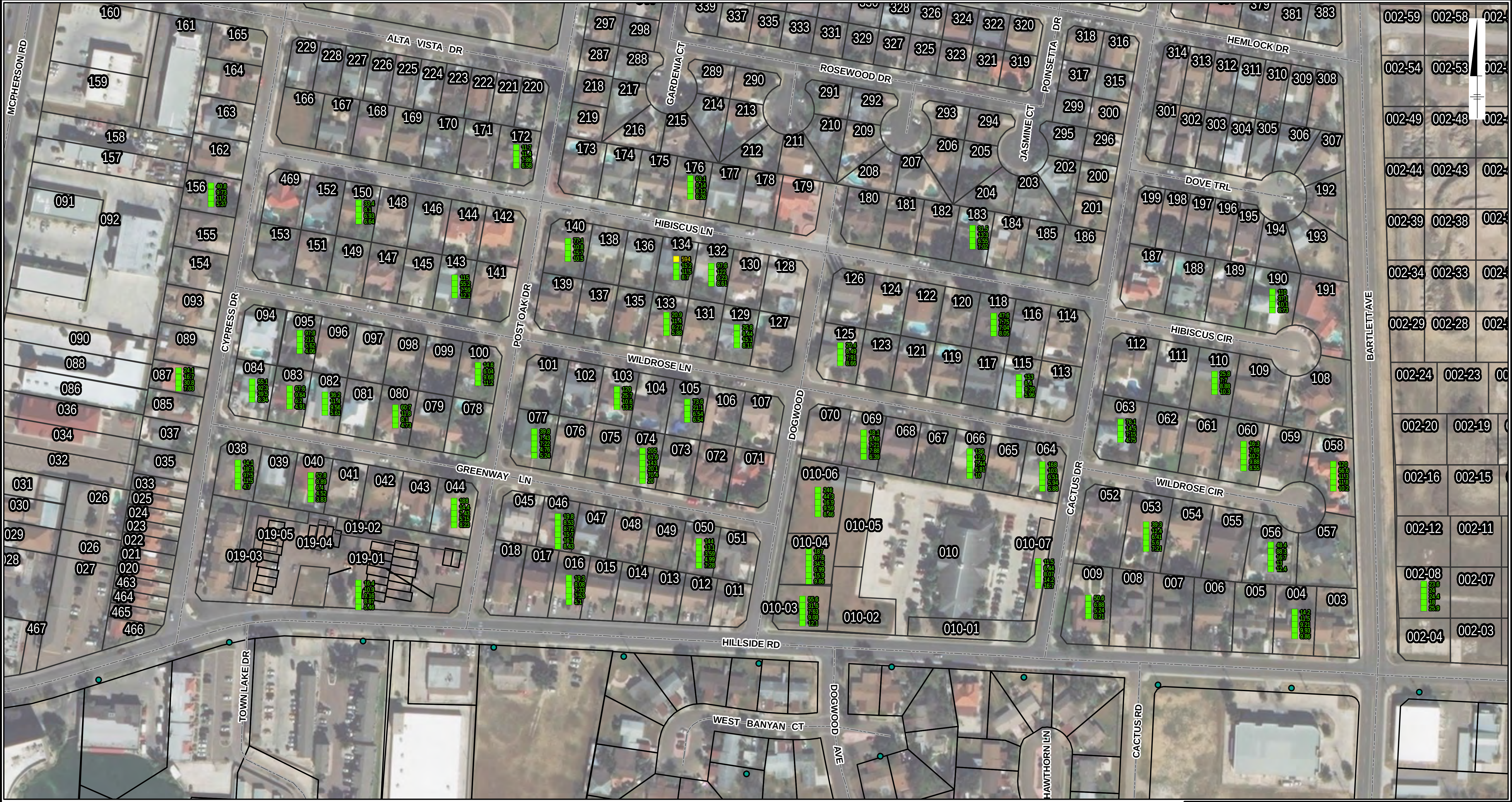
Notes:
1) Parcel data obtained from the City of Laredo, Texas GIS website.
2) bgs = below ground surface
3) All results in milligrams per kilogram (mg/kg)
4) PCL = Protective Contamination Level
5) The combined boring summary presents data from the three composite borings. An exceedance of one of the three samples for benzo(a)pyrene will cause the entire depth interval to display as exceeding the screening level. The maximum value from each of the three borings is displayed.

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Future Exposure Scenario Boring Results for Benzo(a)pyrene (Maximum Concentration)**

FIGURE
**4-4**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GISArcMap_MXD\2017\RI Report Rev2\F4-4 LaredoAFB RI Rpt - Future Exposure Borings BaP.mxd




## Legend

019 Decision Units (DU)

**Future Exposure Representation for Lead Concentrations**

- Concentration Less Than Residential Tier 1 PCL of 500 mg/kg
- Concentration Greater Than or Equal to Residential Tier 1 PCL of 500 mg/kg

**Future Exposure Boring Representation**

Each Depth Interval Represents Results For Three Composite Soil Borings

- 0.0-2.0 feet bgs
- 2.0-4.0 feet bgs
- 4.0-6.0 feet bgs
- 6.0-8.0 feet bgs
- 8.0-10.0 feet bgs
- 10.0 -12.0 feet bgs

0 180 360

SCALE IN FEET

Notes:
1) Parcel data obtained from the City of Laredo, Texas GIS website.
2) bgs = below ground surface
3) All results in milligrams per kilogram (mg/kg)
4) PCL = Protective Contamination Level
5) The combined boring summary presents data from the three composite borings. An exceedance of one of the three samples for lead will cause the entire depth interval to display as exceeding the screening level. The maximum value from each of the three borings is displayed.

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Future Exposure Scenario Boring Results for Lead (Maximum Concentration)**

FIGURE

**4-5**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GISArcMap_MXD\2017\RI Report Rev2\F4-5 LaredoAFB RI Rpt - Future Exposure Borings Lead2.mxd


**SGR MW03**

| Date | Arsenic | Lead | Mercury |
|---|---|---|---|
| 6/11/2003 | **0.0264 J** | <0.0020 U | <0.000042 U |
| 3/22/2005 | <0.0018 U | **0.000250 J** | <0.000042 U |

**SGR MW02**

| Date | Arsenic | Lead | Mercury |
|---|---|---|---|
| 6/11/2003 | **0.0306 J** | **0.00205 J** | <0.000042 U |
| 3/22/2005 | <0.0018 U | <0.00020 U | **0.0000450 J** |

**SGR MW01**

| Date | Arsenic | Lead | Mercury |
|---|---|---|---|
| 6/11/2003 | **0.0381 J** | <0.0020 U | **0.0000990 J** |
| 3/22/2005 | <0.0018 U | <0.00020 U | **0.000135 J** |

**SGR MW04**

| Date | Arsenic | Lead | Mercury |
|---|---|---|---|
| 6/11/2003 | **0.0183 J** | <0.0020 U | <0.000042 U |
| 3/22/2005 | **0.00270 J** | **0.00131 J** | <0.000042 U |

Legend

Shotgun Range Monitoring Well

Site Boundary

0 250 500

SCALE IN FEET

Notes:
1) Imagery Source: ArcGIS Online Imagery
2) All well locations are approximate.
3) All values are in milligrams per liter (mg/L)
4) **Bold** values indicate a detected compound.
5) U = Constituent not detected
6) J = Estimated concentration
7) No metals were detected above the residential assessment level.
8) The residential assessment level is based on the residential Tier 1 protective concentration level for Class 3 groundwater ($^{GW}GW_{Class\ 3}$)
9) $^{GW}GW_{Class\ 3}$: Arsenic = 1.0 mg/L; Lead = 1.5 mg/L; Mercury = 0.20

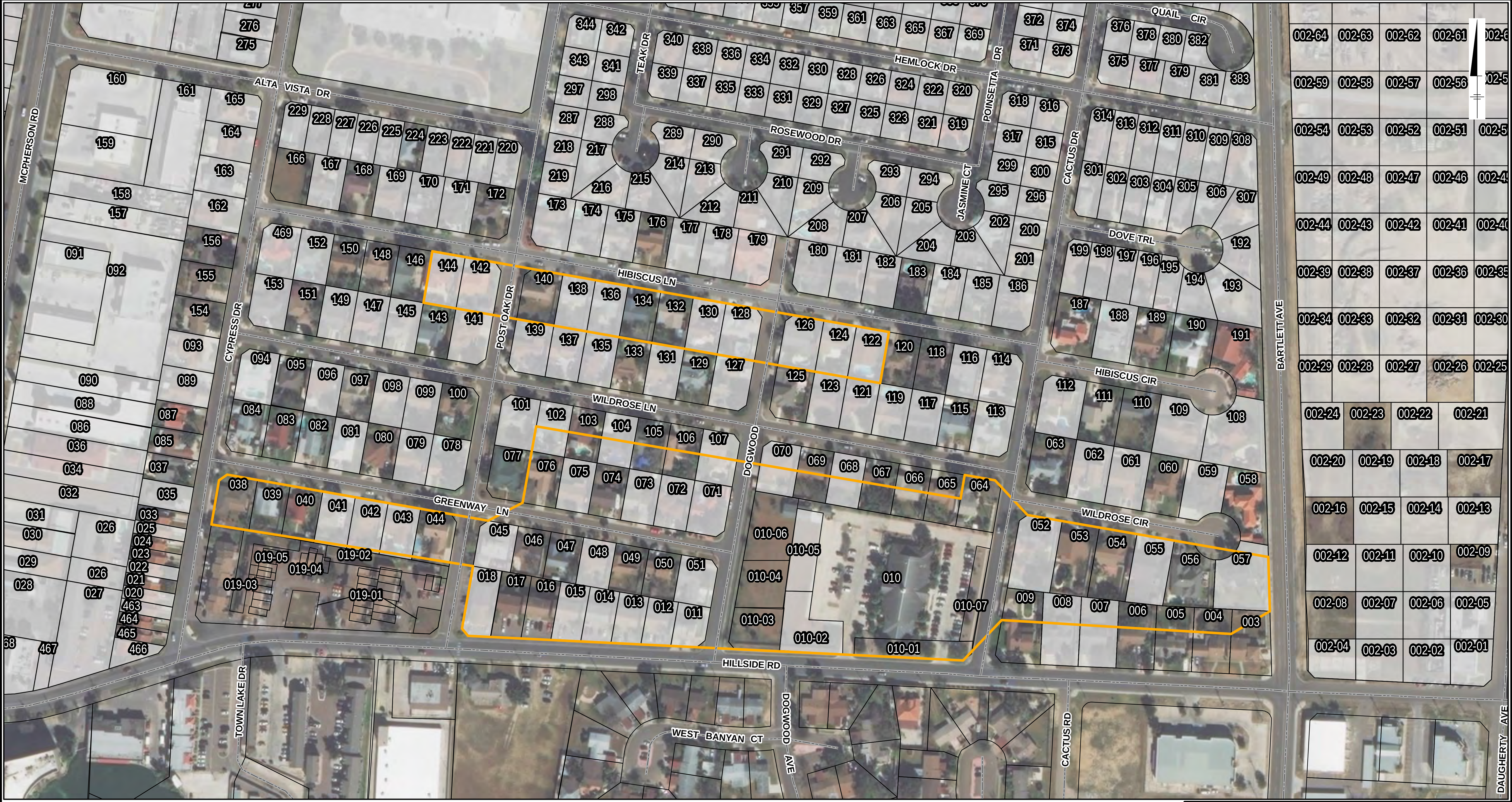
U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Groundwater Sampling Results for Detected Constituents**

FIGURE

**4-6**

DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: D.HOLMES PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F4-6 LaredoAFB RI Rpt - GW Results Detected Const.mxd




## Legend

019 Decision Unit (DU)

**Decision Unit Access Status**

No Response Received or Not Part of Current Investigation

Limit of Affected Property (Concentrations Above Than Tier 1 Residential PCL)

0 200 400
SCALE IN FEET

Notes:
1. Parcel and road data obtained from the City of Laredo, Texas GIS website.
2. Affected property is based on Tier 1 Residential PCL for benzo(a)pyrene (as an indicator compound for PAHs) and lead.
3. PCL = Protective Concentration Level
4) PAH = Polycyclic Aromatic Hydrocarbons

U.S. ARMY CORPS OF ENGINEERS - FORT WORTH DISTRICT
FORMER LAREDO AIR FORCE BASE, LAREDO, TEXAS

**Affected Property Map for Surface Soil**

FIGURE
**4-7**

CITY:(DEN-TECH) DIV/GROUP:(ENV/GIS) DB: DHOLMES LD: PIC: PM: TM:
PROJECT: PATH: Z:\GISProjects_ENV\Laredo\GIS\ArcMap_MXD\2017\RI Report Rev2\F4-7 LaredoAFB RI Rpt - Affected Property Map Surface Soil.mxd

# TABLES

**Table 1-1**
**SGR Site Chronology**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Date | Event |
|---|---|
| 1942 | Laredo Army Airfield is established by the U.S. Army Air Force as an aviation training facility. |
| 1942-1947 | Approximate time period of the Shotgun Range (SGR) operation. |
| 1947 | Laredo Army Airfield is initially deactivated. |
| 1952 | Approximate time of facility reactivation by U.S. Air Force and subsequent identification as the Laredo Air Force Base (LAFB). Additional use of the SGR is visible in aerial photographs. |
| 1960s | Portion of the SGR is transformed into a golf course. |
| 1974 | LAFB is deactivated. Land is eventually deeded or sold to the City of Laredo and other federal, state, and county agencies or private firms. The golf course area, including the SGR portion, is sold to a private firm. |
| 1980s | Residential development of Vista Hermosa and Alta Vista Subdivisions and construction of Newman Elementary School is performed on SGR land. |
| 1988 | Sanitary refuse is discovered in a foundation boring drilled during an investigation before constructing an addition to the elementary school. |
| 1990 | U.S. Army Corps of Engineers (USACE) performs preliminary assessment of eligibility as Formerly Used Defense Site (FUDS). |
| May and June 1999 | Initial Site Inspection of SGR is conducted by CH2MHill under contract to the USACE. |
| July 2000 | *Site Inspection Report* of the SGR is prepared by CH2MHill under contract to the USACE. |
| January 2001 | Texas Natural Resource Conservation Commission (TNRCC) provides comments to revised *Site Inspection Report* of the former LAFB SGR. |
| May 2003 | Malcolm Pirnie performs Site Characterization and Analysis Penetrometer System (SCAPS) Investigation. Twenty-four soil samples are collected from eight borings in the street right-of-way (ROW) within the SGR site boundary. |
| June 2003 | Malcom Pirnie installs four groundwater monitoring wells on the former SGR site, collects groundwater samples from all four wells and performs a direct yield aquifer test on SGR MW-02. |
| September 2003 | Malcolm Pirnie performs yard sampling program, collecting 97 surface soils samples from 47 residences. |
| October 2003 | Malcolm Pirnie excavates eight test pits and collects surface soil samples to determine the presence of clay target fragments. |
| January 2004 | *Environmental Investigation Yard Sampling Report* is prepared by Malcolm Pirnie under contract to USACE. Property owners receive their results via direct mail and summarized in individual property reports. These reports are compiled into one 2-volume report. |
| February 2004 | Malcolm Pirnie performs additional investigation activities to delineate the horizontal and vertical extent of clay target fragment layers and affected soil on Wildrose Circle and Dogwood Street near Hillside. Soil samples are collected from 29 locations along the City of Laredo ROW at the SGR. |
| September 2004 | *Interim Replaces Draft Environmental Investigation Report*. Prepared by Malcolm Pirnie under contract for USACE. |
| March 2005 | Malcolm Pirnie collects groundwater samples from the four SGR groundwater monitoring wells. |

**Table 1-1**
**SGR Site Chronology**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Date | Event |
|---|---|
| April 2008 | *Bioavailability Evaluation Development Report* is prepared by Malcolm Pirnie under contract to the USACE. |
| June 2008 | *Affected Property Assessment Report, Waste Disposal Area. Formerly Used Defense Sites Property: Laredo Air Force Base, Laredo Texas* is prepared by Malcolm Pirnie under contract to the USACE. This document presents the Class 3 groundwater resource determination and includes results from the aquifer yield test performed at SGR MW02 in 2003. The Affected Property Assessment Report (including the Class 3 groundwater resource determination) is approved by the Texas Commission on Environmental Quality (TCEQ) in a letter data October 24, 2008. |
| May 2010 | Malcolm Pirnie performs Focused Site Inspection at the SGR to assess the presence of chemicals of potential concern (COPCs) in soil from previous land use and evaluate the potential exposure of residents to those COPCs. Fifty soil borings are drilled to 8 feet bgs and samples collected at 2-foot intervals. Fine (adherable fraction - <250 micron) and course (>250 microns) samples are analyzed and compared to Texas Risk Reduction Program (TRRP) protective concentration levels (PCLs) |
| 2014/2015 | Malcolm Pirnie performs a Bioavailability Pilot Study for polycyclic aromatic hydrocarbons (PAHs) in clay target fragments in soil at the SGR. Study includes collection of bulk soil samples from street ROWs, preparation of test diets, and performance of *in-vivo* testing using the test diets, which provided known doses to test animals to develop site-specific relative bioavailability factors (RBAFs) for use in calculation of Tier 2 PCLs for PAHs in soil under the TRRP. |
| July 2015 | *Shotgun Range Remedial Investigation Work Plan*, Laredo, Texas, is prepared by Arcadis/Mirador, under contract to the USACE. |
| January-November 2016 | Arcadis performs RI investigation under contract to USACE. One or more sampling methods were completed at 93 locations (identified as decision units) and 964 soil samples were analyzed for PAHs and lead. |
| October 11, 2017 | Proposed Bioavailability Inputs, Protective Concentrations Levels, and Final Bioavailability Report for the Former LAFB submitted to TCEQ by Arcadis under contract to the USACE. |
| October 19, 2017 | Proposed Bioavailability Inputs, Protective Concentrations Levels, and Final Bioavailability Report for the Former Foster Air Force Base (FAFB), Skeet Range, Victoria, Texas submitted to TCEQ by Arcadis under contract to the USACE. |
| November 10 and 21, 2017 | TCEQ approves Bioavailability Reports and proposed bioavailability inputs prepared for the Former LAFB and FAFB. |

**Table 2-1**
**Well Information for Wells within One-Mile Radius**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| State Well ID | Latitude | Longitude | Use | Well Depth (feet bgs) | Withdrawal Interval (feet bgs) | Comment |
|---|---|---|---|---|---|---|
| 85-29-401 | 27.55861 | -99.48861 | Stock | 300 | 240-300 | Open Hole |
| 85-29-709 | 27.53222 | -99.48056 | Industrial | 440 | 200-420 | Screened |

**Notes:**
Information obtained from Texas Water Development Board (TWDB) Groundwater Database (GWDB) on December 7, 2017
bgs - below ground surface

**Table 3-1**
**RI Sampling Performed per Decision Unit**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Address | Sample Type | | |
|---|---|---|---|---|
| | | ISM | Stratification | Soil Boring |
| 002-08 | 1702 HILLSIDE RD | X | | X |
| 002-09 | 1702 HILLSIDE RD | X | | |
| 002-16 | 1702 HILLSIDE RD | X | | |
| 002-17 | 1702 HILLSIDE RD | X | | |
| 002-23 | 1702 HILLSIDE RD | X | | |
| 002-26 | 1702 HILLSIDE RD | X | | |
| 003 | 1614 HILLSIDE RD | X | X | |
| 004 | 1612 HILLSIDE RD | X | | X |
| 005 | 1610 HILLSIDE RD | X | | |
| 006 | 1608 HILLSIDE RD | X | | |
| 009 | 1602 HILLSIDE RD | X | X | X |
| 010 | 1520 HILLSIDE RD | | | X |
| 010-01 | 1520 HILLSIDE RD | X | | |
| 010-03 | 1520 HILLSIDE RD | X | | X |
| 010-04 | 1520 HILLSIDE RD | X | | X |
| 010-06 | 1520 HILLSIDE RD | X | | X |
| 016 | 1404 HILLSIDE RD | X | | X |
| 017 | 1402 HILLSIDE RD | X | | |
| 019-01 | 1300 HILLSIDE RD | X | | |
| 019-02 | 1300 HILLSIDE RD | X | | |
| 019-04 | 1300 HILLSIDE RD | X | | |
| 019-04 | 1300 HILLSIDE RD | X | | |
| 019-05 | 1300 HILLSIDE RD | X | | |
| 021 | 5310 CYPRESS DR | X | | |
| 023 | 5314 CYPRESS DR | X | | |
| 024 | 5316 CYPRESS DR | X | | |
| 033 | 5320 CYPRESS DR | X | | |
| 037 | 5404 CYPRESS DR | X | | |
| 038 | 1301 GREENWAY LN | X | X | X |
| 039 | 1303 GREENWAY LN | X | | |
| 040 | 1305 GREENWAY LN | X | | X |
| 044 | 1313 GREENWAY LN | X | X | X |
| 046 | 1403 GREENWAY LN | X | | X |
| 047 | 1405 GREENWAY LN | X | | |
| 049 | 1409 GREENWAY LN | X | | |
| 050 | 1411 GREENWAY LN | X | | X |
| 053 | 1603 WILDROSE CIR | X | | X |
| 054 | 1605 WILDROSE CIR | X | | |
| 056 | 1609 WILDROSE CIR | X | | X |
| 058 | 1612 WILDROSE CIR | X | | X |
| 060 | 1608 WILDROSE CIR | X | | X |
| 063 | 1602 WILDROSE CIR | X | | X |
| 064 | 1513 WILDROSE LN | X | | X |
| 065 | 1511 WILDROSE LN | X | | |
| 066 | 1509 WILDROSE LN | X | X | X |

**Table 3-1**
**RI Sampling Performed per Decision Unit**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Address | Sample Type | | |
|---|---|---|---|---|
| | | ISM | Stratification | Soil Boring |
| 067 | 1507 WILDROSE LN | X | | |
| 069 | 1503 WILDROSE LN | X | | X |
| 074 | 1408 GREENWAY LN | X | | X |
| 076 | 1404 GREENWAY LN | X | | |
| 077 | 1402 GREENWAY LN | X | | X |
| 080 | 1310 GREENWAY LN | X | | X |
| 082 | 1306 GREENWAY LN | X | | X |
| 083 | 1304 GREENWAY LN | X | | X |
| 084 | 1302 GREENWAY LN | X | | X |
| 085 | 5406 CYPRESS DR | X | | |
| 087 | 5408 CYPRESS DR | X | | X |
| 095 | 1303 WILDROSE LN | X | | X |
| 097 | 1307 WILDROSE LN | X | | |
| 100 | 1313 WILDROSE LN | X | | X |
| 103 | 1405 WILDROSE LN | X | | X |
| 105 | 1409 WILDROSE LN | X | | X |
| 106 | 1411 WILDROSE LN | X | | |
| 110 | 1605 HIBISCUS CIR | X | | X |
| 111 | 1603 HIBISCUS CIR | X | | |
| 115 | 1512 WILDROSE LN | X | | X |
| 118 | 1509 HIBISCUS LN | X | | X |
| 120 | 1507 HIBISCUS LN | X | | |
| 125 | 1502 WILDROSE LN | X | | X |
| 129 | 1412 WILDROSE LN | X | | X |
| 132 | 1409 HIBISCUS LN | X | X | X |
| 133 | 1408 WILDROSE LN | X | | X |
| 134 | 1407 HIBISCUS LN | X | | X |
| 140 | 1401 HIBISCUS LN | X | | X |
| 143 | 1312 WILDROSE LN | X | | X |
| 146 | 1309 HIBISCUS LN | X | X | |
| 148 | 1307 HIBISCUS LN | X | | |
| 150 | 1305 HIBISCUS LN | X | | X |
| 151 | 1304 WILDROSE LN | X | X | |
| 154 | 5502 CYPRESS DR | X | | |
| 155 | 5504 CYPRESS DR | X | | |
| 156 | 5506 CYPRESS DR | X | | X |
| 166 | 1302 HIBISCUS LN | X | | |
| 168 | 1306 HIBISCUS LN | X | | |
| 172 | 1314 HIBISCUS LN | X | | X |
| 176 | 1408 HIBISCUS LN | X | | X |
| 183 | 1508 HIBISCUS LN | X | | X |
| 187 | 1602 HIBISCUS CIR | X | | |
| 189 | 1606 HIBISCUS CIR | X | | |
| 190 | 1608 HIBISCUS CIR | X | | X |
| 191 | 1610 HIBISCUS CIR | | X | |

**Table 3-1**
**RI Sampling Performed per Decision Unit**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Address | Sample Type | | |
|---|---|---|---|---|
| | | ISM | Stratification | Soil Boring |
| 224 | 1311 ALTA VISTA DR | X | | |
| 464 | 5304 CYPRESS DR | X | | |
| 465 | 5302 CYPRESS DR | X | | |

**Notes:**

ISM — Incremental Sampling Methodology. Represents current exposure scenario.
Stratification — Special use areas (planting beds).
Soil Boring — Represents future exposure scenario and provides vertical delineation

## Table 4-1
## Surface Soil Residential Protective Concentration Levels for Remedial Investigation Constituents of Potential Concern
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| Analyte | $^{Tot}Soil_{Comb}$ | $^{GW}Soil_{Class3}$ | |
|---|---|---|---|
| | Tier 1 | Tier 1 | Tier 2 |
| **PAHs** | | | |
| Acenaphthene | **3.0E+03** | 1.2E+04 | NC |
| Acenaphthylene | **3.8E+03** | 2.0E+04 | NC |
| Anthracene | **1.8E+04** | 3.4E+05 | NC |
| Benz(a)anthracene | **4.1E+01** | 6.5E+03 | NC |
| Benzo(a)pyrene | **4.1E+00** | 3.8E+02 | NC |
| Benzo(b)fluoranthene | **4.1E+01** | 2.2E+04 | NC |
| Benzo(e) pyrene | **1.8E+03** | 1.0E+06 | NC |
| Benzo(g,h,i)perylene | **1.8E+03** | 1.0E+06 | NC |
| Benzo(j)fluoranthene | **3.9E+01** | 1.3E+03 | NC |
| Benzo(k)fluoranthene | **4.2E+02** | 2.2E+05 | NC |
| Chrysene | **4.1E+03** | 5.6E+05 | NC |
| Dibenz(a,h)anthracene | **4.0E+00** | 7.6E+02 | NC |
| Fluoranthene | **2.3E+03** | 9.6E+04 | NC |
| Fluorene | **2.3E+03** | 1.5E+04 | NC |
| Indeno(1,2,3-cd)pyrene | **4.2E+01** | 6.3E+04 | NC |
| Phenanthrene | **1.7E+03** | 2.1E+04 | NC |
| Pyrene | **1.7E+03** | 5.6E+04 | NC |
| **Metals** | | | |
| Lead | **5.0E+02** | 1.5E+02 | 9.00E+03 |

**Notes:**
Units are in milligrams per kilogram
NC = Not Calculated
PAH = polycyclic aromatic hydrocarbon

$^{Tot}Soil_{Comb}$ Texas Risk Reduction Program residential protective concentration level, based on the total soil combined pathway with ingestion, inhalation, and dermal contact with incidental soil contact. This is the critical (lowest) PCL for SGR Site (with Tier 2 $^{GW}Soil_{Class3}$ PCL for lead).

$^{GW}Soil_{Class3}$ Texas Risk Reduction Program residential protective concentration level, based on the soil-to-groundwater transport pathway for a Class 3 groundwater resource.

**Bold** =Residential Assessment Level

## Table 4-2
## Soil Analytical Results - ISM Samples
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Date | | | | | | | | | | | | | | | | | | |
| 002-08 | A | 1/24/2016 | < 0.0743 U | < 0.0743 U | 0.0956 J | 0.889 | 1.18 | 1.17 | 0.953 | 1 | 0.606 | 0.561 | 1.19 | 0.216 | 1.66 | < 0.0743 U | 0.785 | 170 | 0.524 | 1.5 |
| 002-08 | B | 1/24/2016 | < 0.0693 U | < 0.0693 U | 0.0558 J | 0.439 | 0.601 | 0.602 | 0.498 | 0.573 | 0.314 | 0.29 | 0.61 | 0.114 | 0.788 | < 0.0693 U | 0.435 | 265 | 0.249 | 0.714 |
| 002-08 | C | 1/24/2016 | < 0.0740 U | < 0.0740 U | 0.0716 J | 0.674 | 0.913 | 0.913 | 0.754 | 0.781 | 0.484 | 0.444 | 0.925 | 0.166 | 1.3 | < 0.0740 U | 0.613 | 71.3 | 0.417 | 1.18 |
| 002-09 | A | 1/24/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0492 J | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0499 J | < 0.0730 U | 0.0753 J | < 0.0730 U | < 0.0730 U | 40.6 | < 0.0730 U | 0.0664 J |
| 002-09 | B | 1/24/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 30.7 | < 0.0747 U | < 0.0747 U |
| 002-09 | C | 1/24/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 29 | < 0.0749 U | < 0.0749 U |
| 002-16 | A | 1/24/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | 0.0512 J | < 0.0710 U | < 0.0710 U | 21.3 | < 0.0710 U | < 0.0710 U |
| 002-16 | B | 1/24/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0570 J | 0.0599 J | < 0.0746 U | 0.0527 J | < 0.0746 U | < 0.0746 U | 0.0571 J | < 0.0746 U | 0.0815 J | < 0.0746 U | < 0.0746 U | 26.9 | < 0.0746 U | 0.0738 J |
| 002-16 | C | 1/24/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 0.0572 J | 0.0570 J | < 0.0737 U | 0.0496 J | < 0.0737 U | < 0.0737 U | 0.0548 J | < 0.0737 U | 0.0721 J | < 0.0737 U | < 0.0737 U | 32.3 | < 0.0737 U | 0.0658 J |
| 002-17 | A | 1/24/2016 | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | 18.1 | < 0.0705 U | < 0.0705 U |
| 002-17 | B | 1/24/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 21.3 | < 0.0727 U | < 0.0727 U |
| 002-17 | C | 1/24/2016 | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | 19.2 | < 0.0687 U | < 0.0687 U |
| 002-23 | A | 1/24/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | 0.0548 J | < 0.0729 U | < 0.0729 U | 9.73 | < 0.0729 U | 0.0489 J |
| 002-23 | B | 1/24/2016 | < 0.0708 U | < 0.0708 U | < 0.0708 U | 0.0696 J | 0.0893 J | 0.0948 | 0.0765 J | 0.0815 J | < 0.0708 U | < 0.0708 U | 0.0924 J | < 0.0708 U | 0.129 | < 0.0708 U | 0.0626 J | 12.4 | < 0.0708 U | 0.119 |
| 002-23 | C | 1/24/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0494 J | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0487 J | < 0.0730 U | 0.0702 J | < 0.0730 U | < 0.0730 U | 11.1 | < 0.0730 U | 0.0634 J |
| 002-26 | A | 1/24/2016 | < 0.0692 U | < 0.0692 U | < 0.0692 U | 0.0785 J | 0.102 | 0.11 | 0.097 | 0.0917 J | 0.0601 J | 0.0573 J | 0.124 | < 0.0692 U | 0.153 | < 0.0692 U | 0.0716 J | 9.57 | < 0.0692 U | 0.133 |
| 002-26 | B | 1/24/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.0596 J | 0.0694 J | 0.0550 J | 0.0558 J | < 0.0732 U | < 0.0732 U | 0.0715 J | < 0.0732 U | 0.0878 J | < 0.0732 U | < 0.0732 U | 11.7 | < 0.0732 U | 0.0810 J |
| 002-26 | C | 1/24/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | 0.0522 J | 0.0696 J | 0.0809 J | 0.0672 J | 0.0655 J | < 0.0724 U | < 0.0724 U | 0.0840 J | < 0.0724 U | 0.108 | < 0.0724 U | 0.0530 J | 25.6 | < 0.0724 U | 0.0958 J |
| 003 | A | 1/26/2016 | < 0.0720 U | < 0.0720 U | 0.0713 J | 0.808 | 1.11 | 1.12 | 0.905 | 0.898 | 0.571 | 0.515 | 1.11 | 0.188 | 1.59 | < 0.0720 U | 0.732 | 36.1 | 0.532 | 1.44 |
| 003 | B | 1/26/2016 | < 0.0733 U | < 0.0733 U | 0.426 | 0.644 | 0.866 | 0.874 | 0.712 | 0.698 | 0.449 | 0.403 | 0.885 | 0.147 | 1.24 | < 0.0733 U | 0.563 | 27.8 | 0.41 | 1.12 |
| 003 | C | 1/26/2016 | < 0.0731 U | < 0.0731 U | 0.0698 J | 0.796 | 1.08 | 1.09 | 0.882 | 0.848 | 0.561 | 0.506 | 1.1 | 0.178 | 1.52 | < 0.0731 U | 0.69 | 31.4 | 0.505 | 1.39 |
| 004 | A | 1/26/2016 | < 0.0740 U | < 0.0740 U | 0.0573 J | 0.559 | 0.765 | 0.758 | 0.627 | 0.617 | 0.384 | 0.346 | 0.752 | 0.128 | 1.07 | < 0.0740 U | 0.494 | 20.2 | 0.387 | 0.962 |
| 004 | B | 1/26/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | 0.361 | 0.491 | 0.484 | 0.406 | 0.389 | 0.251 | 0.226 | 0.488 | 0.0823 J | 0.689 | < 0.0723 U | 0.314 | 19 | 0.239 | 0.622 |
| 004 | C | 1/26/2016 | < 0.0723 U | < 0.0723 U | 0.0585 J | 0.581 | 0.811 | 0.789 | 0.656 | 0.651 | 0.41 | 0.372 | 0.788 | 0.136 | 1.08 | < 0.0723 U | 0.527 | 23.6 | 0.361 | 0.983 |
| 005 | A | 1/26/2016 | < 0.0735 U | < 0.0735 U | 0.0657 J | 0.744 | 0.969 | 0.961 | 0.792 | 0.797 | 0.496 | 0.45 | 0.968 | 0.17 | 1.32 | < 0.0735 U | 0.644 | 32 | 0.386 | 1.21 |
| 005 | B | 1/26/2016 | < 0.0730 U | < 0.0730 U | 0.0649 J | 0.737 | 0.999 | 1.02 | 0.826 | 0.824 | 0.526 | 0.469 | 1.01 | 0.177 | 1.38 | < 0.0730 U | 0.669 | 29 | 0.428 | 1.27 |
| 005 | C | 1/26/2016 | < 0.0749 U | < 0.0749 U | 0.0575 J | 0.594 | 0.784 | 0.818 | 0.665 | 0.665 | 0.422 | 0.382 | 0.821 | 0.14 | 1.13 | < 0.0749 U | 0.537 | 30.2 | 0.366 | 1.03 |
| 006 | A | 1/26/2016 | 0.0498 J | < 0.0723 U | 0.192 | 1.72 | 2.22 | 2.15 | 1.75 | 1.75 | 1.13 | 1.04 | 2.21 | 0.378 | 3.19 | < 0.0723 U | 1.44 | 28.5 | 1.11 | 2.81 |
| 006 | B | 1/26/2016 | 0.0591 J | < 0.0733 U | 0.151 | 1.53 | 2.09 | 2.05 | 1.65 | 1.63 | 1.05 | 0.948 | 2.02 | 0.351 | 2.76 | < 0.0733 U | 1.34 | 33.5 | 0.912 | 2.48 |
| 006 | C | 1/26/2016 | 0.0741 J | < 0.0726 U | 0.239 | 2.26 | 2.97 | 2.92 | 2.34 | 2.34 | 1.5 | 1.38 | 2.95 | 0.507 | 4.28 | < 0.0726 U | 1.91 | 31.6 | 1.42 | 3.8 |
| 009 | A | 1/27/2016 | < 0.0730 U | < 0.0730 U | 0.0604 J | 0.681 | 0.956 | 0.922 | 0.763 | 0.758 | 0.485 | 0.435 | 0.931 | 0.163 | 1.21 | < 0.0730 U | 0.621 | 25.9 | 0.382 | 1.11 |
| 009 | B | 1/27/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | 0.588 | 0.845 | 0.824 | 0.683 | 0.677 | 0.436 | 0.387 | 0.818 | 0.146 | 1.06 | < 0.0737 U | 0.556 | 23.7 | 0.332 | 0.974 |
| 009 | C | 1/27/2016 | < 0.0748 U | < 0.0748 U | 0.0682 J | 0.758 | 1.05 | 1.03 | 0.844 | 0.832 | 0.536 | 0.476 | 1.03 | 0.177 | 1.41 | < 0.0748 U | 0.68 | 26.9 | 0.445 | 1.27 |
| 010-01 | A | 5/7/2016 | < 0.0732 U | < 0.0732 U | 0.0593 J | 0.378 | 0.513 | 0.498 | 0.365 | 0.479 | 0.251 | 0.303 | 0.491 | 0.155 | 0.571 | < 0.0732 U | 0.4 | 25.3 | 0.247 | 0.494 |
| 010-01 | B | 5/7/2016 | < 0.0745 U | < 0.0745 U | 0.0643 J | 0.46 | 0.622 | 0.593 | 0.457 | 0.569 | 0.303 | 0.344 | 0.596 | 0.157 | 0.663 | < 0.0745 U | 0.475 | 29.3 | 0.282 | 0.573 |
| 010-01 | C | 5/7/2016 | < 0.0750 U | < 0.0750 U | 0.0561 J | 0.398 | 0.54 | 0.516 | 0.391 | 0.471 | 0.27 | 0.308 | 0.518 | 0.145 | 0.59 | < 0.0750 U | 0.408 | 30.7 | 0.254 | 0.516 |
| 010-03 | A | 5/7/2016 | 0.0774 J | < 0.0743 U | 0.206 | 2.19 | 3.04 | 2.85 | 2.38 | 2.45 | 1.54 | 1.51 | 2.69 | 0.524 | 3.4 | < 0.0743 U | 1.95 | 32.5 | 1.13 | 2.97 |
| 010-03 | B | 5/7/2016 | 0.0537 J | < 0.0721 U | 0.145 | 1.52 | 2.09 | 1.98 | 1.64 | 1.68 | 1.06 | 1.03 | 1.88 | 0.367 | 2.34 | < 0.0721 U | 1.35 | 26.5 | 0.788 | 2.06 |
| 010-03 | C | 5/7/2016 | 0.0675 J | < 0.0746 U | 0.182 | 1.98 | 2.69 | 2.58 | 2.14 | 2.21 | 1.38 | 1.35 | 2.43 | 0.475 | 3.08 | < 0.0746 U | 1.75 | 37.6 | 1.03 | 2.72 |
| 010-04 | A | 5/7/2016 | 0.118 | < 0.0747 U | 0.285 | 2.93 | 4.01 | 3.65 | 3.06 | 3.15 | 2 | 1.92 | 3.61 | 0.679 | 4.5 | < 0.0747 U | 2.53 | 59.1 | 1.52 | 3.98 |
| 010-04 | B | 5/7/2016 | 0.125 | < 0.0736 U | 0.359 | 3.39 | 4.57 | 4.23 | 3.53 | 3.62 | 2.3 | 2.22 | 4.08 | 0.792 | 5.41 | < 0.0736 U | 2.93 | 61.3 | 1.93 | 4.66 |
| 010-04 | C | 5/7/2016 | 0.113 | < 0.0748 U | 0.36 | 3.08 | 4.14 | 3.87 | 3.2 | 3.23 | 2.09 | 1.98 | 3.71 | 0.714 | 4.8 | 0.0512 J | 2.62 | 62.6 | 1.79 | 4.16 |
| 010-06 | A | 5/7/2016 | 0.178 | < 0.0746 U | 0.382 | 3.81 | 5.34 | 4.92 | 3.77 | 4.45 | 2.68 | 2.86 | 4.77 | 1.06 | 5.26 | 0.0785 J | 3.8 | 52.8 | 2.04 | 4.66 |
| 010-06 | B | 5/7/2016 | 0.143 | < 0.0746 U | 0.348 | 3.2 | 4.41 | 4.15 | 3.19 | 3.75 | 2.23 | 2.36 | 4.01 | 0.897 | 4.49 | 0.0623 J | 3.21 | 53.6 | 1.9 | 3.96 |
| 010-06 | C | 5/7/2016 | 0.172 | < 0.0747 U | 0.379 | 4.21 | 6.04 | 5.73 | 4.4 | 5.23 | 3.08 | 3.26 | 5.35 | 1.23 | 5.58 | 0.0589 J | 4.47 | 63.1 | 2.22 | 4.95 |
| 016 | A | 1/25/2016 | < 0.0702 U | < 0.0702 U | < 0.0702 U | 0.243 | 0.33 | 0.336 | 0.274 | 0.276 | 0.173 | 0.157 | 0.335 | 0.0581 J | 0.461 | < 0.0702 U | 0.217 | 12.2 | 0.15 | 0.421 |
| 016 | B | 1/25/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.252 | 0.344 | 0.346 | 0.292 | 0.286 | 0.182 | 0.167 | 0.354 | 0.0594 J | 0.479 | < 0.0732 U | 0.229 | 13 | 0.162 | 0.439 |
| 016 | C | 1/25/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | 0.161 | 0.211 | 0.203 | 0.171 | 0.176 | 0.108 | 0.0983 | 0.216 | < 0.0729 U | 0.297 | < 0.0729 U | 0.139 | 12.6 | 0.0953 J | 0.264 |

**Table 4-2**
**Soil Analytical Results - ISM Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| **Decision Unit** | **Sample** | **Sample Date** | | | | | | | | | | | | | | | | | | |
| 017 | A | 1/25/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.395** | **0.551** | **0.548** | **0.466** | **0.456** | **0.291** | **0.26** | **0.548** | **0.0974** | **0.761** | < 0.0730 U | **0.368** | **15.9** | **0.235** | **0.698** |
| 017 | B | 1/25/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | **0.464** | **0.625** | **0.624** | **0.513** | **0.518** | **0.328** | **0.292** | **0.646** | **0.11** | **0.904** | < 0.0729 U | **0.412** | **16.1** | **0.279** | **0.833** |
| 017 | C | 1/25/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.414** | **0.568** | **0.565** | **0.476** | **0.469** | **0.296** | **0.277** | **0.576** | **0.0991** | **0.776** | < 0.0741 U | **0.376** | **15** | **0.243** | **0.71** |
| 019-01 | A | 1/24/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.375** | **0.522** | **0.486** | **0.437** | **0.459** | **0.267** | **0.246** | **0.536** | **0.0995 J** | **0.685** | < 0.0749 U | **0.373** | **20.4** | **0.209** | **0.617** |
| 019-01 | B | 1/24/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.382** | **0.546** | **0.516** | **0.471** | **0.503** | **0.29** | **0.259** | **0.578** | **0.105** | **0.74** | < 0.0730 U | **0.404** | **17.8** | **0.2** | **0.663** |
| 019-01 | C | 1/24/2016 | < 0.0750 U | < 0.0750 U | < 0.0750 U | **0.346** | **0.479** | **0.48** | **0.397** | **0.422** | **0.248** | **0.228** | **0.499** | **0.0880 J** | **0.626** | < 0.0750 U | **0.338** | **22** | **0.18** | **0.57** |
| 019-02 | A | 1/24/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | **0.159** | **0.222** | **0.214** | **0.181** | **0.191** | **0.115** | **0.107** | **0.221** | **0.0474 J** | **0.273** | < 0.0706 U | **0.154** | **16.1** | **0.0906 J** | **0.251** |
| 019-02 | B | 1/24/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.191** | **0.253** | **0.238** | **0.212** | **0.226** | **0.128** | **0.122** | **0.256** | **0.0529 J** | **0.314** | < 0.0746 U | **0.175** | **16.5** | **0.108** | **0.284** |
| 019-02 | C | 1/24/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.192** | **0.259** | **0.254** | **0.214** | **0.229** | **0.131** | **0.123** | **0.254** | < 0.0735 U | **0.342** | < 0.0735 U | **0.179** | **17.1** | **0.116** | **0.307** |
| 019-03 | A | 1/24/2016 | < 0.0747 U | < 0.0747 U | **0.0697 J** | **0.658** | **0.944** | **0.878** | **0.725** | **0.77** | **0.448** | **0.421** | **0.879** | **0.163** | **1.11** | < 0.0747 U | **0.609** | **21.6** | **0.366** | **1.01** |
| 019-03 | B | 1/24/2016 | < 0.0740 U | < 0.0740 U | **0.0550 J** | **0.583** | **0.806** | **0.743** | **0.638** | **0.692** | **0.39** | **0.357** | **0.774** | **0.143** | **0.924** | < 0.0740 U | **0.544** | **23.8** | **0.307** | **0.842** |
| 019-03 | C | 1/24/2016 | < 0.0718 U | < 0.0718 U | **0.0557 J** | **0.59** | **0.89** | **0.839** | **0.719** | **0.798** | **0.425** | **0.386** | **0.79** | **0.165** | **0.969** | < 0.0718 U | **0.611** | **20.5** | **0.306** | **0.895** |
| 019-04 | A | 1/27/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.299** | **0.422** | **0.436** | **0.355** | **0.331** | **0.226** | **0.195** | **0.415** | **0.0683 J** | **0.557** | < 0.0745 U | **0.265** | **16.6** | **0.183** | **0.505** |
| 019-04 | B | 1/27/2016 | < 0.0750 U | < 0.0750 U | < 0.0750 U | **0.334** | **0.442** | **0.452** | **0.368** | **0.333** | **0.234** | **0.208** | **0.458** | **0.0751 J** | **0.621** | < 0.0750 U | **0.272** | **23.8** | **0.221** | **0.562** |
| 019-05 | A | 1/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.293** | **0.413** | **0.43** | **0.351** | **0.321** | **0.217** | **0.193** | **0.418** | **0.0682 J** | **0.538** | < 0.0735 U | **0.258** | **21.4** | **0.163** | **0.495** |
| 019-05 | B | 1/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.265** | **0.367** | **0.388** | **0.322** | **0.317** | **0.196** | **0.178** | **0.382** | **0.0636 J** | **0.527** | < 0.0730 U | **0.247** | **20.4** | **0.163** | **0.474** |
| 021 | A | 1/27/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.255** | **0.351** | **0.339** | **0.285** | **0.277** | **0.179** | **0.162** | **0.346** | **0.0616 J** | **0.484** | < 0.0744 U | **0.221** | **26.1** | **0.171** | **0.44** |
| 021 | B | 1/27/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.21** | **0.284** | **0.282** | **0.232** | **0.23** | **0.15** | **0.134** | **0.289** | < 0.0748 U | **0.414** | < 0.0748 U | **0.185** | **25.9** | **0.149** | **0.375** |
| 021 | C | 1/27/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.257** | **0.346** | **0.334** | **0.283** | **0.283** | **0.178** | **0.161** | **0.343** | **0.0573 J** | **0.479** | < 0.0746 U | **0.226** | **26.6** | **0.164** | **0.424** |
| 023 | A | 5/8/2016 | < 0.0709 U | < 0.0709 U | < 0.0709 U | **0.262** | **0.348** | **0.353** | **0.289** | **0.28** | **0.188** | **0.179** | **0.339** | **0.0622 J** | **0.46** | < 0.0709 U | **0.225** | **29.5** | **0.154** | **0.407** |
| 023 | B | 5/8/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.238** | **0.316** | **0.326** | **0.267** | **0.262** | **0.174** | **0.165** | **0.3** | **0.0599 J** | **0.433** | < 0.0740 U | **0.204** | **27** | **0.145** | **0.38** |
| 024 | A | 1/23/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.171** | **0.239** | **0.222** | **0.201** | **0.212** | **0.122** | **0.111** | **0.244** | < 0.0740 U | **0.306** | < 0.0740 U | **0.168** | **41.6** | **0.104** | **0.275** |
| 024 | B | 1/23/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | **0.285** | **0.395** | **0.359** | **0.313** | **0.337** | **0.194** | **0.18** | **0.393** | **0.0720 J** | **0.503** | < 0.0720 U | **0.271** | **35.5** | **0.173** | **0.449** |
| 024 | C | 1/23/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.197** | **0.284** | **0.263** | **0.232** | **0.245** | **0.144** | **0.131** | **0.279** | **0.0508 J** | **0.35** | < 0.0741 U | **0.195** | **35.2** | **0.114** | **0.311** |
| 033 | A | 1/28/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.151** | **0.201** | **0.202** | **0.172** | **0.16** | **0.107** | **0.0980 J** | **0.21** | < 0.0747 U | **0.294** | < 0.0747 U | **0.132** | **38.8** | **0.104** | **0.26** |
| 033 | B | 1/28/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | **0.153** | **0.201** | **0.2** | **0.167** | **0.154** | **0.106** | **0.101** | **0.208** | < 0.0742 U | **0.286** | < 0.0742 U | **0.126** | **26.3** | **0.108** | **0.251** |
| 033 | C | 1/28/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.18** | **0.226** | **0.231** | **0.191** | **0.183** | **0.12** | **0.113** | **0.252** | < 0.0739 U | **0.362** | < 0.0739 U | **0.144** | **29.6** | **0.124** | **0.313** |
| 037 | A | 1/27/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.171** | **0.228** | **0.219** | **0.184** | **0.176** | **0.119** | **0.105** | **0.232** | < 0.0744 U | **0.335** | < 0.0744 U | **0.14** | **14.6** | **0.127** | **0.293** |
| 037 | B | 1/27/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.119** | **0.154** | **0.148** | **0.125** | **0.123** | **0.0795 J** | **0.0713 J** | **0.16** | < 0.0740 U | **0.224** | < 0.0740 U | **0.0984 J** | **13.7** | **0.0872 J** | **0.194** |
| 037 | C | 1/27/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0910 J** | **0.124** | **0.122** | **0.0994** | **0.0951 J** | **0.0629 J** | **0.0559 J** | **0.122** | < 0.0737 U | **0.165** | < 0.0737 U | **0.0764 J** | **13.4** | **0.0686 J** | **0.148** |
| 038 | A | 5/5/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.289** | **0.39** | **0.346** | **0.293** | **0.312** | **0.183** | **0.175** | **0.353** | < 0.0747 U | **0.462** | < 0.0747 U | **0.246** | **10.3** | **0.2** | **0.435** |
| 038 | B | 5/5/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | **0.319** | **0.395** | **0.379** | **0.307** | **0.32** | **0.197** | **0.192** | **0.408** | < 0.0742 U | **0.541** | < 0.0742 U | **0.255** | **10.3** | **0.237** | **0.466** |
| 038 | C | 5/5/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.25** | **0.321** | **0.305** | **0.245** | **0.272** | **0.159** | **0.155** | **0.319** | **0.0566 J** | **0.419** | < 0.0741 U | **0.211** | **11.2** | **0.184** | **0.361** |
| 039 | A | 1/25/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.293** | **0.415** | **0.423** | **0.349** | **0.357** | **0.221** | **0.2** | **0.413** | **0.0735 J** | **0.554** | < 0.0743 U | **0.279** | **12.6** | **0.176** | **0.513** |
| 039 | B | 1/25/2016 | < 0.0733 U | < 0.0733 U | < 0.0733 U | **0.149** | **0.211** | **0.21** | **0.173** | **0.174** | **0.111** | **0.101** | **0.209** | < 0.0733 U | **0.293** | < 0.0733 U | **0.14** | **12.6** | **0.0964 J** | **0.269** |
| 039 | C | 1/25/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | **0.156** | **0.195** | **0.191** | **0.159** | **0.156** | **0.103** | **0.0927 J** | **0.204** | < 0.0716 U | **0.288** | < 0.0716 U | **0.127** | **11.7** | **0.0926 J** | **0.262** |
| 040 | A | 1/22/2016 | < 0.0737 U | < 0.0737 U | **0.0637 J** | **0.498** | **0.605** | **0.601** | **0.467** | **0.428** | **0.322** | **0.289** | **0.63** | **0.0919 J** | **0.908** | < 0.0737 U | **0.344** | **17.4** | **0.324** | **0.786** |
| 040 | B | 1/22/2016 | < 0.0747 U | < 0.0747 U | **0.0996** | **0.718** | **0.862** | **0.819** | **0.648** | **0.627** | **0.439** | **0.393** | **0.882** | **0.132** | **1.35** | < 0.0747 U | **0.497** | **19.2** | **0.521** | **1.15** |
| 040 | C | 1/22/2016 | < 0.0748 U | < 0.0748 U | **0.0738 J** | **0.567** | **0.688** | **0.659** | **0.522** | **0.483** | **0.352** | **0.325** | **0.716** | **0.103** | **1.02** | < 0.0748 U | **0.394** | **23.6** | **0.375** | **0.874** |
| 044 | A | 1/27/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.246** | **0.325** | **0.323** | **0.26** | **0.248** | **0.17** | **0.152** | **0.332** | **0.0527 J** | **0.467** | < 0.0723 U | **0.201** | **14.8** | **0.159** | **0.424** |
| 044 | B | 1/27/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.232** | **0.303** | **0.303** | **0.245** | **0.23** | **0.161** | **0.141** | **0.315** | < 0.0749 U | **0.449** | < 0.0749 U | **0.189** | **21.7** | **0.158** | **0.404** |
| 044 | C | 1/27/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.244** | **0.333** | **0.331** | **0.264** | **0.255** | **0.177** | **0.155** | **0.335** | **0.0536 J** | **0.471** | < 0.0743 U | **0.205** | **16.6** | **0.156** | **0.425** |
| 046 | A | 1/23/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | **0.238** | **0.323** | **0.31** | **0.262** | **0.272** | **0.169** | **0.153** | **0.324** | **0.0564 J** | **0.412** | < 0.0727 U | **0.213** | **12.5** | **0.141** | **0.38** |
| 046 | B | 1/23/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | **0.305** | **0.411** | **0.377** | **0.318** | **0.334** | **0.209** | **0.193** | **0.42** | **0.0719 J** | **0.545** | < 0.0732 U | **0.268** | **12.7** | **0.185** | **0.498** |
| 046 | C | 1/23/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.379** | **0.514** | **0.479** | **0.401** | **0.417** | **0.26** | **0.246** | **0.519** | **0.0870 J** | **0.686** | < 0.0747 U | **0.332** | **13.4** | **0.225** | **0.628** |
| 047 | A | 1/23/2016 | < 0.0748 U | < 0.0748 U | **0.0593 J** | **0.542** | **0.705** | **0.712** | **0.58** | **0.522** | **0.382** | **0.352** | **0.702** | **0.113** | **0.876** | < 0.0748 U | **0.411** | **20.6** | **0.306** | **0.769** |
| 047 | B | 1/23/2016 | < 0.0725 U | < 0.0725 U | **0.0775 J** | **0.647** | **0.804** | **0.806** | **0.648** | **0.604** | **0.431** | **0.384** | **0.814** | **0.128** | **1.08** | < 0.0725 U | **0.477** | **21.6** | **0.384** | **0.934** |
| 047 | C | 1/23/2016 | < 0.0739 U | < 0.0739 U | **0.0655 J** | **0.53** | **0.713** | **0.704** | **0.581** | **0.551** | **0.378** | **0.335** | **0.693** | **0.112** | **0.852** | < 0.0739 U | **0.434** | **22.9** | **0.322** | **0.734** |

**Table 4-2**
**Soil Analytical Results - ISM Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Analyte | | | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAS | | | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| Units | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| TRRP Tier 1 PCL | | | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Date | | | | | | | | | | | | | | | | | | |
| 049 | A | 1/28/2016 | **0.25** | < 0.0746 U | **0.881** | **8.43** | **11.2** | **10.6** | **8.37** | **8.06** | **5.41** | **5.35** | **11** | **1.83** | **15.3** | **0.101** | **6.72** | **56.7** | **4.94** | **13.4** |
| 049 | B | 1/28/2016 | **0.137** | < 0.0749 U | **0.441** | **4.33** | **5.86** | **5.6** | **4.55** | **4.48** | **2.87** | **2.71** | **5.71** | **0.986** | **7.8** | **0.0549 J** | **3.65** | **49.9** | **2.55** | **6.92** |
| 049 | C | 1/28/2016 | **0.185** | < 0.0748 U | **0.664** | **6.57** | **8.93** | **8.46** | **6.81** | **6.65** | **4.36** | **4.01** | **8.71** | **1.5** | **12** | **0.0733 J** | **5.52** | **42.7** | **3.76** | **10.6** |
| 050 | A | 1/23/2016 | **0.0749 J** | < 0.0679 U | **0.247** | **2.4** | **3.34** | **2.93** | **2.54** | **2.96** | **1.53** | **1.46** | **3.12** | **0.624** | **3.7** | < 0.0679 U | **2.39** | **23.5** | **1.39** | **3.29** |
| 050 | B | 1/23/2016 | **0.0662 J** | < 0.0740 U | **0.205** | **2.14** | **2.84** | **2.61** | **2.12** | **2.37** | **1.33** | **1.26** | **2.76** | **0.504** | **3.29** | < 0.0740 U | **1.92** | **21.7** | **1.19** | **2.98** |
| 050 | C | 1/23/2016 | **0.0577 J** | < 0.0736 U | **0.202** | **1.9** | **2.49** | **2.28** | **1.89** | **2.11** | **1.18** | **1.08** | **2.45** | **0.449** | **2.92** | < 0.0736 U | **1.7** | **23.1** | **1.1** | **2.6** |
| 053 | A | 1/27/2016 | < 0.0738 U | < 0.0738 U | **0.0970 J** | **1.03** | **1.36** | **1.29** | **1.05** | **1.15** | **0.672** | **0.598** | **1.33** | **0.239** | **1.74** | < 0.0738 U | **0.919** | **19.9** | **0.565** | **1.55** |
| 053 | B | 1/27/2016 | < 0.0748 U | < 0.0748 U | **0.117** | **1.3** | **1.73** | **1.71** | **1.35** | **1.31** | **0.892** | **0.808** | **1.68** | **0.281** | **2.35** | < 0.0748 U | **1.08** | **22** | **0.717** | **2.12** |
| 053 | C | 1/27/2016 | < 0.0711 U | < 0.0711 U | **0.134** | **1.41** | **1.88** | **1.74** | **1.46** | **1.56** | **0.925** | **0.828** | **1.81** | **0.326** | **2.48** | < 0.0711 U | **1.25** | **26.2** | **0.754** | **2.24** |
| 054 | A | 1/23/2016 | **0.134** | < 0.0746 U | **0.541** | **6.45** | **8.96** | **8.02** | **6.75** | **7.46** | **4.06** | **3.89** | **8.88** | **1.58** | **9.82** | < 0.0746 U | **6.11** | **33.7** | **3.18** | **8.62** |
| 054 | B | 1/23/2016 | **0.0567 J** | < 0.0731 U | **0.175** | **1.99** | **2.72** | **2.54** | **2.07** | **2.29** | **1.31** | **1.22** | **2.63** | **0.489** | **3.34** | < 0.0731 U | **1.85** | **25.7** | **1.02** | **3.03** |
| 054 | C | 1/23/2016 | **0.131** | < 0.0738 U | **0.427** | **5.53** | **7.39** | **6.8** | **5.85** | **6.54** | **3.4** | **3.14** | **7.74** | **1.37** | **7.7** | < 0.0738 U | **5.33** | **30.3** | **2.49** | **6.9** |
| 056 | A | 1/25/2016 | **0.0771 J** | < 0.0723 U | **0.265** | **2.9** | **3.83** | **3.73** | **2.99** | **3.02** | **1.93** | **1.83** | **3.73** | **0.666** | **5.13** | < 0.0723 U | **2.47** | **24.3** | **1.57** | **4.63** |
| 056 | B | 1/25/2016 | **0.0907 J** | < 0.0746 U | **0.342** | **3.73** | **5.01** | **4.94** | **3.9** | **3.92** | **2.51** | **2.32** | **4.81** | **0.867** | **6.75** | < 0.0746 U | **3.22** | **24.6** | **1.97** | **6.12** |
| 056 | C | 1/25/2016 | **0.0818 J** | < 0.0748 U | **0.294** | **2.68** | **3.53** | **3.32** | **2.66** | **2.73** | **1.76** | **1.6** | **3.43** | **0.597** | **4.89** | < 0.0748 U | **2.2** | **68.3** | **1.55** | **4.38** |
| 058 | A | 1/25/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | **0.112** | **0.15** | **0.149** | **0.122** | **0.128** | **0.0791 J** | **0.0750 J** | **0.156** | < 0.0710 U | **0.228** | < 0.0710 U | **0.1** | **15.8** | **0.0817 J** | **0.203** |
| 058 | B | 1/25/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | **0.116** | **0.156** | **0.157** | **0.126** | **0.129** | **0.0824 J** | **0.0766 J** | **0.159** | < 0.0712 U | **0.234** | < 0.0712 U | **0.104** | **16.9** | **0.0847 J** | **0.207** |
| 058 | C | 1/25/2016 | < 0.0875 U | < 0.0875 U | < 0.0875 U | **0.179** | **0.251** | **0.249** | **0.2** | **0.209** | **0.13** | **0.118** | **0.245** | < 0.0875 U | **0.335** | < 0.0875 U | **0.167** | **17.7** | **0.111 J** | **0.305** |
| 060 | A | 1/26/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.102** | **0.14** | **0.137** | **0.111** | **0.102** | **0.0714 J** | **0.0663 J** | **0.14** | < 0.0744 U | **0.202** | < 0.0744 U | **0.0854 J** | **24.3** | **0.0790 J** | **0.183** |
| 060 | B | 1/26/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | **0.113** | **0.152** | **0.147** | **0.121** | **0.112** | **0.0767 J** | **0.0716 J** | **0.154** | < 0.0742 U | **0.215** | < 0.0742 U | **0.0929 J** | **29.1** | **0.0871 J** | **0.194** |
| 060 | C | 1/26/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.135** | **0.178** | **0.175** | **0.145** | **0.134** | **0.0904 J** | **0.0835 J** | **0.184** | < 0.0746 U | **0.274** | < 0.0746 U | **0.11** | **24.3** | **0.11** | **0.245** |
| 063 | A | 5/11/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.153** | **0.201** | **0.199** | **0.162** | **0.154** | **0.0706 J** | **0.0796 J** | **0.204** | < 0.0748 U | **0.307** | < 0.0748 U | **0.113** | **24.6** | **0.116** | **0.273** |
| 063 | B | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.159** | **0.208** | **0.206** | **0.167** | **0.161** | **0.0785 J** | **0.0862 J** | **0.214** | < 0.0746 U | **0.326** | < 0.0746 U | **0.119** | **27.2** | **0.125** | **0.287** |
| 063 | C | 5/11/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.175** | **0.22** | **0.218** | **0.177** | **0.172** | **0.0855 J** | **0.0921 J** | **0.233** | < 0.0748 U | **0.368** | < 0.0748 U | **0.127** | **28.8** | **0.149** | **0.321** |
| 064 | A | 1/21/2016 | < 0.0737 U | < 0.0737 U | **0.0618 J** | **0.595** | **0.784** | **0.744** | **0.588** | **0.616** | **0.399** | **0.367** | **0.757** | **0.129** | **0.995** | < 0.0737 U | **0.487** | **21.5** | **0.341** | **0.878** |
| 064 | B | 1/21/2016 | < 0.0764 U | < 0.0764 U | **0.0758 J** | **0.694** | **0.967** | **0.859** | **0.692** | **0.745** | **0.469** | **0.402** | **0.885** | **0.151** | **1.18** | < 0.0764 U | **0.615** | **23.2** | **0.409** | **1.03** |
| 064 | C | 1/21/2016 | < 0.0732 U | < 0.0732 U | **0.0761 J** | **0.693** | **0.945** | **0.853** | **0.693** | **0.791** | **0.463** | **0.425** | **0.891** | **0.152** | **1.21** | < 0.0732 U | **0.59** | **23.4** | **0.413** | **1.05** |
| 065 | A | 1/21/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | **0.201** | **0.273** | **0.26** | **0.21** | **0.226** | **0.142** | **0.125** | **0.26** | **0.0476 J** | **0.374** | < 0.0700 U | **0.181** | **23.6** | **0.121** | **0.332** |
| 065 | B | 1/21/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | **0.287** | **0.387** | **0.36** | **0.301** | **0.324** | **0.201** | **0.184** | **0.372** | **0.0652 J** | **0.556** | < 0.0728 U | **0.258** | **26.5** | **0.18** | **0.492** |
| 065 | C | 1/21/2016 | < 0.0721 U | < 0.0721 U | < 0.0721 U | **0.227** | **0.313** | **0.301** | **0.245** | **0.257** | **0.165** | **0.152** | **0.301** | **0.0539 J** | **0.434** | < 0.0721 U | **0.202** | **22.8** | **0.14** | **0.386** |
| 066 | A | 1/20/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | **0.219** | **0.308** | **0.298** | **0.23** | **0.23** | **0.159** | **0.152** | **0.277** | **0.0587 J** | **0.364** | < 0.0724 U | **0.192** | **23.4** | **0.13** | **0.322** |
| 066 | B | 1/20/2016 | < 0.0833 U | < 0.0833 U | < 0.0833 U | **0.294** | **0.385** | **0.322** | **0.281** | **0.302** | **0.196** | **0.181** | **0.38** | **0.0604 J** | **0.574** | < 0.0833 U | **0.236** | **24.2** | **0.191** | **0.508** |
| 066 | C | 1/20/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.248** | **0.334** | **0.303** | **0.254** | **0.276** | **0.174** | **0.16** | **0.33** | **0.0599 J** | **0.478** | < 0.0743 U | **0.218** | **33.1** | **0.146** | **0.43** |
| 067 | A | 1/27/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | **0.174** | **0.234** | **0.237** | **0.195** | **0.185** | **0.125** | **0.11** | **0.234** | < 0.0738 U | **0.305** | < 0.0738 U | **0.151** | **21** | **0.0987** | **0.281** |
| 067 | B | 1/27/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | **0.121** | **0.164** | **0.166** | **0.138** | **0.127** | **0.0890 J** | **0.0778 J** | **0.166** | < 0.0720 U | **0.224** | < 0.0720 U | **0.105** | **19.3** | **0.0756 J** | **0.205** |
| 067 | C | 1/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.202** | **0.264** | **0.261** | **0.213** | **0.195** | **0.141** | **0.123** | **0.275** | < 0.0730 U | **0.398** | < 0.0730 U | **0.161** | **21.8** | **0.14** | **0.355** |
| 069 | A | 1/20/2016 | < 0.0740 U | < 0.0740 U | **0.0643 J** | **0.589** | **0.774** | **0.694** | **0.563** | **0.635** | **0.39** | **0.359** | **0.765** | **0.136** | **1.1** | < 0.0740 U | **0.508** | **30.1** | **0.345** | **0.977** |
| 069 | B | 1/20/2016 | < 0.0737 U | < 0.0737 U | **0.0700 J** | **0.92** | **1.42** | **1.29** | **1.04** | **1.18** | **0.692** | **0.641** | **1.24** | **0.25** | **1.4** | < 0.0737 U | **0.959** | **38.8** | **0.366** | **1.31** |
| 069 | C | 1/20/2016 | < 0.0728 U | < 0.0728 U | **0.0862 JH** | **0.811** | **1.13 JH** | **0.962 JH** | **0.794** | **0.910 JH** | **0.544** | **0.504 JH** | **1.05 JH** | **0.192** | **1.50 JH** | < 0.0728 U | **0.741** | **37.9** | **0.476** | **1.32 JH** |
| 074 | A | 1/25/2016 | **0.0930 J** | < 0.0741 U | **0.361** | **2.65** | **3.35** | **3.05** | **2.42** | **2.43** | **1.64** | **1.49** | **3.26** | **0.552** | **5.06** | **0.0606 J** | **1.99** | **64.7** | **1.73** | **4.46** |
| 074 | B | 1/25/2016 | **0.0774 J** | < 0.0737 U | **0.259** | **2.17** | **2.92** | **2.74** | **2.2** | **2.24** | **1.42** | **1.33** | **2.77** | **0.499** | **4.2** | < 0.0737 U | **1.84** | **56.6** | **1.32** | **3.79** |
| 074 | C | 1/25/2016 | **0.0713 J** | < 0.0732 U | **0.274** | **2.94 JL** | **3.87 JL** | **3.78 JL** | **3.04 JL** | **3.07 JL** | **1.95** | **1.80 JL** | **3.77 JL** | **0.678** | **4.91** | < 0.0732 U | **2.50 JL** | **23.6** | **1.56** | **4.44** |
| 076 | A | 1/25/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | **0.184** | **0.247** | **0.243** | **0.205** | **0.196** | **0.132** | **0.122** | **0.257** | < 0.0716 U | **0.355** | < 0.0716 U | **0.16** | **17.9** | **0.12** | **0.329** |
| 076 | B | 1/25/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | **0.208** | **0.278** | **0.274** | **0.227** | **0.224** | **0.144** | **0.133** | **0.287** | < 0.0729 U | **0.407** | < 0.0729 U | **0.181** | **18.9** | **0.134** | **0.372** |
| 076 | C | 1/25/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.222** | **0.306** | **0.304** | **0.247** | **0.249** | **0.161** | **0.143** | **0.309** | **0.0528 J** | **0.432** | < 0.0749 U | **0.201** | **18.9** | **0.139** | **0.401** |
| 077 | A | 1/23/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.357** | **0.467** | **0.469** | **0.375** | **0.319** | **0.254** | **0.231** | **0.468** | **0.0739 J** | **0.614** | < 0.0744 U | **0.257** | **24.7** | **0.203** | **0.538** |
| 077 | B | 1/23/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.307** | **0.439** | **0.36** | **0.332** | **0.356** | **0.22** | **0.202** | **0.436** | **0.0726 J** | **0.563** | < 0.0740 U | **0.28** | **24.1** | **0.175** | **0.516** |
| 077 | C | 1/23/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.267** | **0.352** | **0.323** | **0.278** | **0.287** | **0.181** | **0.168** | **0.364** | **0.0595 J** | **0.484** | < 0.0746 U | **0.225** | **27.4** | **0.158** | **0.444** |

## Table 4-2
## Soil Analytical Results - ISM Samples
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| Analyte | | | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAS | | | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| Units | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| TRRP Tier 1 PCL | | | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Date | | | | | | | | | | | | | | | | | | |
| 080 | A | 1/22/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | 0.127 | 0.167 | 0.173 | 0.138 | 0.125 | 0.0937 J | 0.0836 J | 0.167 | < 0.0748 U | 0.233 | < 0.0748 U | 0.0992 J | 22.7 | 0.0779 J | 0.205 |
| 080 | B | 1/22/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | 0.126 | 0.173 | 0.177 | 0.144 | 0.134 | 0.0945 J | 0.0862 J | 0.171 | < 0.0736 U | 0.212 | < 0.0736 U | 0.106 | 21.2 | 0.0696 J | 0.185 |
| 080 | C | 1/22/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.111 | 0.148 | 0.158 | 0.123 | 0.11 | 0.0785 J | 0.0770 J | 0.154 | < 0.0730 U | 0.202 | < 0.0730 U | 0.0898 J | 20.1 | 0.0674 J | 0.183 |
| 082 | A | 1/22/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | 0.171 | 0.224 | 0.235 | 0.182 | 0.163 | 0.122 | 0.108 | 0.228 | < 0.0714 U | 0.31 | < 0.0714 U | 0.133 | 25.2 | 0.103 | 0.272 |
| 082 | B | 1/22/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | 0.171 | 0.219 | 0.232 | 0.185 | 0.162 | 0.122 | 0.117 | 0.23 | < 0.0726 U | 0.325 | < 0.0726 U | 0.131 | 27.4 | 0.114 | 0.281 |
| 082 | C | 1/22/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.166 | 0.214 | 0.223 | 0.177 | 0.156 | 0.12 | 0.109 | 0.224 | < 0.0749 U | 0.311 | < 0.0749 U | 0.128 | 26.5 | 0.103 | 0.272 |
| 083 | A | 1/22/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | 0.181 | 0.223 | 0.224 | 0.174 | 0.152 | 0.119 | 0.114 | 0.222 | < 0.0747 U | 0.326 | < 0.0747 U | 0.125 | 25.9 | 0.124 | 0.278 |
| 083 | B | 1/22/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.142 | 0.18 | 0.176 | 0.142 | 0.128 | 0.0944 J | 0.0875 J | 0.177 | < 0.0735 U | 0.25 | < 0.0735 U | 0.101 | 27 | 0.104 | 0.214 |
| 083 | C | 1/22/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | 0.218 | 0.257 | 0.254 | 0.195 | 0.174 | 0.141 | 0.127 | 0.269 | < 0.0724 U | 0.372 | < 0.0724 U | 0.142 | 28.3 | 0.143 | 0.32 |
| 084 | A | 1/23/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.186 | 0.244 | 0.223 | 0.188 | 0.195 | 0.121 | 0.113 | 0.246 | < 0.0749 U | 0.331 | < 0.0749 U | 0.155 | 12.9 | 0.129 | 0.292 |
| 084 | B | 1/23/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | 0.14 | 0.18 | 0.175 | 0.147 | 0.163 | 0.0912 J | 0.0833 J | 0.183 | < 0.0731 U | 0.238 | < 0.0731 U | 0.12 | 13.4 | 0.0905 J | 0.208 |
| 084 | C | 1/23/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | 0.188 | 0.265 | 0.236 | 0.203 | 0.214 | 0.129 | 0.117 | 0.258 | < 0.0722 U | 0.319 | < 0.0722 U | 0.174 | 13.9 | 0.116 | 0.292 |
| 085 | A | 1/27/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | 0.104 | 0.146 | 0.144 | 0.12 | 0.118 | 0.0751 J | 0.0672 J | 0.145 | < 0.0727 U | 0.205 | < 0.0727 U | 0.0953 J | 14.6 | 0.0698 J | 0.186 |
| 085 | B | 1/27/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.104 | 0.143 | 0.141 | 0.118 | 0.11 | 0.0729 J | 0.0663 J | 0.148 | < 0.0746 U | 0.209 | < 0.0746 U | 0.0903 J | 14.8 | 0.0755 J | 0.191 |
| 085 | C | 1/27/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | 0.124 | 0.161 | 0.164 | 0.137 | 0.129 | 0.0868 J | 0.0790 J | 0.169 | < 0.0743 U | 0.24 | < 0.0743 U | 0.105 | 16 | 0.0881 J | 0.216 |
| 087 | A | 1/26/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | 0.13 | 0.178 | 0.179 | 0.15 | 0.151 | 0.0926 J | 0.0842 J | 0.183 | < 0.0738 U | 0.259 | < 0.0738 U | 0.119 | 19.7 | 0.0839 J | 0.236 |
| 087 | B | 1/26/2016 | < 0.0733 U | < 0.0733 U | < 0.0733 U | 0.111 | 0.152 | 0.151 | 0.13 | 0.133 | 0.0810 J | 0.0726 J | 0.156 | < 0.0733 U | 0.218 | < 0.0733 U | 0.105 | 20 | 0.0726 J | 0.198 |
| 087 | C | 1/26/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | 0.136 | 0.19 | 0.182 | 0.159 | 0.161 | 0.0958 J | 0.0908 J | 0.194 | < 0.0724 U | 0.259 | < 0.0724 U | 0.127 | 21.8 | 0.0804 J | 0.238 |
| 095 | A | 1/21/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 12.3 | < 0.0747 U | < 0.0747 U |
| 095 | B | 1/21/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.0529 J | < 0.0742 U | < 0.0742 U | 21.9 | < 0.0742 U | < 0.0742 U |
| 095 | C | 1/21/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.0557 J | < 0.0732 U | < 0.0732 U | 23.1 | < 0.0732 U | < 0.0732 U |
| 097 | A | 1/22/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | 0.113 | 0.147 | 0.156 | 0.119 | 0.0973 J | 0.0838 J | 0.0742 J | 0.141 | < 0.0740 U | 0.185 | < 0.0740 U | 0.0815 J | 25.8 | 0.0658 J | 0.162 |
| 097 | B | 1/22/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | 0.0962 J | 0.126 | 0.135 | 0.103 | 0.0875 J | 0.0710 J | 0.0652 J | 0.125 | < 0.0747 U | 0.165 | < 0.0747 U | 0.0711 J | 28.8 | 0.0610 J | 0.145 |
| 097 | C | 1/22/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | 0.128 | 0.164 | 0.169 | 0.131 | 0.12 | 0.0869 J | 0.0805 J | 0.168 | < 0.0737 U | 0.219 | < 0.0737 U | 0.0968 J | 31.6 | 0.0771 J | 0.194 |
| 100 | A | 11/6/2016 | < 0.0690 U | < 0.0690 U | < 0.0690 U | 0.157 | 0.207 | 0.199 | 0.162 | 0.169 | 0.0958 | 0.103 | 0.199 | < 0.0690 U | 0.303 | < 0.0690 U | 0.164 | 20.9 | 0.109 | 0.267 |
| 100 | B | 11/6/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | 0.149 | 0.2 | 0.197 | 0.162 | 0.171 | 0.0939 J | 0.0952 J | 0.192 | < 0.0740 U | 0.279 | < 0.0740 U | 0.166 | 15 | 0.0927 J | 0.247 |
| 100 | C | 11/6/2016 | < 0.0688 U | < 0.0688 U | < 0.0688 U | 0.2 | 0.263 | 0.26 | 0.214 | 0.223 | 0.123 | 0.129 | 0.254 | < 0.0688 U | 0.378 | < 0.0688 U | 0.211 | 23.1 | 0.132 | 0.329 |
| 103 | A | 11/5/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | 0.0717 J | 0.0993 | 0.0985 | 0.0837 J | 0.0843 J | 0.0500 J | 0.0539 J | 0.0878 J | < 0.0723 U | 0.122 | < 0.0723 U | 0.0827 J | 22.5 | < 0.0723 U | 0.109 |
| 103 | B | 11/5/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | 0.115 | 0.147 | 0.143 | 0.121 | 0.132 | 0.0733 J | 0.0772 J | 0.132 | < 0.0744 U | 0.197 | < 0.0744 U | 0.126 | 20.6 | 0.0600 J | 0.179 |
| 103 | C | 11/5/2016 | < 0.0707 U | < 0.0707 U | < 0.0707 U | 0.181 | 0.209 | 0.199 | 0.163 | 0.167 | 0.1 | 0.106 | 0.207 | < 0.0707 U | 0.387 | < 0.0707 U | 0.167 | 30.7 | 0.168 | 0.331 |
| 105 | A | 1/25/2016 | < 0.0702 U | < 0.0702 U | < 0.0702 U | 0.105 | 0.139 | 0.137 | 0.114 | 0.109 | 0.0723 J | 0.0669 J | 0.146 | < 0.0702 U | 0.207 | < 0.0702 U | 0.0892 J | 18.2 | 0.0713 J | 0.188 |
| 105 | B | 1/25/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.105 | 0.143 | 0.14 | 0.114 | 0.112 | 0.0751 J | 0.0706 J | 0.143 | < 0.0735 U | 0.2 | < 0.0735 U | 0.0932 J | 18.1 | 0.0698 J | 0.183 |
| 105 | C | 1/25/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | 0.0898 J | 0.121 | 0.123 | 0.099 | 0.0968 | 0.0647 J | 0.0589 J | 0.126 | < 0.0716 U | 0.178 | < 0.0716 U | 0.0797 J | 18.2 | 0.0615 J | 0.161 |
| 106 | A | 1/21/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | 0.231 | 0.291 | 0.287 | 0.23 | 0.214 | 0.161 | 0.142 | 0.292 | < 0.0727 U | 0.412 | < 0.0727 U | 0.169 | 33.8 | 0.145 | 0.36 |
| 106 | B | 1/21/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | 0.177 | 0.237 | 0.241 | 0.197 | 0.186 | 0.13 | 0.12 | 0.233 | < 0.0722 U | 0.291 | < 0.0722 U | 0.147 | 32.4 | 0.0952 J | 0.261 |
| 106 | C | 1/21/2016 | < 0.0684 U | < 0.0684 U | < 0.0684 U | 0.219 | 0.288 | 0.289 | 0.229 | 0.222 | 0.158 | 0.147 | 0.285 | 0.0479 J | 0.375 | < 0.0684 U | 0.179 | 34.9 | 0.12 | 0.331 |
| 110 | A | 1/19/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | 0.0616 J | 0.0660 J | 0.0551 J | 0.0566 J | < 0.0726 U | < 0.0726 U | 0.0610 J | < 0.0726 U | 0.0819 J | < 0.0726 U | < 0.0726 U | 18.8 | < 0.0726 U | 0.0724 J |
| 110 | B | 1/19/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | 0.0507 J | 0.0672 J | 0.0716 J | 0.0572 J | 0.0620 J | < 0.0736 U | < 0.0736 U | 0.0665 J | < 0.0736 U | 0.0932 J | < 0.0736 U | < 0.0736 U | 16.5 | < 0.0736 U | 0.0816 J |
| 110 | C | 1/19/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0554 J | 0.0573 J | < 0.0746 U | 0.0500 J | < 0.0746 U | < 0.0746 U | 0.0530 J | < 0.0746 U | 0.0777 J | < 0.0746 U | < 0.0746 U | 17.4 | < 0.0746 U | 0.0682 J |
| 111 | A | 1/27/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | 0.0929 J | 0.126 | 0.13 | 0.109 | 0.0947 J | 0.0708 J | 0.0624 J | 0.131 | < 0.0722 U | 0.183 | < 0.0722 U | 0.0808 J | 24.4 | 0.0673 J | 0.168 |
| 111 | B | 1/27/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0961 J | 0.139 | 0.14 | 0.118 | 0.106 | 0.0731 J | 0.0650 J | 0.138 | < 0.0746 U | 0.172 | < 0.0746 U | 0.0875 J | 28.1 | 0.0611 J | 0.16 |
| 111 | C | 1/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.105 | 0.146 | 0.148 | 0.123 | 0.11 | 0.0799 J | 0.0694 J | 0.148 | < 0.0735 U | 0.202 | < 0.0735 U | 0.0898 J | 25.3 | 0.0695 J | 0.184 |
| 115 | A | 1/21/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | 0.0900 J | 0.119 | 0.112 | 0.0997 | 0.124 | 0.0615 J | 0.0538 J | 0.11 | < 0.0700 U | 0.146 | < 0.0700 U | 0.097 | 19 | 0.0564 J | 0.135 |
| 115 | B | 1/21/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | 0.108 | 0.136 | 0.116 | 0.118 | 0.152 | 0.0675 J | 0.0551 J | 0.122 | < 0.0724 U | 0.151 | < 0.0724 U | 0.115 | 16.9 | 0.0574 J | 0.146 |
| 115 | C | 1/21/2016 | < 0.0721 U | < 0.0721 U | < 0.0721 U | 0.0830 J | 0.108 | 0.099 | 0.0891 J | 0.101 | 0.0584 J | 0.0499 J | 0.111 | < 0.0721 U | 0.153 | < 0.0721 U | 0.0787 J | 21.9 | 0.0560 J | 0.135 |
| 118 | A | 1/20/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0532 J | 0.0534 J | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0497 J | < 0.0746 U | 0.0768 J | < 0.0746 U | < 0.0746 U | 16.4 | < 0.0746 U | 0.0704 J |
| 118 | B | 1/20/2016 | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | < 0.0830 U | 0.0689 J | < 0.0830 U | < 0.0830 U | 15.1 | < 0.0830 U | 0.0627 J |
| 118 | C | 1/26/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.0513 J | 0.0500 J | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.0528 J | < 0.0732 U | 0.0812 J | < 0.0732 U | < 0.0732 U | 14.8 | < 0.0732 U | 0.0727 J |

**Table 4-2**
**Soil Analytical Results - ISM Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Sample | Sample Date | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| 120 | A | 1/22/2016 | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | **0.0490 J** | < 0.0708 U | < 0.0708 U | **12.8** | < 0.0708 U | < 0.0708 U |
| 120 | B | 1/22/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **13.6** | < 0.0736 U | < 0.0736 U |
| 120 | C | 1/22/2016 | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | < 0.0795 U | **15.7** | < 0.0795 U | < 0.0795 U |
| 125 | A | 1/22/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.0693 J** | **0.0924 J** | **0.0984** | **0.0757 J** | **0.0698 J** | **0.0527 J** | **0.0496 J** | **0.0948 J** | < 0.0735 U | **0.129** | < 0.0735 U | **0.0582 J** | **25.9** | < 0.0735 U | **0.116** |
| 125 | B | 1/22/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.0872 J** | **0.116** | **0.117** | **0.0941 J** | **0.0864 J** | **0.0615 J** | **0.0580 J** | **0.119** | < 0.0741 U | **0.167** | < 0.0741 U | **0.0675 J** | **26.3** | **0.0607 J** | **0.146** |
| 125 | C | 1/22/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0772 J** | **0.0999** | **0.11** | **0.0859 J** | **0.0776 J** | **0.0563 J** | **0.0538 J** | **0.106** | < 0.0737 U | **0.141** | < 0.0737 U | **0.0605 J** | **25.7** | < 0.0737 U | **0.124** |
| 129 | A | 1/21/2016 | < 0.0863 U | < 0.0863 U | < 0.0863 U | < 0.0863 U | **0.0748 J** | **0.0829 J** | **0.0634 J** | **0.0596 J** | < 0.0863 U | < 0.0863 U | **0.0726 J** | < 0.0863 U | **0.0913 J** | < 0.0863 U | < 0.0863 U | **22.6** | < 0.0863 U | **0.0816 J** |
| 129 | B | 1/21/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | **0.0554 J** | **0.0742 J** | **0.0784 J** | **0.0613 J** | **0.0593 J** | < 0.0732 U | < 0.0732 U | **0.0740 J** | < 0.0732 U | **0.107** | < 0.0732 U | < 0.0732 U | **14.7** | < 0.0732 U | **0.0925 J** |
| 129 | C | 1/21/2016 | < 0.0943 U | < 0.0943 U | < 0.0943 U | **0.0630 J** | **0.0843 J** | **0.0911 J** | **0.0713 J** | **0.0650 J** | < 0.0943 U | < 0.0943 U | **0.0848 J** | < 0.0943 U | **0.119 J** | < 0.0943 U | < 0.0943 U | **16.7** | < 0.0943 U | **0.104 J** |
| 132 | A | 1/20/2016 | < 0.0827 U | < 0.0827 U | < 0.0827 U | **0.0708 J** | **0.0945 J** | **0.0976 J** | **0.0762 J** | **0.0763 J** | < 0.0827 U | < 0.0827 U | **0.0967 J** | < 0.0827 U | **0.122** | < 0.0827 U | **0.0628 J** | **18.3** | < 0.0827 U | **0.106 J** |
| 132 | B | 1/20/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | **0.0779 J** | **0.103** | **0.1** | **0.0796 J** | **0.0824 J** | **0.0522 J** | **0.0583 J** | **0.0954 J** | < 0.0728 U | **0.129** | < 0.0728 U | **0.0676 J** | **19.3** | < 0.0728 U | **0.114** |
| 132 | C | 1/20/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0692 J** | **0.0982 J** | **0.0944 J** | **0.0742 J** | **0.0737 J** | < 0.0743 U | **0.0556 J** | **0.0918 J** | < 0.0743 U | **0.111** | < 0.0743 U | **0.0595 J** | **16.6** | < 0.0743 U | **0.1** |
| 133 | A | 11/5/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.0608 J** | **0.0662 J** | **0.0500 J** | **0.0529 J** | < 0.0730 U | < 0.0730 U | **0.0542 J** | < 0.0730 U | **0.0719 J** | < 0.0730 U | **0.0513 J** | **15.8** | < 0.0730 U | **0.0679 J** |
| 133 | B | 11/5/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | **0.0486 J** | **0.0656 J** | **0.0661 J** | **0.0508 J** | **0.0554 J** | < 0.0694 U | < 0.0694 U | **0.0629 J** | < 0.0694 U | **0.0800 J** | < 0.0694 U | **0.0522 J** | **15.9** | < 0.0694 U | **0.0721 J** |
| 133 | C | 11/5/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | **0.0534 J** | **0.0581 J** | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | **0.0629 J** | < 0.0725 U | < 0.0725 U | **11.7** | < 0.0725 U | **0.0562 J** |
| 134 | A | 1/19/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | **0.414** | **0.564** | **0.55** | **0.441** | **0.473** | **0.292** | **0.268** | **0.532** | **0.104** | **0.685** | < 0.0710 U | **0.384** | **40.3** | **0.224** | **0.609** |
| 134 | B | 1/19/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.375** | **0.501** | **0.48** | **0.383** | **0.421** | **0.261** | **0.243** | **0.48** | **0.0925 J** | **0.636** | < 0.0744 U | **0.34** | **33.3** | **0.215** | **0.559** |
| 134 | C | 1/19/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.441** | **0.564** | **0.57** | **0.454** | **0.488** | **0.303** | **0.274** | **0.561** | **0.108** | **0.775** | < 0.0745 U | **0.392** | **34.2** | **0.26** | **0.677** |
| 140 | A | 1/19/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.424** | **0.583** | **0.554** | **0.442** | **0.468** | **0.3** | **0.276** | **0.53** | **0.101** | **0.687** | < 0.0737 U | **0.381** | **23.5** | **0.247** | **0.606** |
| 140 | B | 1/19/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.315** | **0.42** | **0.406** | **0.331** | **0.381** | **0.218** | **0.201** | **0.394** | **0.0796 J** | **0.565** | < 0.0740 U | **0.298** | **35.2** | **0.227** | **0.486** |
| 140 | C | 1/19/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | **0.444** | **0.659** | **0.618** | **0.494** | **0.55** | **0.333** | **0.304** | **0.581** | **0.117** | **0.711** | < 0.0738 U | **0.45** | **28** | **0.225** | **0.639** |
| 143 | A | 1/21/2016 | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | < 0.0869 U | **0.0705 J** | < 0.0869 U | < 0.0869 U | **17** | < 0.0869 U | **0.0627 J** |
| 143 | B | 1/21/2016 | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | < 0.0888 U | **17** | < 0.0888 U | < 0.0888 U |
| 143 | C | 1/21/2016 | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | < 0.0929 U | **16.4** | < 0.0929 U | < 0.0929 U |
| 146 | A | 5/12/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0494 UB | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0494 UB | < 0.0740 U | < 0.0494 UB | < 0.0740 U | < 0.0740 U | **31.2** | < 0.0740 U | < 0.0494 UB |
| 146 | B | 5/12/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0494 UB | < 0.0494 UB | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0494 UB | < 0.0741 U | < 0.0494 UB | < 0.0741 U | < 0.0741 U | **34.6** | < 0.0741 U | < 0.0494 UB |
| 146 | C | 5/12/2016 | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0500 UB | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0500 UB | < 0.0750 U | < 0.0750 U | **30.3** | < 0.0750 U | < 0.0500 UB |
| 148 | A | 1/19/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0508 J** | **0.0518 J** | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0648 J** | < 0.0746 U | < 0.0746 U | **18.9** | < 0.0746 U | **0.0594 J** |
| 148 | B | 1/19/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | **0.0545 J** | **0.0588 J** | < 0.0731 U | **0.0488 J** | < 0.0731 U | < 0.0731 U | **0.0530 J** | < 0.0731 U | **0.0740 J** | < 0.0731 U | < 0.0731 U | **16.5** | < 0.0731 U | **0.0655 J** |
| 148 | C | 1/19/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.0590 J** | **0.0564 J** | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.0566 J** | < 0.0741 U | **0.0712 J** | < 0.0741 U | < 0.0741 U | **17.8** | < 0.0741 U | **0.0630 J** |
| 150 | A | 1/26/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0570 J** | < 0.0737 U | < 0.0737 U | **10.7** | < 0.0737 U | **0.0517 J** |
| 150 | B | 1/26/2016 | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | < 0.0780 U | **0.0570 J** | < 0.0780 U | < 0.0780 U | **10.3** | < 0.0780 U | < 0.0780 U |
| 150 | C | 1/26/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0529 J** | < 0.0723 U | < 0.0723 U | **11.9** | < 0.0723 U | **0.0491 J** |
| 151 | A | 1/22/2016 | < 0.0880 U | < 0.0880 U | < 0.0880 U | **0.104 J** | **0.144** | **0.149** | **0.12** | **0.102 J** | **0.0813 J** | **0.0731 J** | **0.141** | < 0.0880 U | **0.167** | < 0.0880 U | **0.0816 J** | **29.4** | < 0.0880 U | **0.153** |
| 151 | B | 1/22/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | **0.109** | **0.142** | **0.139** | **0.115** | **0.0951 J** | **0.0769 J** | **0.0671 J** | **0.14** | < 0.0734 U | **0.187** | < 0.0734 U | **0.0779 J** | **31.7** | **0.0702 J** | **0.165** |
| 151 | C | 1/22/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.111** | **0.144** | **0.142** | **0.117** | **0.102** | **0.0805 J** | **0.0741 J** | **0.151** | < 0.0749 U | **0.201** | < 0.0749 U | **0.0808 J** | **28.7** | **0.0735 J** | **0.173** |
| 154 | A | 1/27/2016 | < 0.0733 U | < 0.0733 U | < 0.0733 U | **0.0809 J** | **0.113** | **0.114** | **0.0967 J** | **0.0945 J** | **0.0596 J** | **0.0522 J** | **0.117** | < 0.0733 U | **0.165** | < 0.0733 U | **0.0745 J** | **17.8** | **0.0567 J** | **0.147** |
| 154 | B | 1/27/2016 | < 0.0719 U | < 0.0719 U | < 0.0719 U | **0.0983** | **0.13** | **0.126** | **0.111** | **0.112** | **0.0693 J** | **0.0613 J** | **0.137** | < 0.0719 U | **0.189** | < 0.0719 U | **0.0845 J** | **17.5** | **0.0676 J** | **0.167** |
| 154 | C | 1/27/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | **0.0819 J** | **0.109** | **0.112** | **0.0920 J** | **0.0904 J** | **0.0587 J** | **0.0516 J** | **0.115** | < 0.0742 U | **0.158** | < 0.0742 U | **0.0711 J** | **16.9** | **0.0549 J** | **0.139** |
| 155 | A | 1/20/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | **0.148** | **0.189** | **0.182** | **0.144** | **0.134** | **0.1** | **0.103** | **0.183** | < 0.0712 U | **0.251** | < 0.0712 U | **0.112** | **16.2** | **0.0936 J** | **0.215** |
| 155 | B | 1/20/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | **0.0567 J** | **0.0766 J** | **0.0791 J** | **0.0654 J** | **0.0636 J** | < 0.0714 U | < 0.0714 U | **0.0795 J** | < 0.0714 U | **0.101** | < 0.0714 U | **0.0534 J** | **15.7** | < 0.0714 U | **0.0875 J** |
| 155 | C | 1/20/2016 | < 0.0703 U | < 0.0703 U | < 0.0703 U | **0.0665 J** | **0.0893 J** | **0.0900 J** | **0.0745 J** | **0.0724 J** | **0.0474 J** | **0.0515 J** | **0.0909 J** | < 0.0703 U | **0.115** | < 0.0703 U | **0.0587 J** | **18** | < 0.0703 U | **0.103** |
| 156 | A | 1/20/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.0514 J** | **0.0508 J** | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.0533 J** | < 0.0740 U | **0.0625 J** | < 0.0740 U | < 0.0740 U | **21.2** | < 0.0740 U | **0.0552 J** |
| 156 | B | 1/20/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0560 J** | **0.0547 J** | < 0.0743 U | **0.0503 J** | < 0.0743 U | < 0.0743 U | **0.0563 J** | < 0.0743 U | **0.0686 J** | < 0.0743 U | < 0.0743 U | **24.5** | < 0.0743 U | **0.0594 J** |
| 156 | C | 1/20/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.0600 J** | **0.0584 J** | < 0.0747 U | **0.0524 J** | < 0.0747 U | < 0.0747 U | **0.0568 J** | < 0.0747 U | **0.0695 J** | < 0.0747 U | < 0.0747 U | **25.8** | < 0.0747 U | **0.0616 J** |
| 166 | A | 1/19/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **8.62** | < 0.0744 U | < 0.0744 U |
| 166 | B | 1/19/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 UJ | < 0.0732 UJ | < 0.0732 UJ | < 0.0732 UJ | < 0.0732 UJ | < 0.0732 UJ | < 0.0732 U | < 0.0732 UJ | < 0.0732 U | < 0.0732 U | < 0.0732 UJ | **8.56** | < 0.0732 U | < 0.0732 U |
| 166 | C | 1/19/2016 | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | **9.02** | < 0.0715 U | < 0.0715 U |

## Table 4-2
## Soil Analytical Results - ISM Samples
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Date | | | | | | | | | | | | | | | | | | |
| 168 | A | 1/19/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | **0.163** | **0.21** | **0.204** | **0.161** | **0.17** | **0.108** | **0.0992** | **0.196** | < 0.0722 U | **0.277** | < 0.0722 U | **0.135** | **21.6** | **0.102** | **0.244** |
| 168 | B | 1/19/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.133** | **0.18** | **0.182** | **0.142** | **0.148** | **0.0945 J** | **0.0862 J** | **0.17** | < 0.0735 U | **0.223** | < 0.0735 U | **0.119** | **22.4** | **0.0679 J** | **0.203** |
| 168 | C | 1/19/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.189** | **0.245** | **0.246** | **0.196** | **0.201** | **0.13** | **0.121** | **0.24** | < 0.0746 U | **0.338** | < 0.0746 U | **0.163** | **21.5** | **0.107** | **0.299** |
| 172 | A | 11/6/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.165** | **0.203** | **0.214** | **0.18** | **0.174** | **0.106** | **0.117** | **0.188** | < 0.0739 U | **0.264** | < 0.0739 U | **0.176** | **11.4** | **0.0978 J** | **0.24** |
| 172 | B | 11/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0539 J** | **0.0714 J** | **0.0768 J** | **0.0596 J** | **0.0655 J** | < 0.0746 U | < 0.0746 U | **0.0639 J** | < 0.0746 U | **0.0911 J** | < 0.0746 U | **0.0640 J** | **11.7** | < 0.0746 U | **0.0856 J** |
| 172 | C | 11/6/2016 | < 0.0698 U | < 0.0698 U | < 0.0698 U | **0.0703 J** | **0.0923 J** | **0.102** | **0.0787 J** | **0.0831 J** | **0.0490 J** | **0.0525 J** | **0.0882 J** | < 0.0698 U | **0.143** | < 0.0698 U | **0.0821 J** | **12.5** | **0.0475 J** | **0.123** |
| 176 | A | 1/20/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0563 J** | **0.0544 J** | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0526 J** | < 0.0737 U | **0.0718 J** | < 0.0737 U | < 0.0737 U | **21** | < 0.0737 U | **0.0624 J** |
| 176 | B | 1/20/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | **0.0575 J** | **0.0578 J** | < 0.0718 U | **0.0485 J** | < 0.0718 U | < 0.0718 U | **0.0556 J** | < 0.0718 U | **0.0734 J** | < 0.0718 U | < 0.0718 U | **20.4** | < 0.0718 U | **0.0639 J** |
| 176 | C | 1/20/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.0527 J** | **0.0512 J** | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.0514 J** | < 0.0736 U | **0.0638 J** | < 0.0736 U | < 0.0736 U | **19.7** | < 0.0736 U | **0.0553 J** |
| 183 | A | 1/21/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0500 J** | **0.0612 J** | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0571 J** | < 0.0723 U | **0.0581 J** | < 0.0723 U | < 0.0723 U | **10.5** | < 0.0723 U | **0.0596 J** |
| 183 | B | 1/21/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.0634 J** | **0.0750 J** | **0.107** | **0.0765 J** | **0.0537 J** | **0.0554 J** | **0.0522 J** | **0.0957 J** | < 0.0739 U | **0.0812 J** | < 0.0739 U | < 0.0739 U | **11.9** | < 0.0739 U | **0.0873 J** |
| 183 | C | 1/21/2016 | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | **0.0558 J** | **0.0761 J** | **0.0581 J** | < 0.0711 U | < 0.0711 U | < 0.0711 U | **0.0686 J** | < 0.0711 U | **0.0650 J** | < 0.0711 U | < 0.0711 U | **10.2** | < 0.0711 U | **0.0669 J** |
| 187 | A | 1/19/2016 | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | **0.0569 J** | < 0.0696 U | < 0.0696 U | **11.9** | < 0.0696 U | **0.0504 J** |
| 187 | B | 1/19/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **0.0628 J** | < 0.0732 U | < 0.0732 U | **14.2** | < 0.0732 U | **0.0540 J** |
| 187 | C | 1/19/2016 | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | **0.0554 J** | < 0.0699 U | < 0.0699 U | **14.1** | < 0.0699 U | **0.0487 J** |
| 189 | A | 1/19/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | **0.0530 J** | **0.0721 J** | **0.0721 J** | **0.0614 J** | **0.0649 J** | < 0.0734 U | < 0.0734 U | **0.0734 J** | < 0.0734 U | **0.0994** | < 0.0734 U | **0.0508 J** | **17.7** | < 0.0734 U | **0.0873 J** |
| 189 | B | 1/19/2016 | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | **0.0505 J** | **0.0520 J** | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | **0.0770 J** | < 0.0733 U | < 0.0733 U | **12.7** | < 0.0733 U | **0.0681 J** |
| 189 | C | 1/19/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.0600 J** | < 0.0748 U | < 0.0748 U | **13** | < 0.0748 U | **0.0542 J** |
| 190 | A | 1/20/2016 | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | < 0.0785 U | **9.45** | < 0.0785 U | < 0.0785 U |
| 190 | B | 1/20/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | **9.04** | < 0.0723 U | < 0.0723 U |
| 190 | C | 1/20/2016 | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | < 0.101 U | **9.27** | < 0.101 U | < 0.101 U |
| 224 | A | 1/25/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | **0.0510 J** | **0.0660 J** | **0.0703 J** | **0.0574 J** | **0.0526 J** | < 0.0694 U | < 0.0694 U | **0.0742 J** | < 0.0694 U | **0.108** | < 0.0694 U | < 0.0694 U | **9.75** | < 0.0694 U | **0.1** |
| 224 | B | 1/25/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0637 J** | **0.0688 J** | **0.0570 J** | **0.0523 J** | < 0.0743 U | < 0.0743 U | **0.0692 J** | < 0.0743 U | **0.0940 J** | < 0.0743 U | < 0.0743 U | **10.3** | < 0.0743 U | **0.0864 J** |
| 224 | C | 1/25/2016 | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | **0.0623 J** | **0.0653 J** | **0.0548 J** | **0.0521 J** | < 0.0701 U | < 0.0701 U | **0.0694 J** | < 0.0701 U | **0.0962** | < 0.0701 U | < 0.0701 U | **10.4** | < 0.0701 U | **0.0880 J** |
| 464 | A | 1/28/2016 | < 0.106 U | < 0.106 U | < 0.106 U | **0.244** | **0.325** | **0.327** | **0.266** | **0.26** | **0.171** | **0.159** | **0.336** | < 0.106 U | **0.48** | < 0.106 U | **0.207** | **21.3** | **0.164** | **0.425** |
| 464 | B | 1/28/2016 | < 0.116 U | < 0.116 U | < 0.116 U | **0.231** | **0.306** | **0.309** | **0.255** | **0.242** | **0.162** | **0.149 J** | **0.325** | < 0.116 U | **0.484** | < 0.116 U | **0.193** | **25.9** | **0.177** | **0.425** |
| 464 | C | 1/28/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.355** | **0.467** | **0.447** | **0.38** | **0.363** | **0.236** | **0.22** | **0.483** | **0.0751 J** | **0.694** | < 0.0743 U | **0.29** | **22.9** | **0.24** | **0.602** |
| 465 | A | 1/28/2016 | < 0.0828 U | < 0.0828 U | **0.0609 J** | **0.438** | **0.561** | **0.536** | **0.444** | **0.459** | **0.284** | **0.261** | **0.579** | **0.0921 J** | **0.792** | < 0.0828 U | **0.355** | **20.8** | **0.29** | **0.695** |
| 465 | B | 1/28/2016 | < 0.0746 U | < 0.0746 U | **0.0518 J** | **0.389** | **0.493** | **0.467** | **0.391** | **0.397** | **0.247** | **0.227** | **0.52** | **0.0828 J** | **0.716** | < 0.0746 U | **0.311** | **23.3** | **0.248** | **0.619** |

**Notes:**
CAS - Chemical Abstracts Service
ISM - Incremental Sampling Methodology
mg/kg - milligrams per kilogram
J - Analyte detected between method detection level and reporting level.
JH - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be high.
JL - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be low.
NC – Not Calculated
U - Analyte not detected above the limit of detection (LOD).
B - Analyte found in the associated method blank
PCL - Protective Concentration Level
TRRP – Texas Risk Reduction Program
TRRP Tier 1 PCL - Texas Risk Reduction Program Tier 1 Protective Concentration Level for residential soil for combine human health exposure pathways. Table Date: April 2018
**Bold** - Detected results
**Bold and shaded** - Reported at concentration above Tier 1 PCL

## Table 4-3
## Soil Analytical Results - Stratification Samples
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j)fluo ranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h )anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Date | | | | | | | | | | | | | | | | | | |
| 003 | STRAT1 | 5/7/2016 | < 0.0838 U | < 0.0838 U | < 0.0838 U | 0.112 | 0.151 | 0.146 | 0.123 | 0.124 | 0.0777 J | 0.0771 J | 0.143 | < 0.0838 U | 0.179 | < 0.0838 U | 0.103 J | 13.9 | 0.0646 J | 0.163 |
| 003 | STRAT2 | 5/7/2016 | < 0.0786 U | < 0.0786 U | < 0.0786 U | 0.538 | 0.848 | 0.802 | 0.629 | 0.555 | 0.404 | 0.403 | 0.748 | 0.134 | 0.559 | < 0.0786 U | 0.482 | 15.1 | 0.12 | 0.585 |
| 003 | STRAT3 | 5/7/2016 | < 0.0836 U | < 0.0836 U | 0.0589 J | 0.529 | 0.692 | 0.676 | 0.554 | 0.533 | 0.347 | 0.345 | 0.66 | 0.116 | 0.892 | < 0.0836 U | 0.415 | 28.6 | 0.308 | 0.791 |
| 003 | STRAT4 | 5/7/2016 | < 0.0840 U | < 0.0840 U | 0.12 | 0.798 | 0.928 | 0.907 | 0.727 | 0.677 | 0.492 | 0.466 | 0.964 | 0.154 | 1.46 | < 0.0840 U | 0.545 | 26.5 | 0.617 | 1.22 |
| 009 | STRAT1 | 5/7/2016 | < 0.0913 U | < 0.0913 U | < 0.0913 U | 0.14 | 0.185 | 0.177 | 0.144 | 0.146 | 0.0902 J | 0.0924 J | 0.176 | < 0.0913 U | 0.222 | < 0.0913 U | 0.118 J | 12.3 | 0.0809 J | 0.198 |
| 009 | STRAT2 | 5/7/2016 | < 0.0978 U | < 0.0978 U | 0.153 | 1 | 1.09 | 1.05 | 0.846 | 0.781 | 0.58 | 0.541 | 1.2 | 0.178 | 1.85 | < 0.0978 U | 0.641 | 20 | 0.773 | 1.54 |
| 009 | STRAT3 | 5/7/2016 | < 0.0850 U | < 0.0850 U | 0.0681 J | 0.624 | 0.801 | 0.772 | 0.638 | 0.623 | 0.412 | 0.397 | 0.789 | 0.143 | 1.04 | < 0.0850 U | 0.506 | 20.2 | 0.358 | 0.912 |
| 009 | STRAT4 | 5/7/2016 | 0.378 | < 0.0910 U | 0.886 | 10.9 | 13.2 | 12.8 | 10.3 | 9.17 | 6.83 | 6.6 | 13.6 | 2.13 | 16.1 | 0.137 | 7.7 | 41.2 | 5.02 | 14.2 |
| 009 | STRAT5 | 5/7/2016 | 0.683 | < 0.0773 U | 1.85 | 18.5 | 23.2 | 22.4 | 17.6 | 16.8 | 11.9 | 11.4 | 23 | 4.04 | 27 | 0.229 | 14.1 | 135 | 9.79 | 23.3 |
| 038 | STRAT1 | 5/5/2016 | < 0.0863 U | < 0.0863 U | < 0.0863 U | 0.0991 J | 0.149 | 0.153 | 0.12 | 0.133 | 0.0789 J | 0.0811 J | 0.132 | < 0.0863 U | 0.168 | < 0.0863 U | 0.115 | 13.6 | < 0.0863 U | 0.153 |
| 038 | STRAT2 | 5/5/2016 | < 0.0830 U | < 0.0830 U | < 0.0830 U | 0.243 J | 0.333 J | 0.320 J | 0.255 J | 0.277 J | 0.173 | 0.174 | 0.312 J | 0.0705 J | 0.427 J | < 0.0830 U | 0.228 J | 13.9 | 0.137 | 0.387 J |
| 038 | STRAT3 | 5/5/2016 | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | < 0.0870 U | 0.0602 J | < 0.0870 U | < 0.0870 U | 12.7 | < 0.0870 U | < 0.0870 U |
| 038 | STRAT4 | 5/5/2016 | < 0.0842 U | < 0.0842 U | < 0.0842 U | < 0.0842 U | 0.0632 J | 0.0653 J | < 0.0842 U | 0.0569 J | < 0.0842 U | < 0.0842 U | 0.0641 J | < 0.0842 U | 0.0864 J | < 0.0842 U | < 0.0842 U | 9.95 | < 0.0842 U | 0.0768 J |
| 044 | STRAT1 | 5/5/2016 | < 0.0925 U | < 0.0925 U | 0.148 | 0.813 | 0.907 | 0.856 | 0.677 | 0.603 | 0.475 | 0.464 | 0.983 | 0.153 | 1.53 | < 0.0925 U | 0.525 | 15.7 | 0.727 | 1.27 |
| 044 | STRAT2 | 5/5/2016 | 0.116 J | < 0.0924 U | 0.761 JL | 3.39 JL | 3.07 JL | 2.98 JL | 2.23 JL | 1.91 JL | 1.65 JL | 1.57 JL | 3.70 JL | 0.474 JL | 7.66 | < 0.0924 U | 1.73 JL | 20.4 | 3.92 JL | 6.02 |
| 044 | STRAT3 | 5/5/2016 | 0.136 | < 0.0865 U | 0.161 | 3.1 | 4.17 | 3.85 | 3.14 | 2.97 | 2.05 | 1.97 | 3.81 | 0.649 | 4.13 | < 0.0865 U | 2.45 | 33.5 | 0.819 | 3.88 |
| 044 | STRAT4 | 5/5/2016 | < 0.0945 U | < 0.0945 U | < 0.0945 U | 0.132 | 0.167 | 0.164 | 0.133 | 0.132 | 0.0835 J | 0.0832 J | 0.162 | < 0.0945 U | 0.236 | < 0.0945 U | 0.111 J | 16.6 | 0.0869 J | 0.201 |
| 044 | STRAT5 | 5/5/2016 | < 0.0863 U | < 0.0863 U | < 0.0863 U | 0.18 | 0.24 | 0.246 | 0.201 | 0.198 | 0.126 | 0.122 | 0.235 | < 0.0863 U | 0.317 | < 0.0863 U | 0.164 | 26.9 | 0.113 J | 0.275 |
| 066 | STRAT1 | 5/4/2016 | < 0.0959 UJL | < 0.0959 UJL | < 0.0959 UJL | 0.546 JL | 0.733 JL | 0.702 JL | 0.593 JL | 0.638 JL | 0.373 JL | 0.357 JL | 0.710 JL | 0.129 JL | 0.931 JL | < 0.0959 UJL | 0.518 JL | 67.2 | 0.312 JL | 0.820 JL |
| 066 | STRAT2 | 5/4/2016 | < 0.0871 U | < 0.0871 U | 0.130 JH | 0.958 JH | 1.29 JH | 1.19 JH | 1.00 JH | 1.05 JH | 0.641 JH | 0.620 JH | 1.21 JH | 0.220 JH | 1.79 JH | < 0.0871 U | 0.872 JH | 32.6 | 0.638 JH | 1.53 JH |
| 066 | STRAT3 | 5/4/2016 | < 0.0945 U | < 0.0945 U | < 0.0945 U | 0.438 | 0.552 | 0.528 | 0.445 | 0.462 | 0.283 | 0.277 | 0.55 | 0.0979 J | 0.779 | < 0.0945 U | 0.378 | 31.7 | 0.29 | 0.668 |
| 066 | STRAT4 | 5/4/2016 | < 0.0828 U | < 0.0828 U | < 0.0828 U | 0.356 | 0.456 | 0.448 | 0.375 | 0.375 | 0.235 | 0.231 | 0.454 | 0.0818 J | 0.652 | < 0.0828 U | 0.315 | 34 | 0.23 | 0.562 |
| 066 | STRAT5 | 5/4/2016 | 0.0642 J | < 0.0843 U | 0.197 | 1.47 | 1.81 | 1.69 | 1.38 | 1.45 | 0.923 | 0.872 | 1.77 | 0.324 | 2.74 | < 0.0843 U | 1.23 | 23.8 | 1.04 | 2.31 |
| 132 | STRAT1 | 5/7/2016 | < 0.0979 U | < 0.0979 U | 0.321 | 1.01 | 0.856 | 0.836 | 0.629 | 0.507 | 0.462 | 0.442 | 1.09 | 0.143 | 2.11 | < 0.0979 U | 0.447 | 22.1 | 1.38 | 1.59 |
| 132 | STRAT2 | 5/7/2016 | < 0.0918 U | < 0.0918 U | 0.0647 J | 0.53 | 0.707 | 0.644 | 0.543 | 0.52 | 0.356 | 0.342 | 0.668 | 0.119 J | 0.81 | < 0.0918 U | 0.423 | 411 | 0.308 | 0.744 |
| 132 | STRAT3 | 5/7/2016 | < 0.0847 U | < 0.0847 U | 0.0729 J | 0.448 | 0.484 | 0.47 | 0.371 | 0.33 | 0.26 | 0.246 | 0.54 | 0.0836 J | 0.822 | < 0.0847 U | 0.274 | 48.3 | 0.379 | 0.694 |
| 132 | STRAT4 | 5/7/2016 | < 0.0804 U | < 0.0804 U | 0.136 | 1.06 | 1.28 | 1.25 | 1.02 | 0.971 | 0.656 | 0.621 | 1.28 | 0.213 | 1.82 | < 0.0804 U | 0.776 | 27.7 | 0.72 | 1.55 |
| 146 | STRAT1 | 5/12/2016 | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0934 U | < 0.0623 UB | < 0.0934 U | < 0.0934 U | 27.4 | < 0.0934 U | < 0.0934 U |
| 146 | STRAT2 | 5/12/2016 | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | < 0.0864 U | 39.4 | < 0.0864 U | < 0.0864 U |
| 146 | STRAT3 | 5/12/2016 | < 0.0787 U | < 0.0787 U | < 0.0787 U | 0.0828 J | 0.0864 J | 0.0894 J | 0.0652 J | < 0.0787 U | < 0.0787 U | < 0.0787 U | 0.100 J | < 0.0787 U | 0.192 | < 0.0787 U | < 0.0787 U | 29.6 | 0.106 | 0.153 |
| 146 | STRAT4 | 5/12/2016 | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | < 0.0951 U | 64.8 | < 0.0951 U | < 0.0951 U |
| 151 | STRAT1 | 5/6/2016 | < 0.0920 U | < 0.0920 U | < 0.0920 U | 0.166 | 0.201 | 0.193 | 0.151 | 0.166 | 0.106 J | 0.115 J | 0.21 | < 0.0920 U | 0.295 | < 0.0920 U | 0.14 | 52.7 JH | 0.126 | 0.249 |
| 151 | STRAT2 | 5/6/2016 | < 0.0887 U | < 0.0887 U | < 0.0887 U | 0.385 | 0.467 | 0.431 | 0.419 | 0.427 | 0.233 | 0.237 | 0.493 | 0.105 J | 0.565 | < 0.0887 U | 0.304 | 29.2 JH | 0.26 | 0.526 |
| 151 | STRAT3 | 5/6/2016 | < 0.101 U | < 0.101 U | < 0.101 U | 0.164 | 0.225 | 0.233 | 0.183 | 0.214 | 0.121 J | 0.129 J | 0.239 | < 0.101 U | 0.293 | < 0.101 U | 0.176 | 40.0 JH | 0.154 | 0.246 |
| 151 | STRAT4 | 5/6/2016 | < 0.0973 U | < 0.0973 U | < 0.0973 U | 0.158 | 0.194 | 0.187 | 0.143 | 0.161 | 0.0988 J | 0.109 J | 0.193 | < 0.0973 U | 0.255 | < 0.0973 U | 0.139 | 31.2 JH | 0.109 J | 0.22 |
| 191 | STRAT1 | 5/8/2016 | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | < 0.0885 U | 10.6 | < 0.0885 U | < 0.0885 U |
| 191 | STRAT2 | 5/8/2016 | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | < 0.0774 U | 42.6 | < 0.0774 U | < 0.0774 U |
| 191 | STRAT3 | 5/8/2016 | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | < 0.0763 U | 10.1 | < 0.0763 U | < 0.0763 U |
| 191 | STRAT4 | 5/8/2016 | < 0.0821 U | < 0.0821 U | < 0.0821 U | < 0.0821 U | < 0.0821 U | 0.0616 J | < 0.0821 U | < 0.0821 U | < 0.0821 U | < 0.0821 U | < 0.0821 U | < 0.0821 U | 0.0690 J | < 0.0821 U | < 0.0821 U | 22.2 | < 0.0821 U | 0.0627 J |
| 191 | STRAT5 | 5/8/2016 | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | < 0.0843 U | 11 | < 0.0843 U | < 0.0843 U |

**Table 4-3**
**Soil Analytical Results - Stratification Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

**Notes:**
CAS - Chemical Abstracts Service
mg/kg - milligrams per kilogram
J - Analyte detected between method detection level and reporting level.
JH - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be high.
JL - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be low.
NC – Not Calculated
U - Analyte not detected above the limit of detection (LOD).
UJL - The compound was not detected above the reported LOD. However, the reported limit is approximate and may or may not represent the actual LOD. Bias in sample result likely to be low.
PCL - Protective Concentration Level
TRRP – Texas Risk Reduction Program
TRRP Tier 1 PCL - Texas Risk Reduction Program Tier 1 Protective Concentration Level for residential soil for combine human health exposure pathways. Table Date: April 2018
**Bold** = Detected results
**Bold and shaded =** Reported at concentration above Tier 1 PCL

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2, 3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 002-08 | A | 0-2 | 5/9/2016 | 0.0658 J | < 0.0736 U | 0.273 | 1.62 | 1.92 | 1.78 | 1.39 | 1.34 | 0.909 | 0.937 | 1.95 | 0.272 | 3.06 | < 0.0736 U | 1.14 | 23.6 | 1.32 | 2.69 |
| 002-08 | A | 2-4 | 5/9/2016 | < 0.0719 U | < 0.0719 U | 0.114 | 1.01 | 1.3 | 1.22 | 0.956 | 0.949 | 0.59 | 0.593 | 1.26 | 0.174 | 1.68 | < 0.0719 U | 0.788 | 24 | 0.579 | 1.53 |
| 002-08 | A | 4-6 | 5/9/2016 | < 0.0725 U | < 0.0725 U | 0.234 | 1.11 | 1.11 | 1.07 | 0.774 | 0.743 | 0.527 | 0.53 | 1.25 | 0.139 | 2.58 | < 0.0725 U | 0.649 | 18 | 1.2 | 2.13 |
| 002-08 | A | 6-8 | 5/9/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 16.4 | < 0.0741 U | < 0.0741 U |
| 002-08 | A | 8-10 | 5/9/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | 19.5 | < 0.0718 U | < 0.0718 U |
| 002-08 | B | 0-2 | 5/9/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.457 | 0.661 | 0.623 | 0.48 | 0.496 | 0.276 | 0.29 | 0.606 | 0.0690 J | 0.724 | < 0.0749 U | 0.404 | 13.3 | 0.223 | 0.683 |
| 002-08 | B | 2-4 | 5/9/2016 | < 0.0698 U | < 0.0698 U | < 0.0698 U | 0.41 | 0.571 | 0.534 | 0.419 | 0.43 | 0.24 | 0.257 | 0.531 | < 0.0698 U | 0.648 | < 0.0698 U | 0.348 | 15.3 | 0.202 | 0.593 |
| 002-08 | B | 4-6 | 5/9/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | 10.4 | < 0.0712 U | < 0.0712 U |
| 002-08 | B | 6-8 | 5/9/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 16.8 | < 0.0747 U | < 0.0747 U |
| 002-08 | B | 8-10 | 5/9/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | 12.8 | < 0.0718 U | < 0.0718 U |
| 002-08 | C | 0-2 | 5/9/2016 | < 0.0748 U | < 0.0748 U | 0.142 | 0.619 | 0.63 | 0.588 | 0.43 | 0.414 | 0.279 | 0.298 | 0.715 | 0.0599 J | 1.47 | < 0.0748 U | 0.355 | 15.7 | 0.698 | 1.21 |
| 002-08 | C | 2-4 | 5/9/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | 0.0764 J | 0.0744 J | 0.0760 J | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | 0.0789 J | < 0.0739 U | 0.149 | < 0.0739 U | < 0.0739 U | 11.3 | 0.0884 J | 0.121 |
| 002-08 | C | 4-6 | 5/9/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.0590 J | 0.0588 J | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.0527 J | < 0.0742 U | < 0.0742 U | 24.4 | < 0.0742 U | < 0.0742 U |
| 002-08 | C | 6-8 | 5/9/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 18 | < 0.0737 U | < 0.0737 U |
| 002-08 | C | 8-10 | 5/9/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.444 | 0.615 | 0.544 | 0.437 | 0.417 | 0.257 | 0.269 | 0.544 | 0.0788 J | 0.571 | < 0.0735 U | 0.339 | 25.9 | 0.124 | 0.545 |
| 004 | A | 0-2 | 5/8/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | 0.136 | 0.181 | 0.175 | 0.149 | 0.145 | 0.0996 | 0.0987 J | 0.167 | < 0.0744 U | 0.207 | < 0.0744 U | 0.114 | 14.2 | 0.0741 J | 0.188 |
| 004 | A | 2-4 | 5/8/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.0963 J | 0.119 | 0.107 | 0.0957 J | 0.0918 J | 0.0789 J | 0.0680 J | 0.115 | < 0.0735 U | 0.146 | < 0.0735 U | 0.0725 J | 11.5 | < 0.0735 U | 0.138 |
| 004 | A | 4-6 | 5/8/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 9.21 | < 0.0740 U | < 0.0740 U |
| 004 | A | 6-8 | 5/8/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | 8.8 | < 0.0745 U | < 0.0745 U |
| 004 | A | 8-10 | 5/8/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 9.04 | < 0.0727 U | < 0.0727 U |
| 004 | B | 0-2 | 5/8/2016 | < 0.0743 U | < 0.0743 U | 0.0971 J | 0.352 | 0.323 | 0.288 | 0.24 | 0.193 | 0.182 | 0.175 | 0.382 | 0.0632 J | 0.73 | < 0.0743 U | 0.168 | 12.7 | 0.434 | 0.616 |
| 004 | B | 2-4 | 5/8/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 10.2 | < 0.0737 U | < 0.0737 U |
| 004 | B | 4-6 | 5/8/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 9.21 | < 0.0748 U | < 0.0748 U |
| 004 | B | 6-8 | 5/8/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | 8.32 | < 0.0700 U | < 0.0700 U |
| 004 | B | 8-10 | 5/8/2016 | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | < 0.0705 U | 9.86 | < 0.0705 U | < 0.0705 U |
| 004 | C | 0-2 | 5/8/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | 0.0704 J | 0.0897 J | 0.0857 J | 0.0750 J | 0.0726 J | < 0.0727 U | 0.0521 J | 0.0869 J | < 0.0727 U | 0.108 | < 0.0727 U | 0.0603 J | 11.1 | < 0.0727 U | 0.0984 |
| 004 | C | 2-4 | 5/8/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | < 0.0722 U | 10.1 | < 0.0722 U | < 0.0722 U |
| 004 | C | 4-6 | 5/8/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 0.0511 J | 0.0507 J | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 0.0533 J | < 0.0747 U | 0.0688 J | < 0.0747 U | < 0.0747 U | 8.92 | < 0.0747 U | 0.0635 J |
| 004 | C | 6-8 | 5/8/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 9.93 | < 0.0747 U | < 0.0747 U |
| 004 | C | 8-10 | 5/8/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 9.65 | < 0.0742 U | < 0.0742 U |
| 009 | A | 0-2 | 7/28/2016 | 0.0674 J | < 0.0746 U | 0.167 | 1.39 | 1.62 | 1.58 | 1.21 | 1.15 | 0.796 | 0.775 | 1.74 | 0.24 | 2.43 | < 0.0746 U | 0.967 | 50.6 | 1.1 | 2.08 |
| 009 | A | 2-4 | 7/28/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 6.88 | < 0.0737 U | < 0.0737 U |
| 009 | A | 4-6 | 7/28/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 5.21 | < 0.0749 U | < 0.0749 U |
| 009 | A | 6-8 | 7/28/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 5.95 | < 0.0742 U | < 0.0742 U |
| 009 | B | 0-2 | 7/28/2016 | < 0.0740 U | < 0.0740 U | 0.0528 J | 0.52 | 0.636 | 0.608 | 0.487 | 0.503 | 0.318 | 0.307 | 0.66 | 0.0942 J | 0.97 | < 0.0740 U | 0.413 | 11.7 | 0.399 | 0.832 |
| 009 | B | 2-4 | 7/28/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 6.06 | < 0.0744 U | < 0.0744 U |
| 009 | B | 4-6 | 7/28/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 4.9 | < 0.0747 U | < 0.0747 U |
| 009 | B | 6-8 | 7/28/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | 8.21 | < 0.0736 U | < 0.0736 U |
| 009 | C | 0-2 | 7/28/2016 | < 0.0738 U | < 0.0738 U | 0.0611 J | 0.624 | 0.795 | 0.775 | 0.606 | 0.606 | 0.389 | 0.362 | 0.78 | 0.116 | 1.07 | < 0.0738 U | 0.491 | 16.3 | 0.381 | 0.948 |
| 009 | C | 2-4 | 7/28/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.640 JL | 0.815 JL | 0.698 JL | 0.569 JL | 0.548 JL | 0.386 JL | 0.360 JL | 0.762 JL | 0.0992 J | 0.783 JL | < 0.0749 U | 0.450 JL | 6.74 | 0.218 | 0.739 JL |
| 009 | C | 4-6 | 7/28/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 5.24 | < 0.0742 U | < 0.0742 U |
| 009 | C | 6-8 | 7/28/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 6.21 | < 0.0749 U | < 0.0749 U |
| 010-03 | A | 0-2 | 5/7/2016 | 0.559 | < 0.0749 U | 1.52 | 12.2 | 15 | 14.6 | 10.9 | 11.7 | 7.93 | 8.21 | 15.3 | 2.84 | 17.9 | 0.217 | 10.3 | 55.6 | 8.97 | 15.4 |
| 010-03 | A | 2-4 | 5/7/2016 | 0.0950 J | < 0.0743 U | 0.272 | 1.94 | 2.31 | 2.28 | 1.72 | 1.86 | 1.22 | 1.31 | 2.46 | 0.461 | 3.13 | < 0.0743 U | 1.57 | 31.6 | 1.77 | 2.59 |
| 010-03 | A | 4-6 | 5/7/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.136 | 0.174 | 0.174 | 0.121 | 0.153 | 0.0833 J | 0.1 | 0.18 | < 0.0742 U | 0.207 | < 0.0742 U | 0.13 | 7.63 | 0.0866 J | 0.183 |
| 010-03 | A | 6-8 | 5/7/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 6.17 | < 0.0742 U | < 0.0742 U |
| 010-03 | A | 8-10 | 5/7/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | 12.1 | < 0.0735 U | < 0.0735 U |
| 010-03 | B | 0-2 | 5/7/2016 | 0.294 | < 0.0742 U | 0.924 | 8.48 | 11.2 | 10.4 | 8.18 | 8.76 | 5.75 | 6.14 | 10.9 | 2.06 | 11.9 | 0.105 | 7.61 | 50.6 | 5.53 | 10.4 |
| 010-03 | B | 2-4 | 5/7/2016 | 0.0560 J | < 0.0708 U | 0.228 | 1.49 | 1.74 | 1.68 | 1.3 | 1.38 | 0.908 | 0.973 | 1.86 | 0.341 | 2.5 | < 0.0708 U | 1.18 | 22.4 | 1.33 | 2.08 |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | Acenaphthene | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(e)pyrene | Benzo(g,h,i)perylene | Benzo(j)fluoranthene | Benzo(k)fluoranthene | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phenanthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| 010-03 | B | 4-6 | 5/7/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0500 J | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0503 J | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 6 | < 0.0746 U | < 0.0746 U |
| 010-03 | B | 6-8 | 5/7/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | 9.08 | < 0.0739 U | < 0.0739 U |
| 010-03 | B | 8-10 | 5/7/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | 11.1 | < 0.0725 U | < 0.0725 U |
| 010-03 | C | 0-2 | 5/7/2016 | 0.246 | < 0.0732 U | 0.711 | 6.76 | 8.45 | 7.93 | 6.51 | 6.27 | 4.26 | 4.08 | 8.37 | 1.39 | 10.6 | 0.0823 J | 5.07 | 55 | 3.91 | 9.22 |
| 010-03 | C | 2-4 | 5/7/2016 | 0.118 | < 0.0744 U | 0.517 | 3 | 3.62 | 3.35 | 2.72 | 2.56 | 1.82 | 1.73 | 3.56 | 0.587 | 5.46 | 0.0746 J | 2.13 | 29.1 | 2.51 | 4.52 |
| 010-03 | C | 4-6 | 5/7/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 0.0516 J | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 5.08 | < 0.0737 U | < 0.0737 U |
| 010-03 | C | 6-8 | 5/7/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 6.96 | < 0.0740 U | < 0.0740 U |
| 010-03 | C | 8-10 | 5/7/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 10.3 | < 0.0737 U | < 0.0737 U |
| 010-04 | | 10-12 | 11/3/2016 | < 0.0890 U | < 0.0890 U | < 0.0890 U | 0.187 | 0.225 | 0.214 | 0.167 | 0.177 | 0.0977 J | 0.101 J | 0.217 | < 0.0890 U | 0.315 | < 0.0890 U | 0.174 | 9.86 | 0.135 | 0.276 |
| 010-04 | A | 0-2 | 5/7/2016 | 0.862 | < 0.367 U | 3.1 | 26.9 | 33.7 | 32 | 26.1 | 24.8 | 16.8 | 16.2 | 32 | 5.41 | 42.1 | 0.357 J | 19.9 | 103 | 16 | 36.4 |
| 010-04 | A | 2-4 | 5/7/2016 | 3.11 | < 0.371 U | 9.75 | 85 | 105 | 98 | 78.9 | 76.1 | 51.7 | 51.3 | 101 | 16.8 | 133 | 1.36 | 61.7 | 97.6 | 48.5 | 115 |
| 010-04 | A | 4-6 | 5/7/2016 | 0.266 | < 0.0723 U | 0.766 | 5.62 | 7.05 | 6.39 | 5.13 | 4.97 | 3.4 | 3.23 | 6.72 | 1.08 | 9.1 | 0.17 | 4.03 | 8.27 | 3.43 | 7.79 |
| 010-04 | A | 6-8 | 5/7/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | 0.296 | 0.392 | 0.355 | 0.3 | 0.292 | 0.203 | 0.194 | 0.362 | 0.0735 J | 0.448 | < 0.0718 U | 0.235 | 6.99 | 0.135 | 0.409 |
| 010-04 | A | 8-10 | 5/7/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.254 | 0.332 | 0.301 | 0.255 | 0.246 | 0.171 | 0.162 | 0.307 | 0.0636 J | 0.387 | < 0.0730 U | 0.202 | 10.2 | 0.121 | 0.345 |
| 010-04 | B | 0-2 | 5/7/2016 | 0.632 | < 0.0723 U | 2.57 | 16.4 | 19 | 17.9 | 14.3 | 14.2 | 9.65 | 9.11 | 19.1 | 3.28 | 28.7 | 0.337 | 11.7 | 85.2 | 13.1 | 23.8 |
| 010-04 | B | 2-4 | 5/7/2016 | 0.268 | < 0.0727 U | 1.52 | 7.07 | 7.81 | 7.26 | 5.8 | 5.24 | 3.95 | 3.82 | 8.27 | 1.23 | 13.8 | 0.238 | 4.45 | 22.1 | 6.83 | 11.2 |
| 010-04 | B | 4-6 | 5/7/2016 | 0.363 | < 0.0733 U | 1.75 JL | 10.8 | 12.4 | 11.9 | 9.62 | 9.15 | 6.35 | 6.05 | 12.7 | 2.1 | 18.4 | 0.244 | 7.53 | 34.5 | 8.46 | 15.4 |
| 010-04 | B | 6-8 | 5/7/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | 0.0800 J | 0.1 | 0.0910 J | 0.0838 J | 0.0850 J | 0.0560 J | 0.0574 J | 0.0962 J | < 0.0726 U | 0.118 | < 0.0726 U | 0.0682 J | 5.47 | 0.0548 J | 0.109 |
| 010-04 | B | 8-10 | 5/7/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | 0.107 | 0.16 | 0.147 | 0.128 | 0.134 | 0.0802 J | 0.0815 J | 0.142 | < 0.0694 U | 0.147 | < 0.0694 U | 0.108 | 9.17 | < 0.0694 U | 0.145 |
| 010-04 | C | 0-2 | 5/7/2016 | 0.942 | < 0.0737 U | 3.47 | 27.2 | 33 | 31.4 | 25.3 | 25.7 | 16.7 | 16 | 32.9 | 5.73 | 42.7 | 0.467 | 20.6 | 187 | 18 | 36.8 |
| 010-04 | C | 2-4 | 5/7/2016 | 0.447 | < 0.0717 U | 1.41 | 10.7 | 14.2 | 13.3 | 10.7 | 10.7 | 6.87 | 6.73 | 12.9 | 2.36 | 16.5 | 0.311 | 8.68 | 44.7 | 6.71 | 14 |
| 010-04 | C | 4-6 | 5/7/2016 | 0.0994 J | < 0.0746 U | 0.472 | 2.26 | 2.97 | 2.69 | 2.18 | 2.07 | 1.4 | 1.32 | 2.73 | 0.469 | 4 | 0.0912 J | 1.74 | 7.27 | 2.03 | 3.32 |
| 010-04 | C | 6-8 | 5/7/2016 | < 0.0726 U | < 0.0726 U | 0.0502 J | 0.209 | 0.255 | 0.239 | 0.202 | 0.192 | 0.135 | 0.13 | 0.256 | 0.0561 J | 0.38 | < 0.0726 U | 0.166 | 6.27 | 0.197 | 0.317 |
| 010-04 | C | 8-10 | 5/7/2016 | 0.895 | < 0.0735 U | 2.62 | 19.7 | 26.3 | 24.4 | 19.6 | 20.1 | 12.6 | 12.4 | 23.9 | 4.44 | 29.5 | 0.611 | 16 | 15.9 | 12.1 | 25 |
| 010-06 | A | 0-2 | 5/7/2016 | 0.813 | < 0.0725 U | 2.93 | 22.4 | 26.2 | 24.7 | 19.7 | 19.5 | 13.3 | 13.1 | 26.5 | 4.45 | 36.9 | 0.356 | 15.7 | 246 JL | 14.8 | 31.6 |
| 010-06 | A | 2-4 | 5/7/2016 | 0.675 | < 0.0712 U | 1.95 | 18.9 | 24.9 | 23.7 | 18.9 | 19.5 | 12.2 | 11.6 | 22.7 | 4.21 | 27.8 | 0.302 | 15.5 | 22.2 JL | 9.48 | 24.5 |
| 010-06 | A | 4-6 | 5/7/2016 | 0.441 | < 0.0707 U | 1.87 | 12.1 | 14.2 | 13.1 | 10.4 | 10 | 7.01 | 6.76 | 14 | 2.28 | 20.4 | 0.287 | 8.25 | 16.9 JL | 8.69 | 17.2 |
| 010-06 | A | 6-8 | 5/7/2016 | < 0.0737 U | < 0.0737 U | 0.0860 J | 0.428 | 0.443 | 0.41 | 0.332 | 0.297 | 0.238 | 0.229 | 0.496 | 0.0856 J | 0.795 | < 0.0737 U | 0.262 | 7.08 JL | 0.388 | 0.655 |
| 010-06 | A | 8-10 | 5/7/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | 7.17 JL | < 0.0714 U | < 0.0714 U |
| 010-06 | B | 0-2 | 5/7/2016 | 0.497 | < 0.0742 U | 1.77 | 12.2 | 15.2 | 13.9 | 11.3 | 11.8 | 7.6 | 7.3 | 14.5 | 2.64 | 19.1 | 0.256 | 9.51 | 72.9 JL | 8.49 | 16.2 |
| 010-06 | B | 2-4 | 5/7/2016 | 1.05 | < 0.0746 U | 3.69 | 28.3 | 35.5 | 33.9 | 26.8 | 27.6 | 17.5 | 16.8 | 33.3 | 5.97 | 44.6 | 0.591 | 21.9 | 27.1 JL | 17.8 | 38.1 |
| 010-06 | B | 4-6 | 5/7/2016 | 0.154 | < 0.0735 U | 0.708 | 3.69 | 4.27 | 3.85 | 3.14 | 2.99 | 2.05 | 1.97 | 4.26 | 0.672 | 6.93 | 0.128 | 2.5 | 9.10 JL | 3.2 | 5.74 |
| 010-06 | B | 6-8 | 5/7/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 0.0726 J | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 6.21 JL | < 0.0741 U | < 0.0741 U |
| 010-06 | B | 8-10 | 5/7/2016 | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | 8.46 JL | < 0.0715 U | < 0.0715 U |
| 010-06 | C | 0-2 | 5/7/2016 | 0.655 | < 0.0704 U | 2.26 | 18.2 | 23 | 22.4 | 17.8 | 17.6 | 11.6 | 11.2 | 22 | 3.82 | 28.8 | 0.304 | 14 | 190 JL | 11.3 | 24.9 |
| 010-06 | C | 2-4 | 5/7/2016 | 0.504 | < 0.0730 U | 1.78 | 14.5 | 18.3 | 17.5 | 13.8 | 13.4 | 9.07 | 8.77 | 17.3 | 2.93 | 23.4 | 0.221 | 10.8 | 44.3 JL | 8.82 | 20.1 |
| 010-06 | C | 4-6 | 5/7/2016 | 0.279 | < 0.0724 U | 1.24 | 7.48 | 8.39 | 7.71 | 6.11 | 5.4 | 4.29 | 4.2 | 8.61 | 1.29 | 13.5 | 0.165 | 4.54 | 9.60 JL | 5.63 | 11.3 |
| 010-06 | C | 6-8 | 5/7/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0527 J | < 0.0730 U | < 0.0730 U | 9.59 JL | < 0.0730 U | 0.0507 J |
| 010-06 | C | 8-10 | 5/7/2016 | < 0.0699 U | < 0.0699 U | < 0.0699 U | 0.141 | 0.154 | 0.136 | 0.113 | 0.105 | 0.0818 J | 0.0812 J | 0.157 | < 0.0699 U | 0.296 | < 0.0699 U | 0.0840 J | 7.09 JL | 0.144 | 0.241 |
| 010-07 | A | 0-2 | 7/21/2016 | < 0.0749 U | < 0.0749 U | 0.258 | 1.1 | 0.973 | 0.977 | 0.7 | 0.634 | 0.503 | 0.507 | 1.23 | 0.164 | 2.44 | < 0.0749 U | 0.547 | 9.18 | 1.39 | 1.86 |
| 010-07 | A | 2-4 | 7/21/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | 6.44 | < 0.0745 U | < 0.0745 U |
| 010-07 | A | 4-6 | 7/21/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 8.07 | < 0.0743 U | < 0.0743 U |
| 010-07 | A | 6-8 | 7/21/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 14.2 | < 0.0737 U | < 0.0737 U |
| 010-07 | A | 8-10 | 7/21/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | 7.32 | < 0.0716 U | < 0.0716 U |
| 010-07 | B | 0-2 | 7/21/2016 | < 0.0745 U | < 0.0745 U | 0.0565 J | 0.329 | 0.36 | 0.354 | 0.27 | 0.312 | 0.185 | 0.185 | 0.411 | 0.0679 J | 0.689 | < 0.0745 U | 0.261 | 9.43 | 0.33 | 0.58 |
| 010-07 | B | 2-4 | 7/21/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 5.69 | < 0.0747 U | < 0.0747 U |
| 010-07 | B | 4-6 | 7/21/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | 0.0543 J | 0.0512 J | < 0.0710 U | 0.0525 J | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | 0.0669 J | < 0.0710 U | < 0.0710 U | 5.82 | < 0.0710 U | 0.0575 J |
| 010-07 | B | 6-8 | 7/21/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | 5.83 | < 0.0716 U | < 0.0716 U |
| 010-07 | B | 8-10 | 7/21/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | 7.39 | < 0.0725 U | < 0.0725 U |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2, 3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 010-07 | C | 0-2 | 7/21/2016 | < 0.0744 U | < 0.0744 U | **0.0680 J** | **1.24** | **1.64** | **1.47** | **1.17** | **1.25** | **0.761** | **0.781** | **1.51** | **0.274** | **1.4** | < 0.0744 U | **1.04** | **11.5** | **0.438** | **1.25** |
| 010-07 | C | 2-4 | 7/21/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **4.97** | < 0.0746 U | < 0.0746 U |
| 010-07 | C | 4-6 | 7/21/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **5.19** | < 0.0745 U | < 0.0745 U |
| 010-07 | C | 6-8 | 7/21/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | **6.31** | < 0.0741 U | < 0.0741 U |
| 010-07 | C | 8-10 | 7/21/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | **16.7** | < 0.0738 U | < 0.0738 U |
| 016 | A | 0-2 | 5/9/2016 | **0.191** | < 0.142 U | **1.19** | **4.15** | **4.21** | **3.84** | **2.89** | **2.75** | **1.98** | **1.96** | **4.77** | **0.52** | **10.3** | **0.160 J** | **2.36** | **19.3** | **5.53** | **8.37** |
| 016 | A | 2-4 | 5/9/2016 | **0.108** | < 0.0735 U | **0.597 JH** | **2.13 J** | **2.20 J** | **1.96 J** | **1.49 JH** | **1.45 JH** | **1.02 JH** | **1.02 J** | **2.45 J** | **0.274 J** | **5.14** | **0.0997** | **1.22 J** | **7.39** | **2.66 J** | **4.17** |
| 016 | A | 4-6 | 5/9/2016 | **0.12** | < 0.0695 U | **0.637** | **1.68** | **1.58** | **1.36** | **0.978** | **0.863** | **0.72** | **0.712** | **1.85** | **0.203** | **4.44** | **0.128** | **0.782** | **7.33** | **2.6** | **3.57** |
| 016 | A | 6-8 | 5/9/2016 | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | < 0.0703 U | **0.0525 J** | < 0.0703 U | < 0.0703 U | **5.52** | < 0.0703 U | < 0.0703 U |
| 016 | A | 8-10 | 5/9/2016 | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | **4.68** | < 0.0717 U | < 0.0717 U |
| 016 | B | 0-2 | 5/9/2016 | < 0.143 U | < 0.143 U | **0.456** | **2.02** | **2.3** | **2.15** | **1.64** | **1.64** | **1.03** | **1.04** | **2.36** | **0.3** | **4.16** | < 0.143 U | **1.38** | **14.3** | **2.05** | **3.42** |
| 016 | B | 2-4 | 5/9/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.633** | **0.96** | **0.873** | **0.691** | **0.724** | **0.398** | **0.422** | **0.824** | **0.0849 J** | **0.971** | < 0.0737 U | **0.593** | **7.51** | **0.229** | **0.926** |
| 016 | B | 4-6 | 5/9/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0532 J** | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0500 J** | < 0.0743 U | < 0.0743 U | **5.19** | < 0.0743 U | < 0.0743 U |
| 016 | B | 6-8 | 5/9/2016 | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | **5.34** | < 0.0719 U | < 0.0719 U |
| 016 | B | 8-10 | 5/9/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **4.95** | < 0.0742 U | < 0.0742 U |
| 016 | C | 0-2 | 5/9/2016 | < 0.0713 U | < 0.0713 U | **0.0731 J** | **0.608** | **0.81** | **0.791** | **0.622** | **0.634** | **0.362** | **0.366** | **0.777** | **0.0952** | **1.05** | < 0.0713 U | **0.509** | **12.8** | **0.4** | **0.935** |
| 016 | C | 2-4 | 5/9/2016 | **0.0526 J** | < 0.0699 U | **0.348** | **1.52** | **1.49** | **1.43** | **1.07** | **0.976** | **0.724** | **0.727** | **1.74** | **0.21** | **2.97** | < 0.0699 U | **0.856** | **8.08** | **1.59** | **2.36** |
| 016 | C | 4-6 | 5/9/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **6.09** | < 0.0746 U | < 0.0746 U |
| 016 | C | 6-8 | 5/9/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | **0.154** | **0.19** | **0.171** | **0.119** | **0.123** | **0.0561 J** | **0.0856 J** | **0.183** | < 0.0732 U | **0.283** | < 0.0732 U | **0.1** | **7.53** | **0.106** | **0.251** |
| 016 | C | 8-10 | 5/9/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **5.1** | < 0.0744 U | < 0.0744 U |
| 019-01 | A | 0-2 | 5/8/2016 | < 0.0734 U | < 0.0734 U | **0.0923 J** | **0.704** | **0.826** | **0.83** | **0.664** | **0.592** | **0.445** | **0.417** | **0.871** | **0.132** | **1.36** | < 0.0734 U | **0.478** | **16.4** | **0.49** | **1.17** |
| 019-01 | A | 2-4 | 5/8/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.0629 J** | < 0.0740 U | < 0.0740 U | **8.39** | < 0.0740 U | **0.0600 J** |
| 019-01 | A | 4-6 | 5/8/2016 | < 0.0704 U | < 0.0704 U | < 0.0704 U | **0.0486 J** | **0.0638 J** | **0.0652 J** | **0.0517 J** | **0.0508 J** | < 0.0704 U | < 0.0704 U | **0.0614 J** | < 0.0704 U | **0.0811 J** | < 0.0704 U | < 0.0704 U | **7.59** | < 0.0704 U | **0.0754 J** |
| 019-01 | A | 6-8 | 5/8/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0904 J** | **0.117** | **0.116** | **0.0935 J** | **0.0903 J** | **0.0653 J** | **0.0619 J** | **0.122** | < 0.0749 U | **0.169** | < 0.0749 U | **0.0718 J** | **8.87** | **0.0572 J** | **0.157** |
| 019-01 | A | 8-10 | 5/8/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **4.31** | < 0.0732 U | < 0.0732 U |
| 019-01 | B | 0-2 | 5/8/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.271** | **0.346** | **0.34** | **0.278** | **0.259** | **0.185** | **0.174** | **0.353** | **0.0588 J** | **0.499** | < 0.0736 U | **0.213** | **16.2** | **0.179** | **0.45** |
| 019-01 | B | 2-4 | 5/8/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | **0.0838 J** | **0.113** | **0.113** | **0.0945** | **0.0933 J** | **0.0620 J** | **0.0575 J** | **0.11** | < 0.0706 U | **0.142** | < 0.0706 U | **0.0776 J** | **10.9** | < 0.0706 U | **0.135** |
| 019-01 | B | 4-6 | 5/8/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | **7.35** | < 0.0727 U | < 0.0727 U |
| 019-01 | B | 6-8 | 5/8/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | **0.0684 J** | **0.0982** | **0.0951 J** | **0.0775 J** | **0.0725 J** | **0.0504 J** | **0.0487 J** | **0.0852 J** | < 0.0722 U | **0.0977** | < 0.0722 U | **0.0616 J** | **6.27** | < 0.0722 U | **0.0942 J** |
| 019-01 | B | 8-10 | 5/8/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **4.05** | < 0.0744 U | < 0.0744 U |
| 019-01 | C | 0-2 | 5/8/2016 | < 0.0742 U | < 0.0742 U | **0.0601 J** | **0.67** | **0.847** | **0.837** | **0.682** | **0.636** | **0.438** | **0.421** | **0.842** | **0.136** | **1.14** | < 0.0742 U | **0.538** | **13.1** | **0.345** | **1.02** |
| 019-01 | C | 2-4 | 5/8/2016 | < 0.0709 U | < 0.0709 U | < 0.0709 U | **0.105** | **0.132** | **0.134** | **0.109** | **0.102** | **0.0691 J** | **0.0702 J** | **0.135** | < 0.0709 U | **0.18** | < 0.0709 U | **0.0868 J** | **8.74** | **0.0734 J** | **0.163** |
| 019-01 | C | 4-6 | 5/8/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.0863 J** | **0.111** | **0.115** | **0.0799 J** | **0.0929 J** | **0.0525 J** | **0.0620 J** | **0.1** | < 0.0730 U | **0.129** | < 0.0730 U | **0.0808 J** | **9.16** | < 0.0730 U | **0.121** |
| 019-01 | C | 6-8 | 5/8/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.0506 J** | < 0.0748 U | **0.0531 J** | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.104** | < 0.0748 U | < 0.0748 U | **6.4** | **0.0667 J** | **0.0813 J** |
| 019-01 | C | 8-10 | 5/8/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | **5.46** | < 0.0731 U | < 0.0731 U |
| 038 | A | 0-2 | 5/5/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.224** | **0.276** | **0.262** | **0.213** | **0.22** | **0.136** | **0.137** | **0.264** | < 0.0747 U | **0.396** | < 0.0747 U | **0.178** | **14.1** | **0.163** | **0.341** |
| 038 | A | 2-4 | 5/5/2016 | < 0.369 U | < 0.369 U | < 0.369 U | **0.831** | **0.854** | **0.8** | **0.611** | **0.569** | **0.431 J** | **0.431 J** | **0.914** | < 0.369 U | **1.68** | < 0.369 U | **0.479 J** | **12.4** | **0.789** | **1.37** |
| 038 | A | 4-6 | 5/5/2016 | < 0.355 U | < 0.355 U | < 0.355 U | **0.49** | **0.638** | **0.609** | **0.481** | **0.467 J** | **0.316 J** | **0.313 J** | **0.573** | < 0.355 U | **0.706** | < 0.355 U | **0.377 J** | **9.16** | **0.260 J** | **0.615** |
| 038 | A | 6-8 | 5/5/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.0957 J** | **0.107** | **0.101** | **0.0793 J** | **0.0826 J** | **0.0547 J** | **0.0556 J** | **0.117** | < 0.0744 U | **0.175** | < 0.0744 U | **0.0647 J** | **7.29** | **0.0840 J** | **0.153** |
| 038 | A | 8-10 | 5/5/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **4.18** | < 0.0743 U | < 0.0743 U |
| 038 | B | 0-2 | 5/5/2016 | < 0.0735 U | < 0.0735 U | **0.0659 J** | **0.337** | **0.363** | **0.352** | **0.279** | **0.262** | **0.187** | **0.182** | **0.39** | **0.0613 J** | **0.681** | < 0.0735 U | **0.219** | **11.1** | **0.323** | **0.556** |
| 038 | B | 2-4 | 5/5/2016 | < 0.756 U | < 0.756 U | < 0.756 U | **0.891 J** | **1.35** | **1.15** | **0.942 J** | **1.02** | **0.615 J** | **0.625 J** | **1.06** | < 0.756 U | **1.15** | < 0.756 U | **0.852 J** | **11.9** | < 0.756 U | **1.05** |
| 038 | B | 4-6 | 5/5/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.219** | **0.399** | **0.379** | **0.314** | **0.353** | **0.176** | **0.179** | **0.305** | **0.0758 J** | **0.272** | < 0.0746 U | **0.268** | **97.5** | **0.0736 J** | **0.275** |
| 038 | B | 6-8 | 5/5/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0697 J** | < 0.0746 U | < 0.0746 U | **6.81** | < 0.0746 U | **0.0550 J** |
| 038 | B | 8-10 | 5/5/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | **0.0679 J** | **0.0748 J** | **0.0675 J** | **0.0528 J** | **0.0506 J** | < 0.0718 U | < 0.0718 U | **0.0750 J** | < 0.0718 U | **0.153** | < 0.0718 U | < 0.0718 U | **4.7** | **0.0811 J** | **0.124** |
| 038 | C | 0-2 | 5/5/2016 | < 0.0743 U | < 0.0743 U | **0.0705 J** | **0.349** | **0.379** | **0.364** | **0.288** | **0.28** | **0.198** | **0.19** | **0.412** | **0.0733 J** | **0.663** | < 0.0743 U | **0.232** | **13.8** | **0.35** | **0.537** |
| 038 | C | 2-4 | 5/5/2016 | **0.249 J** | < 0.373 U | **1.48** | **4.54** | **4.48** | **4.18** | **3.14** | **2.8** | **2.26** | **2.15** | **4.95** | **0.735** | **9.72** | **0.307 J** | **2.45** | **18.3** | **5.88** | **7.42** |
| 038 | C | 4-6 | 5/5/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | **0.117** | **0.132** | **0.127** | **0.1** | **0.101** | **0.0662 J** | **0.0658 J** | **0.133** | < 0.0694 U | **0.224** | < 0.0694 U | **0.0824 J** | **10.3** | **0.101** | **0.185** |
| 038 | C | 6-8 | 5/5/2016 | **0.208** | < 0.0730 U | **0.311** | **2.46** | **2.93** | **2.05** | **1.71** | **1.61** | **1.48** | **1.34** | **3.28** | **0.44** | **3.96** | **0.0883 J** | **1.42** | **11.5** | **1.58** | **4.19** |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaphthene | Acenaphthylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phenanthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 038 | C | 8-10 | 5/5/2016 | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | 4.49 | < 0.0704 U | < 0.0704 U |
| 040 | A | 0-2 | 5/5/2016 | 0.0996 | < 0.0727 U | 0.572 | 3.28 | 3.9 | 3.73 | 2.75 | 2.87 | 1.99 | 2.07 | 3.97 | 0.673 | 5.63 | 0.0568 J | 2.5 | 44.3 | 2.97 | 4.69 |
| 040 | A | 2-4 | 5/5/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | 0.277 | 0.405 | 0.369 | 0.287 | 0.321 | 0.194 | 0.199 | 0.351 | 0.0687 J | 0.426 | < 0.0747 U | 0.26 | 7.64 | 0.128 | 0.378 |
| 040 | A | 4-6 | 5/5/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | 5.71 | < 0.0745 U | < 0.0745 U |
| 040 | A | 6-8 | 5/5/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | 0.0488 J | 0.0706 J | 0.0698 J | 0.0565 J | 0.0635 J | < 0.0729 U | < 0.0729 U | 0.0678 J | < 0.0729 U | 0.0777 J | < 0.0729 U | 0.0549 J | 4.47 | < 0.0729 U | 0.0745 J |
| 040 | A | 8-10 | 5/5/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | 3.8 | < 0.0745 U | < 0.0745 U |
| 040 | B | 0-2 | 5/5/2016 | 0.464 | < 0.0748 U | 2.58 | 10.3 | 10.6 | 9.75 | 7.04 | 6.9 | 5.53 | 5.72 | 11.8 | 1.78 | 18.3 | 0.435 | 6.24 | 51.4 | 11.2 | 15 |
| 040 | B | 2-4 | 5/5/2016 | < 0.0746 U | < 0.0746 U | 0.121 | 0.41 | 0.365 | 0.348 | 0.255 | 0.264 | 0.206 | 0.209 | 0.472 | 0.0615 J | 0.924 | < 0.0746 U | 0.221 | 8.89 | 0.587 | 0.703 |
| 040 | B | 4-6 | 5/5/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 6.08 | < 0.0743 U | < 0.0743 U |
| 040 | B | 6-8 | 5/5/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 4.52 | < 0.0746 U | < 0.0746 U |
| 040 | B | 8-10 | 5/5/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | 3.83 | < 0.0738 U | < 0.0738 U |
| 040 | C | 0-2 | 5/5/2016 | 0.248 | < 0.0742 U | 1.21 | 6.46 | 7.12 | 6.76 | 5.2 | 4.91 | 3.62 | 3.46 | 6.95 | 1.12 | 12 | 0.2 | 3.96 | 52.8 | 5.21 | 9.6 |
| 040 | C | 2-4 | 5/5/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | 0.389 | 0.537 | 0.491 | 0.386 | 0.381 | 0.26 | 0.246 | 0.463 | 0.0809 J | 0.637 | < 0.0728 U | 0.299 | 7.6 | 0.163 | 0.575 |
| 040 | C | 4-6 | 5/5/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.113 | 0.131 | 0.129 | 0.103 | 0.0971 J | 0.0694 J | 0.0648 J | 0.129 | < 0.0746 U | 0.201 | < 0.0746 U | 0.0757 J | 6.4 | 0.0952 J | 0.169 |
| 040 | C | 6-8 | 5/5/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.0816 J | < 0.0749 U | < 0.0749 U | 4.18 | < 0.0749 U | 0.0690 J |
| 040 | C | 8-10 | 5/5/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 3.82 | < 0.0747 U | < 0.0747 U |
| 044 | A | 0-2 | 5/6/2016 | 0.463 | < 0.143 U | 1.32 JH | 10.2 | 12.9 | 12.3 | 9.21 | 9.23 | 6.62 | 6.89 | 12.8 | 2.17 JH | 15.6 | 0.24 | 8.03 | 78.4 JH | 6.89 | 13.6 |
| 044 | A | 2-4 | 5/6/2016 | < 0.0742 U | < 0.0742 U | 0.0881 J | 0.673 | 0.833 | 0.77 | 0.627 | 0.586 | 0.408 | 0.382 | 0.814 | 0.124 | 1.22 | < 0.0742 U | 0.758 | 14.4 JH | 0.439 | 1.06 |
| 044 | A | 4-6 | 5/6/2016 | < 0.0749 U | < 0.0749 U | 0.0709 J | 0.267 | 0.297 | 0.29 | 0.232 | 0.209 | 0.15 | 0.142 | 0.316 | < 0.0749 U | 0.591 | < 0.0749 U | 0.26 | 5.21 JH | 0.362 | 0.468 |
| 044 | A | 6-8 | 5/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0541 J | 0.0745 J | 0.0701 J | 0.0583 J | 0.0579 J | < 0.0746 U | < 0.0746 U | 0.0660 J | < 0.0746 U | 0.0855 J | < 0.0746 U | 0.0859 J | 5.15 JH | < 0.0746 U | 0.0799 J |
| 044 | A | 8-10 | 5/6/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 7.82 JH | < 0.0742 U | < 0.0742 U |
| 044 | B | 0-2 | 5/6/2016 | 0.433 | < 0.147 U | 0.878 | 7.68 | 10.8 | 10.1 | 7.72 | 7.96 | 5.38 | 5.48 | 9.99 | 1.8 | 11.7 | 0.261 | 6.75 | 188 JH | 5.09 | 10.6 |
| 044 | B | 2-4 | 5/6/2016 | 0.0721 J | < 0.0747 U | 0.127 | 0.819 | 1.19 | 1.11 | 0.847 | 0.915 | 0.566 | 0.589 | 1.09 | 0.228 | 1.4 | 0.0696 J | 0.761 | 9.07 JH | 0.707 | 1.21 |
| 044 | B | 4-6 | 5/6/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | 0.0536 J | 0.0768 J | 0.0733 J | 0.0549 J | 0.0670 J | < 0.0720 U | < 0.0720 U | 0.0719 J | < 0.0720 U | 0.0835 J | < 0.0720 U | 0.0543 J | 5.66 JH | < 0.0720 U | 0.0747 J |
| 044 | B | 6-8 | 5/6/2016 | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | < 0.106 U | 4.81 JH | < 0.106 U | < 0.106 U |
| 044 | B | 8-10 | 5/6/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 8.23 JH | < 0.0749 U | < 0.0749 U |
| 044 | C | 0-2 | 5/6/2016 | 0.623 | < 0.147 U | 2.61 | 15.3 | 18.1 | 16.9 | 12.7 | 12.6 | 9.3 | 9.51 | 18.6 | 3.02 | 24.3 | 0.435 | 10.9 | 86.6 JH | 12.5 | 20.8 |
| 044 | C | 2-4 | 5/6/2016 | 0.278 | < 0.0748 U | 1.55 | 6.97 | 7.58 | 6.88 | 5.1 | 4.99 | 3.88 | 4.03 | 8.14 | 1.12 | 11.6 | 0.272 | 4.34 | 9.23 JH | 6.7 | 9.58 |
| 044 | C | 4-6 | 5/6/2016 | < 0.0712 U | < 0.0712 U | 0.168 | 0.618 | 0.627 | 0.551 | 0.421 | 0.419 | 0.328 | 0.333 | 0.7 | 0.097 | 1.21 | < 0.0712 U | 0.354 | 7.43 JH | 0.711 | 0.976 |
| 044 | C | 6-8 | 5/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 4.48 JH | < 0.0746 U | < 0.0746 U |
| 044 | C | 8-10 | 5/6/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 0.0573 J | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 0.0667 J | < 0.0743 U | 0.0799 J | < 0.0743 U | < 0.0743 U | 7.67 JH | < 0.0743 U | 0.0799 J |
| 046 | | 10-12 | 11/3/2016 | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | < 0.0907 U | 8.43 | < 0.0907 U | < 0.0907 U |
| 046 | A | 0-2 | 5/10/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.212 | 0.263 | 0.262 | 0.209 | 0.194 | 0.138 | 0.137 | 0.253 | < 0.0749 U | 0.358 | < 0.0749 U | 0.153 | 19.5 J | 0.138 | 0.316 |
| 046 | A | 2-4 | 5/10/2016 | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | < 0.0695 U | 8.53 J | < 0.0695 U | < 0.0695 U |
| 046 | A | 4-6 | 5/10/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | 0.0496 J | < 0.0724 U | < 0.0724 U | 8.14 J | < 0.0724 U | < 0.0724 U |
| 046 | A | 6-8 | 5/10/2016 | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | < 0.0692 U | 15.7 J | < 0.0692 U | < 0.0692 U |
| 046 | A | 8-10 | 5/10/2016 | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | 12.8 J | < 0.0693 U | < 0.0693 U |
| 046 | B | 0-2 | 5/10/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | 0.219 | 0.299 | 0.292 | 0.235 | 0.23 | 0.123 | 0.13 | 0.295 | < 0.0732 U | 0.411 | < 0.0732 U | 0.179 | 10.9 J | 0.145 | 0.376 |
| 046 | B | 2-4 | 5/10/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 6.80 J | < 0.0743 U | < 0.0743 U |
| 046 | B | 4-6 | 5/10/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 8.72 J | < 0.0730 U | < 0.0730 U |
| 046 | B | 6-8 | 5/10/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | 15.5 J | < 0.0728 U | < 0.0728 U |
| 046 | B | 8-10 | 5/10/2016 | < 0.0719 U | < 0.0719 U | < 0.0719 U | 0.281 | 0.571 | 0.507 | 0.414 | 0.425 | 0.2 | 0.206 | 0.445 | < 0.0719 U | 0.294 | < 0.0719 U | 0.323 | 13.7 J | 0.0542 J | 0.355 |
| 046 | C | 0-2 | 5/10/2016 | 0.128 | < 0.0746 U | 0.182 | 1.64 | 2.15 | 1.94 | 1.57 | 1.53 | 0.986 | 0.956 | 2.2 | 0.271 | 2.77 | < 0.0746 U | 1.27 | 19.8 J | 0.995 | 2.66 |
| 046 | C | 2-4 | 5/10/2016 | < 0.0739 U | < 0.0739 U | 0.0634 J | 0.496 | 0.614 | 0.544 | 0.433 | 0.416 | 0.254 | 0.256 | 0.635 | 0.0549 J | 1.01 | < 0.0739 U | 0.327 | 7.38 J | 0.328 | 0.89 |
| 046 | C | 4-6 | 5/10/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | 7.96 | < 0.0725 U | < 0.0725 U |
| 046 | C | 6-8 | 5/10/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 11.4 J | < 0.0743 U | < 0.0743 U |
| 046 | C | 8-10 | 5/10/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 16.1 J | < 0.0741 U | < 0.0741 U |
| 050 | A | 0-2 | 5/10/2016 | 1.45 | < 0.0710 U | 4.28 | 35.5 | 45.2 D | 42.2 | 32.8 | 33.7 | 21.4 | 21.2 | 44.0 D | 7.57 | 58.2 D | 0.701 | 28.5 | 131 J | 20.2 | 52.7 D |
| 050 | A | 2-4 | 5/10/2016 | 0.0789 J | < 0.0696 U | 0.273 | 1.28 | 1.46 | 1.26 | 0.991 | 0.979 | 0.69 | 0.68 | 1.59 | 0.198 | 2.67 | < 0.0696 U | 0.836 | 8.46 J | 1.3 | 2.4 |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2, 3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 050 | A | 4-6 | 5/10/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | **3.39 J** | < 0.0718 U | < 0.0718 U |
| 050 | A | 6-8 | 5/10/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | **4.55 J** | < 0.0731 U | < 0.0731 U |
| 050 | A | 8-10 | 5/10/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **7.28 J** | < 0.0749 U | < 0.0749 U |
| 050 | B | 0-2 | 5/10/2016 | **1.26** | < 0.0740 U | **3.75** | **27.3** | **34.2** | **32.1** | **24.8** | **25.2** | **16.1** | **16.2** | **34.8** | **5.53** | **48.9** | **0.569** | **21.2** | **144 J** | **18** | **43.4** |
| 050 | B | 2-4 | 5/10/2016 | **0.3** | < 0.0691 U | **1.43** | **6.37** | **7.04** | **6.59** | **4.95** | **4.72** | **3.3** | **3.28** | **7.63** | **1.08** | **13** | **0.265** | **4.02** | **13.1 J** | **6.03** | **11** |
| 050 | B | 4-6 | 5/10/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | **3.59 J** | < 0.0727 U | < 0.0727 U |
| 050 | B | 6-8 | 5/10/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **4.99 J** | < 0.0746 U | < 0.0746 U |
| 050 | B | 8-10 | 5/10/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **6.25 J** | < 0.0737 U | < 0.0737 U |
| 050 | C | 0-2 | 5/10/2016 | **0.424** | < 0.0749 U | **1.66** | **10.8** | **12.5** | **11.9** | **9.04** | **9** | **5.99** | **5.9** | **13.3** | **1.98** | **20.4** | **0.183** | **7.68** | **63.1 J** | **8.42** | **17.7** |
| 050 | C | 2-4 | 5/10/2016 | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | **7.71 J** | < 0.0721 U | < 0.0721 U |
| 050 | C | 4-6 | 5/10/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **2.87 J** | < 0.0745 U | < 0.0745 U |
| 050 | C | 6-8 | 5/10/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | **3.87 J** | < 0.0739 U | < 0.0739 U |
| 050 | C | 8-10 | 5/10/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | **6.33 J** | < 0.0706 U | < 0.0706 U |
| 053 | A | 0-2 | 5/11/2016 | **0.0568 J** | < 0.0735 U | **0.21** | **1.63** | **2.09** | **1.97** | **1.57** | **1.49** | **1.03** | **1.07** | **1.96** | **0.374** | **2.81** | < 0.0735 U | **1.28** | **35.8** | **0.99** | **2.45** |
| 053 | A | 2-4 | 5/11/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.137** | **0.17** | **0.162** | **0.0977 J** | **0.139** | **0.0624 J** | **0.107** | **0.162** | **0.0711 J** | **0.199** | < 0.0736 U | **0.129** | **8.01** | **0.0743 J** | **0.174** |
| 053 | A | 4-6 | 5/11/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.0981** | **0.115** | **0.11** | **0.0543 J** | **0.0994** | < 0.0735 U | **0.0838 J** | **0.115** | **0.0648 J** | **0.127** | < 0.0735 U | **0.0955 J** | **5.89** | **0.0596 J** | **0.112** |
| 053 | A | 6-8 | 5/11/2016 | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R | R |
| 053 | A | 8-10 | 5/11/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.0530 J** | < 0.0735 U | < 0.0735 U | **0.0527 J** | **5.74** | < 0.0735 U | < 0.0735 U |
| 053 | B | 0-2 | 5/11/2016 | **0.111** | < 0.0714 U | **0.316** | **2.94** | **3.78** | **3.57** | **2.86** | **2.69** | **1.84** | **1.83** | **3.53** | **0.646** | **5** | < 0.0714 U | **2.33** | **33** | **1.62** | **4.41** |
| 053 | B | 2-4 | 5/11/2016 | < 0.0735 U | < 0.0735 U | **0.129** | **1.14** | **1.57** | **1.49** | **1.19** | **1.2** | **0.74** | **0.791** | **1.42** | **0.323** | **1.8** | < 0.0735 U | **1.04** | **12.4** | **0.61** | **1.6** |
| 053 | B | 4-6 | 5/11/2016 | < 0.0696 U | < 0.0696 U | **0.112** | **0.532** | **0.561** | **0.522** | **0.376** | **0.374** | **0.263** | **0.308** | **0.594** | **0.137** | **1.09** | < 0.0696 U | **0.353** | **6.41** | **0.462** | **0.895** |
| 053 | B | 6-8 | 5/11/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **5.37** | < 0.0747 U | < 0.0747 U |
| 053 | B | 8-10 | 5/11/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **5.63** | < 0.0749 U | < 0.0749 U |
| 053 | C | 0-2 | 5/11/2016 | **0.0708 J** | < 0.0749 U | **0.309** | **2.74** | **3.79** | **3.61** | **2.9** | **2.67** | **1.86** | **1.83** | **3.38** | **0.622** | **4.32** | < 0.0749 U | **2.32** | **39.3** | **1.48** | **3.8** |
| 053 | C | 2-4 | 5/11/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.174** | **0.264** | **0.249** | **0.214** | **0.201** | **0.131** | **0.125** | **0.224** | < 0.0749 U | **0.245** | < 0.0749 U | **0.173** | **8.33** | **0.0722 J** | **0.23** |
| 053 | C | 4-6 | 5/11/2016 | < 0.0749 U | < 0.0749 U | **0.0636 J** | **0.465** | **0.637** | **0.598** | **0.485** | **0.427** | **0.312** | **0.293** | **0.569** | **0.11** | **0.77** | < 0.0749 U | **0.388** | **6.31** | **0.304** | **0.665** |
| 053 | C | 6-8 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **5.6** | < 0.0746 U | < 0.0746 U |
| 053 | C | 8-10 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **7.21** | < 0.0746 U | < 0.0746 U |
| 056 | A | 0-2 | 5/3/2016 | **0.0723 J** | < 0.0499 U | **0.576** | **2.45** | **2.76** | **2.62** | **2.08** | **1.89** | **1.39** | **1.32** | **2.8** | **0.429** | **4.78** | **0.0836 J** | **1.58** | **46.1** | **2.46** | **3.78** |
| 056 | A | 2-4 | 5/3/2016 | < 0.0499 U | < 0.0499 U | < 0.0499 U | **0.126** | **0.126** | **0.125** | **0.0998** | **0.0933 J** | **0.0683 J** | **0.0670 J** | **0.143** | < 0.0499 U | **0.253** | < 0.0499 U | **0.0780 J** | **8.26** | **0.147** | **0.197** |
| 056 | A | 4-6 | 5/3/2016 | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | < 0.0476 U | **0.0611 J** | < 0.0476 U | < 0.0476 U | **16.7** | < 0.0476 U | **0.0566 J** |
| 056 | A | 6-8 | 5/3/2016 | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | **10.1** | < 0.0491 U | < 0.0491 U |
| 056 | A | 8-10 | 5/3/2016 | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | **0.0533 J** | < 0.0494 U | < 0.0494 U | **10.5** | < 0.0494 U | < 0.0494 U |
| 056 | B | 0-2 | 5/3/2016 | < 0.0494 U | < 0.0494 U | **0.112** | **0.963** | **1.23** | **1.14** | **0.936** | **0.893** | **0.628** | **0.602** | **1.15** | **0.197** | **1.64** | < 0.0494 U | **0.753** | **35.6** | **0.555** | **1.45** |
| 056 | B | 2-4 | 5/3/2016 | **0.0535 J** | < 0.0484 U | **0.334** | **1.25** | **1.12** | **1.05** | **0.809** | **0.679** | **0.6** | **0.559** | **1.4** | **0.176** | **2.84** | **0.0523 J** | **0.604** | **88.3** | **1.48** | **2.23** |
| 056 | B | 4-6 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | **0.0902 J** | **0.0986 J** | **0.0966 J** | **0.0794 J** | **0.0741 J** | **0.0514 J** | < 0.0500 U | **0.107** | < 0.0500 U | **0.181** | < 0.0500 U | **0.0594 J** | **11.7** | **0.0834 J** | **0.151** |
| 056 | B | 6-8 | 5/3/2016 | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | < 0.0497 U | **10.2** | < 0.0497 U | < 0.0497 U |
| 056 | B | 8-10 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **12.4** | < 0.0500 U | < 0.0500 U |
| 056 | C | 0-2 | 5/3/2016 | < 0.0499 U | < 0.0499 U | **0.0763 J** | **0.453** | **0.513** | **0.502** | **0.417** | **0.422** | **0.268** | **0.257** | **0.556** | **0.0916 J** | **0.927** | < 0.0499 U | **0.35** | **48.4** | **0.414** | **0.771** |
| 056 | C | 2-4 | 5/3/2016 | < 0.0496 U | < 0.0496 U | < 0.0496 U | < 0.0496 U | **0.0570 J** | **0.0541 J** | < 0.0496 U | **0.0556 J** | < 0.0496 U | < 0.0496 U | < 0.0496 U | < 0.0496 U | < 0.0496 U | < 0.0496 U | < 0.0496 U | **7.4** | < 0.0496 U | < 0.0496 U |
| 056 | C | 4-6 | 5/3/2016 | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | **9.41** | < 0.0494 U | < 0.0494 U |
| 056 | C | 6-8 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **13** | < 0.0500 U | < 0.0500 U |
| 056 | C | 8-10 | 5/3/2016 | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | < 0.0494 U | **8.31** | < 0.0494 U | < 0.0494 U |
| 058 | A | 0-2 | 7/20/2016 | < 0.0698 U | < 0.0698 U | **0.0618 J** | **0.124** | **0.139** | **0.161** | **0.0664 J** | **0.133** | < 0.0698 U | **0.103** | **0.133** | **0.0792 J** | **0.124** | < 0.0698 U | **0.132** | **120** | **0.0603 J** | **0.112** |
| 058 | A | 2-4 | 7/20/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | **10.6** | < 0.0734 U | < 0.0734 U |
| 058 | A | 4-6 | 7/20/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **11.3** | < 0.0744 U | < 0.0744 U |
| 058 | A | 6-8 | 7/20/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **8.04** | < 0.0744 U | < 0.0744 U |
| 058 | A | 8-10 | 7/20/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **8.16** | < 0.0735 U | < 0.0735 U |
| 058 | B | 0-2 | 7/20/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | **0.136** | **0.168** | **0.177** | **0.117** | **0.163** | **0.0724 J** | **0.106** | **0.167** | **0.0630 J** | **0.202** | < 0.0726 U | **0.151** | **88.6** | **0.0916 J** | **0.179** |

## Table 4-4
## Soil Analytical Results - Soil Boring Samples
## Remedial Investigation
## Former Laredo Air Force Base Shotgun Range

| Analyte | | | | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAS | | | | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| Units | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| TRRP Tier 1 PCL | | | | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 058 | B | 2-4 | 7/20/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0524 J** | **0.0572 J** | **0.0657 J** | < 0.0723 U | **0.0571 J** | < 0.0723 U | < 0.0723 U | **0.0575 J** | < 0.0723 U | **0.0486 J** | < 0.0723 U | **0.0564 J** | **28.8** | < 0.0723 U | < 0.0723 U |
| 058 | B | 4-6 | 7/20/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **9.51** | < 0.0737 U | < 0.0737 U |
| 058 | B | 6-8 | 7/20/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **11.8** | < 0.0743 U | < 0.0743 U |
| 058 | B | 8-10 | 7/20/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **10.2** | < 0.0737 U | < 0.0737 U |
| 058 | C | 0-2 | 7/20/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.146** | **0.183** | **0.195** | **0.126** | **0.18** | **0.0751 J** | **0.107** | **0.172** | **0.0683 J** | **0.19** | < 0.0737 U | **0.164** | **55.1** | **0.0833 J** | **0.174** |
| 058 | C | 2-4 | 7/20/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | **0.151** | **0.179** | **0.175** | **0.11** | **0.162** | **0.0784 J** | **0.106** | **0.185** | **0.0627 J** | **0.224** | < 0.0738 U | **0.143** | **56.6** | **0.113** | **0.203** |
| 058 | C | 4-6 | 7/20/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **9.8** | < 0.0743 U | < 0.0743 U |
| 058 | C | 6-8 | 7/20/2016 | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | **10.2** | < 0.0708 U | < 0.0708 U |
| 058 | C | 8-10 | 7/20/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | **9.11** | < 0.0716 U | < 0.0716 U |
| 060 | A | 0-2 | 5/3/2016 | < 0.0491 U | < 0.0491 U | < 0.0491 U | **0.0740 J** | **0.0894 J** | **0.0828 J** | **0.0686 J** | **0.0711 J** | < 0.0491 U | < 0.0491 U | **0.0891 J** | < 0.0491 U | **0.13** | < 0.0491 U | **0.0589 J** | **10.9** | **0.0530 J** | **0.116** |
| 060 | A | 2-4 | 5/3/2016 | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | < 0.0492 U | **6.18** | < 0.0492 U | < 0.0492 U |
| 060 | A | 4-6 | 5/3/2016 | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | < 0.0489 U | **6.97** | < 0.0489 U | < 0.0489 U |
| 060 | A | 6-8 | 5/3/2016 | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | < 0.0487 U | **6.92** | < 0.0487 U | < 0.0487 U |
| 060 | A | 8-10 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **8.55** | < 0.0500 U | < 0.0500 U |
| 060 | B | 0-2 | 5/3/2016 | < 0.0499 U | < 0.0499 U | < 0.0499 U | **0.0589 J** | **0.0719 J** | **0.0679 J** | **0.0527 J** | **0.0569 J** | < 0.0499 U | < 0.0499 U | **0.0728 J** | < 0.0499 U | **0.0971 J** | < 0.0499 U | < 0.0499 U | **12.8** | < 0.0499 U | **0.0911 J** |
| 060 | B | 2-4 | 5/3/2016 | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | < 0.0491 U | **6.61** | < 0.0491 U | < 0.0491 U |
| 060 | B | 4-6 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **7.01** | < 0.0500 U | < 0.0500 U |
| 060 | B | 6-8 | 5/3/2016 | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | **7.2** | < 0.0484 U | < 0.0484 U |
| 060 | B | 8-10 | 5/3/2016 | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | < 0.0493 U | **7.86** | < 0.0493 U | < 0.0493 U |
| 060 | C | 0-2 | 5/3/2016 | < 0.0496 U | < 0.0496 U | < 0.0496 U | **0.296** | **0.35** | **0.339** | **0.279** | **0.283** | **0.179** | **0.172** | **0.372** | **0.0637 J** | **0.547** | < 0.0496 U | **0.236** | **16.3** | **0.236** | **0.462** |
| 060 | C | 2-4 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **7.69** | < 0.0500 U | < 0.0500 U |
| 060 | C | 4-6 | 5/3/2016 | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | < 0.0500 U | **10.2** | < 0.0500 U | < 0.0500 U |
| 060 | C | 6-8 | 5/3/2016 | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | < 0.0495 U | **9.88** | < 0.0495 U | < 0.0495 U |
| 060 | C | 8-10 | 5/3/2016 | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | < 0.0484 U | **7.61** | < 0.0484 U | < 0.0484 U |
| 063 | A | 0-2 | 5/11/2016 | < 0.0705 U | < 0.0705 U | < 0.0705 U | **0.2** | **0.262** | **0.257** | **0.145** | **0.222** | **0.0952** | **0.175** | **0.242** | **0.116** | **0.304** | < 0.0705 U | **0.203** | **41.5** | **0.0948** | **0.265** |
| 063 | A | 2-4 | 5/11/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | **0.0648 J** | **0.0578 J** | < 0.0700 U | **0.0717 J** | < 0.0700 U | **0.0600 J** | **0.0499 J** | **0.0683 J** | < 0.0700 U | < 0.0700 U | **0.0712 J** | **7.81** | < 0.0700 U | < 0.0700 U |
| 063 | A | 4-6 | 5/11/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.0558 J** | **0.0766 J** | **0.0724 J** | < 0.0743 U | **0.0768 J** | < 0.0743 U | **0.0648 J** | **0.0649 J** | **0.0630 J** | < 0.0743 U | < 0.0743 U | **0.0724 J** | **7.15** | < 0.0743 U | < 0.0743 U |
| 063 | A | 6-8 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0653 J** | **0.0593 J** | < 0.0746 U | **0.0697 J** | < 0.0746 U | **0.0597 J** | **0.0501 J** | **0.0669 J** | < 0.0746 U | < 0.0746 U | **0.0731 J** | **4.3** | < 0.0746 U | < 0.0746 U |
| 063 | B | 0-2 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.177** | **0.265** | **0.257** | **0.164** | **0.216** | **0.104** | **0.158** | **0.227** | **0.0970 J** | **0.21** | < 0.0746 U | **0.193** | **76.1** | **0.0648 J** | **0.197** |
| 063 | B | 2-4 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0580 J** | **0.0820 J** | **0.0761 J** | < 0.0746 U | **0.0812 J** | < 0.0746 U | **0.0697 J** | **0.0700 J** | **0.0697 J** | < 0.0746 U | < 0.0746 U | **0.0825 J** | **14.5** | < 0.0746 U | < 0.0746 U |
| 063 | B | 4-6 | 5/11/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **0.0675 J** | **0.0632 J** | < 0.0742 U | **0.0754 J** | < 0.0742 U | **0.0616 J** | **0.0537 J** | **0.0722 J** | < 0.0742 U | < 0.0742 U | **0.0750 J** | **5.51** | < 0.0742 U | < 0.0742 U |
| 063 | B | 6-8 | 5/11/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | **0.0710 J** | **0.0652 J** | < 0.0726 U | **0.0805 J** | < 0.0726 U | **0.0637 J** | **0.0520 J** | **0.0750 J** | < 0.0726 U | < 0.0726 U | **0.0797 J** | **4.75** | < 0.0726 U | < 0.0726 U |
| 063 | C | 0-2 | 5/11/2016 | < 0.0692 U | < 0.0692 U | < 0.0692 U | **0.213** | **0.258** | **0.25** | **0.157** | **0.214** | **0.101** | **0.162** | **0.258** | **0.107** | **0.34** | < 0.0692 U | **0.194** | **31.2** | **0.144** | **0.29** |
| 063 | C | 2-4 | 5/11/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0542 J** | **0.0774 J** | **0.0688 J** | < 0.0749 U | **0.0805 J** | < 0.0749 U | **0.0662 J** | **0.0613 J** | **0.0715 J** | < 0.0749 U | < 0.0749 U | **0.0813 J** | **12.6** | < 0.0749 U | < 0.0749 U |
| 063 | C | 4-6 | 5/11/2016 | < 0.0707 U | < 0.0707 U | < 0.0707 U | < 0.0707 U | **0.0553 J** | **0.0527 J** | < 0.0707 U | **0.0568 J** | < 0.0707 U | **0.0511 J** | **0.0491 J** | **0.0521 J** | < 0.0707 U | < 0.0707 U | **0.0582 J** | **6.9** | < 0.0707 U | < 0.0707 U |
| 063 | C | 6-8 | 5/11/2016 | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | **0.0474 J** | < 0.0688 U | < 0.0688 U | < 0.0688 U | **0.0499 J** | < 0.0688 U | < 0.0688 U | **0.0492 J** | **4.53** | < 0.0688 U | < 0.0688 U |
| 064 | A | 0-2 | 5/4/2016 | **0.467** | < 0.150 U | **0.892** | **8.61** | **12.6** | **11** | **9.17** | **10.2** | **5.99** | **5.71** | **10.9** | **2.25** | **12.8** | **0.172 J** | **8.34** | **168** | **4.62** | **11.4** |
| 064 | A | 2-4 | 5/4/2016 | **0.0656 J** | < 0.0749 U | **0.111** | **1.12** | **1.46** | **1.3** | **1.1** | **1.09** | **0.705** | **0.685** | **1.38** | **0.241** | **1.73** | < 0.0749 U | **0.896** | **14.5** | **0.542** | **1.54** |
| 064 | A | 4-6 | 5/4/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0519 J** | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0510 J** | < 0.0746 U | **0.0599 J** | < 0.0746 U | < 0.0746 U | **5.19** | < 0.0746 U | **0.0545 J** |
| 064 | A | 6-8 | 5/4/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | **5.74** | < 0.0720 U | < 0.0720 U |
| 064 | A | 8-10 | 5/4/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **5.88** | < 0.0749 U | < 0.0749 U |
| 064 | B | 0-2 | 5/4/2016 | **0.463** | < 0.0736 U | **1.42** | **9.11** | **11.5** | **10.3** | **8.26** | **8.75** | **5.62** | **5.45** | **10.8** | **1.99** | **15.8** | **0.233** | **7.28** | **131** | **6.87** | **13.2** |
| 064 | B | 2-4 | 5/4/2016 | < 0.0743 U | < 0.0743 U | **0.0737 J** | **0.609** | **0.85** | **0.78** | **0.666** | **0.719** | **0.408** | **0.4** | **0.785** | **0.149** | **1.01** | < 0.0743 U | **0.578** | **27** | **0.378** | **0.905** |
| 064 | B | 4-6 | 5/4/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.107** | **0.174** | **0.148** | **0.125** | **0.15** | **0.0770 J** | **0.0797 J** | **0.134** | < 0.0745 U | **0.143** | < 0.0745 U | **0.123** | **6.51** | **0.0680 J** | **0.127** |
| 064 | B | 6-8 | 5/4/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | **5.41** | < 0.0710 U | < 0.0710 U |
| 064 | B | 8-10 | 5/4/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | **5.32** | < 0.0741 U | < 0.0741 U |
| 064 | C | 0-2 | 5/4/2016 | **0.116** | < 0.0744 U | **0.317** | **2.48** | **3.22** | **2.89** | **2.29** | **2.4** | **1.58** | **1.54** | **3.05** | **0.394** | **4.09** | < 0.0744 U | **1.99** | **143** | **1.71** | **3.56** |
| 064 | C | 2-4 | 5/4/2016 | **0.105** | < 0.0744 U | **0.418** | **2.7** | **3.05** | **2.81** | **2.14** | **2.12** | **1.54** | **1.5** | **3.2** | **0.358** | **4.71** | **0.0560 J** | **1.8** | **103** | **2.18** | **3.97** |
| 064 | C | 4-6 | 5/4/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0543 J** | < 0.0723 U | **0.0973** | < 0.0723 U | < 0.0723 U | **5.55** | **0.0549 J** | **0.0798 J** |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | Acenaphthene<br>83-32-9<br>mg/kg<br>3000 | Acenaphthylene<br>208-96-8<br>mg/kg<br>3800 | Anthracene<br>120-12-7<br>mg/kg<br>18000 | Benz(a)anthracene<br>56-55-3<br>mg/kg<br>41 | Benzo(a)pyrene<br>50-32-8<br>mg/kg<br>4.1 | Benzo(b)fluoranthene<br>205-99-2<br>mg/kg<br>41 | Benzo(e)pyrene<br>192-97-2<br>mg/kg<br>1800 | Benzo(g,h,i)perylene<br>191-24-2<br>mg/kg<br>1800 | Benzo(j)fluoranthene<br>205-82-3<br>mg/kg<br>39 | Benzo(k)fluoranthene<br>207-08-9<br>mg/kg<br>420 | Chrysene<br>218-01-9<br>mg/kg<br>4100 | Dibenzo(a,h)anthracene<br>53-70-3<br>mg/kg<br>4 | Fluoranthene<br>206-44-0<br>mg/kg<br>2300 | Fluorene<br>86-73-7<br>mg/kg<br>2300 | Indeno(1,2,3-cd)pyrene<br>193-39-5<br>mg/kg<br>42 | Lead<br>7439-92-1<br>mg/kg<br>500 | Phenanthrene<br>85-01-8<br>mg/kg<br>1700 | Pyrene<br>129-00-0<br>mg/kg<br>1700 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte / CAS / Units / TRRP Tier 1 PCL | | | | | | | | | | | | | | | | | | |
| 064 | C | 6-8 | 5/4/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | 5.94 | < 0.0706 U | < 0.0706 U |
| 064 | C | 8-10 | 5/4/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 5.26 | < 0.0737 U | < 0.0737 U |
| 066 | A | 0-2 | 7/20/2016 | < 0.0746 U | < 0.0746 U | 0.0991 J | 0.41 | 0.538 | 0.553 | 0.372 | 0.493 | 0.235 | 0.303 | 0.514 | 0.161 | 0.603 | < 0.0746 U | 0.448 | 46.6 | 0.253 | 0.532 |
| 066 | A | 2-4 | 7/20/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 10.2 | < 0.0740 U | < 0.0740 U |
| 066 | A | 4-6 | 7/20/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 0.0728 J | < 0.0740 U | < 0.0740 U | 6.11 | < 0.0740 U | 0.0610 J |
| 066 | A | 6-8 | 7/20/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 4.98 | < 0.0740 U | < 0.0740 U |
| 066 | A | 8-10 | 7/20/2016 | < 0.0720 U | < 0.0720 U | 0.0571 J | 0.0583 J | 0.0582 J | 0.0791 J | < 0.0720 U | 0.0609 J | < 0.0720 U | 0.0600 J | 0.0587 J | 0.0628 J | < 0.0720 U | < 0.0720 U | 0.0687 J | 6.03 | < 0.0720 U | < 0.0720 U |
| 066 | B | 0-2 | 7/20/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | 0.505 | 0.68 | 0.673 | 0.537 | 0.615 | 0.334 | 0.336 | 0.68 | 0.111 | 0.894 | < 0.0745 U | 0.452 | 35.4 | 0.266 | 0.806 |
| 066 | B | 2-4 | 7/20/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | 0.0497 J | < 0.0731 U | < 0.0731 U | 8.57 | < 0.0731 U | < 0.0731 U |
| 066 | B | 4-6 | 7/20/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | < 0.0726 U | 7.44 | < 0.0726 U | < 0.0726 U |
| 066 | B | 6-8 | 7/20/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 4.92 | < 0.0749 U | < 0.0749 U |
| 066 | B | 8-10 | 7/20/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | 7.65 | < 0.0700 U | < 0.0700 U |
| 066 | C | 0-2 | 7/20/2016 | < 0.0734 U | < 0.0734 U | 0.144 | 0.577 | 0.676 | 0.68 | 0.476 | 0.596 | 0.309 | 0.375 | 0.711 | 0.181 | 1.02 | < 0.0734 U | 0.537 | 136 | 0.517 | 0.858 |
| 066 | C | 2-4 | 7/20/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | 12.9 | < 0.0734 U | < 0.0734 U |
| 066 | C | 4-6 | 7/20/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | 6.75 | < 0.0729 U | < 0.0729 U |
| 066 | C | 6-8 | 7/20/2016 | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | 5.81 | < 0.0693 U | < 0.0693 U |
| 066 | C | 8-10 | 7/20/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | 10 | < 0.0712 U | < 0.0712 U |
| 069 | A | 0-2 | 5/4/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | 0.0564 J | 0.0772 J | 0.0756 J | 0.0631 J | 0.0671 J | < 0.0739 U | < 0.0739 U | 0.0776 J | < 0.0739 U | 0.0918 J | < 0.0739 U | 0.0529 J | 18.1 | < 0.0739 U | 0.0832 J |
| 069 | A | 2-4 | 5/4/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 6.49 | < 0.0732 U | < 0.0732 U |
| 069 | A | 4-6 | 5/4/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 5.52 | < 0.0730 U | < 0.0730 U |
| 069 | A | 6-8 | 5/4/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | 5.99 | < 0.0731 U | < 0.0731 U |
| 069 | A | 8-10 | 5/4/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 6.23 | < 0.0747 U | < 0.0747 U |
| 069 | B | 0-2 | 5/4/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 0.0536 J | < 0.0748 U | 0.0643 J | < 0.0748 U | < 0.0748 U | 12.1 | < 0.0748 U | 0.0577 J |
| 069 | B | 2-4 | 5/4/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 5.91 | < 0.0743 U | < 0.0743 U |
| 069 | B | 4-6 | 5/4/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | 7.21 | < 0.0738 U | < 0.0738 U |
| 069 | B | 6-8 | 5/4/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | 7.88 | < 0.0734 U | < 0.0734 U |
| 069 | B | 8-10 | 5/4/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 5.63 | < 0.0740 U | < 0.0740 U |
| 069 | C | 0-2 | 5/4/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 13.8 | < 0.0744 U | < 0.0744 U |
| 069 | C | 2-4 | 5/4/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 4.97 | < 0.0746 U | < 0.0746 U |
| 069 | C | 4-6 | 5/4/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 6.01 | < 0.0749 U | < 0.0749 U |
| 069 | C | 6-8 | 5/4/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 7.61 | < 0.0747 U | < 0.0747 U |
| 069 | C | 8-10 | 5/4/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 6.39 | < 0.0741 U | < 0.0741 U |
| 074 | | 10-12 | 11/3/2016 | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | < 0.0902 U | 20 | < 0.0902 U | < 0.0902 U |
| 074 | A | 0-2 | 5/10/2016 | 1.72 | < 0.148 U | 7.12 | 47.3 | 55.1 | 50.7 | 39.9 | 36.7 | 27.4 | 26.3 | 53 | 8.64 | 78.6 | 1.1 | 30.6 | 205 J | 31.9 | 66.4 |
| 074 | A | 2-4 | 5/10/2016 | 0.407 | < 0.144 U | 1.56 | 10.3 | 12.4 | 11.2 | 8.88 | 7.71 | 6.08 | 5.91 | 11.5 | 1.78 | 17.8 | 0.25 | 6.49 | 26.1 J | 6.76 | 15.2 |
| 074 | A | 4-6 | 5/10/2016 | 1.74 | < 0.138 U | 6.12 | 41.6 | 48.7 | 44.2 | 35 | 33 | 24 | 23 | 47 | 7.65 | 66.4 | 1.12 | 26.9 | 67.1 J | 26 | 57 |
| 074 | A | 6-8 | 5/10/2016 | 0.222 | < 0.144 U | 0.817 | 5.45 | 6.69 | 5.89 | 4.79 | 4.16 | 3.21 | 3.13 | 6.08 | 0.967 | 9.35 | 0.154 J | 3.52 | 20.1 J | 3.48 | 7.97 |
| 074 | A | 8-10 | 5/10/2016 | 1.44 | < 0.149 U | 5.06 | 34.1 | 40.6 | 36.7 | 29.4 | 27 | 19.8 | 19.6 | 38.5 | 6.34 | 54.8 | 0.895 | 22.5 | 48.3 J | 21.6 | 46.4 |
| 074 | B | 0-2 | 5/10/2016 | 1.3 | < 0.149 U | 4.92 | 33 | 38.1 | 34.8 | 27.5 | 25 | 19.2 | 18.9 | 37.5 | 6.02 | 54.8 | 0.763 | 21.1 | 202 J | 21.8 | 46.5 |
| 074 | B | 2-4 | 5/10/2016 | 0.205 | < 0.0712 U | 0.656 | 4.62 | 5.78 | 5.27 | 4.19 | 3.73 JL | 2.82 JL | 2.71 JL | 5.26 | 0.816 | 7.73 | 0.13 | 3.03 JL | 17.3 | 2.92 JL | 6.65 |
| 074 | B | 4-6 | 5/10/2016 | 2.18 | < 0.148 U | 7.99 | 52.5 | 61.7 | 56.9 | 44.5 | 42.4 | 30.7 | 29.1 | 59 | 9.81 | 85.3 | 1.36 | 34.5 | 116 J | 34.2 | 72.6 |
| 074 | B | 6-8 | 5/10/2016 | 0.512 | < 0.139 U | 1.42 | 12.3 | 15.9 | 14.4 | 11.6 | 10.6 | 7.84 | 7.56 | 14.4 | 2.42 | 18.8 | 0.292 | 8.66 | 19.8 J | 6.24 | 16.5 |
| 074 | B | 8-10 | 5/10/2016 | 0.598 | < 0.148 U | 1.65 | 14.1 | 17.4 | 15.9 | 12.8 | 11.3 | 8.66 | 8.34 | 16.5 | 2.66 | 22.3 | 0.329 | 9.42 | 33.9 J | 7.64 | 19.5 |
| 074 | C | 0-2 | 5/10/2016 | 0.59 | < 0.147 U | 2.33 | 15.7 | 18.7 | 17.3 | 13.7 | 12.2 | 9.41 | 9.12 | 18 | 2.86 | 27.1 | 0.362 | 10.3 | 178 J | 10.5 | 23.1 |
| 074 | C | 2-4 | 5/10/2016 | 0.693 | < 0.149 U | 2.4 | 16.9 | 20.8 | 19.3 | 15.2 | 13.6 | 10.4 | 9.94 | 19.6 | 3.18 | 28.8 | 0.394 | 11.4 | 61.6 J | 10.5 | 24.6 |
| 074 | C | 4-6 | 5/10/2016 | 2.66 | < 0.360 U | 8.4 | 61.6 | 75.9 | 68.9 | 55 | 49.3 | 37.1 | 35.7 | 70.7 | 11.2 | 99.6 | 1.48 | 40.7 | 143 J | 37.6 | 86.3 |
| 074 | C | 6-8 | 5/10/2016 | 0.134 J | < 0.141 U | 0.363 | 3.15 | 4.33 | 3.96 | 3.21 | 2.92 | 2.12 | 2.03 | 3.74 | 0.637 | 4.85 | < 0.141 U | 2.37 | 13.4 J | 1.59 | 4.37 |
| 074 | C | 8-10 | 5/10/2016 | 4.05 | < 0.361 U | 14.4 | 91.6 | 110 | 100 | 79.7 | 72.8 | 54.1 | 52.8 | 105 | 16.7 | 150 | 2.76 | 59.4 | 70.4 J | 59.8 | 128 |
| 077 | A | 0-2 | 5/11/2016 | < 0.0743 U | < 0.0743 U | 0.0547 J | 0.488 | 0.62 | 0.569 | 0.47 | 0.449 | 0.269 | 0.273 | 0.622 | 0.0509 J | 0.867 | < 0.0743 U | 0.361 | 39.8 | 0.311 | 0.774 |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 077 | A | 2-4 | 5/11/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.0523 J** | **0.0500 J** | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.0541 J** | < 0.0748 U | **0.0969 J** | < 0.0748 U | < 0.0748 U | **7.43** | < 0.0748 U | **0.0837 J** |
| 077 | A | 4-6 | 5/11/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **5.32** | < 0.0749 U | < 0.0749 U |
| 077 | A | 6-8 | 5/11/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **4.07** | < 0.0745 U | < 0.0745 U |
| 077 | A | 8-10 | 5/11/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **3.49** | < 0.0742 U | < 0.0742 U |
| 077 | B | 0-2 | 5/11/2016 | **0.0655 J** | < 0.0745 U | **0.175** | **1.53** | **2.03** | **1.81** | **1.48** | **1.45** | **0.909** | **0.872** | **1.93** | **0.235** | **2.71** | < 0.0745 U | **1.17** | **31.8** | **0.88** | **2.44** |
| 077 | B | 2-4 | 5/11/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.0539 J** | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.0514 J** | < 0.0747 U | **0.112** | < 0.0747 U | < 0.0747 U | **6.17** | **0.0586 J** | **0.0927 J** |
| 077 | B | 4-6 | 5/11/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **7.22** | < 0.0743 U | < 0.0743 U |
| 077 | B | 6-8 | 5/11/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **4.76** | < 0.0743 U | < 0.0743 U |
| 077 | B | 8-10 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **4.51** | < 0.0746 U | < 0.0746 U |
| 077 | C | 0-2 | 5/11/2016 | **0.0918 J** | < 0.0696 U | **0.0946** | **1.66** | **2.51** | **2.26** | **1.84** | **1.89** | **1.08** | **1.04** | **2.19** | **0.24** | **2.56** | < 0.0696 U | **1.5** | **27** | **0.512** | **2.45** |
| 077 | C | 2-4 | 5/11/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **6.12** | < 0.0746 U | < 0.0746 U |
| 077 | C | 4-6 | 5/11/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **5.29** | < 0.0743 U | < 0.0743 U |
| 077 | C | 6-8 | 5/11/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **3.38** | < 0.0735 U | < 0.0735 U |
| 077 | C | 8-10 | 5/11/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **5.24** | < 0.0745 U | < 0.0745 U |
| 080 | A | 0-2 | 7/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.201** | **0.304** | **0.302** | **0.245** | **0.274** | **0.146** | **0.151** | **0.261** | **0.0604 J** | **0.341** | < 0.0735 U | **0.228** | **58.0 JH** | **0.236** | **0.294** |
| 080 | A | 2-4 | 7/27/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | **10.7 JH** | < 0.0729 U | < 0.0729 U |
| 080 | A | 4-6 | 7/27/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | **0.116** | **0.128** | **0.129** | **0.102** | **0.105** | **0.0648 J** | **0.0684 J** | **0.13** | < 0.0744 U | **0.202** | < 0.0744 U | **0.0853 J** | **6.81 JH** | **0.107** | **0.171** |
| 080 | A | 6-8 | 7/27/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **4.15 JH** | < 0.0748 U | < 0.0748 U |
| 080 | B | 0-2 | 7/27/2016 | < 0.0735 U | < 0.0735 U | **0.0825 J** | **0.425** | **0.438** | **0.424** | **0.336** | **0.336** | **0.232** | **0.231** | **0.504** | **0.0798 J** | **0.897** | < 0.0735 U | **0.292** | **40.6 JH** | **0.459** | **0.755** |
| 080 | B | 2-4 | 7/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **9.60 JH** | < 0.0735 U | < 0.0735 U |
| 080 | B | 4-6 | 7/27/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **5.16 JH** | < 0.0744 U | < 0.0744 U |
| 080 | B | 6-8 | 7/27/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **4.73 JH** | < 0.0732 U | < 0.0732 U |
| 080 | C | 0-2 | 7/27/2016 | **0.0804 J** | < 0.0735 U | **0.187** | **2.14** | **2.85** | **2.65** | **2.11** | **2.27** | **1.38** | **1.39** | **2.67** | **0.492** | **3.21** | < 0.0735 U | **1.93** | **60.7 JH** | **1.06** | **2.93** |
| 080 | C | 2-4 | 7/27/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0647 J** | **0.0827 J** | **0.0780 J** | **0.0644 J** | **0.0665 J** | < 0.0749 U | < 0.0749 U | **0.0803 J** | < 0.0749 U | **0.123** | < 0.0749 U | **0.0552 J** | **11.8 JH** | **0.0600 J** | **0.111** |
| 080 | C | 4-6 | 7/27/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **8.10 JH** | < 0.0747 U | < 0.0747 U |
| 080 | C | 6-8 | 7/27/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **4.73 JH** | < 0.0748 U | < 0.0748 U |
| 082 | A | 0-2 | 5/6/2016 | < 0.0709 U | < 0.0709 U | **0.211** | **1.19** | **1.35** | **1.28** | **0.955** | **0.981** | **0.699** | **0.7** | **1.4** | **0.237** | **2.1** | < 0.0709 U | **0.847** | **35.1 JH** | **1.12** | **1.72** |
| 082 | A | 2-4 | 5/6/2016 | < 0.0737 U | < 0.0737 U | **0.0608 J** | **0.25** | **0.282** | **0.242** | **0.183** | **0.203** | **0.134** | **0.14** | **0.284** | **0.0694 J** | **0.471** | < 0.0737 U | **0.174** | **11.4 JH** | **0.269** | **0.378** |
| 082 | A | 4-6 | 5/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0914 J** | **0.107** | **0.104** | **0.0811 J** | **0.0948 J** | **0.0536 J** | **0.0592 J** | **0.116** | < 0.0746 U | **0.152** | < 0.0746 U | **0.0758 J** | **9.56 JH** | **0.0809 J** | **0.127** |
| 082 | A | 6-8 | 5/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **4.63** | < 0.0746 U | < 0.0746 U |
| 082 | B | 0-2 | 5/6/2016 | **0.109** | < 0.0749 U | **0.689** | **3.26** | **3.25** | **3.01** | **2.35** | **2.03** | **1.67** | **1.57** | **3.58** | **0.498** | **6.11** | **0.0992 J** | **1.71** | **25.9 JH** | **2.88** | **4.83** |
| 082 | B | 2-4 | 5/6/2016 | **0.0646 J** | < 0.0734 U | **0.397** | **1.75** | **1.7** | **1.55** | **1.21** | **1.04** | **0.859** | **0.832** | **1.91** | **0.258** | **3.4** | **0.0576 J** | **0.882** | **10.9 JH** | **1.64** | **2.66** |
| 082 | B | 4-6 | 5/6/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | **0.274** | **0.315** | **0.277** | **0.224** | **0.209** | **0.149** | **0.149** | **0.315** | **0.0532 J** | **0.445** | < 0.0741 U | **0.17** | **6.86 JH** | **0.14** | **0.383** |
| 082 | B | 6-8 | 5/6/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **5.08 JH** | < 0.0732 U | < 0.0732 U |
| 082 | C | 0-2 | 5/6/2016 | < 0.0746 U | < 0.0746 U | **0.0532 J** | **0.424 JH** | **0.525 JH** | **0.513 JH** | **0.425** | **0.408** | **0.263** | **0.259** | **0.536 JH** | **0.0891 J** | **0.724 JH** | < 0.0746 U | **0.324** | **36.2 JH** | **0.285** | **0.625 JH** |
| 082 | C | 2-4 | 5/6/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.0528 J** | **0.0736 J** | **0.0699 J** | **0.0627 J** | **0.0694 J** | **0.0619 J** | < 0.0740 U | **0.0653 J** | < 0.0740 U | **0.0618 J** | < 0.0740 U | **0.0549 J** | **10.1 JH** | < 0.0740 U | **0.0616 J** |
| 082 | C | 4-6 | 5/6/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **6.96 JH** | < 0.0745 U | < 0.0745 U |
| 082 | C | 6-8 | 5/6/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | **0.217** | **0.192** | **0.182** | **0.136** | **0.119** | **0.102** | **0.101** | **0.238** | < 0.0748 U | **0.474** | < 0.0748 U | **0.106** | **5.61 JH** | **0.242** | **0.377** |
| 083 | A | 0-2 | 5/12/2016 | **0.0556 J** | < 0.0745 U | **0.233** | **1.65** | **2.14** | **1.97** | **1.58** | **1.43** | **1.03** | **1.01** | **1.96** | **0.356** | **2.88** | < 0.0745 U | **1.31** | **67.6** | **1.1** | **2.45** |
| 083 | A | 2-4 | 5/12/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.303** | **0.617** | **0.575** | **0.473** | **0.47** | **0.284** | **0.266** | **0.42** | **0.111** | **0.257** | < 0.0737 U | **0.419** | **7.69** | **0.0691 J** | **0.27** |
| 083 | A | 4-6 | 5/12/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | **5.78** | < 0.0738 U | < 0.0738 U |
| 083 | A | 6-8 | 5/12/2016 | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | **4.91** | < 0.0750 U | < 0.0750 U |
| 083 | B | 0-2 | 5/12/2016 | **0.0662 J** | < 0.0749 U | **0.357** | **1.7** | **1.75** | **1.66** | **1.31** | **1.11** | **0.911** | **0.843** | **1.93** | **0.291** | **3.45** | **0.0536 J** | **1.02** | **31.3** | **1.61** | **2.75** |
| 083 | B | 2-4 | 5/12/2016 | < 0.0716 U | < 0.0716 U | **0.228** | **0.698** | **0.602** | **0.546** | **0.432** | **0.362** | **0.324** | **0.3** | **0.719** | **0.0995** | **1.62** | < 0.0716 U | **0.329** | **9.64** | **0.972** | **1.24** |
| 083 | B | 4-6 | 5/12/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **5.6** | < 0.0748 U | < 0.0748 U |
| 083 | B | 6-8 | 5/12/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **4.83** | < 0.0735 U | < 0.0735 U |
| 083 | C | 0-2 | 5/12/2016 | **0.0558 J** | < 0.0749 U | **0.388** | **1.94** | **1.99** | **1.9** | **1.49** | **1.31** | **1.04** | **0.992** | **2.18** | **0.333** | **3.86** | < 0.0749 U | **1.18** | **43.9** | **1.75** | **3.08** |
| 083 | C | 2-4 | 5/12/2016 | < 0.0743 U | < 0.0743 U | **0.15** | **0.443** | **0.392** | **0.359** | **0.271** | **0.223** | **0.201** | **0.189** | **0.462** | **0.0650 J** | **0.979** | < 0.0743 U | **0.211** | **8.82** | **0.563** | **0.739** |
| 083 | C | 4-6 | 5/12/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.0566 J** | **0.0669 J** | < 0.0497 UB | **0.0549 J** | **0.0521 J** | < 0.0745 U | < 0.0745 U | **0.0680 J** | < 0.0745 U | **0.108** | < 0.0745 U | < 0.0745 U | **6.2** | < 0.0745 U | **0.0923 J** |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 083 | C | 6-8 | 5/12/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **4.31** | < 0.0749 U | < 0.0749 U |
| 084 | A | 0-2 | 5/6/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.118** | **0.142** | **0.142** | **0.11** | **0.109** | **0.0748 J** | **0.0715 J** | **0.141** | < 0.0745 U | **0.226** | < 0.0745 U | **0.0872 J** | **14.2 JH** | **0.0867 J** | **0.195** |
| 084 | A | 2-4 | 5/6/2016 | < 0.150 U | < 0.150 U | **0.150 J** | **0.579** | **0.61** | **0.591** | **0.468** | **0.439** | **0.321** | **0.309** | **0.647** | < 0.150 U | **1.22** | < 0.150 U | **0.34** | **55.9 JH** | **0.619** | **0.974** |
| 084 | A | 4-6 | 5/6/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.13** | **0.195** | **0.189** | **0.152** | **0.16** | **0.0941 J** | **0.0912 J** | **0.165** | < 0.0749 U | **0.214** | < 0.0749 U | **0.12** | **15.1 JH** | **0.0748 J** | **0.196** |
| 084 | A | 6-8 | 5/6/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | < 0.0725 U | **0.0539 J** | < 0.0725 U | < 0.0725 U | **8.34 JH** | < 0.0725 U | **0.0495 J** |
| 084 | B | 0-2 | 5/6/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | **0.277** | **0.352** | **0.358** | **0.289** | **0.276** | **0.183** | **0.181** | **0.343** | **0.0592 J** | **0.459** | < 0.0745 U | **0.212** | **18.0 JH** | **0.144** | **0.409** |
| 084 | B | 2-4 | 5/6/2016 | < 0.739 U | < 0.739 U | < 0.739 U | < 0.739 U | **0.627 J** | **0.589 J** | < 0.739 U | **0.523 J** | < 0.739 U | < 0.739 U | < 0.739 U | < 0.739 U | < 0.739 U | < 0.739 U | < 0.739 U | **27.9 JH** | < 0.739 U | < 0.739 U |
| 084 | B | 4-6 | 5/6/2016 | < 0.0746 U | < 0.0746 U | **0.0521 J** | **0.284** | **0.366** | **0.345** | **0.276** | **0.325** | **0.212** | **0.215** | **0.357** | **0.112** | **0.407** | < 0.0746 U | **0.274** | **39.5 JH** | **0.194** | **0.334 D** |
| 084 | B | 6-8 | 5/6/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | **5.35 JH** | < 0.0728 U | < 0.0728 U |
| 084 | C | 0-2 | 5/6/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.299** | **0.351** | **0.338** | **0.277** | **0.262** | **0.183** | **0.174** | **0.358** | **0.0552 J** | **0.566** | < 0.0746 U | **0.332** | **55.1 JH** | **0.224** | **0.478** |
| 084 | C | 2-4 | 5/6/2016 | < 0.150 U | < 0.150 U | **0.176 J** | **0.749** | **0.882** | **0.776** | **0.623** | **0.704** | **0.458** | **0.448** | **0.888** | **0.203** | **1.24** | < 0.150 U | **0.591** | **92.3 JH** | **0.789** | **1.12 D** |
| 084 | C | 4-6 | 5/6/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.0983 J** | **0.138** | **0.131** | **0.108** | **0.137** | **0.0785 J** | **0.0820 J** | **0.125** | < 0.0747 U | **0.133** | < 0.0747 U | **0.111** | **36.2 JH** | **0.0604 J** | **0.127 JD** |
| 084 | C | 6-8 | 5/6/2016 | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | < 0.0691 U | **6.66 JH** | < 0.0691 U | < 0.0691 U |
| 087 | A | 0-2 | 7/24/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | **0.157** | **0.21** | **0.19** | **0.157** | **0.19** | **0.0985 J** | **0.0931 J** | **0.206** | < 0.0747 U | **0.251** | < 0.0747 U | **0.148** | **24.1** | **0.11** | **0.242** |
| 087 | A | 2-4 | 7/24/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | **0.275** | **0.422** | **0.415** | **0.322** | **0.343** | **0.201** | **0.21** | **0.343** | **0.0655 J** | **0.337** | < 0.0725 U | **0.25** | **16.5** | **0.0769 J** | **0.326** |
| 087 | A | 4-6 | 7/24/2016 | **0.135** | < 0.0744 U | < 0.0744 U | **0.0767 J** | **0.125** | **0.13** | **0.104** | **0.161** | **0.0611 J** | **0.0583 J** | **0.0943 J** | < 0.0744 U | **0.102** | < 0.0744 U | **0.0860 J** | **27.8** | < 0.0744 U | **0.0985 J** |
| 087 | A | 6-8 | 7/24/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **7.03** | < 0.0742 U | < 0.0742 U |
| 087 | B | 0-2 | 7/24/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.158** | **0.222** | **0.21** | **0.173** | **0.163** | **0.111** | **0.11** | **0.196** | < 0.0735 U | **0.246** | < 0.0735 U | **0.138** | **20.9** | **0.0888 J** | **0.232** |
| 087 | B | 2-4 | 7/24/2016 | < 0.346 U | < 0.346 U | **0.237 J** | **1.63** | **1.9** | **1.87** | **1.39** | **1.28** | **0.958** | **1** | **1.9** | **0.291 J** | **2.81** | < 0.346 U | **1.05** | **16.7** | **1.17** | **2.39** |
| 087 | B | 4-6 | 7/24/2016 | < 0.0707 U | < 0.0707 U | < 0.0707 U | < 0.0707 U | **0.0613 J** | **0.0613 J** | < 0.0707 U | **0.0626 J** | < 0.0707 U | < 0.0707 U | **0.0579 J** | < 0.0707 U | **0.0754 J** | < 0.0707 U | < 0.0707 U | **30.8** | < 0.0707 U | **0.0668 J** |
| 087 | B | 6-8 | 7/24/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | **6.92** | < 0.0741 U | < 0.0741 U |
| 087 | C | 0-2 | 7/24/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.177** | **0.21** | **0.189** | **0.159** | **0.171** | **0.0938 J** | **0.0964 J** | **0.216** | < 0.0746 U | **0.303** | < 0.0746 U | **0.129** | **15.6** | **0.109** | **0.273** |
| 087 | C | 2-4 | 7/24/2016 | < 0.0730 U | < 0.0730 U | **0.0681 J** | **0.35** | **0.414** | **0.389** | **0.315** | **0.384** | **0.189** | **0.182** | **0.42** | **0.0651 J** | **0.688** | < 0.0730 U | **0.255** | **13** | **0.372** | **0.585** |
| 087 | C | 4-6 | 7/24/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | **0.54** | **1.08** | **0.952** | **0.763** | **0.88** | **0.465** | **0.452** | **0.728** | **0.181** | **0.52** | < 0.0743 U | **0.711** | **27.9** | **0.156** | **0.546** |
| 087 | C | 6-8 | 7/24/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **6.72** | < 0.0730 U | < 0.0730 U |
| 095 | A | 0-2 | 7/25/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0858 J** | **0.119** | **0.115** | < 0.0749 U | **0.102** | **0.0569 J** | **0.0558 J** | **0.1** | < 0.0749 U | **0.104** | < 0.0749 U | **0.0826 J** | **19.2** | < 0.0749 U | **0.105** |
| 095 | A | 2-4 | 7/25/2016 | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | < 0.0719 U | **9.71** | < 0.0719 U | < 0.0719 U |
| 095 | A | 4-6 | 7/25/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **3.86** | < 0.0735 U | < 0.0735 U |
| 095 | A | 6-8 | 7/25/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **4.06** | < 0.0744 U | < 0.0744 U |
| 095 | B | 0-2 | 7/25/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **0.0537 J** | < 0.0740 U | < 0.0740 U | **39.2** | < 0.0740 U | **0.0497 J** |
| 095 | B | 2-4 | 7/25/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **212** | < 0.0746 U | < 0.0746 U |
| 095 | B | 4-6 | 7/25/2016 | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | < 0.0690 U | **5.62** | < 0.0690 U | < 0.0690 U |
| 095 | B | 6-8 | 7/25/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | **3.9** | < 0.0706 U | < 0.0706 U |
| 095 | C | 0-2 | 7/25/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **97.8** | < 0.0732 U | < 0.0732 U |
| 095 | C | 2-4 | 7/25/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **15.1** | < 0.0742 U | < 0.0742 U |
| 095 | C | 4-6 | 7/25/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **4.43** | < 0.0749 U | < 0.0749 U |
| 095 | C | 6-8 | 7/25/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | **3.99** | < 0.0739 U | < 0.0739 U |
| 100 | A | 0-2 | 11/2/2016 | < 0.0723 U | < 0.0723 U | **0.0666 J** | **0.237** | **0.254** | **0.228** | **0.191** | **0.185** | **0.109** | **0.11** | **0.277** | < 0.0723 U | **0.508** | < 0.0723 U | **0.161** | **11.3** | **0.295** | **0.411** |
| 100 | A | 2-4 | 11/2/2016 | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | < 0.0689 U | **5.28** | < 0.0689 U | < 0.0689 U |
| 100 | A | 4-6 | 11/2/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **6.31** | < 0.0735 U | < 0.0735 U |
| 100 | A | 6-8 | 11/2/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | **8.26** | < 0.0739 U | < 0.0739 U |
| 100 | B | 0-2 | 11/2/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | **0.0605 J** | **0.0710 J** | **0.0785 J** | **0.0572 J** | **0.0603 J** | < 0.0723 U | < 0.0723 U | **0.0666 J** | < 0.0723 U | **0.0983** | < 0.0723 U | **0.0585 J** | **12.9** | **0.0541 J** | **0.0862 J** |
| 100 | B | 2-4 | 11/2/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | **5.22** | < 0.0727 U | < 0.0727 U |
| 100 | B | 4-6 | 11/2/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | **9.68** | < 0.0718 U | < 0.0718 U |
| 100 | B | 6-8 | 11/2/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **11.2** | < 0.0736 U | < 0.0736 U |
| 100 | C | 0-2 | 11/2/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | **0.0824 J** | **0.101** | **0.106** | **0.0756 J** | **0.0741 J** | < 0.0718 U | < 0.0718 U | **0.0953 J** | < 0.0718 U | **0.131** | < 0.0718 U | **0.0732 J** | **14.6** | **0.0548 J** | **0.116** |
| 100 | C | 2-4 | 11/2/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **6.04** | < 0.0746 U | < 0.0746 U |
| 100 | C | 4-6 | 11/2/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | < 0.0712 U | **5.19** | < 0.0712 U | < 0.0712 U |
| 100 | C | 6-8 | 11/2/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | **5.81** | < 0.0732 U | < 0.0732 U |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | | Analyte | Acenaphthene | Acenaphthylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthene | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthene | Benzo(k) fluoranthene | Chrysene | Dibenzo(a,h) anthracene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phenanthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 103 | A | 0-2 | 11/1/2016 | < 0.0709 U | < 0.0709 U | < 0.0709 U | 0.149 | 0.159 | 0.162 | 0.106 | 0.122 | 0.0617 J | 0.0820 J | 0.138 | < 0.0709 U | 0.23 | < 0.0709 U | 0.134 | 120 | 0.0957 | 0.19 |
| 103 | A | 2-4 | 11/1/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 9.84 | < 0.0746 U | < 0.0746 U |
| 103 | A | 4-6 | 11/1/2016 | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | < 0.0704 U | 10.6 | < 0.0704 U | < 0.0704 U |
| 103 | A | 6-8 | 11/1/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | 11.2 | < 0.0716 U | < 0.0716 U |
| 103 | B | 0-2 | 11/1/2016 | < 0.0726 U | < 0.0726 U | < 0.0726 U | 0.0872 J | 0.107 | 0.11 | 0.0643 J | 0.0795 J | < 0.0726 U | 0.0598 J | 0.0833 J | < 0.0726 U | 0.122 | < 0.0726 U | 0.0928 J | 53.3 | < 0.0726 U | 0.109 |
| 103 | B | 2-4 | 11/1/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | 0.0644 J | 0.0697 J | 0.0753 J | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | 0.0531 J | < 0.0720 U | 0.0775 J | < 0.0720 U | 0.0577 J | 25.7 | < 0.0720 U | 0.0674 J |
| 103 | B | 4-6 | 11/1/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | 0.253 | 0.348 | 0.348 | 0.237 | 0.246 | 0.141 | 0.188 | 0.292 | 0.0548 J | 0.348 | < 0.0728 U | 0.261 | 10.5 | 0.0671 J | 0.334 |
| 103 | B | 6-8 | 11/1/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | 0.0521 J | 0.0616 J | 0.0642 J | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | 0.0530 J | < 0.0739 U | 0.0588 J | 11.9 | < 0.0739 U | 0.0511 J |
| 103 | C | 0-2 | 11/1/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | 0.171 | 0.211 | 0.216 | 0.167 | 0.172 | 0.101 | 0.103 | 0.199 | < 0.0737 U | 0.276 | < 0.0737 U | 0.168 | 31.1 | 0.108 | 0.243 |
| 103 | C | 2-4 | 11/1/2016 | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | 9.38 | < 0.0721 U | < 0.0721 U |
| 103 | C | 4-6 | 11/1/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 8.08 | < 0.0737 U | < 0.0737 U |
| 103 | C | 6-8 | 11/1/2016 | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | < 0.0711 U | 0.0477 J | < 0.0711 U | < 0.0711 U | 13.2 | < 0.0711 U | < 0.0711 U |
| 105 | A | 0-2 | 7/28/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.239 | 0.321 | 0.299 | 0.25 | 0.263 | 0.152 | 0.152 | 0.305 | < 0.0742 U | 0.393 | < 0.0742 U | 0.204 | 41.5 | 0.132 | 0.353 |
| 105 | A | 2-4 | 7/28/2016 | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | < 0.0724 U | 21.1 | < 0.0724 U | < 0.0724 U |
| 105 | A | 4-6 | 7/28/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 6.31 | < 0.0743 U | < 0.0743 U |
| 105 | A | 6-8 | 7/28/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 6.54 | < 0.0730 U | < 0.0730 U |
| 105 | B | 0-2 | 7/28/2016 | < 0.0737 U | < 0.0737 U | 0.0566 J | 0.727 | 1.05 | 0.941 | 0.768 | 0.836 | 0.474 | 0.454 | 0.913 | 0.158 | 1.04 | < 0.0737 U | 0.667 | 73.6 | 0.325 | 0.961 |
| 105 | B | 2-4 | 7/28/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | 8.85 | < 0.0742 U | < 0.0742 U |
| 105 | B | 4-6 | 7/28/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | 6.54 | < 0.0710 U | < 0.0710 U |
| 105 | B | 6-8 | 7/28/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | 6.29 | < 0.0729 U | < 0.0729 U |
| 105 | C | 0-2 | 7/28/2016 | < 0.0743 U | < 0.0743 U | 0.0913 J | 0.782 | 0.954 | 0.887 | 0.714 | 0.729 | 0.439 | 0.426 | 0.937 | 0.136 | 1.41 | < 0.0743 U | 0.581 | 64.9 | 0.625 | 1.22 |
| 105 | C | 2-4 | 7/28/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | 13.5 | < 0.0728 U | < 0.0728 U |
| 105 | C | 4-6 | 7/28/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 6.49 | < 0.0749 U | < 0.0749 U |
| 105 | C | 6-8 | 7/28/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 5.34 | < 0.0732 U | < 0.0732 U |
| 110 | A | 0-2 | 7/19/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 0.0501 J | < 0.0748 U | 0.0627 J | 0.0512 J | < 0.0748 U | < 0.0748 U | 0.0716 J | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 18 | < 0.0748 U | < 0.0748 U |
| 110 | A | 2-4 | 7/19/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | 6.99 | < 0.0735 U | < 0.0735 U |
| 110 | A | 4-6 | 7/19/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 7.46 | < 0.0744 U | < 0.0744 U |
| 110 | A | 6-8 | 7/19/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 9.74 | < 0.0746 U | < 0.0746 U |
| 110 | B | 0-2 | 7/19/2016 | < 0.0726 U | < 0.0726 U | 0.0602 J | 0.123 | 0.152 | 0.178 | 0.0769 J | 0.156 | 0.0500 J | 0.107 | 0.144 | 0.0814 J | 0.117 | < 0.0726 U | 0.147 | 25.8 | < 0.0726 U | 0.112 |
| 110 | B | 2-4 | 7/19/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | 7.7 | < 0.0735 U | < 0.0735 U |
| 110 | B | 4-6 | 7/19/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 8.37 | < 0.0741 U | < 0.0741 U |
| 110 | B | 6-8 | 7/19/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 10.3 | < 0.0749 U | < 0.0749 U |
| 110 | C | 0-2 | 7/19/2016 | < 0.0746 U | < 0.0746 U | 0.0643 J | 0.0981 J | 0.103 | 0.131 | < 0.0746 U | 0.107 | < 0.0746 U | 0.0853 J | 0.103 | 0.0734 J | 0.0915 J | < 0.0746 U | 0.105 | 24.4 | 0.0552 J | 0.0836 J |
| 110 | C | 2-4 | 7/19/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | 7.07 | < 0.0700 U | < 0.0700 U |
| 110 | C | 4-6 | 7/19/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 8.88 | < 0.0730 U | < 0.0730 U |
| 110 | C | 6-8 | 7/19/2016 | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | < 0.0717 U | 8.33 | < 0.0717 U | < 0.0717 U |
| 115 | A | 0-2 | 7/23/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 0.0524 J | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 0.0687 J | < 0.0740 U | < 0.0740 U | 10.3 JH | < 0.0740 U | 0.0620 J |
| 115 | A | 2-4 | 7/23/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 5.58 JH | < 0.0727 U | < 0.0727 U |
| 115 | A | 4-6 | 7/23/2016 | < 0.0725 U | < 0.0725 U | < 0.0725 U | 0.0495 J | 0.0541 J | 0.0584 J | 0.0504 J | 0.0547 J | < 0.0725 U | < 0.0725 U | 0.0571 J | < 0.0725 U | 0.0553 J | < 0.0725 U | < 0.0725 U | 9.39 JH | 0.0526 J | 0.0888 J |
| 115 | A | 6-8 | 7/23/2016 | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | < 0.0716 U | 5.96 JH | < 0.0716 U | < 0.0716 U |
| 115 | B | 0-2 | 7/23/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | 0.0801 J | 0.107 | 0.108 | 0.0907 J | 0.0983 J | 0.0540 J | 0.0565 J | 0.104 | < 0.0745 U | 0.148 | < 0.0745 U | 0.0783 J | 153 JH | 0.0687 J | 0.132 |
| 115 | B | 2-4 | 7/23/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | 5.37 JH | < 0.0731 U | < 0.0731 U |
| 115 | B | 4-6 | 7/23/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 8.45 JH | < 0.0747 U | < 0.0747 U |
| 115 | C | 0-2 | 7/23/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | 0.224 | 0.276 | 0.234 | 0.196 | 0.22 | 0.143 | 0.136 | 0.322 | 0.0511 J | 0.392 | < 0.0735 U | 0.181 | 26.8 JH | 0.2 | 0.404 |
| 115 | C | 2-4 | 7/23/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 8.40 JH | < 0.0748 U | < 0.0748 U |
| 115 | C | 4-6 | 7/23/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 6.49 JH | < 0.0737 U | < 0.0737 U |
| 118 | A | 0-2 | 7/21/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | 0.122 | 0.13 | 0.139 | 0.0797 J | 0.129 | 0.0511 J | 0.0786 J | 0.14 | 0.0532 J | 0.195 | < 0.0749 U | 0.113 | 16.1 | 0.112 | 0.161 |
| 118 | A | 2-4 | 7/21/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 6.73 | < 0.0740 U | < 0.0740 U |
| 118 | A | 4-6 | 7/21/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 7.04 | < 0.0737 U | < 0.0737 U |

Table 4-4
Soil Analytical Results - Soil Boring Samples
Remedial Investigation
Former Laredo Air Force Base Shotgun Range

| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CAS | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| | | | Units | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| | | | TRRP Tier 1 PCL | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| 118 | A | 6-8 | 7/21/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 8.05 | < 0.0748 U | < 0.0748 U |
| 118 | B | 0-2 | 7/21/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | 0.0506 J | 0.0599 J | 0.0729 J | < 0.0748 U | 0.0709 J | < 0.0748 U | < 0.0748 U | 0.0597 J | < 0.0748 U | 0.0501 J | < 0.0748 U | 0.0616 J | 47.6 | < 0.0748 U | < 0.0748 U |
| 118 | B | 2-4 | 7/21/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 6.5 | < 0.0743 U | < 0.0743 U |
| 118 | B | 4-6 | 7/21/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 5.51 | < 0.0749 U | < 0.0749 U |
| 118 | B | 6-8 | 7/21/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 6.13 | < 0.0748 U | < 0.0748 U |
| 118 | C | 0-2 | 7/21/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | 0.0934 J | 0.105 | 0.0981 J | 0.0780 J | 0.0784 J | 0.0525 JN | 0.0504 J | 0.11 | < 0.0741 U | 0.21 | < 0.0741 U | 0.0680 J | 12.1 | 0.117 | 0.173 |
| 118 | C | 2-4 | 7/21/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 7.75 | < 0.0746 U | < 0.0746 U |
| 118 | C | 4-6 | 7/21/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | 5.52 | < 0.0745 U | < 0.0745 U |
| 118 | C | 6-8 | 7/21/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | < 0.0694 U | 6.62 | < 0.0694 U | < 0.0694 U |
| 125 | A | 0-2 | 7/23/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.162 | 0.208 | 0.203 | 0.168 | 0.207 | 0.103 | 0.102 | 0.198 | < 0.0746 U | 0.283 | < 0.0746 U | 0.15 | 19.1 | 0.127 | 0.248 |
| 125 | A | 2-4 | 7/23/2016 | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | < 0.0688 U | 6.69 | < 0.0688 U | < 0.0688 U |
| 125 | A | 4-6 | 7/23/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | 7.91 | < 0.0740 U | < 0.0740 U |
| 125 | A | 6-8 | 7/23/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | 8.66 JH | < 0.0730 U | < 0.0730 U |
| 125 | B | 0-2 | 7/23/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0912 J | 0.132 | 0.127 | 0.116 | 0.142 | 0.0637 J | 0.0636 J | 0.117 | < 0.0746 U | 0.155 | < 0.0746 U | 0.0987 J | 20.4 JH | 0.0617 J | 0.142 |
| 125 | B | 2-4 | 7/23/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 8.49 JH | < 0.0737 U | < 0.0737 U |
| 125 | B | 4-6 | 7/23/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 6.53 JH | < 0.0727 U | < 0.0727 U |
| 125 | B | 6-8 | 7/23/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 8.04 JH | < 0.0743 U | < 0.0743 U |
| 125 | C | 0-2 | 7/23/2016 | < 0.0722 U | < 0.0722 U | < 0.0722 U | 0.111 | 0.144 | 0.134 | 0.11 | 0.123 | 0.0702 J | 0.0719 J | 0.14 | < 0.0722 U | 0.209 | < 0.0722 U | 0.0992 | 17.7 JH | 0.0967 | 0.189 |
| 125 | C | 2-4 | 7/23/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 8.31 JH | < 0.0746 U | < 0.0746 U |
| 125 | C | 4-6 | 7/23/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | 6.00 JH | < 0.0735 U | < 0.0735 U |
| 125 | C | 6-8 | 7/23/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | 6.78 JH | < 0.0706 U | < 0.0706 U |
| 129 | A | 0-2 | 7/26/2016 | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | 0.143 JL | 0.164 JL | 0.164 JL | 0.124 JL | 0.150 JL | 0.0839 JL | 0.0850 JL | 0.175 JL | < 0.0744 UJL | 0.292 JL | < 0.0744 UJL | 0.128 JL | 22.9 | 0.147 JL | 0.244 JL |
| 129 | A | 2-4 | 7/26/2016 | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | < 0.0701 UJL | 8.59 | < 0.0701 UJL | < 0.0701 UJL |
| 129 | A | 4-6 | 7/26/2016 | < 0.0739 UJL | < 0.0739 UJL | < 0.0739 UJL | 0.0515 JL | < 0.0739 UJL | 0.0496 JL | < 0.0739 UJL | < 0.0739 UJL | < 0.0739 UJL | < 0.0739 UJL | 0.0575 JL | < 0.0739 UJL | 0.110 JL | < 0.0739 UJL | < 0.0739 UJL | 11.5 | 0.0691 JL | 0.0886 JL |
| 129 | A | 6-8 | 7/26/2016 | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | < 0.0744 UJL | 8.11 | < 0.0744 UJL | < 0.0744 UJL |
| 129 | B | 0-2 | 7/26/2016 | < 0.0746 UJL | < 0.0746 UJL | < 0.0746 UJL | 0.112 JL | 0.133 JL | 0.128 JL | 0.0994 JL | 0.119 JL | 0.0677 JL | 0.0693 JL | 0.142 JL | < 0.0746 UJL | 0.213 JL | < 0.0746 UJL | 0.102 JL | 25.8 | 0.102 JL | 0.185 JL |
| 129 | B | 2-4 | 7/26/2016 | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | 9.44 | < 0.0740 UJL | < 0.0740 UJL |
| 129 | B | 4-6 | 7/26/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 6.55 | < 0.0744 U | < 0.0744 U |
| 129 | B | 6-8 | 7/26/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | 6.45 | < 0.0729 U | < 0.0729 U |
| 129 | C | 0-2 | 7/26/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0530 J | 0.0507 J | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.0617 J | < 0.0746 U | < 0.0746 U | 18.9 | < 0.0746 U | 0.0584 J |
| 129 | C | 2-4 | 7/26/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 8.09 | < 0.0744 U | < 0.0744 U |
| 129 | C | 4-6 | 7/26/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 15.1 | < 0.0743 U | < 0.0743 U |
| 129 | C | 6-8 | 7/26/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 7.35 | < 0.0737 U | < 0.0737 U |
| 132 | A | 0-2 | 11/3/2016 | 0.105 | < 0.0697 U | 0.309 | 2.51 JL | 3.15 JL | 2.99 JL | 2.37 JL | 2.36 JL | 1.44 JL | 1.40 JL | 3.29 JL | 0.337 | 4.04 JL | 0.0595 J | 2.25 JL | 97.6 JH | 1.51 JL | 3.53 JL |
| 132 | A | 2-4 | 11/3/2016 | 0.131 | < 0.0690 U | 0.791 | 3.87 | 4.24 | 4.19 | 3.13 | 2.98 | 1.99 | 1.86 | 4.77 | 0.49 | 6.56 | 0.133 | 2.96 | 122 JH | 3.54 | 5.32 |
| 132 | A | 4-6 | 11/3/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | 0.0579 J | 0.0602 J | 0.0592 J | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | 0.0634 J | < 0.0743 U | 0.0975 J | < 0.0743 U | 0.0552 J | 9.23 JH | 0.0584 J | 0.0819 J |
| 132 | A | 6-8 | 11/3/2016 | < 0.0699 U | < 0.0699 U | < 0.0699 U | 0.0582 J | 0.0628 J | 0.0658 J | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | 0.0663 J | < 0.0699 U | 0.0981 | < 0.0699 U | 0.0475 J | 7.40 JH | 0.0532 J | 0.0844 J |
| 132 | B | 0-2 | 11/3/2016 | 0.0576 J | < 0.0716 U | 0.243 | 1.35 | 1.59 | 1.6 | 1.2 | 1.15 | 0.742 | 0.692 | 1.8 | 0.171 | 2.54 | < 0.0716 U | 1.13 | 73.8 JH | 1.21 | 2.14 |
| 132 | B | 2-4 | 11/3/2016 | < 0.0747 U | < 0.0747 U | 0.0984 J | 0.744 | 0.836 | 0.774 | 0.615 | 0.596 | 0.387 | 0.429 | 1.03 | 0.0920 J | 1.25 | < 0.0747 U | 0.58 | 63.0 JH | 0.451 | 1.05 |
| 132 | B | 4-6 | 11/3/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | 0.122 | 0.146 | 0.132 | 0.105 | 0.105 | 0.0637 J | 0.0655 J | 0.135 | < 0.0712 U | 0.183 | < 0.0712 U | 0.107 | 7.87 JH | 0.0573 J | 0.162 |
| 132 | B | 6-8 | 11/3/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | 0.143 | 0.179 | 0.167 | 0.129 | 0.134 | 0.0779 J | 0.0970 J | 0.175 | < 0.0745 U | 0.209 | < 0.0745 U | 0.129 | 8.61 JH | 0.0624 J | 0.188 |
| 132 | C | 0-2 | 11/3/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | 0.342 | 0.449 | 0.417 | 0.354 | 0.351 | 0.201 | 0.461 | 0.436 | 0.0494 J | 0.526 | < 0.0728 U | 0.33 | 49.7 JH | 0.172 | 0.486 |
| 132 | C | 2-4 | 11/3/2016 | < 0.0702 U | < 0.0702 U | < 0.0702 U | 0.178 | 0.169 | 0.147 | 0.124 | 0.115 | 0.0806 J | 0.0965 | 0.172 | < 0.0702 U | 0.333 | < 0.0702 U | 0.112 | 14.1 JH | 0.207 | 0.288 |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Analyte / CAS / Units / TRRP Tier 1 PCL | | | | Acenaphthene 83-32-9 mg/kg 3000 | Acenaphthylene 208-96-8 mg/kg 3800 | Anthracene 120-12-7 mg/kg 18000 | Benz(a)anthracene 56-55-3 mg/kg 41 | Benzo(a)pyrene 50-32-8 mg/kg 4.1 | Benzo(b)fluoranthen 205-99-2 mg/kg 41 | Benzo(e)pyrene 192-97-2 mg/kg 1800 | Benzo(g,h,i)perylene 191-24-2 mg/kg 1800 | Benzo(j)fluoranthen 205-82-3 mg/kg 39 | Benzo(k)fluoranthen 207-08-9 mg/kg 420 | Chrysene 218-01-9 mg/kg 4100 | Dibenzo(a,h)anthracene 53-70-3 mg/kg 4 | Fluoranthene 206-44-0 mg/kg 2300 | Fluorene 86-73-7 mg/kg 2300 | Indeno(1,2,3-cd)pyrene 193-39-5 mg/kg 42 | Lead 7439-92-1 mg/kg 500 | Phenanthrene 85-01-8 mg/kg 1700 | Pyrene 129-00-0 mg/kg 1700 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 132 | C | 4-6 | 11/3/2016 | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | < 0.0698 U | 8.77 JH | < 0.0698 U | < 0.0698 U |
| 132 | C | 6-8 | 11/3/2016 | < 0.0694 U | < 0.0694 U | < 0.0694 U | 0.191 | 0.218 | 0.203 | 0.163 | 0.159 | 0.1 | 0.0929 | 0.229 | < 0.0694 U | 0.3 | < 0.0694 U | 0.155 | 7.61 JH | 0.0852 J | 0.266 |
| 133 | A | 0-2 | 11/2/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | 0.127 | 0.147 | 0.133 | 0.107 | 0.107 | 0.0671 J | 0.0808 J | 0.145 | < 0.0720 U | 0.231 | < 0.0720 U | 0.106 | 20.9 | 0.123 | 0.204 |
| 133 | A | 2-4 | 11/2/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | 0.154 | 0.15 | 0.125 | 0.103 | 0.0953 J | 0.0675 J | 0.0770 J | 0.15 | < 0.0728 U | 0.291 | < 0.0728 U | 0.0955 J | 9.19 | 0.189 | 0.25 |
| 133 | A | 4-6 | 11/2/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | 5.51 | < 0.0714 U | < 0.0714 U |
| 133 | A | 6-8 | 11/2/2016 | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | < 0.0732 U | 5.88 | < 0.0732 U | < 0.0732 U |
| 133 | B | 0-2 | 11/2/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | 0.0547 J | 0.0653 J | 0.0628 J | < 0.0734 U | 0.0502 J | < 0.0734 U | < 0.0734 U | 0.0611 J | < 0.0734 U | 0.0880 J | < 0.0734 U | 0.0513 J | 17.1 | < 0.0734 U | 0.0792 J |
| 133 | B | 2-4 | 11/2/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | 0.0539 J | 0.0637 J | 0.0574 J | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 0.0606 J | < 0.0741 U | 0.0702 J | < 0.0741 U | < 0.0741 U | 11.4 | < 0.0741 U | 0.0656 J |
| 133 | B | 4-6 | 11/2/2016 | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | < 0.0687 U | 6.27 | < 0.0687 U | < 0.0687 U |
| 133 | B | 6-8 | 11/2/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | 5.24 | < 0.0737 U | < 0.0737 U |
| 133 | C | 0-2 | 11/2/2016 | < 0.0721 U | < 0.0721 U | < 0.0721 U | 0.0487 J | 0.0589 J | 0.0627 J | < 0.0721 U | < 0.0721 U | < 0.0721 U | < 0.0721 U | 0.0554 J | < 0.0721 U | 0.0682 J | < 0.0721 U | 0.0503 J | 16 | < 0.0721 U | 0.0637 J |
| 133 | C | 2-4 | 11/2/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | 9.2 | < 0.0744 U | < 0.0744 U |
| 133 | C | 4-6 | 11/2/2016 | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | < 0.0706 U | 5.24 | < 0.0706 U | < 0.0706 U |
| 133 | C | 6-8 | 11/2/2016 | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | < 0.0718 U | 5.47 | < 0.0718 U | < 0.0718 U |
| 134 | A | 0-2 | 7/22/2016 | < 0.0744 U | < 0.0744 U | 0.116 | 0.895 | 1.05 | 1.02 | 0.793 | 0.852 | 0.515 | 0.503 | 1.08 | 0.179 | 1.24 | < 0.0744 U | 0.699 | 594 JH | 0.667 | 1.02 |
| 134 | A | 2-4 | 7/22/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 15.2 JH | < 0.0747 U | < 0.0747 U |
| 134 | A | 4-6 | 7/22/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 8.94 JH | < 0.0749 U | < 0.0749 U |
| 134 | A | 6-8 | 7/22/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | 8.53 JH | < 0.0748 U | < 0.0748 U |
| 134 | B | 0-2 | 7/22/2016 | 0.109 | < 0.0746 U | 0.425 | 2.79 | 3.4 | 3.18 | 2.42 | 2.63 | 1.59 | 1.6 | 3.33 | 0.552 | 4.03 | 0.0636 J | 2.17 | 279 JH | 2.28 | 3.3 |
| 134 | B | 2-4 | 7/22/2016 | 0.0571 J | < 0.0736 U | 0.0763 J | 1.02 | 1.62 | 1.43 | 1.13 | 1.35 | 0.676 | 0.657 | 1.33 | 0.211 | 1.28 | < 0.0736 U | 1.07 | 9.71 JH | 0.44 | 1.16 |
| 134 | B | 4-6 | 7/22/2016 | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | 0.0463 J | < 0.0693 U | < 0.0693 U | < 0.0693 U | < 0.0693 U | 0.0482 J | < 0.0693 U | 0.0633 J | < 0.0693 U | < 0.0693 U | 8.89 JH | < 0.0693 U | 0.0556 J |
| 134 | B | 6-8 | 7/22/2016 | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | < 0.0731 U | 8.70 JH | < 0.0731 U | < 0.0731 U |
| 134 | C | 0-2 | 7/22/2016 | < 0.0749 U | < 0.0749 U | 0.145 | 0.819 | 0.936 | 0.917 | 0.699 | 0.711 | 0.457 | 0.449 | 0.972 | 0.144 | 1.62 | < 0.0749 U | 0.587 | 82.8 JH | 0.788 | 1.36 |
| 134 | C | 2-4 | 7/22/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 7.85 JH | < 0.0749 U | < 0.0749 U |
| 134 | C | 4-6 | 7/22/2016 | < 0.0696 U | < 0.0696 U | < 0.0696 U | < 0.0696 U | 0.0532 J | 0.0541 J | < 0.0696 U | 0.0496 J | < 0.0696 U | < 0.0696 U | 0.0516 J | < 0.0696 U | 0.0564 J | < 0.0696 U | < 0.0696 U | 11.5 JH | < 0.0696 U | 0.0517 J |
| 134 | C | 6-8 | 7/22/2016 | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | < 0.0720 U | 4.58 JH | < 0.0720 U | < 0.0720 U |
| 140 | A | 0-2 | 7/22/2016 | 0.177 | < 0.0747 U | 1.24 | 6.03 | 6.28 | 6.07 | 4.34 | 4.18 | 3.22 | 3.14 | 6.78 | 1.01 | 11.7 | 0.144 | 3.64 | 69.2 JH | 6.49 | 9.4 |
| 140 | A | 2-4 | 7/22/2016 | 0.0738 J | < 0.0746 U | 0.286 | 1.16 | 1.21 | 1.19 | 0.874 | 0.823 | 0.58 | 0.576 | 1.36 | 0.164 | 2.61 | 0.0745 J | 0.685 | 10.8 JH | 1.67 | 2.03 |
| 140 | A | 4-6 | 7/22/2016 | < 0.0711 U | < 0.0711 U | < 0.0711 U | 0.125 | 0.16 | 0.154 | 0.119 | 0.132 | 0.0693 J | 0.0741 J | 0.151 | < 0.0711 U | 0.225 | < 0.0711 U | 0.106 | 14.3 JH | 0.098 | 0.191 |
| 140 | A | 6-8 | 7/22/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 10.5 JH | < 0.0727 U | < 0.0727 U |
| 140 | B | 0-2 | 7/22/2016 | 0.142 | < 0.0730 U | 0.28 | 2.98 | 4.12 | 3.82 | 2.86 | 3.02 | 1.89 | 1.93 | 3.72 | 0.63 | 4.89 | < 0.0730 U | 2.51 | 60.4 JH | 1.65 | 4.4 |
| 140 | B | 2-4 | 7/22/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.216 | 0.306 | 0.283 | 0.222 | 0.25 | 0.134 | 0.139 | 0.271 | < 0.0746 U | 0.318 | < 0.0746 U | 0.2 | 10.1 JH | 0.0965 J | 0.294 |
| 140 | B | 4-6 | 7/22/2016 | 0.0958 | < 0.0712 U | 0.0674 J | 1.55 | 2.47 | 2.16 | 1.67 | 1.83 | 1.05 | 1.09 | 2.02 | 0.38 | 2.22 | < 0.0712 U | 1.5 | 15.7 JH | 0.384 | 2.17 |
| 140 | B | 6-8 | 7/22/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | 0.0744 J | 0.101 | 0.0885 J | 0.0775 J | 0.0876 J | < 0.0730 U | < 0.0730 U | 0.0901 J | < 0.0730 U | 0.115 | < 0.0730 U | 0.0652 J | 10.4 JH | < 0.0730 U | 0.107 |
| 140 | C | 0-2 | 7/22/2016 | 0.119 | < 0.0735 U | 0.308 | 3.21 | 4.48 | 4.29 | 3.21 | 3.39 | 2.06 | 2.09 | 4.11 | 0.701 | 5.3 | < 0.0735 U | 2.83 | 77.1 JH | 1.86 | 4.72 |
| 140 | C | 2-4 | 7/22/2016 | < 0.0693 U | < 0.0693 U | 0.0494 J | 0.195 | 0.195 | 0.177 | 0.137 | 0.136 | 0.0939 | 0.0976 | 0.227 | < 0.0693 U | 0.411 | < 0.0693 U | 0.116 | 8.83 JH | 0.237 | 0.328 |
| 140 | C | 4-6 | 7/22/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | 0.426 | 0.662 | 0.609 | 0.465 | 0.53 | 0.292 | 0.287 | 0.554 | 0.0908 J | 0.651 | < 0.0742 U | 0.428 | 10.1 JH | 0.23 | 0.587 |
| 140 | C | 6-8 | 7/22/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | 8.48 JH | < 0.0747 U | < 0.0747 U |
| 143 | A | 0-2 | 7/25/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | 0.131 | 0.266 | 0.23 | 0.197 | 0.232 | 0.103 | 0.103 | 0.184 | < 0.0748 U | 0.124 | < 0.0748 U | 0.17 | 66.5 | < 0.0748 U | 0.133 |
| 143 | A | 2-4 | 7/25/2016 | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | < 0.0700 U | 6.8 | < 0.0700 U | < 0.0700 U |
| 143 | A | 4-6 | 7/25/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | 7.59 | < 0.0735 U | < 0.0735 U |
| 143 | A | 6-8 | 7/25/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | 9.44 | < 0.0727 U | < 0.0727 U |
| 143 | B | 0-2 | 7/25/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | 0.295 | 0.508 | 0.495 | 0.39 | 0.38 | 0.238 | 0.246 | 0.406 | 0.0972 J | 0.32 | < 0.0746 U | 0.359 | 60.6 | 0.0834 J | 0.327 |
| 143 | B | 2-4 | 7/25/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | 11.5 | < 0.0749 U | < 0.0749 U |
| 143 | B | 4-6 | 7/25/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | 6.03 | < 0.0738 U | < 0.0738 U |
| 143 | B | 6-8 | 7/25/2016 | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | < 0.0741 U | 9.87 | < 0.0741 U | < 0.0741 U |
| 143 | C | 0-2 | 7/25/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | 0.178 | 0.223 | 0.197 | 0.17 | 0.172 | 0.111 | 0.117 | 0.227 | < 0.0734 U | 0.273 | < 0.0734 U | 0.151 | 115 | 0.0918 J | 0.263 |
| 143 | C | 2-4 | 7/25/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | 0.0987 | 0.113 | 0.111 | 0.0892 J | 0.0830 J | 0.0591 J | 0.0598 J | 0.121 | < 0.0727 U | 0.159 | < 0.0727 U | 0.0742 J | 55.2 | < 0.0727 U | 0.151 |
| 143 | C | 4-6 | 7/25/2016 | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | < 0.0723 U | 5.35 | < 0.0723 U | < 0.0723 U |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Analyte | | | | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAS | | | | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| Units | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| TRRP Tier 1 PCL | | | | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 143 | C | 6-8 | 7/25/2016 | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | < 0.0686 U | **12.1** | < 0.0686 U | < 0.0686 U |
| 150 | A | 0-2 | 7/24/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **20.2 JH** | < 0.0737 U | < 0.0737 U |
| 150 | A | 2-4 | 7/24/2016 | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | < 0.0708 U | **7.08** | < 0.0708 U | < 0.0708 U |
| 150 | A | 4-6 | 7/24/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | **6.93** | < 0.0727 U | < 0.0727 U |
| 150 | A | 6-8 | 7/24/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **6.57** | < 0.0746 U | < 0.0746 U |
| 150 | B | 0-2 | 7/24/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **19.8** | < 0.0746 U | < 0.0746 U |
| 150 | B | 2-4 | 7/24/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | **6.95** | < 0.0714 U | < 0.0714 U |
| 150 | B | 4-6 | 7/24/2016 | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | < 0.0742 U | **6.45** | < 0.0742 U | < 0.0742 U |
| 150 | B | 6-8 | 7/24/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | **6.64** | < 0.0738 U | < 0.0738 U |
| 150 | C | 0-2 | 7/24/2016 | **0.131** | < 0.0750 U | < 0.0750 U | **0.0908 J** | **0.117** | **0.113** | **0.0928 J** | **0.112** | **0.0586 J** | **0.0595 J** | **0.113** | < 0.0750 U | **0.143** | < 0.0750 U | **0.0897 J** | **33.4** | < 0.0750 U | **0.133** |
| 150 | C | 2-4 | 7/24/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **8.1** | < 0.0735 U | < 0.0735 U |
| 150 | C | 4-6 | 7/24/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **6.9** | < 0.0743 U | < 0.0743 U |
| 150 | C | 6-8 | 7/24/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | **5.78** | < 0.0734 U | < 0.0734 U |
| 156 | A | 0-2 | 7/27/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.0962 J** | **0.141** | **0.138** | **0.111** | **0.133** | **0.0709 J** | **0.0714 J** | **0.129** | < 0.0739 U | **0.142** | < 0.0739 U | **0.107** | **40.8 JH** | < 0.0739 U | **0.138** |
| 156 | A | 2-4 | 7/27/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **9.73 JH** | < 0.0737 U | < 0.0737 U |
| 156 | A | 4-6 | 7/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **11.2 JH** | < 0.0730 U | < 0.0730 U |
| 156 | A | 6-8 | 7/27/2016 | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | < 0.0714 U | **5.11 JH** | < 0.0714 U | < 0.0714 U |
| 156 | B | 0-2 | 7/27/2016 | < 0.0708 U | < 0.0708 U | < 0.0708 U | **0.0512 J** | **0.0693 J** | **0.0692 J** | **0.0567 J** | **0.0619 J** | < 0.0708 U | < 0.0708 U | **0.0616 J** | < 0.0708 U | **0.0822 J** | < 0.0708 U | **0.0549 J** | **27.6 JH** | < 0.0708 U | **0.0734 J** |
| 156 | B | 2-4 | 7/27/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **9.06 JH** | < 0.0746 U | < 0.0746 U |
| 156 | B | 4-6 | 7/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **7.06 JH** | < 0.0730 U | < 0.0730 U |
| 156 | B | 6-8 | 7/27/2016 | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | < 0.0715 U | **5.37 JH** | < 0.0715 U | < 0.0715 U |
| 156 | C | 0-2 | 7/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.123** | **0.164** | **0.157** | **0.127** | **0.144** | **0.0802 J** | **0.0768 J** | **0.146** | < 0.0730 U | **0.212** | < 0.0730 U | **0.122** | **30.6 JH** | **0.1** | **0.182** |
| 156 | C | 2-4 | 7/27/2016 | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | < 0.0729 U | **8.23 JH** | < 0.0729 U | < 0.0729 U |
| 156 | C | 4-6 | 7/27/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **7.25 JH** | < 0.0737 U | < 0.0737 U |
| 156 | C | 6-8 | 7/27/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **5.14 JH** | < 0.0749 U | < 0.0749 U |
| 172 | A | 0-2 | 11/1/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0555 J** | **0.0651 J** | **0.0670 J** | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **0.0645 J** | < 0.0749 U | **0.0575 J** | **10.9** | < 0.0749 U | **0.0576 J** |
| 172 | A | 2-4 | 11/1/2016 | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0533 J** | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | < 0.0737 U | **0.0494 J** | < 0.0737 U | < 0.0737 U | **5.92** | < 0.0737 U | < 0.0737 U |
| 172 | A | 4-6 | 11/1/2016 | < 0.0707 U | < 0.0707 U | < 0.0707 U | **0.0798 J** | **0.0928 J** | **0.103** | **0.0527 J** | **0.0664 J** | < 0.0707 U | **0.0507 J** | **0.0792 J** | < 0.0707 U | **0.0961** | < 0.0707 U | **0.0762 J** | **7.79** | < 0.0707 U | **0.0832 J** |
| 172 | A | 6-8 | 11/1/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **6.58** | < 0.0744 U | < 0.0744 U |
| 172 | B | 0-2 | 11/1/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | **0.0600 J** | **0.0694 J** | **0.0705 J** | < 0.0734 U | **0.0498 J** | < 0.0734 U | **0.0503 J** | **0.0535 J** | < 0.0734 U | **0.0673 J** | < 0.0734 U | **0.0631 J** | **9.64** | < 0.0734 U | **0.0629 J** |
| 172 | B | 2-4 | 11/1/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | **0.0776 J** | **0.0831 J** | **0.0729 J** | < 0.0730 U | **0.0534 J** | < 0.0730 U | < 0.0730 U | **0.0766 J** | < 0.0730 U | **0.101** | < 0.0730 U | **0.0688 J** | **6.43** | **0.0518 J** | **0.102** |
| 172 | B | 4-6 | 11/1/2016 | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | < 0.0738 U | **7.86** | < 0.0738 U | < 0.0738 U |
| 172 | B | 6-8 | 11/1/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **6.23** | < 0.0746 U | < 0.0746 U |
| 172 | C | 0-2 | 11/1/2016 | < 0.0712 U | < 0.0712 U | < 0.0712 U | **0.0773 J** | **0.0950 J** | **0.0985** | **0.0575 J** | **0.0761 J** | < 0.0712 U | **0.0604 J** | **0.0799 J** | < 0.0712 U | **0.101** | < 0.0712 U | **0.0900 J** | **11.7** | < 0.0712 U | **0.0852 J** |
| 172 | C | 2-4 | 11/1/2016 | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.0563 J** | **0.0653 J** | **0.0655 J** | < 0.0739 U | < 0.0739 U | < 0.0739 U | < 0.0739 U | **0.0526 J** | < 0.0739 U | **0.0689 J** | < 0.0739 U | **0.0602 J** | **11.4** | < 0.0739 U | **0.0602 J** |
| 172 | C | 4-6 | 11/1/2016 | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | < 0.0733 U | **7.17** | < 0.0733 U | < 0.0733 U |
| 172 | C | 6-8 | 11/1/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **5.63** | < 0.0730 U | < 0.0730 U |
| 176 | A | 0-2 | 7/27/2016 | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | **0.0495 J** | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | < 0.0728 U | **0.0682 J** | < 0.0728 U | < 0.0728 U | **47.4 JH** | < 0.0728 U | **0.0628 J** |
| 176 | A | 2-4 | 7/27/2016 | < 0.0727 U | < 0.0727 U | < 0.0727 U | **0.0544 J** | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | < 0.0727 U | **0.0599 J** | < 0.0727 U | **0.13** | < 0.0727 U | < 0.0727 U | **8.58 JH** | **0.0803 J** | **0.0998** |
| 176 | A | 4-6 | 7/27/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **6.82 JH** | < 0.0743 U | < 0.0743 U |
| 176 | A | 6-8 | 7/27/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **5.69 JH** | < 0.0740 U | < 0.0740 U |
| 176 | B | 0-2 | 7/27/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **0.0649 J** | **0.0643 J** | < 0.0746 U | **0.0614 J** | < 0.0746 U | < 0.0746 U | **0.0625 J** | < 0.0746 U | **0.0745 J** | < 0.0746 U | < 0.0746 U | **63.1 JH** | < 0.0746 U | **0.0686 J** |
| 176 | B | 2-4 | 7/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **8.55 JH** | < 0.0735 U | < 0.0735 U |
| 176 | B | 4-6 | 7/27/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **8.12 JH** | < 0.0730 U | < 0.0730 U |
| 176 | B | 6-8 | 7/27/2016 | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | < 0.0702 U | **8.26 JH** | < 0.0702 U | < 0.0702 U |
| 176 | C | 0-2 | 7/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.0511 J** | < 0.0735 U | < 0.0735 U | **34.0 JH** | < 0.0735 U | < 0.0735 U |
| 176 | C | 2-4 | 7/27/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **9.14 JH** | < 0.0735 U | < 0.0735 U |
| 176 | C | 4-6 | 7/27/2016 | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | < 0.0740 U | **8.06 JH** | < 0.0740 U | < 0.0740 U |
| 176 | C | 6-8 | 7/27/2016 | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | < 0.0710 U | **6.50 JH** | < 0.0710 U | < 0.0710 U |

**Table 4-4**
**Soil Analytical Results - Soil Boring Samples**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Analyte | | | | Acenaph-thene | Acenaph-thylene | Anthracene | Benz(a) anthracene | Benzo(a) pyrene | Benzo(b) fluoranthen | Benzo(e) pyrene | Benzo(g,h,i) perylene | Benzo(j) fluoranthen | Benzo(k) fluoranthen | Chrysene | Dibenzo(a,h) anthracene | Fluor-anthene | Fluorene | Indeno(1,2,3-cd)pyrene | Lead | Phen-anthrene | Pyrene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAS | | | | 83-32-9 | 208-96-8 | 120-12-7 | 56-55-3 | 50-32-8 | 205-99-2 | 192-97-2 | 191-24-2 | 205-82-3 | 207-08-9 | 218-01-9 | 53-70-3 | 206-44-0 | 86-73-7 | 193-39-5 | 7439-92-1 | 85-01-8 | 129-00-0 |
| Units | | | | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg | mg/kg |
| TRRP Tier 1 PCL | | | | 3000 | 3800 | 18000 | 41 | 4.1 | 41 | 1800 | 1800 | 39 | 420 | 4100 | 4 | 2300 | 2300 | 42 | 500 | 1700 | 1700 |
| Decision Unit | Sample | Sample Depth (Feet) | Sample Date | | | | | | | | | | | | | | | | | | |
| 183 | A | 0-2 | 7/21/2016 | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | < 0.0750 U | **31.5** | < 0.0750 U | < 0.0750 U |
| 183 | A | 2-4 | 7/21/2016 | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | < 0.0699 U | **7.5** | < 0.0699 U | < 0.0699 U |
| 183 | A | 4-6 | 7/21/2016 | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | < 0.0701 U | **5.97** | < 0.0701 U | < 0.0701 U |
| 183 | A | 6-8 | 7/21/2016 | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | < 0.0730 U | **7.02** | < 0.0730 U | < 0.0730 U |
| 183 | B | 0-2 | 7/21/2016 | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | < 0.0734 U | **25.2** | < 0.0734 U | < 0.0734 U |
| 183 | B | 2-4 | 7/21/2016 | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | < 0.0748 U | **7.59** | < 0.0748 U | < 0.0748 U |
| 183 | B | 4-6 | 7/21/2016 | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | **6.55** | < 0.0737 UJL | < 0.0737 UJL |
| 183 | B | 6-8 | 7/21/2016 | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | < 0.0737 UJL | **6.9** | < 0.0737 UJL | < 0.0737 UJL |
| 183 | C | 0-2 | 7/21/2016 | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | < 0.0742 UJL | **16.4** | < 0.0742 UJL | < 0.0742 UJL |
| 183 | C | 2-4 | 7/21/2016 | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | < 0.0732 UJL | **13.3** | < 0.0732 UJL | < 0.0732 UJL |
| 183 | C | 4-6 | 7/21/2016 | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | < 0.0745 UJL | **6.41** | < 0.0745 UJL | < 0.0745 UJL |
| 183 | C | 6-8 | 7/21/2016 | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | < 0.0740 UJL | **6.42** | < 0.0740 UJL | < 0.0740 UJL |
| 190 | A | 0-2 | 7/19/2016 | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | < 0.0735 U | **0.0500 J** | < 0.0735 U | < 0.0735 U | **110** | < 0.0735 U | < 0.0735 U |
| 190 | A | 2-4 | 7/19/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **19.1** | < 0.0747 U | < 0.0747 U |
| 190 | A | 4-6 | 7/19/2016 | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | < 0.0744 U | **10.1** | < 0.0744 U | < 0.0744 U |
| 190 | A | 6-8 | 7/19/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **8.53** | < 0.0747 U | < 0.0747 U |
| 190 | B | 0-2 | 7/19/2016 | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | < 0.0745 U | **94.3** | < 0.0745 U | < 0.0745 U |
| 190 | B | 2-4 | 7/19/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **31** | < 0.0747 U | < 0.0747 U |
| 190 | B | 4-6 | 7/19/2016 | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | < 0.0749 U | **8.48** | < 0.0749 U | < 0.0749 U |
| 190 | B | 6-8 | 7/19/2016 | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | < 0.0743 U | **8.73** | < 0.0743 U | < 0.0743 U |
| 190 | C | 0-2 | 7/19/2016 | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.0544 J** | **0.0538 J** | < 0.0736 U | **0.0525 J** | < 0.0736 U | < 0.0736 U | < 0.0736 U | < 0.0736 U | **0.0602 J** | < 0.0736 U | < 0.0736 U | **45.9** | < 0.0736 U | **0.0536 J** |
| 190 | C | 2-4 | 7/19/2016 | < 0.0748 U | < 0.0748 U | **0.0679 J** | **0.31** | **0.278** | **0.264** | **0.192** | **0.18** | **0.142** | **0.139** | **0.343** | < 0.0748 U | **0.749** | < 0.0748 U | **0.159** | **37.1** | **0.347** | **0.593** |
| 190 | C | 4-6 | 7/19/2016 | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | < 0.0747 U | **9.82** | < 0.0747 U | < 0.0747 U |
| 190 | C | 6-8 | 7/19/2016 | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | < 0.0746 U | **8.52** | < 0.0746 U | < 0.0746 U |

**Notes:**
CAS - Chemical Abstracts Service
mg/kg - milligrams per kilogram
J - Analyte detected between method detection level and reporting level.
JH - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be high.
JL - The compound was positively identified; however, the associated numerical value is an estimated concentration only. Bias in sample result likely to be low.
NC – Not Calculated
U - Analyte not detected above the limit of detection (LOD).
UJL - The compound was not detected above the reported LOD. However, the reported limit is approximate and may or may not represent the actual LOD. Bias in sample result likely to be low.
PCL Protective Concentration Level
R - Sample result is rejected.
TRRP – Texas Risk Reduction Program
TRRP Tier 1 PCL - Texas Risk Reduction Program Tier 1 Protective Concentration Level for residential soil for combine human health exposure pathways. Table Date: April 2018
**Bold -** Detected results
**Bold and shaded -** Reported at concentration above Tier 1 PCL

**Table 4-5**
**Comparison of Benzo(a)pyrene Concentrations**
**in Stratification and ISM Sample Results**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| Decision Unit | Sample Type(1) | Range of Results | | Result Exceeds RAL |
|---|---|---|---|---|
| | | Low | High | |
| 003 | Stratification | 0.151 | 0.928 | |
| | ISM | 0.866 | 1.11 | |
| | Soil Boring (0-2 foot) | NA | | |
| 009 | Stratification | 0.185 | 23.2 | X |
| | ISM | 0.845 | 1.05 | |
| | Soil Boring (0-2 foot) | 0.636 | 1.62 | |
| 038 | Stratification | <0.087 | 0.333 | |
| | ISM | 0.321 | 0.395 | |
| | Soil Boring (0-2 foot) | 0.276 | 0.379 | |
| 044 | Stratification | 0.167 | 4.17 | X |
| | ISM | 0.303 | 0.333 | |
| | Soil Boring (0-2 foot) | 10.8 | 18.1 | X |
| 066 | Stratification | 0.456 | 1.81 | |
| | ISM | 0.308 | 0.385 | |
| | Soil Boring (0-2 foot) | 0.538 | 0.68 | |
| 132 | Stratification | 0.484 | 1.28 | |
| | ISM | 0.0945 | 0.103 | |
| | Soil Boring (0-2 foot) | 0.449 | 3.15 | |
| 146 | Stratification | <0.0951 | 0.0864 | |
| | ISM | <0.075 | | |
| | Soil Boring (0-2 foot) | NA | | |
| 151 | Stratification | 0.194 | 0.467 | |
| | ISM | 0.142 | 0.144 | |
| | Soil Boring (0-2 foot) | NA | | |
| 191 | Stratification | <0.0885 | | |
| | ISM | NA | | |
| | Soil Boring (0-2 foot) | NA | | |

**Notes:**
(1) Sample depths for each soil type are as follows: Stratification (0-6 inches), ISM (0-2 inches), Soil Boring (0-2 feet)
Sample results in milligrams per kilogram (mg/kg)

| | |
|---|---|
| NA | Not Analyzed |
| RAL | Residential Assessment Level. Based on Residential Tier 1 $^{Tot}Soil_{Comb}$ PCL (total soil combined pathway with ingestion, inhalation, and dermal contact with incidental soil contact). **RAL = 4.1 mg/kg** |
| ISM | incremental sampling methodology |

**Table 4-6**
**Groundwater Analytical Results**
**Remedial Investigation**
**Former Laredo Air Force Base Shotgun Range**

| | | Polycyclic Aromatic Hydrocarbons | | | | | | | | | | | | | | | | Metals | | | Other |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Analyte** | **Acenaph-thene** | **Acenaph-thylene** | **Anthracene** | **Benz(a) anthracene** | **Benzo(a) pyrene** | **Benzo(b) fluoranthene** | **Benzo(g,h,i) perylene** | **Benzo(k) fluoranthene** | **Chrysene** | **Dibenz(a,h) anthracene** | **Fluor-anthene** | **Fluorene** | **Indeno(1,2,3-cd) pyrene** | **Naph-thalene** | **Phen-anthrene** | **Pyrene** | **Arsenic** | **Lead** | **Mercury** | **TDS** |
| | **CAS** | **83-32-9** | **208-96-8** | **120-12-7** | **56-55-3** | **50-32-8** | **205-99-2** | **191-24-2** | **207-08-9** | **218-01-9** | **53-70-3** | **206-44-0** | **86-73-7** | **193-39-5** | **91-20-3** | **85-01-8** | **129-00-0** | **7440-38-2** | **7439-92-1** | **7439.97.6** | **NA** |
| | **Units** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** | **mg/L** |
| | **$^{GW}GW_{Class\ 3}$ PCL** | **150** | **150** | **730** | **0.91** | **0.02** | **0.91** | **73** | **91** | **91** | **0.02** | **98** | **98** | **0.91** | **49** | **73** | **73** | **1.0** | **1.5** | **0.20** | **NA** |
| **Sample ID** | **Sample Date** | | | | | | | | | | | | | | | | | | | | |
| SGR MW01 | 6/11/2003 | <0.0011 U | <0.001 U | <0.0011 U | <0.00077 U | <0.00078 U | <0.0008 U | <0.00079 U | <0.00097 U | <0.00077 U | <0.0011 U | <0.00095 U | <0.0011 U | <0.00077 U | <0.001 U | <0.0012 U | <0.00092 U | **0.0381 J** | <0.0020 U | **0.0000990 J** | **15,500** |
| | 3/22/2005 | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0018 U | <0.00020 U | **0.000135 J** | NA |
| SGR MW02 | 6/11/2003 | <0.0011 U | <0.001 U | <0.0011 U | <0.00077 U | <0.00078 U | <0.0008 U | <0.00079 U | <0.00097 U | <0.00077 U | <0.0011 U | <0.00095 U | <0.0011 U | <0.00077 U | <0.001 U | <0.0012 U | <0.00092 U | **0.0306 J** | **0.00205 J** | <0.000042 U | **6,500** |
| | 3/22/2005 | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0018 U | <0.00020 U | **0.0000450 J** | NA |
| SGR MW03 | 6/11/2003 | <0.0011 U | <0.001 U | <0.0011 U | <0.00077 U | <0.00078 U | <0.0008 U | <0.00079 U | <0.00097 U | <0.00077 U | <0.0011 U | <0.00095 U | <0.0011 U | <0.00077 U | <0.001 U | <0.0012 U | <0.00092 U | **0.0264 J** | <0.0020 U | <0.000042 U | **5,780** |
| | 3/22/2005 | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0018 U | **0.000250 J** | <0.000042 U | NA |
| SGR MW04 | 6/11/2003 | <0.0011 U | <0.001 U | <0.0011 U | <0.00077 U | <0.00078 U | <0.0008 U | <0.00079 U | <0.00097 U | <0.00077 U | <0.0011 U | <0.00095 U | <0.0011 U | <0.00077 U | <0.001 U | <0.0012 U | <0.00092 U | **0.0183 J** | <0.0020 U | <0.000042 U | **7,820** |
| | 3/22/2005 | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | **0.00270 J** | **0.00131 J** | <0.000042 U | NA |
| SGR-DUP | 6/11/2003 | <0.0011 U | <0.001 U | <0.0011 U | <0.00077 U | <0.00078 U | <0.0008 U | <0.00079 U | <0.00097 U | <0.00077 U | <0.0011 U | <0.00095 U | <0.0011 U | <0.00077 U | <0.001 U | <0.0012 U | <0.00092 U | **0.0560 J** | <0.0020 U | **0.0000990 J** | **15,600** |
| | 3/22/2005 | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | <0.0002 U | **0.00186 J** | **0.000316 J** | <0.000042 U | NA |

**Notes:**
$^{GW}GW_{Class3}$ PCL - TRRP Tier 1 PCL for Class 3 Residential Groundwater: Table Date April 2018.
J - Analyte detected between MDL and RL.
mg/L - milligrams per liter
CAS - Chemical Abstract Service
NA - Not applicable or Not analyzed
PCL - Protective Concentration Level
TDS - Total dissolved solids
TRRP - Texas Risk Reduction Program
U - Analyte not detected above the limit of detection (LOD).
**Bold -** detected results

# APPENDICES