

**FINAL
RELEASE INVESTIGATION REPORT**

**SOLID WASTE MANAGEMENT UNIT B-13
CAMP STANLEY STORAGE ACTIVITY**



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**Camp Stanley Storage Activity
Boerne, Texas**

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April 2013

EXECUTIVE SUMMARY

SWMU B-13 is located in the southern portion of the Camp Stanley Storage Activity (CSSA) Inner Cantonment, approximately 500 feet north of the southern boundary of CSSA. The 1.4-acre site was used as a construction waste disposal site (e.g., concrete rubble, wire binding, bricks, etc.) for the CSSA engineering/public works department during an unknown time period. The site was identified during a records review in 1993 and a subsequent field survey noted that the site had been semi-compacted and trash was visible in areas where erosion had occurred.

The site boundaries were mapped during a field investigation in March 1996, soil boring samples were collected in March 2000, an XRF survey was performed in June 2011, and the excavation of contaminated soil material and associated buried debris took place during the September 2012 through February 2013 timeframe. All waste material and contaminated soil were removed from the site; therefore, this Release Investigation Report (RIR) requests No Further Action (NFA) status for SWMU B-13.

In summary, activities at SWMU B-13 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at SWMU B-13.
- The contaminants of concern (COCs) identified above soil background concentrations at SWMU B-13 were chromium, copper, lead, nickel, and zinc. Areas of contamination exceeding Tier 1 PCLs have been excavated and removed from the site.

From the information summarized above and presented in this report, the results of the investigations at SWMU B-13 meet the three criteria as described in Texas Commission on Environmental Quality (TCEQ) (2010) guidance *Determining Which Releases are Subject to the Texas Risk Reduction Program (TRRP)*. Thus, the following criteria were met:

- Soil found to have COC concentrations above Tier 1 PCLs were excavated from the site.
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-13. Soil found to have concentrations above Tier 1 PCLs was excavated and removed, so there will be no future impact to groundwater, surface water, or sediment from SWMU B-13.
- SWMU B-13 passes the Tier 1 Ecological Exclusion Criteria Checklist (**Appendix B**).

Because these three criteria are met, SWMU B-13 is not subject to TRRP. Therefore, this RIR was prepared to document the results and a NFA decision is requested from the TCEQ.

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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutants Laboratory, Inc.
bgs	below ground surface
BS	Bexar Shale
BTOC	below top of casing
CC	Cow Creek
COC	contaminant of concern
CSSA	Camp Stanley Storage Activity
CY	cubic yard
DQO	Data Quality Objective
EE	Environmental Encyclopedia
FSP	Field Sampling Plan
^{GW} Soil _{Ing}	soil to groundwater ingestion pathway (PCL)
IM	Interim Measures
LGR	Lower Glen Rose
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
MLQ	method quantification limit
NFA	No Further Action
PCL	protective concentration level
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RIR	Release Investigation Report
RL	reporting limit
RMU	Range Management Unit
SAP	Sampling and Analysis Plan
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TCLP	toxicity characteristic leaching procedure
^{Tot} Soil _{Comb}	total soil combined pathway (PCL)
TPH	total petroleum hydrocarbon
TRRP	Texas Risk Reduction Program
UGR	Upper Glen Rose
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WMI	Waste Management, Inc.
WMP	Waste Management Plan
XRF	x-ray fluorescence

1.0 INTRODUCTION

Parsons is under contract to perform a Site Closure Investigation at Solid Waste Management Unit (SWMU) B-13, Camp Stanley Storage Activity (CSSA), Boerne, Texas (**Figure 1**). This contract includes the removal of impacted media and waste located at SWMU B-13, and preparation of appropriate documentation, including a Release Investigation Report (RIR) for SWMU B-13 (**Figure 2**). SWMU B-13 is located in the southwestern portion of the CSSA Inner Cantonment, approximately 500 feet north of the southern CSSA boundary. The site is approximately 1.4 acres in area. This work was performed in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) 3008(h) Order in effect for CSSA, and in accordance with 30 Texas Administrative Code (TAC) §350, the Texas Risk Reduction Program (TRRP) administered by the Texas Commission on Environmental Quality (TCEQ). This RIR was prepared following TCEQ reporting and documentation requirements for releases that do not trigger applicability to the TRRP rule.

This report describes environmental investigation activities at SWMU B-13. Work included x-ray fluorescence (XRF) analysis for screening of soil samples, environmental sampling, the removal and proper disposal of impacted soil and debris, waste characterization, confirmatory sampling and laboratory analysis, and proper documentation of all activities, including preparation of this RIR. All work was performed according to applicable federal, state, and local rules and regulations.

For this report, Section 1 provides the introduction and the documentation to support this RIR. Section 2 provides historical background information for CSSA and SWMU B-13. Section 3 describes the objectives and rationale for preparing an RIR for SWMU B-13 and the findings from environmental investigations for the site. The groundwater and surface water for CSSA and the area near SWMU B-13 are also described in Section 3. Section 4 summarizes the findings from completing the Tier 1 Ecological Exclusion Criteria Checklist, which is included as an appendix to this RIR. Section 5 summarizes the overall findings and recommendations for the site. All figures and tables are provided at the end of this RIR (pages 11 through 17). References cited in this report can be found in the CSSA Environmental Encyclopedia (EE) ([Volume 1-1, Bibliography](#)) at www.stanley.army.mil.

2.0 HISTORICAL BACKGROUND

2.1 CAMP STANLEY STORAGE ACTIVITY

Camp Stanley Storage Activity is located in northwestern Bexar County, approximately 19 miles northwest of downtown San Antonio. The installation consists of approximately 4,004 acres immediately east of Ralph Fair Road and approximately 0.5 mile east of Interstate Highway 10 (Figure 1). Camp Bullis borders CSSA on its northern, eastern, and southern boundaries.

The land comprising CSSA was used for ranching and agriculture until the 1900's. During 1906 and 1907, six tracts of land were purchased by the U.S. Government and designated the Leon Springs Military Reservation. The land included campgrounds and cavalry shelters.

In October 1917, the installation was re-designated Camp Stanley. Extensive construction was started during World War I to provide housing for temporary cantonments and support

facilities. In 1931, the installation was selected as an ammunition depot, and construction of standard magazines and igloo magazines began in 1938. Land was also used to test, fire, and overhaul ammunition components. As a result of these historic activities, CSSA has a number of historical waste sites including SWMUs, Areas of Concern (AOCs), and Range Management Units (RMUs).

The present mission of CSSA is the receipt, storage, issue, and maintenance of ordnance, as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its mission, CSSA has been designated a restricted access facility. No changes to the CSSA mission and/or military activities are expected in the future.

2.2 SOLID WASTE MANAGEMENT UNIT B-13

2.2.1 Overview

SWMU B-13 was identified during a records review in 1993 and the site boundaries were mapped during a field investigation of the site in March 1996. Review of CSSA historical aerial photographs showed the ground surface appearing disturbed in the 1957, 1966, and 1985 photographs (**Figure 3**). Records indicated that SWMU B-13 was used as a construction waste (e.g., concrete rubble, wire binding, bricks, etc.) disposal site for the CSSA engineering/public works department during an unknown time frame. The half-buried nature of the eroded rubble piles noted during the field investigation, combined with the uneven nature of the slope suggested that waste was indeed buried at the site.

A series of historical aerial photos of the sites are shown on Figure 3 and photographs showing investigation, excavation, and removal activities at the sites are provided in **Appendix A**. The history and previous investigations at the site is discussed below.

2.2.2 Setting, Size, and Description

SWMU B-13 is located in the southwestern portion of the CSSA Inner Cantonment, approximately 500 feet north of the southern CSSA boundary. SWMU B-13 covers approximately 1.4 acres in area. Except for an existing dirt road that runs south of and through the site area, the site is sparsely vegetated with native grasses, bushes, and trees. The exact dates of use of the site are unknown, but historical records indicate that the site was used as a construction waste disposal site for the CSSA engineering/public works department and aerial photographs suggest site use was sometime between 1957 and 1985. Additional background information on SWMU B-13 can be found in the CSSA EE ([Volume 3-1, SWMU B-13](#)).

2.2.3 Potential Contaminant Sources, Chemicals of Concern, and Previous Investigations

2.2.3.1 Geophysical Survey

An electromagnetic geophysical survey was conducted at the site in March 1996. The survey was conducted using a Geonics EM31-DL magnetometer. Contour maps were created for the in-phase and quadrature-phase data collected at the site. Both data sets showed anomalous areas in the northern and southern portions of the site. The in-phase data are presented on **Figure 4**.

2.2.3.2 Surface and Subsurface Sampling

In March 2000, four soil borings (RW-B13-SB01, RW-B13-SB02, RW-B13-SB03, and RW-B13-SB04) were drilled at the site. The boring locations are depicted on Figure 4. The borings were drilled to refusal, at depths ranging from 3 to 8 feet below ground surface (bgs). Surface and subsurface samples were collected from the borings. At borings SB01 and SB02, waste material (wood, wire, and scrap metal) was encountered at the surface down to a depth of approximately 7 feet bgs. A charred zone was encountered at approximately 2.4 feet bgs in SB03. One surface soil sample and two subsurface samples (top of rock and several feet into the rock layer) were collected from each boring and were analyzed for CSSA 9 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). The concentration of copper at SB01 (0.5-1 foot bgs) exceeded the Tier 1 PCL. Concentrations of copper, lead, and zinc in SB02 (0.5-1 foot bgs) also exceeded Tier 1 PCLs. No contaminants of potential concern (COPCs) were detected above Tier 1 protective concentration levels (PCLs) at SB03. Concentrations of chromium, copper, lead, nickel, and zinc exceeded Tier 1 PCLs in SB04 (0.5-1 foot bgs).

No VOCs were detected in the samples. Fluoranthene and bis(2-ethylhexyl)phthalate were the only SVOCs that were detected. Bis(2-ethylhexyl)phthalate, which is considered to be a common laboratory contaminant, was detected in 8 of the 12 samples, but at levels below the Tier 1 PCL. Fluoranthene was detected in one sample, but also at a level that did not exceed the Tier 1 PCL. Based on the results, as documented in the *RCRA Facility Investigation Report*, June 2002, VOCs and SVOCs were removed from the list of COPCs for SWMU B-13.

2.2.3.3 X-Ray Fluorescence Screening

An XRF survey was conducted at SWMU B-13 in June 2011. The purpose of the XRF survey was to gather field screening data to assess the presence of metals above Tier 1 PCLs in surface soils. Lead and zinc were chosen because XRF results for these metals show a strong correlation to laboratory results. XRF data were collected in a gridded fashion at 50 locations across the site area. Ten locations had Tier 1 PCL exceedances of zinc only or both lead and zinc. Six of these ten locations had exceedances for only zinc, while the remaining four locations had exceedances for both lead and zinc. Sample locations and results for the locations with exceedances are shown on Figure 4.

3.0 OBJECTIVES OF RIR FOR SWMU B-13

In accordance with TCEQ (2010) guidance, *Determining Which Releases are Subject to TRRP* (www.tceq.state.tx.us/assets/public/remediation/trrp/releasesTRRPprev.pdf), an RIR can be prepared for a site when results of an investigation lead to the following conclusions:

- Concentrations of chemicals detected at the site do not exceed Tier 1 residential PCLs;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at the site; and
- The site passes the Tier 1 Ecological Exclusion Criteria Checklist (the completed checklist is provided in **Appendix B**).

When these three criteria are met for a site, the release is not subject to TRRP. For such sites, an RIR can be submitted to document the results and a No Further Action (NFA) decision can be requested from the TCEQ.

As referred to in the criteria listed above, the Tier 1 residential soil action levels are provided by TCEQ and were selected following TCEQ guidance (TCEQ 2007). The most current action levels, dated June 2012, were used. These action levels are referred to as PCLs and are selected for each chemical detected at the site (i.e., contaminants of concern [COCs]). The PCLs are based on the general size of the site, which is also referred to as the “source area” size. PCLs are established for 0.5-acre sites and 30-acre sites. If the source area is less than 0.5 acre, then investigation results will be compared to the 0.5 acre PCLs. If the source area is greater than 0.5 acre, then investigation results will be compared to the 30-acre PCLs. SWMU B-13 had material excavated from an approximately 1.4-acre area; therefore, the soil action levels for SWMU B-13 are based on a 30-acre source area. The PCL is then selected based on the lower of the two PCLs listed for either (1) the total soil combined pathway ($^{Tot}Soil_{Comb}$) (i.e., exposure to a COC from incidental ingestion, dermal contact, inhalation of volatiles and particulates, and vegetable consumption); or (2) the soil to groundwater pathway ($^{GW}Soil_{Ing}$) (i.e., soil-to-groundwater leaching of a COC to groundwater, where the PCL is the highest concentration of COC allowed in soil to be protective of Class 1 or Class 2 groundwater).

Also, based on the TCEQ guidance, if the background level or the method quantification limit (MQL) is a higher concentration than the PCL, then the higher of the background or MQL is used as the action level. Based on the metals that are most common to past activities at CSSA, TCEQ has approved background concentrations for the CSSA 9 metals. The statistically calculated and TCEQ-approved background metal concentrations are shown in **Table 1**, and are also available in the CSSA EE ([Volume 2, Background Metals Levels](#)). It is noted that the action levels/PCLs for five of the nine metals are based on the background concentrations (these five metals are arsenic, barium, cadmium, lead, and mercury).

3.1 FIELD ACTIVITIES AND INVESTIGATIONS

A summary of the cleanup confirmation results at the site are shown in Table 1 (detected compounds only) and **Appendix C** (all analytes), and the confirmation soil sampling locations are shown on **Figure 5**. Analytical results for waste characterization samples are shown in **Appendix E**. The data verification summary report for the sampling and analytical results is provided in **Appendix D**. As shown on Figure 5, excavation at the site occurred almost completely within the originally mapped boundary of SWMU B-13. Waste characterization sampling and off-post disposal activities are described in Section 3.1.3. Additional information about past activities and investigations at the site can be found in the CSSA EE ([Volume 1-3, SWMU B-13](#)).

3.1.1 Sampling and Analytical Procedures

For all sampling and analytical activities at CSSA, Parsons follows TCEQ-approved Quality Assurance (QA) and Quality Control (QC) procedures as described in the post-wide CSSA Quality Assurance Project Plan (QAPP) which can be found in the CSSA EE ([Volume 1-4, QAPP](#)). The detailed CSSA QAPP presents specific policies, organization, functions, and

QA/QC requirements for environmental programs at CSSA, including TCEQ-approved analytical methods, reporting limits (RL), and QA/QC procedures.

The CSSA QAPP (1) was prepared for use by contractors that perform environmental services at CSSA to ensure that the data are scientifically valid and defensible; (2) establishes the analytical protocols and documentation requirements to ensure that the samples are collected and analyzed, and that the data are reviewed and validated in a specified manner; and (3) provides detailed guidance for using the Data Quality Objective (DQO) process for specific investigations. The CSSA QAPP and contract specific Field Sampling Plans (FSP) constitute the CSSA Sampling and Analysis Plan (SAP). The SAP defines data quality for a specific project. Information regarding post-wide and site-specific plans and TCEQ correspondence can be found in the CSSA EE ([Volume 1-1, Correspondence](#)).

Following the CSSA-specific plans, the investigative soil analyses for SWMU B-13 were performed using U.S. Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste* (SW-846): Method 8260B (VOCs); Method 8270C (SVOCs); Method 6010 (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc); and Method 600/M4-82-020 (asbestos). Prior to soil/waste disposal, waste characterization samples were collected from the excavated material and analyzed for toxicity characteristic leaching procedure (TCLP) Texas 11 metals (Methods SW1311/6010B and SW1311/7470A) and total petroleum hydrocarbons (TPH) (Method TX1005). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analyses.

3.1.2 Excavation, Removal, and Confirmation Sampling at SWMU B-13

To address contaminated soils at SWMU B-13, excavation of debris and surrounding soils took place during September through November 2012. During this period, approximately 7,480 cubic yards (CY) of debris and soil were excavated from the site; some of which contained non-friable transite asbestos and some that contained pieces of asphalt. All excavation activities were conducted by USA Environment L.P., under the supervision of a Parsons Construction Manager. In the northern portion of the site, the excavation measured 5 to 6 feet at its deepest point (along northern and western boundaries). In the southern portion of the site, the excavation measured 8 to 9 feet at its deepest point (along southeastern boundary). The extent of the excavated area is shown on Figure 5.

As excavation activities were completed across the site, confirmation samples were collected from the bottom and sidewalls of the excavation areas. A total of 18 confirmation samples were collected on October 11 and 31, and November 13, 2012, including 13 sidewall samples (B13-SW01 through B13-SW13) and five bottom samples (B13-BOT01 through B13-BOT05). All sidewall samples and four of five bottom samples (BOT01, BOT02, BOT04, and BOT05) were analyzed for CSSA 9 metals.

The remaining bottom sample (BOT03), which was collected below the location where non-friable transite asbestos was recovered, was analyzed for asbestos only. Approximately ten percent of the samples were analyzed for VOCs and SVOCs - three bottom samples (BOT01, BOT02, and BOT05) and one sidewall sample (SW05). VOCs and SVOCs were removed from the list of contaminants of potential concern during the RCRA Facility Investigation (RFI) but were added as analytes during this investigation as a precautionary measure. Lastly BOT01 and

SW01 through SW04, which were collected from the northern portion of the excavation area, were also analyzed for TPH - as this area contained pieces of asphalt in the excavated debris.

Only B13-SW09 had Tier 1 PCL exceedances for metals: lead was detected at 130 milligrams per kilogram (mg/kg) and zinc was detected at 150 mg/kg. As displayed on Figure 5, the SW09 area was overexcavated and resampled for lead and zinc (sample B13-SW14). The SW14 sample results were below Tier 1 PCLs for both analytes.

BOT03, which was analyzed for asbestos, did not contain asbestos. No TPH was detected in samples collected from the area from which the asphalt containing debris was excavated.

No SVOCs were detected in the samples. One VOC, methylene chloride, was detected in BOT02 (0.008 mg/kg), BOT05 (0.0107 mg/kg), and SW05 (0.0077 mg/kg). It was also detected in the duplicate collected of BOT05 (0.0097 mg/kg). These results are all above the Tier 1 PCL of 0.0065 mg/kg. Methylene chloride is a common laboratory contaminant and given that there is no known usage of this chemical at CSSA, its presence in low concentrations in the samples was most likely due to laboratory contamination. To be certain, these locations were re-sampled on March 7, 2013 (BOT06, BOT07, and SW15 respectively: see Figure 5) and analyzed for methylene chloride. No methylene chloride was detected.

While reworking the area in January and February to create a wildlife pond, an additional pocket of buried debris was uncovered to the southwest of the site. This area is displayed on Figure 5. Approximately 100 CY of metal/asphalt debris were removed from the area. Exploratory excavations were performed in the vicinity to ensure no additional buried material was present. On March 7, 2013, confirmation samples were collected at the bottom and extent of the newly excavated pocket (SS02-SS05) and analyzed for CSSA 9 metals and TPH. Two additional samples were also collected from the vicinity (SS06-SS07) and analyzed for CSSA 9 metals. No TPH was detected in the samples and there were no Tier 1 PCL exceedances for metals.

The locations of the samples are displayed on **Figure 5**. The results are displayed in **Table 1**.

3.1.3 Waste Characterization and Off-Post Disposal Activities

Waste characterization efforts were performed in accordance with requirements of CSSA's *RCRA Facility Investigation (RFI) and Interim Measures (IM) Waste Management Plan (WMP) – Revised*, dated May 2006 (approved by TCEQ in August 2006) and the RFI/IM WMP Addendum for SWMU B-13, dated September 2012. Waste characterization sample results for excavated soils are included in Appendix E.

Results of waste characterization showed that the impacted media from SWMU B-13 met State of Texas Class 2 non-hazardous criteria (30 TAC §335 Subchapter R). A total of approximately 7,580 CY of material was excavated. The soil containing the <5% non-friable transite asbestos (1,620 CY) and the soil containing the construction debris (3,460 CY) was disposed of as Class 2 non-hazardous waste at Waste Management, Inc. (WMI), Covell Gardens Landfill, in San Antonio, Texas. The remaining material, which includes an estimated 2,500 CY of soil material mixed with metal debris, was transported to the East Pasture Berm for reuse, as per TCEQ approval December 20, 2010 (**Appendix F**).

All waste manifests and profile data, including the waste analytical results, are kept on file at the CSSA Environmental Office.

3.2 SITE GEOLOGY/HYDROGEOLOGY

Based on the sampling results and the geological and hydrogeological characteristics of the site, surface water and groundwater have not been affected by historical activities at SWMU B-13. A description of the geology and hydrogeology of the area is provided below. Additional information on geology, hydrology and physiography at CSSA are also available in the [CSSA EE \(Volume 1-1, Background Information Report\)](#).

3.2.1 CSSA Geology/Hydrogeology

The Lower Glen Rose (LGR) is the uppermost geologic stratum in the CSSA area. The LGR is a massive, fossiliferous, vuggy limestone that grades upward into thin beds of limestone, marl, and shale. The LGR is approximately 300-330 ft thick in the CSSA area and is underlain by the Bexar Shale (BS) facies of the Hensell Sand, which is estimated to be from 60 to 150 ft thick under the CSSA area. The BS consists of silty dolomite, marl, calcareous shale, and shaley limestone. The geologic strata dip approximately 1 to 2 degrees to the south-southeast at CSSA.

The uppermost hydrogeologic layer at CSSA is the unconfined Upper Trinity aquifer, which consists of the Upper Glen Rose (UGR) Limestone. Locally at CSSA, very low-yielding perched zones of groundwater can exist in the UGR; however, it is very sporadic and seasonal. Transmissivity values are not available for the UGR. Regionally, groundwater flow is thought to be enhanced along the bedding contacts between marl and limestone; however, the hydraulic conductivity between beds is thought to be poor. This interpretation is based on the observation of discordant static water levels in adjacent wells completed in different beds. Principal development of solution channels is limited to evaporite layers in the UGR Limestone.

The Middle Trinity aquifer functions as the primary source of groundwater at CSSA. It consists of the LGR Limestone, the BS, and the Cow Creek (CC) Limestone. The LGR Limestone outcrops north of CSSA, along Cibolo Creek, and within the central and southwestern portions of CSSA. As such, principal recharge into the Middle Trinity aquifer is via precipitation infiltration at outcrops and along creek beds during flood events. At CSSA, the BS is interpreted as a confining layer, except where it is fractured and faulted, allowing vertical flow from the up-dip CC Limestone into the overlying, down-dip LGR. Fractures and faults within the BS may allow hydraulic communication between the LGR and CC Limestones. Regional groundwater flow within the Middle Trinity aquifer is toward the south and southeast and the average transmissivity coefficient is 1,700 gallons per day per ft (CSSA EE, [Volume 5, Hydrogeologic Report](#)). In general, groundwater at CSSA flows in a northeast to southwest direction. However, local flow gradient may vary depending on rainfall, recharge, and possibly well pumping.

3.2.2 SWMU B-13 Groundwater and Surface Water

Between September 2003 and September 2012, measured water levels at CS-MW11A-LGR and CS-MW11B-LGR, which are the closest groundwater wells to the site and are located approximately 500 feet west and side gradient to the site (Figure 2), have ranged from highs of 53.20 and 55.97 feet below top of casing (BTOC), respectively (September 2007 for both

measurements), to lows of 325.93 feet BTOC and dry, respectively (September 2009 for both measurements). For reference on the dry measurement for CS-MW11B-LGR, this well has a total depth of 210.14 feet BTOC. Low concentrations of VOCs (tetrachloroethene and trichloroethene) have been historically detected in both wells (below their respective maximum contaminant levels [MCLs]) and are attributed to contaminated groundwater originating from past disposal activities at AOC-65 (see the Hydrogeologic Conceptual Site Model Report located on the CSSA EE, Volume 5 – Groundwater, at www.stanley.army.mil). AOC-65 is located on the western edge of CSSA, approximately 0.5 miles from SWMU B-13.

The closest perennial surface water body to SWMU B-13 is the “W-Tank,” a pond located approximately 1,300 feet west of the site. It is situated along the westernmost unnamed tributary of Upper Leon Creek and is fed by precipitation. The tributary that runs on the north edge of SWMU B-13 travels southwest and merges into the aforementioned unnamed tributary. Both tributaries then run south, merge just north of the southern CSSA boundary and drain south to Upper Leon Creek. The nearest ephemeral surface water feature is an unnamed tributary of Upper Leon Creek that runs along the northern edge of the site (**Figure 6**).

Upper Leon Creek is the nearest classified creek downgradient from SWMU B-13. The creek is classified as a perennial stream. Upper Leon Creek is classified under Texas Surface Water Quality Standards as Segment 1907 from a point 330 ft upstream of State Highway 16, northwest of San Antonio in Bexar County to a point 5.6 miles upstream of Scenic Loop Road, north of Helotes in Bexar County. The designated uses of Segment 1907 are high aquatic life, contact recreation, public water supply, and aquifer protection. No significant degradation of high quality receiving waters is anticipated from SWMU B-13.

4.0 TIER 1 ECOLOGICAL EXCLUSION CRITERIA CHECKLIST

In accordance with TCEQ (2010) guidance, an RIR is submitted when the results of an investigation lead to a conclusion that COCs do not exceed Tier 1 residential soil action levels and there is no evidence of other affected media. The site must also pass the Tier 1 Ecological Exclusion Criteria Checklist. The checklist must be completed as part of the RIR for a site. The completed checklist is provided in Appendix B. Results show that the site passes the checklist and that there are no ecological exposure pathways of concern at SWMU B-13. Thus, based on the absence of any complete or significant ecological exposure pathways, SWMU B-13 may be excluded from further ecological assessment.

5.0 SUMMARY AND RECOMMENDATIONS

SWMU B-13 is located in the southwestern portion of the CSSA Inner Cantonment, approximately 500 feet north of the southern CSSA boundary. The site covers approximately 1.4 acres in area and was used as a construction debris disposal area. The exact dates of usage are not known.

In summary, activities at SWMU B-13 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at SWMU B-13.

- The contaminants of concern (COCs) identified above Tier 1 PCLs at SWMU B-13 were chromium, copper, lead, nickel, and zinc. Areas of contamination exceeding Tier 1 PCLs have been excavated and removed from the site.

From the information summarized above and presented in this report, the results of the investigations at SWMU B-13 meet the three criteria as described in TCEQ (2010) guidance *Determining Which Releases are Subject to the TRRP*. Thus, the following criteria were met:

- Concentrations of chemicals in soil samples do not exceed Tier 1 PCLs;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-13; and
- SWMU B-13 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, SWMU B-13 is not subject to TRRP. Therefore, this RIR was prepared to document the results and a NFA decision is requested from the TCEQ.

TABLES AND FIGURES

Table 1. Summary of Chemical Constituents Detected in Soils at SWMU B-13

	Volatile Organics				Semi-Volatile Organics																							
	Methylene chloride CAS: 75-09-2	Qualifier	Dilution	Benzo(a)anthracene CAS: 56-55-3	Qualifier	Dilution	Benzo(a)pyrene CAS: 50-32-8	Qualifier	Dilution	Benzo(b)fluoranthene CAS: 205-99-2	Qualifier	Dilution	Benzo(k)fluoranthene CAS: 191-24-2	Qualifier	Dilution	Chrysene CAS: 218-01-9	Qualifier	Dilution	Fluoranthene CAS: 206-44-0	Qualifier	Dilution	Indeno(1,2,3-cd)pyrene CAS: 193-39-5	Qualifier	Dilution	Pyrene CAS: 129-00-0	Qualifier	Dilution	
Tier 1 Soil PCLs - 30 acre¹																												
Residential Combined Exposure ⁽¹⁾	4.70E+02	n		5.60E+00	c		5.60E-01	c		5.70E+00	c		1.80E+03	n		5.60E+02	c		2.30E+03	n		5.70E+00	c		1.70E+03	n		
Residential Groundwater Exposure ⁽²⁾	6.50E-03	m		8.90E+00	c		3.80E+00	m		3.00E+01	c		2.30E+04	n	>S	7.70E+02	c	>S	9.60E+02	n	>S	8.70E+01	c		5.60E+02	n	>S	
TCEQ-Approved Background Values																												
CSA 9 Metals Background Concentration ⁽³⁾	na			na			na			na			na			na			na			na			na			
Sample Locations (Date Collected)																												
B13-BOT01 (11-Oct-2012)	0.0013	U	1	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	
B13-BOT01-DUP (11-Oct-2012)	0.0013	U	1	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	
B13-BOT02 (31-Oct-2012)	0.0080		1	0.050	F	1	0.060	F	1	0.13	F	1	0.050	F	1	0.060	F	1	0.090	F	1	0.050	F	1	0.080	F	1	
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-BOT05 (13-Nov-2012)	0.0097		1	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	
B13-BOT05-DUP (13-Nov-2012)	0.0107		1	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	
B13-BOT06 (07-Mar-2013)	0.0013	U	1	--			--			--			--			--			--			--			--			
B13-BOT07 (07-Mar-2013)	0.0013	U	1	--			--			--			--			--			--			--			--			
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			
B13-SW05 (31-Oct-2012)	0.0077		1	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.040	U	1	0.060	F	1	0.040	U	1	0.050	U	1	
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			
B13-SW15 (07-Mar-2013)	0.0013	U	1	--			--			--			--			--			--			--			--			

Table 1. Summary of Chemical Constituents Detected in Soils at SWMU B-13

	Metals																											
	Arsenic CAS: 7440-38-2	Qualifier	Dilution	Barium CAS: 7440-39-3	Qualifier	Dilution	Cadmium CAS: 7440-43-9	Qualifier	Dilution	Chromium CAS: 7440-47-3	Qualifier	Dilution	Copper CAS: 7440-50-8	Qualifier	Dilution	Lead CAS: 7439-92-1	Qualifier	Dilution	Mercury CAS: 7439-97-6	Qualifier	Dilution	Nickel CAS: 7440-02-0	Qualifier	Dilution	Zinc CAS: 7440-56-6	Qualifier	Dilution	
Tier 1 Soil PCLs - 30 acre†																												
Residential Combined Exposure ^[1]	2.40E+01	n		8.10E+03	n		5.20E+01	n		2.70E+04	n		5.50E+02	n		5.00E+02	n		2.10E+00	n		8.40E+02	n		9.90E+03	n		
Residential Groundwater Exposure ^[2]	2.50E+00	m	>S	2.20E+02	m	>S	7.50E-01	m	>S	1.20E+03	m	>S	5.20E+02	a	>S	1.50E+00	a	>S	3.90E-03	m		7.90E+01	n	>S	1.20E+03	n	>S	
TCEQ-Approved Background Values																												
CSA 9 Metals Background Concentration ^[3]	19.6 ^{††}			300 ^{†††}			3 ^{††}			40.2 ^{††}			23.2 ^{††}			84.5 ^{††}			0.77 ^{††}			35.5 ^{††}			73.2 ^{††}			
Sample Locations (Date Collected)																												
B13-BOT01 (11-Oct-2012)	5.2	M	1	53	M	1	0.030	M	1	15	M	1	8.4	M	1	17	M	1	0.060	F	1	11	M	1	28	M	1	
B13-BOT01-DUP (11-Oct-2012)	5.1	F	1	53	J	1	0.030	UJ	1	17	F	1	8.8		1	18		1	0.050	F	1	12		1	30	J	1	
B13-BOT02 (31-Oct-2012)	5.7	F	1	40		1	0.030	U	1	12	F	1	6.3		1	10.0	F	1	0.020	F	1	8.9		1	24		1	
B13-BOT04 (13-Nov-2012)	7.7	F	1	67		1	0.030	U	1	22		1	15		1	23		1	0.050	F	1	13		1	46		1	
B13-BOT05 (13-Nov-2012)	2.1	F	1	15		1	0.030	U	1	4.4	F	1	3.4	J	1	3.8	F	1	0.030	F	1	3.4		1	7.6		1	
B13-BOT05-DUP (13-Nov-2012)	1.8	F	1	13		1	0.030	U	1	4.0	F	1	2.6	J	1	2.5	F	1	0.030	F	1	3.1		1	6.7		1	
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			
B13-SS01 (13-Nov-2012)	3.7	F	1	39		1	0.030	U	1	12	F	1	18		1	33		1	0.060	F	1	6.3		1	59		1	
B13-SS02 (07-Mar-2013)	2.8	F	1	29		1	0.030	U	1	6.5	F	1	8.1		1	16		1	0.10		1	4.6		1	43		1	
B13-SS03 (07-Mar-2013)	2.8	F	1	26		1	0.030	U	1	7.0	F	1	8.4		1	18		1	0.050	F	1	5.0		1	26		1	
B13-SS04 (07-Mar-2013)	2.7	F	1	45		1	0.030	UJ	1	6.7	F	1	10		1	22		1	0.11		1	4.9		1	66		1	
B13-SS05 (07-Mar-2013)	2.5	F	1	34		1	0.030	U	1	5.6	F	1	6.2		1	15		1	0.050	F	1	4.3		1	31		1	
B13-SS06 (07-Mar-2013)	4.7	F	1	59		1	0.12	F	1	14	F	1	20		1	45		1	0.060	F	1	9.4		1	72		1	
B13-SS07 (07-Mar-2013)	3.4	F	1	39		1	0.030	U	1	11	F	1	12		1	33		1	0.060	F	1	7.0		1	44		1	
B13-SW01 (11-Oct-2012)	4.5	F	1	41	J	1	0.030	UJ	1	14	F	1	5.8		1	13		1	0.040	F	1	9.7		1	19	J	1	
B13-SW02 (31-Oct-2012)	6.1	F	1	50		1	0.030	U	1	15	F	1	8.2		1	26		1	0.050	F	1	10		1	33		1	
B13-SW03 (31-Oct-2012)	7.4	F	1	69		1	0.030	U	1	20	F	1	8.2		1	14		1	0.040	F	1	13		1	30		1	
B13-SW04 (31-Oct-2012)	5.1	F	1	40		1	0.030	U	1	9.8	F	1	6.3		1	10.0	F	1	0.030	F	1	7.8		1	25		1	
B13-SW05 (31-Oct-2012)	4.1	F	1	26		1	0.030	U	1	9.2	F	1	6.9		1	11		1	0.040	F	1	6.7		1	19		1	
B13-SW06 (13-Nov-2012)	2.6	F	1	14		1	0.030	U	1	5.3	F	1	23		1	2.6	F	1	0.040	F	1	3.9		1	96		1	
B13-SW07 (13-Nov-2012)	8.4	F	1	82		1	0.030	U	1	24		1	2.5		1	32		1	0.080	F	1	14		1	12		1	
B13-SW08 (13-Nov-2012)	3.2	F	1	9.8		1	0.030	U	1	4.6	F	1	10		1	7.3	F	1	0.020	F	1	5.3		1	13		1	
B13-SW09 (13-Nov-2012)	3.9	F	1	56		1	0.030	U	1	16	F	1	41		1	130		1	0.020	F	1	11		1	150		1	
B13-SW10 (13-Nov-2012)	2.7	F	1	18		1	0.030	U	1	4.1	F	1	4.7		1	6.8	F	1	0.020	F	1	3.4		1	15		1	
B13-SW11 (13-Nov-2012)	3.9	F	1	56		1	0.030	U	1	13	F	1	25		1	36		1	0.11		1	7.8		1	110		1	
B13-SW12 (13-Nov-2012)	5.4	F	1	40		1	0.030	U	1	14	F	1	8.7		1	26		1	0.090	F	1	8.7		1	43		1	
B13-SW13 (13-Nov-2012)	5.1	F	1	37		1	0.030	U	1	11	F	1	4.8		1	6.0	F	1	0.030	F	1	8.4		1	16		1	
B13-SW14 (28-Nov-2012)	--			--			--			--			--			45	J	1	--			--			45	J	1	
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			

NOTES:

- † TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: June 29, 2012).
- †† CSSA Soil Background Concentrations. Second Revision, Evaluation of Background Metals Concentrations in Soils and Bedrock at CSSA. February 2002. Values from Table 3.3.
- ††† Texas-Specific median background concentration.
- PCLs and CSSA background values coded in this table as [1, 2, 3].
- [1] ^{tot}Soil_{comb} = PCL for COPC in soil for a 30 acre source area and a potential future resident (combined exposure for ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables).
- [2] ^{gw}Soil_{leach} = PCL for COPC in soil for a 30 acre source area and a potential future resident (soil-to-groundwater leaching of COPC to Class 1 and 2 groundwater).
- [3] CSSA Soil Background Concentrations.
- PCLs are shown in **blue** font.
- All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.

QA NOTES AND DATA QUALIFIERS:

- (NO CODE) - Confirmed identification.
- U - Analyte was not detected above the indicated Method Detection Limit (MDL).
- F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).
- J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
- M = Concentration is estimated due to a matrix effect.
- Values shown in **BOLD** indicate detections above the MDL.
- Values **HIGHLIGHTED** indicate detections above the PCL.
- c = carcinogenic.
- n = noncarcinogenic.
- m = primary MCL-based.
- a = EPA Action Level-based.
- >S = solubility limit exceeded during calculation.
- na = not applicable.

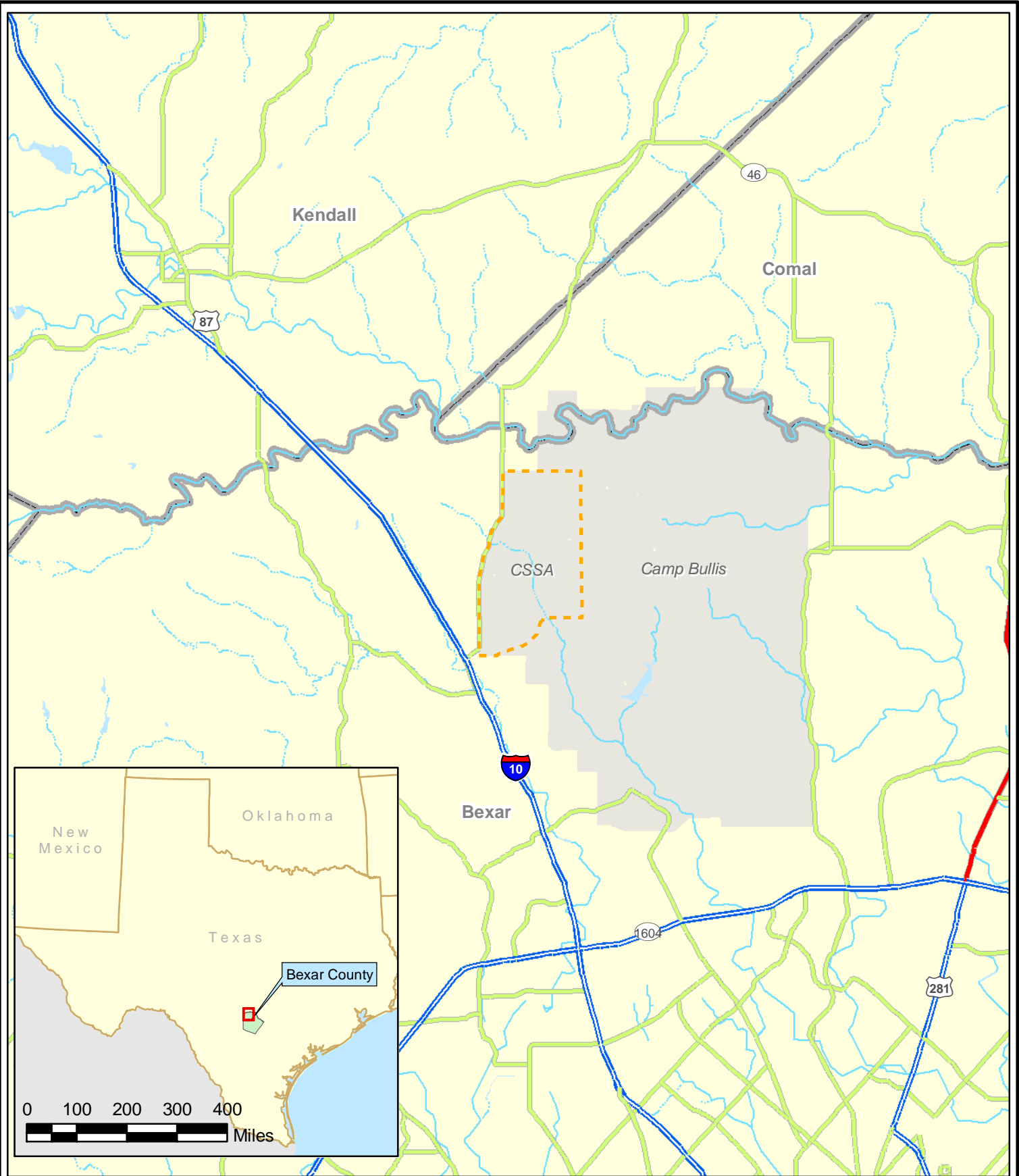
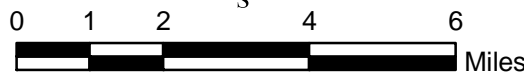


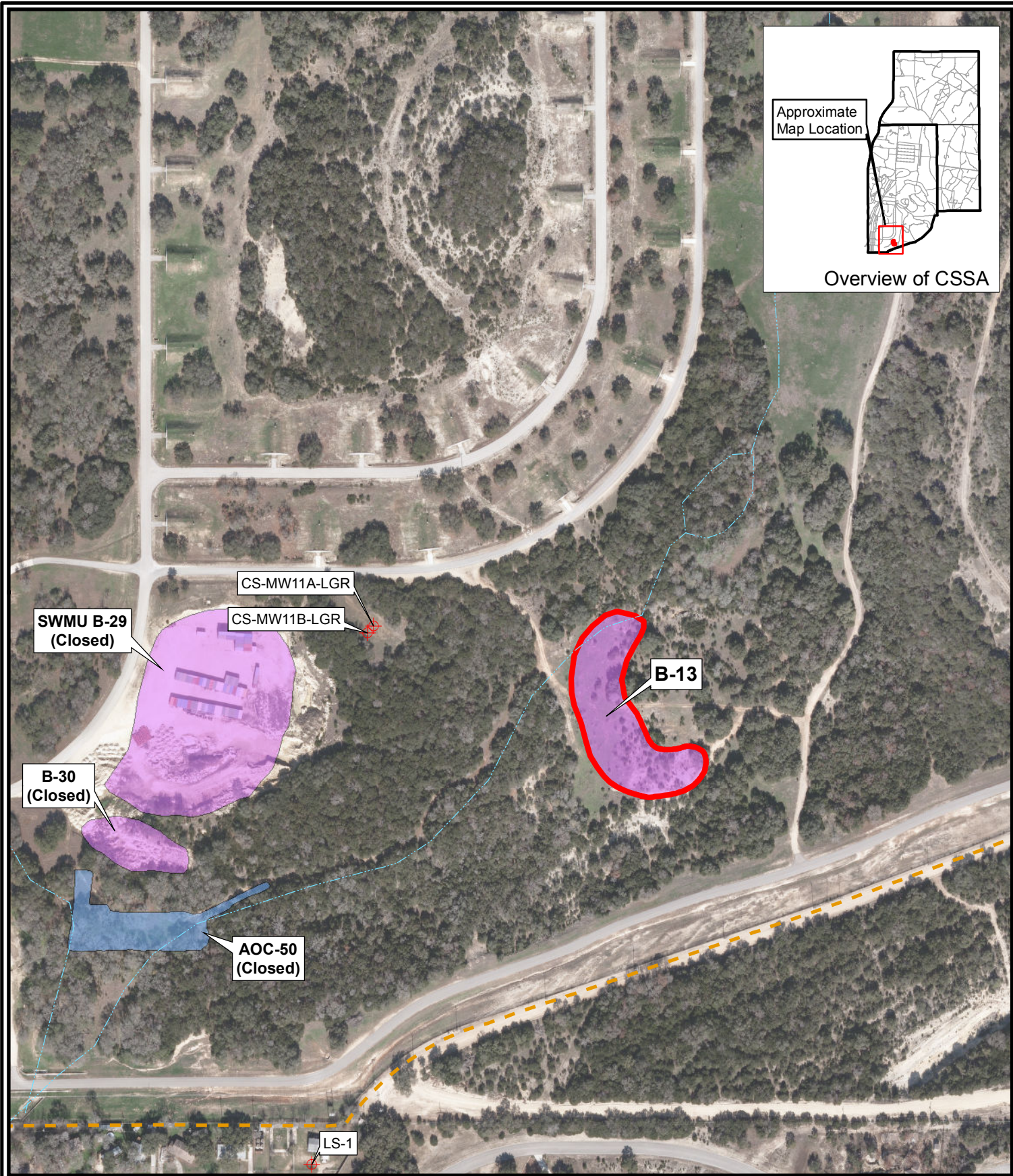
Figure 1

CSSA Location Map
Camp Stanley Storage Activity

PARSONS

- CSSA
- Freeway
- Highway
- Major Road
- County Boundary
- Military Installation





Aerial Photo Date: 2012



300 150 0 300 Feet









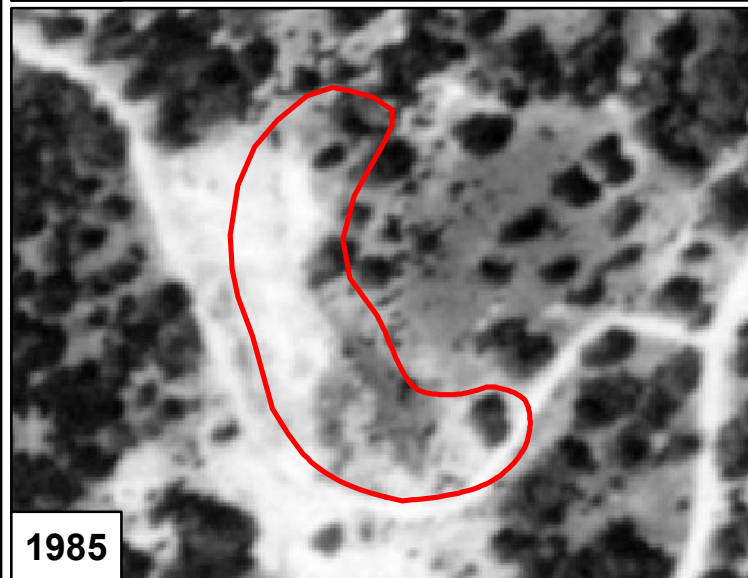
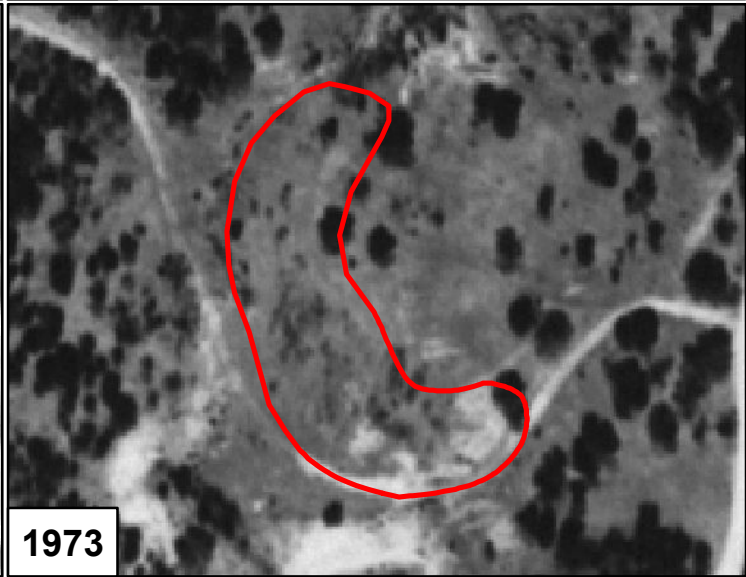
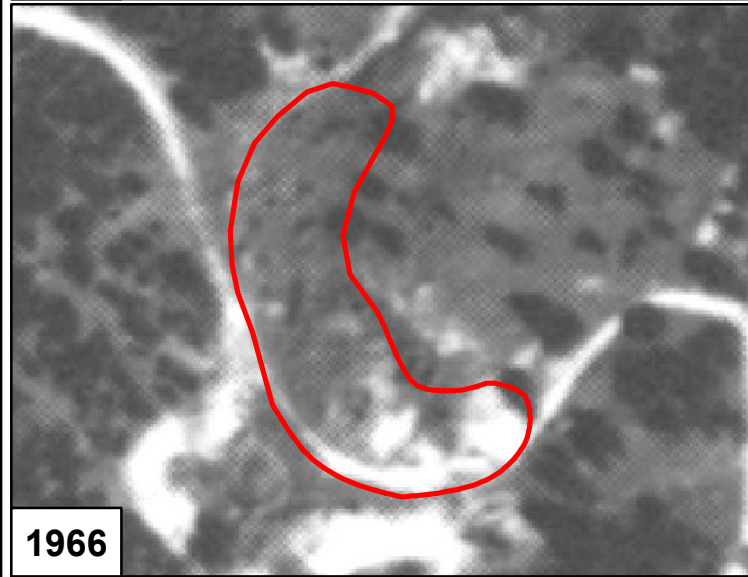
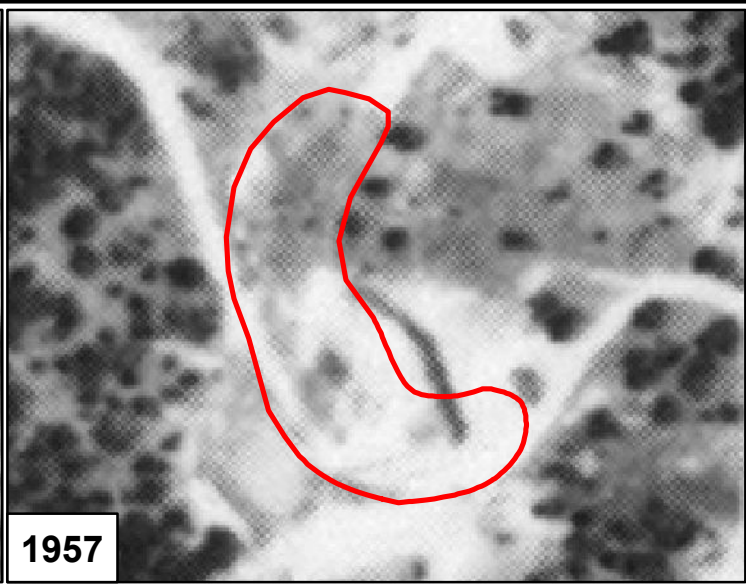
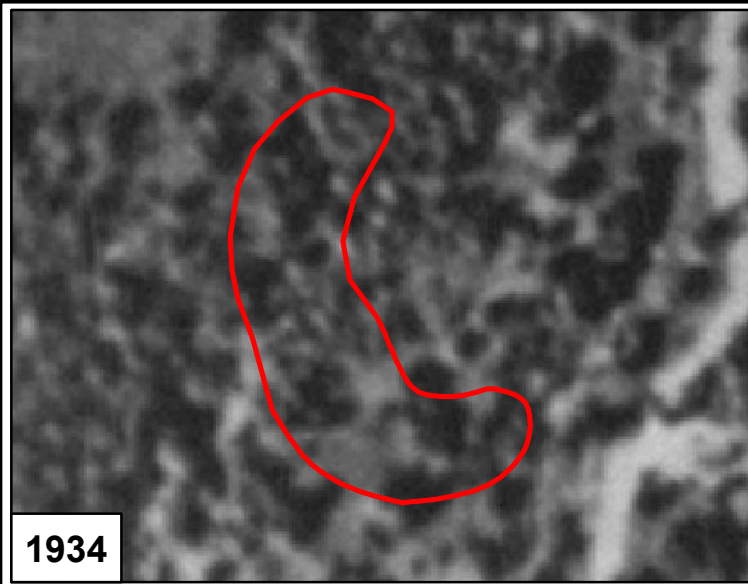
-  Well Location
-  SWMU B-13
-  AOC Boundary
-  SWMU Boundary
-  Stream
-  CSSA Outer Fence Line

Figure 2

SWMU B-13
Site Location Map
Camp Stanley Storage Activity

PARSONS



1934

1957

1966

1973

1985

2008



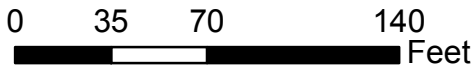
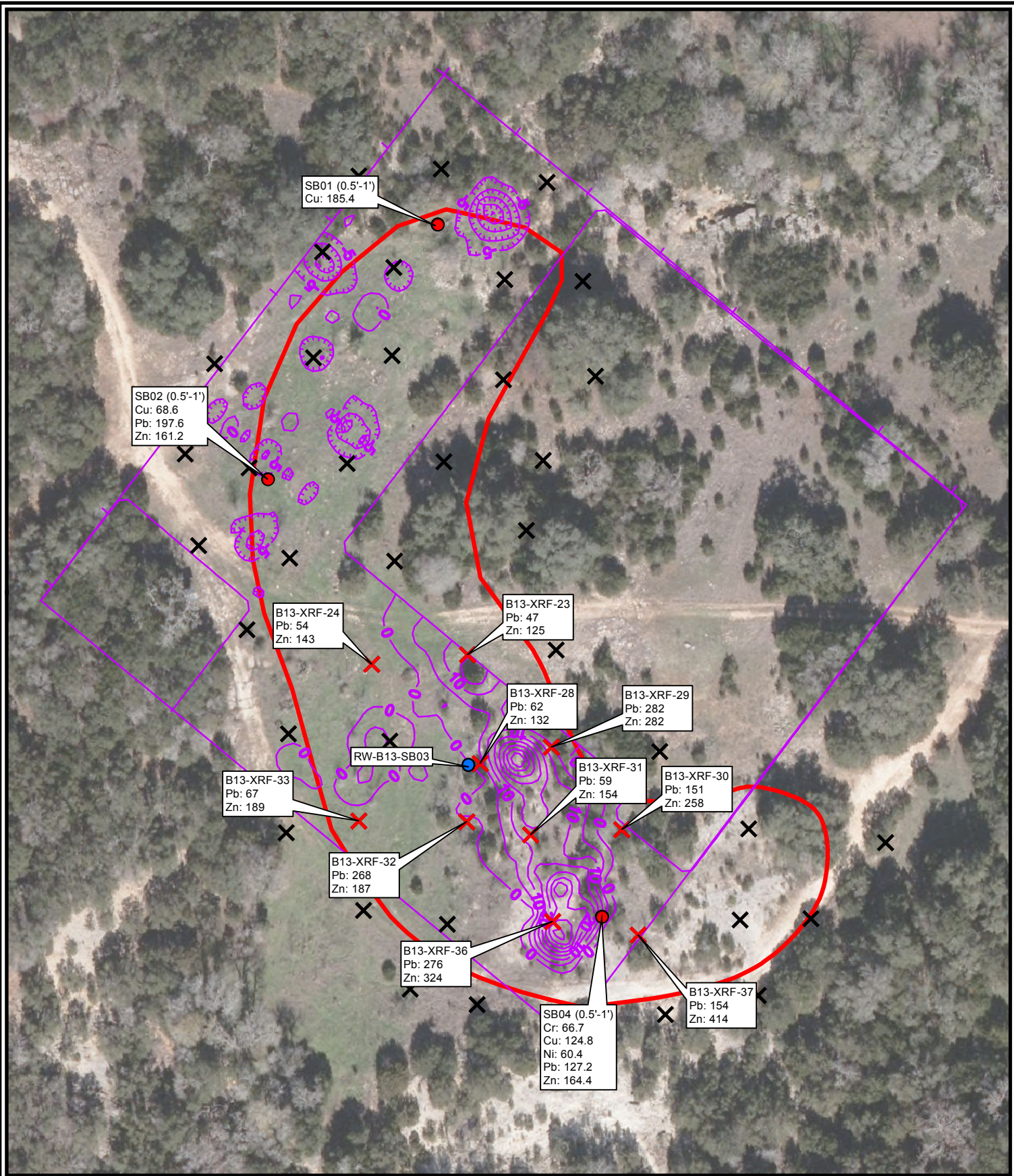
 SWMU B-13

0 100 200 400 Feet

Figure 3

SWMU B-13
Historical Aerial Photographs
Camp Stanley Storage Activity

PARSONS

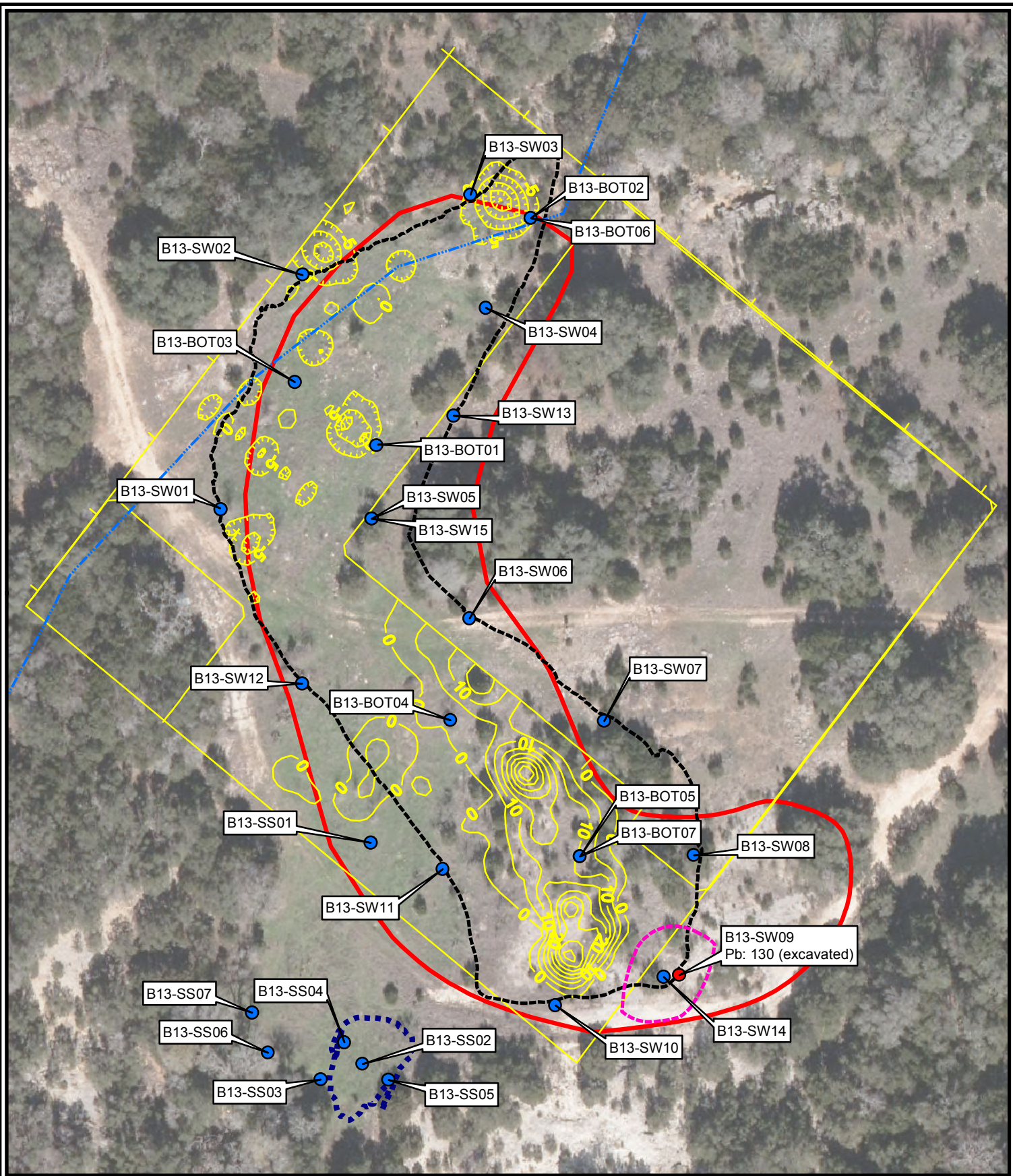


- SWMU B-13 Site Boundary
- EM Survey Contours
- Soil Sample Location
- Soil Sample Location with results above Tier 1 PCLs
- ✕ XRF Sample
- ✕ XRF Sample with results exceeding Tier 1 PCLs

Figure 4

SWMU B-13
Previous Investigation Results
Camp Stanley Storage Activity

PARSONS



- ▭ SWMU B-13 Site Boundary
- Soil Sample
- Soil Sample with Pb result above Tier 1 PCL (mg/kg)
- EM Survey Contours
- Initial Excavation Boundary September - November 2012
- Re-excavation Boundary November 2012
- New Excavation Boundary February 2013
- - - Intermittent Stream

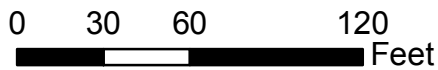


Figure 5

SWMU B-13
Sample and Excavation Locations
Camp Stanley Storage Activity

PARSONS

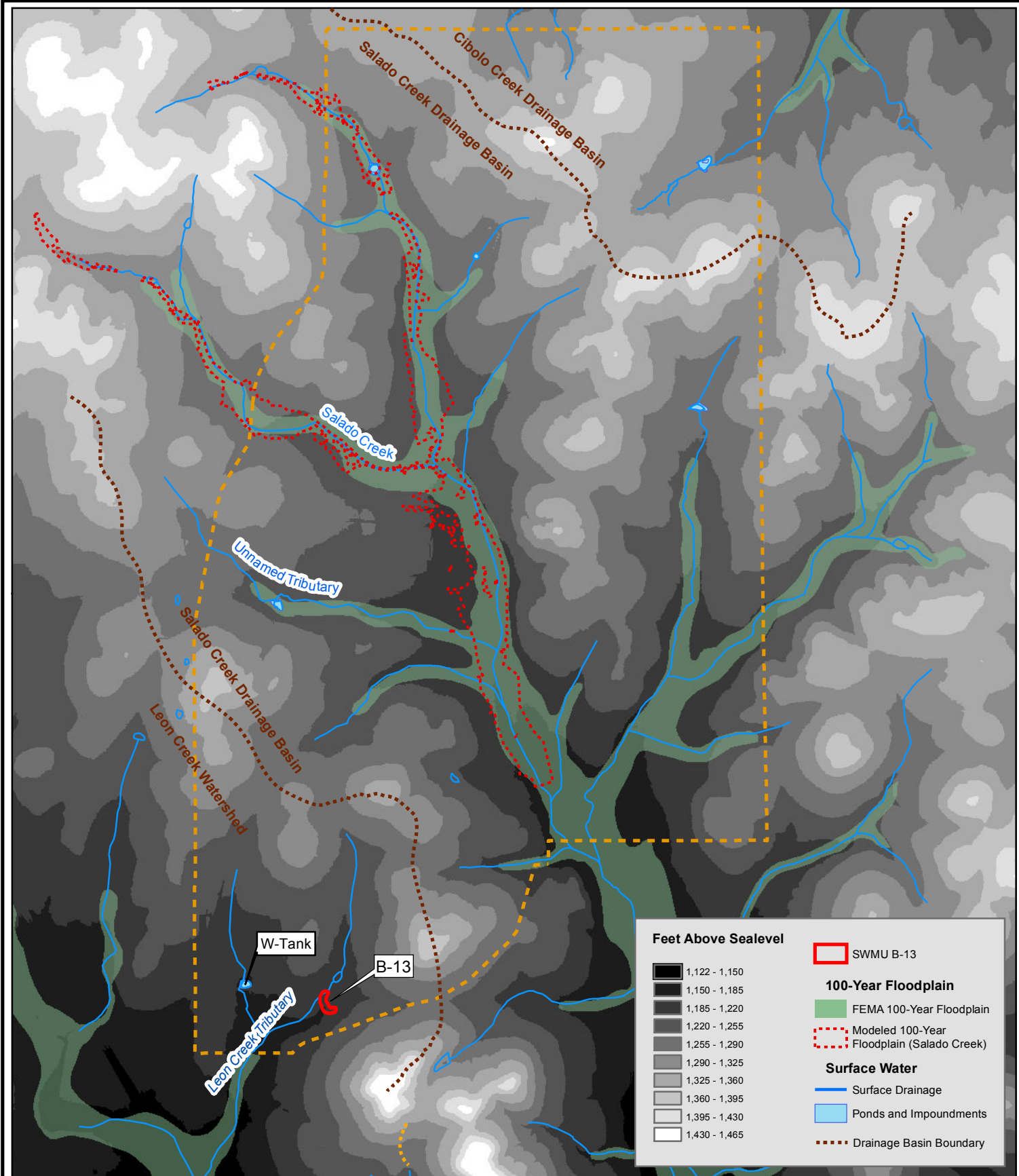
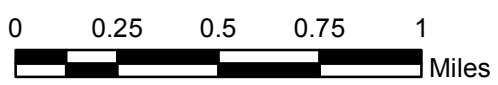


Figure 6

SWMU B-13 Topography, Surface Water, and Floodplains
Camp Stanley Storage Activity

PARSONS



APPENDIX A
Site Photographs



Photo 1. SWMU B-13 north end excavation, looking north (October 2012).



Photo 2. Construction debris at SWMU B-13, looking east (October 2012).



Photo 3. SWMU B-13 south end excavation, looking east (October 2012).



Photo 4. Completed excavation, north end of site, looking north (October 2012).

APPENDIX B
Tier 1 Ecological Exclusion Criteria Checklist

Figure: 30 TAC §350.77(b)

TIER 1: Exclusion Criteria Checklist

This exclusion criteria checklist is intended to aid the person and the TNRCC in determining whether or not further ecological evaluation is necessary at an affected property where a response action is being pursued under the Texas Risk Reduction Program (TRRP). Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (ERA) because there are **incomplete or insignificant ecological exposure pathways** due to the nature of the affected property setting and/or the condition of the affected property media. This checklist (and/or a Tier 2 or 3 ERA or the equivalent) must be completed by the person for all affected property subject to the TRRP. The person should be familiar with the affected property but need not be a professional scientist in order to respond, although some questions will likely require contacting a wildlife management agency (i.e., Texas Parks and Wildlife Department or U.S. Fish and Wildlife Service). The checklist is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgement in order to determine the need for further ecological evaluation (e.g., cave-dwelling receptors). In these cases, the person is strongly encouraged to contact TNRCC before proceeding.

Besides some preliminary information, the checklist consists of three major parts, **each of which must be completed unless otherwise instructed**. PART I requests affected property identification and background information. PART II contains the actual exclusion criteria and supportive information. PART III is a qualitative summary statement and a certification of the information provided by the person. **Answers should reflect existing conditions and should not consider future remedial actions at the affected property**. Completion of the checklist should lead to a logical conclusion as to whether further evaluation is warranted. Definitions of terms used in the checklist have been provided and users are strongly encouraged to familiarize themselves with these definitions before beginning the checklist.

Name of Facility:

Camp Stanley Storage Activity (CSSA), Boerne, Texas.

Affected Property Location:

SWMU B-13 is located in the southwestern portion of the CSSA Inner Cantonment (see Figure 2 of this RIR). The site lies approximately 500 feet north of the southern CSSA boundary and is approximately 1.4 acres in size.

Mailing Address:

**Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, TX 78015**

TNRCC Case Tracking #s:

**Water Customer No.: CN602728206.
Air Customer No.: CN600126262.**

Solid Waste Registration #s:

Texas Solid Waste Registration No.: 69026.

Voluntary Cleanup Program #: **Not applicable.**

EPA I.D. #s:

USEPA Identification No.: TX2210020739.

Ecological risk assessment - The process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors; however, as used in this context, only chemical stressors (i.e., COCs) are evaluated.

Environmental medium - A material found in the natural environment such as soil (including non-waste fill materials), groundwater, air, surface water, and sediments, or a mixture of such materials with liquids, sludges, gases, or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up primarily of natural environmental material.

Exclusion criteria - Those conditions at an affected property which preclude the need to establish a protective concentration level for an ecological exposure pathway because the exposure pathway between the chemical of concern and the ecological receptors is not complete or is insignificant.

Exposure medium - The environmental medium or biologic tissue in which or by which exposure to chemicals of concern by ecological or human receptors occurs.

Facility - The installation associated with the affected property where the release of chemicals of concern occurred.

Functioning cap - A low permeability layer or other approved cover meeting its design specifications to minimize water infiltration and chemical of concern migration, and prevent ecological or human receptor exposure to chemicals of concern, and whose design requirements are routinely maintained.

Landscaped area - An area of ornamental, or introduced, or commercially installed, or manicured vegetation which is routinely maintained.

Off-site property (off-site) - All environmental media which is outside of the legal boundaries of the on-site property.

On-site property (on-site) - All environmental media within the legal boundaries of a property owned or leased by a person who has filed a self-implementation notice or a response action plan for that property or who has become subject to such action through one of the agency's program areas for that property.

Physical barrier - Any structure or system, natural or manmade, that prevents exposure or prevents migration of chemicals of concern to the points of exposure.

Point of exposure - The location within an environmental medium where a receptor will be assumed to have a reasonable potential to come into contact with chemicals of concern. The point of exposure may be a discrete point, plane, or an area within or beyond some location.

Protective concentration level - The concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway.

Release - Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, with the exception of:

(A) A release that results in an exposure to a person solely within a workplace, concerning a claim that the person may assert against the person's employer;

(B) An emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine;

(C) A release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. §2011 et seq.), if the release is subject to requirements concerning financial protection established by the Nuclear Regulatory Commission under §170 of that Act;

(D) For the purposes of the environmental response law §104, as amended, or other response action, a release of source, by-product, or special nuclear material from a processing site designated under §102(a)(1) or §302(a) of the Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. §7912 and §7942), as amended; and

(E) The normal application of fertilizer.

Sediment - Non-suspended particulate material lying below surface waters such as bays, the ocean, rivers, streams, lakes, ponds, or other similar surface water body (including intermittent streams). Dredged sediments which have been removed from below surface water bodies and placed on land shall be considered soils.

Sensitive environmental areas - Areas that provide unique and often protected habitat for wildlife species. These areas are typically used during critical life stages such as breeding, hatching, rearing of young, and overwintering. Examples include critical habitat for threatened and endangered species, wilderness areas, parks, and wildlife refuges.

Source medium - An environmental medium containing chemicals of concern which must be removed, decontaminated and/or controlled in order to protect human health and the environment. The source medium may be the exposure medium for some exposure pathways.

Stressor - Any physical, chemical, or biological entity that can induce an adverse response; however, as used in this context, only chemical entities apply.

Subsurface soil - For human health exposure pathways, the portion of the soil zone between the base of surface soil and the top of the groundwater-bearing unit(s). For ecological exposure pathways, the portion of the soil zone between 0.5 feet and 5 feet in depth.

Surface cover - A layer of artificially placed utility material (e.g., shell, gravel).

Surface soil - For human health exposure pathways, the soil zone extending from ground surface to 15 feet in depth for residential land use and from ground surface to 5 feet in depth for commercial/industrial land use; or to the top of the uppermost groundwater-bearing unit or bedrock, whichever is less in depth. For ecological exposure pathways, the soil zone extending from ground surface to 0.5 feet in depth.

Surface water - Any water meeting the definition of surface water in the state as defined in §307.3 of this title (relating to Abbreviations and Definitions), as amended.

PART I. Affected Property Identification and Background Information

1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

Camp Stanley Storage Activity: CSSA is located in northwestern Bexar County, about 19 miles northwest of downtown San Antonio. The installation consists of approximately 4,004 acres immediately east of Ralph Fair Road and approximately 0.5 mile east of Interstate Highway 10 (see Figure 1 of the RIR). CSSA has several historical waste sites, including SWMUs, AOCs, and RMUs. The present mission of CSSA is the receipt, storage, issue, and maintenance of ordnance, as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its mission, CSSA has been designated a restricted access facility. No changes to the CSSA mission and/or military activities are expected in the future.

SWMU B-13 is located in the southwestern portion of the CSSA Inner Cantonment. The site lies approximately 500 feet north of the southern CSSA boundary and covers approximately 1.4 acres. Prior to the excavation activities described herein, the area was open and sparsely vegetated. Some low brush, oak, and juniper trees had grown up in areas around the site.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area. Indicate attachments:

- Topo map Aerial photo Other

Aerial photos of the site and land adjacent to the site are shown on Figure 3 of the RIR. Figure 2 of the RIR shows the general location of SWMU B-13.

2) Identify environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

<u>Known/Suspected COC Location</u>	<u>Based on sampling data?</u>	
<input type="checkbox"/> NO – Soil ≤ 5 ft below ground surface	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Soil >5 ft below ground surface	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Groundwater	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Surface Water/Sediments	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Explain (previously submitted information may be referenced):

Based on soil samples collected at SWMU B-13, there are there are no VOCs, SVOCs, or metals at the site that exceed their respective PCL (see Appendix C of this RIR). There is also no asbestos remaining in the soils. There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-13. Over the past 10 years, there have been samples collected from the closest wells to SWMU B-13 (well CS-MW11A-LGR and CS-MW11B-LGR, both located approximately 500 feet west of and side-gradient to the site). Low concentrations of VOCs detected in these two wells (below their respective MCLs) are attributed to contaminated groundwater from past disposal activities at AOC-65 which is located on the western edge of CSSA, approximately 0.5 miles from SWMU B-13.

Low concentrations of VOCs (tetrachloroethene and trichloroethene) have been historically detected in both wells (below their respective maximum contaminant levels [MCLs]) and are attributed to contaminated groundwater, termed Plume 2, originating from past disposal activities at AOC-65 (see the Hydrogeologic Conceptual Site Model Report located on the

Name:

Upper Leon Creek

Segment #:

Segment 1907 – from a point 100 meters (330 feet) upstream of State Highway 16 northwest of San Antonio in Bexar County to a point 9.0 kilometers (5.6 miles) upstream of Scenic Loop Road north of Helotes in Bexar County.

Use Classification:

Upper Leon Creek is classified as a perennial stream. The designated uses of Segment 1907 are high aquatic life, contact recreation, public water supply, and aquifer protection. No significant degradation of high quality receiving waters is anticipated from SWMU B-13.

All creeks at CSSA are intermittent and only have water during and immediately following rain events. Refer to Section 3.3 of the RIR.

As necessary, provide further description of surface waters in the vicinity of the affected property:

The closest perennial surface water body to SWMU B-13 is the “W-Tank,” a pond located approximately 1,300 feet west of the site. The nearest ephemeral surface water feature is unnamed tributary of Upper Leon Creek that runs along the northern edge of the site.

The W-Tank, which is fed by precipitation, is located along the westernmost unnamed tributary of Upper Leon Creek. The tributary that runs on the north edge of SWMU B-13 travels southwest and merges into this tributary that the W-Tank lies next to. Both tributaries run south, merge just north of the southern CSSA boundary, then drain southward to Upper Leon Creek. At the location of the W-Tank, the distance to Upper Leon Creek is approximately 4,375 feet.

The nearest classified creek that is downgradient from SWMU B-13 is Upper Leon Creek. The creek is classified as a perennial stream. Upper Leon Creek is classified under Texas Surface Water Quality Standards as Segment 1907 from a point 330 ft upstream of State Highway 16 northwest of San Antonio in Bexar County to a point 5.6 miles upstream of Scenic Loop Road north of Helotes in Bexar County. The designated uses of Segment 1907 are high aquatic life, contact recreation, public water supply, and aquifer protection. No significant degradation of high quality receiving waters is anticipated from SWMU B-13.

PART II. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure

1) Regarding the affected property where a response action is being pursued under the TRRP, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.? Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

- a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

Yes No

Explain:

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-13. Since soils were not found to have concentrations of VOCs, SVOCs, or

metals above Tier 1 PCLs, and the remaining soils do not contain asbestos, there can be no impact to groundwater, surface water, or sediment from SWMU B-13.

The closest perennial surface water body to SWMU B-13 is the “W-Tank,” a pond located approximately 1,300 feet west of the site. Since this feature is not downgradient of SWMU B-13, there can be no impact. An ephemeral tributary runs along the northern boundary of the site. This feature only contains water during and immediately following rain events. All debris and affected soil have been removed from the site, eliminating any source for contaminant transport by this tributary.

If the answer is Yes to Subpart A above, the affected property does not meet the exclusion criteria. However, complete the remainder of Part II to determine if there is a complete and/or significant soil exposure pathway, then complete PART III - Qualitative Summary and Certification. If the answer is No, go to Subpart B.

Subpart B. Affected Property Setting

In answering “Yes” to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). (May require consultation with wildlife management agencies.)

1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, other surface cover or structure, or otherwise disturbed ground?

Yes No

Explain:

Concentrations of chemicals detected in confirmation soil samples at SWMU B-13 do not exceed Tier 1 residential soil action levels. Asbestos sampling results confirm that asbestos material has been removed from the site.

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-13. Since the soil media and associated waste was excavated from the site, there can be no impact to groundwater, surface water, or sediment in the area.

Additionally, several surveys have been conducted at CSSA for threatened and endangered (T&E) species. The only T&E species that have been documented at CSSA are the black-capped vireo (*Vireo atricapillus*) [BCVI] and golden-cheeked warbler (*Dendroica chrysoparia*) [GCWA]. SWMU B-13 is not located within BCVI or GCWA habitat. The nearest potential habitats for local endangered species are approximately 1,000 feet east. Additional information can be found in the following references:

- **Parsons, 2007. *Final Integrated Natural Resource Management Plan*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. October 2007. Available online: [CSSA EE \(Volume 1.6, Other Plans and Approaches\)](#)**
- **Parsons, 2009. *Final Species and Habitat Distributions of Black-Capped Vireos and Golden-Cheeked Warblers, 2009 Breeding/Nesting Season*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. September 2009. Available online: [CSSA EE \(Volume 1.6, Other Plans and Approaches\)](#)**

If the answer to Subpart B above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subparts C and D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart B above is No, go to Subpart C.

Subpart C. Soil Exposure

1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface or does the affected property have a physical barrier present to prevent exposure of receptors to COCs in surface soil?

- Yes **See explanation** No
Explain:

Based on Table 1 of this RIR there are no longer any COCs at the site. What contaminated soil horizon that was present at the site was removed during excavation activities.

If the answer to Subpart C above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subpart D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart C above is No, proceed to Subpart D.

Subpart D. De Minimus Land Area Subpart D skipped based on answers to Subparts A and C.

In answering "Yes" to the question below, it is understood that all of the following conditions apply:

- The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies.)
- Similar but unimpacted habitat exists within a half-mile radius.
- The affected property is not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies.)
- There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.

1) Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all of the conditions above?

- Yes No

Explain how conditions are met/not met:

If the answer to Subpart D above is Yes, then no further ecological evaluation is needed at this affected property. Assuming the answer to Subpart A was No, Complete PART III - Qualitative Summary and Certification. If the answer to Subpart D above is No, proceed to Tier 2 or 3 or comparable ERA.

PART III. Qualitative Summary and Certification (Complete in all cases).

Attach a brief statement (not to exceed 1 page) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The person should make the initial decision regarding the need for further ecological evaluation (i.e., Tier 2 or 3) based upon the results of this checklist. After review, TCEQ will make a final determination on the need for further assessment. **Note that the person has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the Tier 1 exclusion criteria.**

Completed by: Laura Marbury, P.G. (Typed/Printed Name)


Principal Geologist (Title)

April 4, 2013 (Date)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

Julie Burdey, P.G. (Typed/Printed Name of Person)

Project Manager (Title of Person)



(Signature of Person)

APPENDIX C
Confirmation Sample Results for All Analytes at SWMU B-13

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Volatile Organics																															
	1-Chlorohexane CAS: 544-10-5	Qualifier	Dilution	2,2-Dichloropropane CAS: 594-20-7	Qualifier	Dilution	2-Chlorotoluene CAS: 95-49-8	Qualifier	Dilution	4-Chlorotoluene CAS: 106-43-4	Qualifier	Dilution	Benzene CAS: 71-43-2	Qualifier	Dilution	Bromobenzene CAS: 108-86-1	Qualifier	Dilution	Bromochloromethane CAS: 74-97-5	Qualifier	Dilution	Bromodichloromethane CAS: 75-27-4	Qualifier	Dilution	Bromoform CAS: 75-25-2	Qualifier	Dilution	Bromomethane CAS: 74-83-9	Qualifier	Dilution		
Tier 1 Soil PCLs - 30 acre[†]																																
Residential Combined Exposure ^[1]	2.30E+03	n		3.10E+01	n		1.10E+03	n		1.60E+03	n		6.90E+01	c		2.80E+02	n		3.30E+03	n		9.80E+01	c		2.80E+02	c		2.90E+01	n			
Residential Groundwater Exposure ^[2]	2.00E+01	n		6.00E-02	c		4.50E+00	n		5.40E+00	n		1.30E-02	m		1.20E+00	n		1.50E+00	n		3.30E-02	c		3.20E-01	c		6.50E-02	n			
TCEQ-Approved Background Values																																
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na				
Sample Locations (Date Collected)																																
B13-BOT01 (11-Oct-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	M	1		
B13-BOT01-DUP (11-Oct-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1		
B13-BOT02 (31-Oct-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1		
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-BOT05 (13-Nov-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1		
B13-BOT05-DUP (13-Nov-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1		
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW05 (31-Oct-2012)	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1		
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Volatile Organics																													
	Ethylbenzene CAS: 100-41-4	Qualifier	Dilution	Hexachlorobutadiene CAS: 87-68-3	Qualifier	Dilution	Isopropylbenzene CAS: 98-82-8	Qualifier	Dilution	m,p-Xylene CAS: 179601-23-1	Qualifier	Dilution	Methylene chloride CAS: 75-09-2	Qualifier	Dilution	Naphthalene CAS: 91-20-3	Qualifier	Dilution	n-Butylbenzene CAS: 104-51-8	Qualifier	Dilution	n-Propylbenzene CAS: 103-65-1	Qualifier	Dilution	o-Xylene CAS: 95-47-6	Qualifier	Dilution	p-Cymene (p-Isopropyltoluene) CAS: 99-87-6	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																														
Residential Combined Exposure ^[1]	5.30E+03	n		1.20E+01	c		3.00E+03	n		4.70E+03	n		4.70E+02	n		1.20E+02	n		3.30E+03	n		1.60E+03	n		2.90E+04	n		8.20E+03	n	
Residential Groundwater Exposure ^[2]	3.80E+00	m		1.60E+00	c		1.70E+02	n		5.30E+01	m		6.50E-03	m		1.60E+01	n		7.60E+01	n		2.20E+01	n		3.50E+01	m		1.20E+02	n	
TCEQ-Approved Background Values																														
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)																														
B13-BOT01 (11-Oct-2012)	0.0010	U	1	0.0011	M	1	0.0010	U	1	0.0018	U	1	0.0013	U	1	0.0010	M	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-BOT01-DUP (11-Oct-2012)	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-BOT02 (31-Oct-2012)	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0080		1	0.0010	U	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT05 (13-Nov-2012)	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0097		1	0.0010	U	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-BOT05-DUP (13-Nov-2012)	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0107		1	0.0010	U	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			0.0013	U	1	--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			0.0013	U	1	--			--			--			--			--		
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW05 (31-Oct-2012)	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0077		1	0.0010	U	1	0.0010	U	1	0.0012	U	1	0.00070	U	1	0.0012	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW15 (07-Mar-2013)	--			--			--			--			0.0013	U	1	--			--			--			--			--		

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Semi-Volatile Organics																													
	1,2,4-Trichlorobenzene CAS: 120-82-1	Qualifier	Dilution	1,2-Dichlorobenzene CAS: 95-50-1	Qualifier	Dilution	1,3-Dichlorobenzene CAS: 541-73-1	Qualifier	Dilution	1,4-Dichlorobenzene CAS: 106-46-7	Qualifier	Dilution	2,4,5-Trichlorophenol CAS: 95-95-4	Qualifier	Dilution	2,4,6-Trichlorophenol CAS: 88-06-2	Qualifier	Dilution	2,4-Dichlorophenol CAS: 120-83-2	Qualifier	Dilution	2,4-Dimethylphenol CAS: 105-67-9	Qualifier	Dilution	2,4-Dinitrophenol CAS: 51-28-5	Qualifier	Dilution	2,4-Dinitrotoluene CAS: 121-14-2	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																														
Residential Combined Exposure ^[1]	7.00E+01	n		3.90E+02	n		6.20E+01	n		2.50E+02	c		6.70E+03	n		6.70E+01	n		2.00E+02	n		1.30E+03	n		1.30E+02	n		6.90E+00	c	
Residential Groundwater Exposure ^[2]	2.40E+00	m		8.90E+00	m		3.40E+00	n		1.10E+00	m		1.70E+01	n		8.70E-02	n		1.80E-01	n		1.60E+00	n		4.70E-02	n		2.70E-03	c	
TCEQ-Approved Background Values																														
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)																														
B13-BOT01 (11-Oct-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-BOT01-DUP (11-Oct-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-BOT02 (31-Oct-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT05 (13-Nov-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-BOT05-DUP (13-Nov-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW05 (31-Oct-2012)	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Semi-Volatile Organics																													
	2,6-Dinitrotoluene CAS: 606-20-2	Qualifier	Dilution	2-Chloronaphthalene CAS: 91-58-7	Qualifier	Dilution	2-Chlorophenol CAS: 95-57-8	Qualifier	Dilution	2-Methyl-4,6-dinitrophenol CAS: 534-52-1	Qualifier	Dilution	2-Methylnaphthalene CAS: 91-57-6	Qualifier	Dilution	2-Methylphenol CAS: 95-48-7	Qualifier	Dilution	2-Nitroaniline CAS: 88-74-4	Qualifier	Dilution	2-Nitrophenol CAS: 88-75-5	Qualifier	Dilution	3,3'-Dichlorobenzidine CAS: 91-94-1	Qualifier	Dilution	3-Nitroaniline CAS: 99-09-2	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																														
Residential Combined Exposure ^[1]	6.90E+00	c		5.00E+03	n		4.10E+02	n		6.70E+00	n		2.50E+02	n		3.30E+03	n		1.10E+01	n		1.30E+02	n		1.00E+01	c		1.20E+01	n	
Residential Groundwater Exposure ^[2]	2.40E-03	c		3.30E+02	n		8.20E-01	n		2.30E-03	n		8.50E+00	n		3.60E+00	n		1.10E-02	n		6.70E-02	n		3.10E-02	c		1.30E-02	n	
TCEQ-Approved Background Values																														
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)																														
B13-BOT01 (11-Oct-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-BOT01-DUP (11-Oct-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-BOT02 (31-Oct-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT05 (13-Nov-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-BOT05-DUP (13-Nov-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW05 (31-Oct-2012)	0.040	U	1	0.040	U	1	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Semi-Volatile Organics																							
	4-Bromophenyl phenyl ether CAS: 101-55-3		4-Chloro-3-methyl phenol CAS: 59-50-7		4-Chloroaniline CAS: 106-47-8		4-Chlorophenyl phenyl ether CAS: 7005-72-3		4-Methylphenol (p-cresol) CAS: 106-44-5		4-Nitroaniline CAS: 100-01-6		4-Nitrophenol CAS: 100-02-7		Acenaphthene CAS: 83-32-9		Acenaphthylene CAS: 208-96-8		Anthracene CAS: 120-12-7					
	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution		
Tier 1 Soil PCLs - 30 acre[†]																								
Residential Combined Exposure ^[1]	2.70E-01	c	3.30E+02	n	2.30E+01	c	1.50E-01	c	3.30E+02	n	1.90E+02	n	1.30E+02	n	3.00E+03	n	3.80E+03	n	1.80E+04	n				
Residential Groundwater Exposure ^[2]	1.80E-01	c	2.30E+00	n	1.00E-02	c	1.60E-02	c	3.20E-01	n	5.40E-02	c	5.00E-02	n	1.20E+02	n	2.00E+02	n	3.40E+03	n	>S			
TCEQ-Approved Background Values																								
CSSA 9 Metals Background Concentration ^[3]	na		na		na		na		na		na		na		na		na		na					
Sample Locations (Date Collected)																								
B13-BOT01 (11-Oct-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1				
B13-BOT01-DUP (11-Oct-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1		
B13-BOT02 (31-Oct-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1		
B13-BOT03 (31-Oct-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-BOT04 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-BOT05 (13-Nov-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1		
B13-BOT05-DUP (13-Nov-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1		
B13-BOT06 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-BOT07 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS01 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS02 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS03 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS04 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS05 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS06 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SS07 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW01 (11-Oct-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW02 (31-Oct-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW03 (31-Oct-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW04 (31-Oct-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW05 (31-Oct-2012)	0.050	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1		
B13-SW06 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW07 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW08 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW09 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW10 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW11 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW12 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW13 (13-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW14 (28-Nov-2012)	--		--		--		--		--		--		--		--		--		--		--			
B13-SW15 (07-Mar-2013)	--		--		--		--		--		--		--		--		--		--		--			

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

Semi-Volatile Organics																														
	Benzo(a)anthracene CAS: 56-55-3	Qualifier	Dilution	Benzo(a)pyrene CAS: 50-32-8	Qualifier	Dilution	Benzo(b)fluoranthene CAS: 205-99-2	Qualifier	Dilution	Benzo(g,h,i)perylene CAS: 191-24-2	Qualifier	Dilution	Benzoic acid CAS: 65-85-0	Qualifier	Dilution	Benzyl alcohol CAS: 100-51-6	Qualifier	Dilution	Benzyl butyl phthalate CAS: 85-68-7	Qualifier	Dilution	bis(2-Chloroethoxy)methane CAS: 111-91-1	Qualifier	Dilution	bis(2-Chloroethyl)ether CAS: 111-44-4	Qualifier	Dilution	bis(2-Chloroisopropyl)ether CAS: 108-60-1	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																														
Residential Combined Exposure ^[1]	5.60E+00	c		5.60E-01	c		5.70E+00	c		1.80E+03	n		2.70E+05	n		6.70E+03	n		1.60E+03	c		2.50E+00	c		1.40E+00	c		4.10E+01	c	
Residential Groundwater Exposure ^[2]	8.90E+00	c		3.80E+00	m		3.00E+01	c		2.30E+04	n	>S	9.50E+01	n		2.90E+00	n		1.30E+02	c		5.90E-03	c		1.10E-03	c		9.50E-02	c	
TCEQ-Approved Background Values																														
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)																														
B13-BOT01 (11-Oct-2012)	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.020	M	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-BOT01-DUP (11-Oct-2012)	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.020	U	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-BOT02 (31-Oct-2012)	0.050	F	1	0.060	F	1	0.13	F	1	0.050	F	1	0.020	U	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT05 (13-Nov-2012)	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.020	U	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-BOT05-DUP (13-Nov-2012)	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.020	U	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW05 (31-Oct-2012)	0.040	U	1	0.050	U	1	0.060	U	1	0.040	U	1	0.020	U	1	0.12	U	1	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

Semi-Volatile Organics																														
	bis(2-Ethylhexyl) phthalate CAS: 117-81-7	Qualifier	Dilution	Chrysene CAS: 218-01-9	Qualifier	Dilution	Dibenzo(a,h)anthracene CAS: 53-70-3	Qualifier	Dilution	Dibenzofuran CAS: 132-64-9	Qualifier	Dilution	Diethyl phthalate CAS: 84-66-2	Qualifier	Dilution	Dimethyl phthalate CAS: 131-11-3	Qualifier	Dilution	Di-n-butyl phthalate CAS: 84-74-2	Qualifier	Dilution	Di-n-octyl phthalate CAS: 117-84-0	Qualifier	Dilution	Fluoranthene CAS: 206-44-0	Qualifier	Dilution	Fluorene CAS: 86-73-7	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																														
Residential Combined Exposure ^[1]	4.30E+01	c		5.60E+02	c		5.50E-01	c		2.70E+02	n		5.30E+04	n		5.30E+04	n		6.20E+03	n		2.60E+03	n		2.30E+03	n		2.30E+03	n	
Residential Groundwater Exposure ^[2]	8.20E+01	m		7.70E+02	c	>S	7.60E+00	c		1.70E+01	n		7.80E+01	n		3.10E+01	n		1.70E+03	n		1.00E+06	n	>S	9.60E+02	n	>S	1.50E+02	n	
TCEQ-Approved Background Values																														
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)																														
B13-BOT01 (11-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1
B13-BOT01-DUP (11-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1
B13-BOT02 (31-Oct-2012)	0.030	U	1	0.060	F	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.090	F	1	0.040	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-BOT05 (13-Nov-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1
B13-BOT05-DUP (13-Nov-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW05 (31-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1	0.060	F	1	0.040	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--		
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--		

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Semi-Volatile Organics																																			
	Hexachlorobenzene CAS: 118-74-1	Qualifier	Dilution	Hexachlorobutadiene CAS: 87-68-3	Qualifier	Dilution	Hexachlorocyclopentadiene CAS: 77-47-4	Qualifier	Dilution	Hexachloroethane CAS: 67-72-1	Qualifier	Dilution	Indeno(1,2,3-cd)pyrene CAS: 193-39-5	Qualifier	Dilution	Isophorone CAS: 78-59-1	Qualifier	Dilution	Naphthalene CAS: 91-20-3	Qualifier	Dilution	Nitrobenzene CAS: 98-95-3	Qualifier	Dilution	n-Nitrosodi-n-propylamine CAS: 621-64-7	Qualifier	Dilution	n-Nitrosodiphenylamine CAS: 86-30-6	Qualifier	Dilution						
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure ^[1]	1.00E+00	c		1.20E+01	c		7.20E+00	n		4.60E+01	n		5.70E+00	c		4.90E+03	c		1.20E+02	n		3.40E+01	c		4.00E-01	c		5.70E+02	c							
Residential Groundwater Exposure ^[2]	5.60E-01	m		1.60E+00	c		9.60E+00	m		6.40E-01	n		8.70E+01	c		1.50E+00	c		1.60E+01	n		1.80E-01	n		1.80E-04	c		1.40E+00	c							
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			na			na			na			na								
Sample Locations (Date Collected)																																				
B13-BOT01 (11-Oct-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1			
B13-BOT01-DUP (11-Oct-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1
B13-BOT02 (31-Oct-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.050	F	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-BOT05 (13-Nov-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1
B13-BOT05-DUP (13-Nov-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS01 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS02 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS03 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS04 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS05 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SS07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW01 (11-Oct-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW02 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW04 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW05 (31-Oct-2012)	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.050	U	1
B13-SW06 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW07 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW08 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW09 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW10 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW11 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW12 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW13 (13-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--			--					
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--			--					

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Semi-Volatile Organics										PHCs			Metals																		
	Pentachlorophenol CAS: 87-86-5	Qualifier	Dilution	Phenanthrene CAS: 85-01-8	Qualifier	Dilution	Phenol CAS: 108-95-2	Qualifier	Dilution	Pyrene CAS: 129-00-0	Qualifier	Dilution	Petroleum Hydrocarbons C6-C28 CAS: PHC C6-C28	Qualifier	Dilution	Arsenic CAS: 7440-38-2	Qualifier	Dilution	Barium CAS: 7440-39-3	Qualifier	Dilution	Cadmium CAS: 7440-43-9	Qualifier	Dilution	Chromium CAS: 7440-47-3	Qualifier	Dilution	Copper CAS: 7440-50-8	Qualifier	Dilution		
Tier 1 Soil PCLs - 30 acre[†]																																
Residential Combined Exposure ^[1]	7.30E-01	c		1.70E+03	n		2.00E+04	n		1.70E+03	n		1.10E+03	n		2.40E+01	n		8.10E+03	n		5.20E+01	n		2.70E+04	n		5.50E+02	n			
Residential Groundwater Exposure ^[2]	9.20E-03	m		2.10E+02	n		9.60E+00	n		5.60E+02	n	>S	3.30E+01	n		2.50E+00	m	>S	2.20E+02	m	>S	7.50E-01	m	>S	1.20E+03	m	>S	5.20E+02	a	>S		
TCEQ-Approved Background Values																																
CSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			19.6 ^{††}			300 ^{†††}			3 ^{††}			40.2 ^{††}			23.2 ^{††}				
Sample Locations (Date Collected)																																
B13-BOT01 (11-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	14.5	U	1	5.2	M	1	53	M	1	0.030	M	1	15	M	1	8.4	M	1		
B13-BOT01-DUP (11-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	14.5	U	1	5.1	F	1	53	J	1	0.030	UJ	1	17	F	1	8.8		1		
B13-BOT02 (31-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.080	F	1	--			5.7	F	1	40		1	0.030	U	1	12	F	1	6.3		1		
B13-BOT03 (31-Oct-2012)	--			--			--			--			--			--			--			--			--			--				
B13-BOT04 (13-Nov-2012)	--			--			--			--			--			7.7	F	1	67		1	0.030	U	1	22		1	15		1		
B13-BOT05 (13-Nov-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	--			2.1	F	1	15		1	0.030	U	1	4.4	F	1	3.4	J	1		
B13-BOT05-DUP (13-Nov-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	--			1.8	F	1	13		1	0.030	U	1	4.0	F	1	2.6	J	1		
B13-BOT06 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-BOT07 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				
B13-SS01 (13-Nov-2012)	--			--			--			--			--			3.7	F	1	39		1	0.030	U	1	12	F	1	18		1		
B13-SS02 (07-Mar-2013)	--			--			--			--			14.5	U	1	2.8	F	1	29		1	0.030	U	1	6.5	F	1	8.1		1		
B13-SS03 (07-Mar-2013)	--			--			--			--			14.5	U	1	2.8	F	1	26		1	0.030	U	1	7.0	F	1	8.4		1		
B13-SS04 (07-Mar-2013)	--			--			--			--			14.5	U	1	2.7	F	1	45		1	0.030	U	1	6.7	F	1	10		1		
B13-SS05 (07-Mar-2013)	--			--			--			--			14.5	U	1	2.5	F	1	34		1	0.030	U	1	5.6	F	1	6.2		1		
B13-SS06 (07-Mar-2013)	--			--			--			--			--			4.7	F	1	59		1	0.12	F	1	14	F	1	20		1		
B13-SS07 (07-Mar-2013)	--			--			--			--			--			3.4	F	1	39		1	0.030	U	1	11	F	1	12		1		
B13-SW01 (11-Oct-2012)	--			--			--			--			14.5	U	1	4.5	F	1	41	J	1	0.030	UJ	1	14	F	1	5.8		1		
B13-SW02 (31-Oct-2012)	--			--			--			--			14.5	U	1	6.1	F	1	50		1	0.030	U	1	15	F	1	8.2		1		
B13-SW03 (31-Oct-2012)	--			--			--			--			14.5	U	1	7.4	F	1	69		1	0.030	U	1	20	F	1	8.2		1		
B13-SW04 (31-Oct-2012)	--			--			--			--			14.5	U	1	5.1	F	1	40		1	0.030	U	1	9.8	F	1	6.3		1		
B13-SW05 (31-Oct-2012)	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	--			4.1	F	1	26		1	0.030	U	1	9.2	F	1	6.9		1		
B13-SW06 (13-Nov-2012)	--			--			--			--			--			2.6	F	1	14		1	0.030	U	1	5.3	F	1	23		1		
B13-SW07 (13-Nov-2012)	--			--			--			--			--			8.4	F	1	82		1	0.030	U	1	24		1	2.5		1		
B13-SW08 (13-Nov-2012)	--			--			--			--			--			3.2	F	1	9.8		1	0.030	U	1	4.6	F	1	10		1		
B13-SW09 (13-Nov-2012)	--			--			--			--			--			3.9	F	1	56		1	0.030	U	1	16	F	1	41		1		
B13-SW10 (13-Nov-2012)	--			--			--			--			--			2.7	F	1	18		1	0.030	U	1	4.1	F	1	4.7		1		
B13-SW11 (13-Nov-2012)	--			--			--			--			--			3.9	F	1	56		1	0.030	U	1	13	F	1	25		1		
B13-SW12 (13-Nov-2012)	--			--			--			--			--			5.4	F	1	40		1	0.030	U	1	14	F	1	8.7		1		
B13-SW13 (13-Nov-2012)	--			--			--			--			--			5.1	F	1	37		1	0.030	U	1	11	F	1	4.8		1		
B13-SW14 (28-Nov-2012)	--			--			--			--			--			--			--			--			--			--				
B13-SW15 (07-Mar-2013)	--			--			--			--			--			--			--			--			--			--				

Appendix C. Confirmation Sample Results for All Analytes at SWMU B-13

	Metals												Inorganics		
	Lead CAS: 7439-92-1	Qualifier	Dilution	Mercury CAS: 7439-97-6	Qualifier	Dilution	Nickel CAS: 7440-02-0	Qualifier	Dilution	Zinc CAS: 7440-66-6	Qualifier	Dilution	Asbestos CAS: 1332-21-4	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre [†]															
Residential Combined Exposure ^[1]	5.00E+02	n		2.10E+00	n		8.40E+02	n		9.90E+03	n		na		
Residential Groundwater Exposure ^[2]	1.50E+00	a	>S	3.90E-03	m		7.90E+01	n	>S	1.20E+03	n	>S	na		
TCEQ-Approved Background Values															
CSSA 9 Metals Background Concentration ^[3]	84.5 ^{††}			0.77 ^{††}			35.5 ^{††}			73.2 ^{††}			na		
Sample Locations (Date Collected)															
B13-BOT01 (11-Oct-2012)	17	M	1	0.060	F	1	11	M	1	28	M	1	--		
B13-BOT01-DUP (11-Oct-2012)	18		1	0.050	F	1	12		1	30	J	1	--		
B13-BOT02 (31-Oct-2012)	10.0	F	1	0.020	F	1	8.9		1	24		1	--		
B13-BOT03 (31-Oct-2012)	--			--			--			--			1.0	U	1
B13-BOT04 (13-Nov-2012)	23		1	0.050	F	1	13		1	46		1	--		
B13-BOT05 (13-Nov-2012)	3.8	F	1	0.030	F	1	3.4		1	7.6		1	--		
B13-BOT05-DUP (13-Nov-2012)	2.5	F	1	0.030	F	1	3.1		1	6.7		1	--		
B13-BOT06 (07-Mar-2013)	--			--			--			--			--		
B13-BOT07 (07-Mar-2013)	--			--			--			--			--		
B13-SS01 (13-Nov-2012)	33		1	0.060	F	1	6.3		1	59		1	--		
B13-SS02 (07-Mar-2013)	16		1	0.10		1	4.6		1	43		1	--		
B13-SS03 (07-Mar-2013)	18		1	0.050	F	1	5.0		1	26		1	--		
B13-SS04 (07-Mar-2013)	22		1	0.11		1	4.9		1	66		1	--		
B13-SS05 (07-Mar-2013)	15		1	0.050	F	1	4.3		1	31		1	--		
B13-SS06 (07-Mar-2013)	45		1	0.060	F	1	9.4		1	72		1	--		
B13-SS07 (07-Mar-2013)	33		1	0.060	F	1	7.0		1	44		1	--		
B13-SW01 (11-Oct-2012)	13		1	0.040	F	1	9.7		1	19	J	1	--		
B13-SW02 (31-Oct-2012)	26		1	0.050	F	1	10.0		1	33		1	--		
B13-SW03 (31-Oct-2012)	14		1	0.040	F	1	13		1	30		1	--		
B13-SW04 (31-Oct-2012)	10.0	F	1	0.030	F	1	7.8		1	25		1	--		
B13-SW05 (31-Oct-2012)	11		1	0.040	F	1	6.7		1	19		1	--		
B13-SW06 (13-Nov-2012)	2.6	F	1	0.040	F	1	3.9		1	96		1	--		
B13-SW07 (13-Nov-2012)	32		1	0.080	F	1	14		1	12		1	--		
B13-SW08 (13-Nov-2012)	7.3	F	1	0.020	F	1	5.3		1	13		1	--		
B13-SW09 (13-Nov-2012)	130		1	0.020	F	1	11		1	150		1	--		
B13-SW10 (13-Nov-2012)	6.8	F	1	0.020	F	1	3.4		1	15		1	--		
B13-SW11 (13-Nov-2012)	36		1	0.11		1	7.8		1	110		1	--		
B13-SW12 (13-Nov-2012)	26		1	0.090	F	1	8.7		1	43		1	--		
B13-SW13 (13-Nov-2012)	6.0	F	1	0.030	F	1	8.4		1	16		1	--		
B13-SW14 (28-Nov-2012)	45	J	1	--			--			45	J	1	--		
B13-SW15 (07-Mar-2013)	--			--			--			--			--		

NOTES:

† TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: June 29, 2012).

†† CSSA Soil Background Concentrations. Second Revision, Evaluation of Background Metals Concentrations in Soils and Bedrock at CSSA. February 2002. Values from Table 3.3.

††† Texas-Specific median background concentration.

PCLs and CSSA background values coded in this table as [1, 2, 3].

[1] ^{Tot}Soil_{Comb} = PCL for COPC in soil for a 30 acre source area and a potential future resident (combined exposure for ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables).

[2] ^{GW}Soil_{Ing} = PCL for COPC in soil for a 30 acre source area and a potential future resident (soil-to-groundwater leaching of COPC to Class 1 and 2 groundwater).

[3] CSSA Soil Background Concentrations.

PCLs are shown in **blue** font.

All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.

c = carcinogenic.

n = noncarcinogenic.

m = primary MCL-based.

a = EPA Action Level-based.

QA >S = solubility limit exceeded during calculation.

na = not applicable.

(NO CODE) - Confirmed identification.

U - Analyte was not detected above the indicated Method Detection Limit (MDL).

F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).

J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

UJ - Analyte was not detected above the indicated RL; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

M = Concentration is estimated due to a matrix effect.

Values shown in **BOLD** indicate detections above the MDL.

Values **HIGHLIGHTED** indicate detections above the PCL.

APPENDIX D
Data Verification Summary Report

DATA VERIFICATION SUMMARY REPORT

for samples collected from B13

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) on October 11, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from B13:

68993

Samples were analyzed for total petroleum hydrocarbons (TPHs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Not all samples were analyzed for all parameters.

Field QC samples collected in association with this SDG included one trip blank (TB) for VOCs, one equipment blank (EB) for all parameters, one set of parent and field duplicate (FD) samples, and one set of matrix spike/matrix spike duplicate (MS/MSD).

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory both at a temperature of 2.5°C which was within the recommended range is 2-6°C.

There were also six waste characterization samples included in the shipment. This data verification report includes all samples except the analyses for the six waste characterization samples.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

The ICP metals portion of this SDG consisted of one (1) EB, two (2) soil samples, one (1) FD, and one pair of MS/MSD. All samples were collected on October 11, 2012 and were analyzed for arsenic, barium, cadmium, chromium, copper, lead, nickel and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in two batches, one for soil and one for water.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two laboratory control samples (LCS), one for each analytical batch. Lab also performed matrix spike/matrix spike duplicate (MS/MSD) analyses for total metals with sample B13-BOT01.

All LCS recoveries were within acceptance criteria for both batches.

Most %Rs of the MS/MSD for the total metal batch failed:

B13-BOT01

Metals	MS, %R	MSD, %R	Criteria, %R
Arsenic	69.0	64.2	75 - 125
Barium	51.4	14.4	
Cadmium	62.1	56.9	
Chromium	64.4	57.2	
Copper	71.4	64.3	
Lead	67.8	52.1	
Nickel	65.1	55.9	
Zinc	62.4	50.4	

“M” flags were applied to the above listed metal results of the parent sample.

Precision

Precision was evaluated with the relative percent difference (%RPD) of the MS/MSD results and parent/FD results. Sample B13-BOT01 was collected in duplicate.

All %RPD of MS/MSD met the 20% criteria except barium. “M” has already applied to the parent sample result due to accuracy issue discussed above.

B13-BOT01

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
--------	---------------	-----------	------	----------------

Barium	53.0	53.3	0.6	≤ 20
Copper	8.41	8.84	5.0	
Lead	16.97	17.60	3.6	
Nickel	10.88	11.88	8.8	
Zinc	27.5	29.6	7.3	

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory and equipment blanks for cross contamination of samples during sample collection and analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. Both ICVs were prepared using a secondary source.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample B13-BOT01 for the soil batch. The DT was applicable for all metals detected in the parent sample at a concentration of 50 times the MDL or greater. All applicable metals failed to meet criteria in the DT, as follows:

B13-BOT01		
Metal	%D	Criteria
Barium	18.5	$\%D \leq 10$
Chromium	14.2	
Nickel	14.1	
Lead	22.4	

- A post digestion spike (PDS) was analyzed on the same samples as the DT. All metals met criteria in the PDS:

B13--BOT01

Metal	%R	Criteria
Arsenic	82.0	75-125%
Barium	66.4	
Cadmium	72.2	
Chromium	74.5	
Copper	85.7	
Nickel	77.4	
Lead	75.2	
Zinc	68.9	

“J” flags were applied to all barium, cadmium, chromium, and zinc results of soil samples (excluding waste characterization samples) in this SDG.

There were two method blanks (MBs), one EB, and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of any target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP results for the samples in this SDG were considered usable. The completeness for the ICP portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of two (2) soil samples, one (1) FD, One (1) EB, and one pair of MS/MSD. All samples were collected on October 11, 2012 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7471A & 7470A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were prepared in two analytical batches, one for soil and one for water.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs and MS/MSD results. MS/MSD analyses were performed with sample B13-BOT01.

All LCSs and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated with the %RPD of MS/MSD results and parent/FD sample results. Sample B13-BOT01 was collected in duplicate. The %RPD of the MS/MSD was compliant for total mercury.

Both parent and FD samples of the three pairs had no mercury detected at RL.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks and EBs for cross contamination of samples during sample collection and analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.

There were two MBs and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

VOLATILES

General

This data package consisted of one (1) soil samples, one (1) FD, one (1) pair of MS/MSD, one (1) EB, and one (1) TB. These samples were collected on October 11, 2012 and were analyzed for a full list of VOCs.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in four analytical batches under two separate initial calibration (ICAL) curves, two for soil, one for TB, and

one for EB. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the four LCSs, MS, MSD, and the surrogate spikes.

All LCSs and surrogate spike recoveries were within acceptance criteria for both batches.

All MS/MSD recoveries were compliant except eleven compounds with non-compliant MS and/or MSD %Rs. "M" flags were applied to the parent sample results.

Precision

Precision was evaluated using %RPD of the MS/MSD and parent/FD samples.

All %RPDs of MS/MSD were compliant.

None of the target VOCs were detected at or above the reporting limits (RL) in the parent and FD samples, therefore, the %RPD calculations were not-applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining TB, EB, and laboratory blanks for cross contamination of samples during collection, transit or analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All four LCS samples were prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were four MBs, one TB, one EB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs at RLs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

SEMI-VOLATILES

General

This data package consisted of one (1) soil sample, one (1) FD, one (1) EB, and one pair of MS/MSD,. These samples were collected on October 11, 2012 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. The samples were analyzed in two analytical batches under two sets of initial calibration (ICAL) curves. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs, MS, MSD, and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

The only non-compliant %Rs for the MS/MSD are:

Compounds	MS, %R	MSD, %R	Criteria, %R
Benzoic Acid	0	0	25 - 172

“M” flags were applied to the parent sample result of benzoic acid.

Precision

Precision was evaluated using %RPD of the MS/MSD and parent/FD samples.

All %RPDs of MS/MSD were compliant.

None of the SVOCs were detected at or above reporting limit in the parent and FD samples.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;

- Evaluating holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- Both LCSs were prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were two MBs, one EB, and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All SVOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

TOTAL PETROLEUM HYDROCARBONS (TPH)

This data package consisted of one (1) soil sample, one (1) FD, one (1) EB, and one pair of MS/MSD. These samples were collected on October 11, 2012 and were analyzed for TPH, C6 – C28.

The TPH analyses were performed using TX1005 method. The sample was analyzed in two analytical batches under two sets of initial calibration (ICAL) curves. This sample was analyzed following the procedures outlined in the CSSA QAPP and TX1005. This sample was prepared and analyzed within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs and two surrogates.

Both LCSs have %Rs met the acceptance criteria.

All surrogates had compliant %Rs.

Precision

Precision was evaluated based on the %RPD of MS/MSD results and parent/FD sample results.

The %RPD of MS/MSD was compliant.

TPH was not detected at RL for both parent and FD samples, therefore, the %RPD calculations were non-applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP and TX1005;
- Comparing actual analytical procedures to those described in the CSSA QAPP and TX1005;
- Evaluating holding time; and
- Examining laboratory blank for cross contamination of samples during analysis.

The samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0 and TX1005. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All continuing calibration verification (CCV) criteria were met.

There were two MBs and one EB associated with the TPH analyses in this SDG. All blanks were non-detect for TPH.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All TPH result for the sample in this SDG was considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from B13

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang

Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) on October 31, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from B13:

69189

Samples were analyzed for total petroleum hydrocarbons (TPHs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Not all samples were analyzed for all parameters.

Field QC sample collected in association with this SDG is one trip blank (TB) for VOCs.

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at temperature of 3.0°C which was within the recommended range of 2-6° C.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

The ICP metals portion of this SDG consisted of five (5) soil samples which were collected on October 31, 2012 and were analyzed for arsenic, barium, cadmium, chromium, copper, lead, nickel and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in one batch.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

All LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. Both ICVs were prepared using a secondary source.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample B13-BOT02. The DT was applicable for all metals detected in the parent sample at a concentration of 50 times the MDL or greater. All applicable metals failed to meet criteria in the DT, as follows:

B13-BOT02

Metal	%D	Criteria
Barium	25	
Chromium	20	

Copper	0.04	%D ≤ 10
Nickel	21	
Lead	30	

- A post digestion spike (PDS) was analyzed on the same samples as the DT. All metals met criteria in the PDS:

B13--BOT02

Metal	%R	Criteria
Arsenic	93	
Barium	78	
Cadmium	78	
Chromium	84	75-125%
Nickel	83	
Lead	82	
Zinc	78	

There were one method blank (MB) and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of any target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP results for the samples in this SDG were considered usable. The completeness for the ICP portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of five (5) soil sample which were collected on October 31, 2012 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7471B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were prepared in one analytical batch.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS

LCS had compliant %R for mercury.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.

There were one MB and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

VOLATILES

General

This data package consisted of two (2) soil samples and one (1) TB. These samples were collected on October 31, 2012 and were analyzed for a full list of VOCs.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two analytical batches under two separate initial calibration (ICAL) curves, one for soil and one for TB. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs and the surrogate spikes.

All LCSs and surrogate spike recoveries were within acceptance criteria for both batches.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining TB and laboratory blanks for cross contamination of samples during collection, transit or analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All four LCS samples were prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were two MBs, one TB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs at RLs.

Methylene chloride was detected above the RL in both soil samples. The associated MB had no detection of this compound down to method detection limit.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

SEMI-VOLATILES

General

This data package consisted of two (2) soil samples which were collected on October 31, 2012 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. The samples were analyzed in one analytical batch under one set of initial calibration (ICAL) curves. Both samples were analyzed following the procedures outlined in the CSSA QAPP. Both samples were prepared and analyzed within the holding time required by the method. Both samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

Both samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. Both samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- The LCS was prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were one MB and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All SVOC results for the two samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

TOTAL PETROLEUM HYDROCARBONS

This data package consisted of three (3) soil samples. These samples were collected on October 31, 2012 and were analyzed for TPH, C₆ – C₂₈.

The explosive analyses were performed using TX1005 method. The sample was analyzed in two analytical batches under two sets of initial calibration (ICAL) curves. This sample was analyzed following the procedures outlined in the CSSA QAPP and TX1005. This sample was prepared and analyzed within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS and two surrogates.

LCS and all surrogates have %Rs met the acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP and TX1005;
- Comparing actual analytical procedures to those described in the CSSA QAPP and TX1005;
- Evaluating holding time; and
- Examining laboratory blank for cross contamination of samples during analysis.

The samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0 and TX1005. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All continuing calibration verification (CCV) criteria were met.

There was one MB associated with the TPH analyses in this SDG. The blank was non-detect for TPH.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All TPH result for the sample in this SDG was considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from B13

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang

Parsons - Austin

INTRODUCTION

The following data verification summary report covers eleven soil samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) on November 13, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from B13:

69286

Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. Not all samples were analyzed for all parameters.

Field QC sample collected in association with this SDG is one trip blank (TB) for VOCs and a set of parent and field duplicate (FD) samples.

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at temperature of 1.0°C which was slightly below the recommended range of 2-6° C.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

The ICP metals portion of this SDG consisted of twelve (12) soil samples including a set of parent/FD which were collected on November 13, 2012 and were analyzed for arsenic, barium, cadmium, chromium, copper, lead, nickel and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in one batch.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent/FD sample results. Sample 13-BOT05 was collected in duplicate.

B13-BOT05

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	14.6	13.3	9.3	≤20
Copper	3.45	2.61	28	
Nickel	3.37	3.11	8.0	
Zinc	7.6	6.7	13	

“J” flags were applied to the copper result of both parent and FD sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. Both ICVs were prepared using a secondary source.

- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample B13-SW13. The DT was applicable for all metals detected in the parent sample at a concentration of 50 times the MDL or greater. All applicable metals failed to meet criteria in the DT, as follows:

B13-SW13

Metal	%D	Criteria
Arsenic	16	%D ≤ 10
Barium	20	
Chromium	21	
Nickel	23	
Lead	33	

- A post digestion spike (PDS) was analyzed on the same samples as the DT. All metals met criteria in the PDS:

B13-SW13

Metal	%R	Criteria
Arsenic	105	75-125%
Barium	90	
Cadmium	88	
Chromium	94	
Copper	110	
Nickel	94	
Lead	94	
Zinc	91	

There were one method blank (MB) and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of any target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP results for the samples in this SDG were considered usable. The completeness for the ICP portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of twelve (12) soil sample including a set of parent/FD which were collected on November 13, 2012 and were analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7471B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were prepared in one analytical batch.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS. LCS had compliant %R for mercury.

Precision

Precision was evaluated based on the %RPD of mercury concentration of parent and FD. Mercury was not detected at or above the reporting limit, therefore, the %RPD calculation was not applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.

There were one MB and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

VOLATILES

General

This data package consisted of two (2) soil samples and one (1) TB. These samples were collected on November 13, 2012 and were analyzed for a full list of VOCs.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two analytical batches under two separate initial calibration (ICAL) curves, one for soil and one for TB. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs and the surrogate spikes.

All LCSs and surrogate spike recoveries were within acceptance criteria for both batches.

Precision

Precision was evaluated based on the %RPD of the parent and FD sample results.

Methylene chloride was detected above the reporting limit in both parent and FD samples with %RPD of 9.8%.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining TB and laboratory blanks for cross contamination of samples during collection, transit or analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All four LCS samples were prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.

- All internal standard criteria were met.

There were two MBs, one TB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs at RLs.

Methylene chloride was detected above the RL in both soil samples. The associated MB had no detection of this compound down to method detection limit.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

SEMI-VOLATILES

General

This data package consisted of two (2) soil samples which were collected on November 13, 2012 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. The samples were analyzed in one analytical batch under one set of initial calibration (ICAL) curves. Both samples were analyzed following the procedures outlined in the CSSA QAPP. Both samples were prepared and analyzed within the holding time required by the method. Both samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of the parent and FD sample results.

None of the target SVOCs were detected at or above the RL in both parent and FD samples, therefore, the %RPD calculation was not applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;

- Evaluating holding times; and
- Examining laboratory blank for cross contamination of samples during analysis.

Both samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. Both samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- The LCS was prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.
- All internal standard criteria were met.

There were one MB and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All SVOC results for the two samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for one soil sample collected from B13 CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers one soil sample collected from Camp Stanley Storage Activity (CSSA) on November 28, 2012. The sample in the following Sample Delivery Group (SDG) was collected from B13:

69414

This sample was analyzed for lead and zinc only.

This sample was collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The sample in this SDG was shipped to the laboratory in a cooler packed with ice. The cooler was received by the laboratory at a temperature of 2.5°C which is within the recommended range of 2-6° C.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

This SDG consisted of one (1) soil sample which was collected on November 28, 2012 and were analyzed for lead and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. This sample was analyzed following the procedures outlined in the CSSA QAPP, prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in one batch.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

Both LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The sample in this SDG was analyzed following the COC and the analytical procedures described in the CSSA QAPP, prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. Both ICVs were prepared using a secondary source.
- All interference check criteria were met.
- Dilution test (DT) was analyzed on sample B13-SW14. The DT was applicable for lead only.

B13-SW14

Metal	%D	Criteria
Lead	23	%D ≤ 10

- A post digestion spike (PDS) was analyzed on the same samples as the DT. Both metals failed to meet criteria in the PDS:

B13-W14

Metal	%R	Criteria
Lead	71	75-125%
Zinc	70	

“J” flags were applied to the parent sample results of lead and zinc.

There were one method blank (MB) and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of lead and zinc at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

Both lead and zinc results in this SDG were considered usable. The completeness for of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

APPENDIX E
Waste Characterization Sampling Results for SWMU B-13

Appendix E - Waste Characterization Sampling Results for SWMU B-13

SAMPLE ID:	B13-WC01	B13-WC02	B13-WC03	B13-WC04	B13-WC05	B13-WC06	B13-WC07	B13-WC08	B13-WC09	B13-WC10	B13-WC11	B13-WC17	B13-WC18	B13-WC19	B13-WC20	B13-WC21	B13-WC22																		
DATE SAMPLED:	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/18/2012	10/18/2012	10/18/2012	10/18/2012	10/24/2012	11/27/2012	11/27/2012	11/27/2012	11/27/2012	11/27/2012	11/27/2012																		
LAB SAMPLE ID:	AY69967	AY69968	AY69969	AY69970	AY69971	AY69972	AY70523	AY70524	AY70525	AY70526	AY71263	AY72253	AY72254	AY72255	AY72256	AY72257	AY72258																		
Units																																			
Petroleum Hydrocarbons - TX1005																																			
Petroleum Hydrocarbons C6 - C28	µg/kg	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U	14,500	U				
Metals - SW6010B/SW7470A																																			
Antimony	mg/L	0.0020	F	0.0020	F	0.0020	F	0.0020	F	0.0020	F	0.0030	F	0.0050	F	0.0010	U	0.0010	U	0.0020	F	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U		
Arsenic	mg/L	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0030	F	0.0020	U	0.0060	F	0.0050	F	0.0060	F	0.0060	F	0.0040	F	0.0050	F	0.0040	F	0.0040	F	0.0030	F	0.0040	F		
Barium	mg/L	0.60		0.80		0.84		0.73		0.55		0.45		0.62		0.63		0.57		0.56		0.52		0.77		0.81		0.69		0.67		0.95		0.67	
Beryllium	mg/L	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U
Cadmium	mg/L	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U
Chromium	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.15		0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
Lead	mg/L	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.035		0.0030	F	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0035	F	0.0020	F	0.0012	U	0.0012	U
Mercury	mg/L	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00020	F	0.00020	F	0.00020	F	0.00020	F	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U
Nickel	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0020	F	0.011		0.0030	F	0.0030	F	0.0040	F	0.0030	F	0.0020	F	0.0010	U	0.0020	F	0.0020	F	0.0010	U
Selenium	mg/L	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
Silver	mg/L	0.0045	F	0.0046	F	0.0047	F	0.0044	F	0.0043	F	0.0049	F	0.012		0.012		0.012		0.012		0.013		0.0023	F	0.0022	F	0.0021	F	0.0024	F	0.0020	F	0.0021	F

QA NOTES AND DATA QUALIFIERS:

(NO CODE) - Confirmed identification.

U - Analyte was not detected above the indicated Method Detection Limit (MDL).

F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).

Detections are bolded.

APPENDIX F

TCEQ Approval for Non-Hazardous Soils Reuse, December 20, 2010



DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800

December 3, 2010

U-029-10

Mr. Kirk Coulter, P.G., Project Manager
Texas Commission on Environmental Quality
Corrective Action Team 1, VCP-CA Section
Remediation Division
PO Box 13087 (MC-127)
Austin, TX 78711-3087

SUBJECT: Movement of Non-Hazardous Metals Impacted Soils from SWMU/AOC Closure Efforts to East Pasture Firing Range, Camp Stanley Storage Activity, Boerne, Texas
TCEQ Industrial Solid Waste Registration #69026, EPA Identification Number TX2210020739

Dear Mr. Coulter:

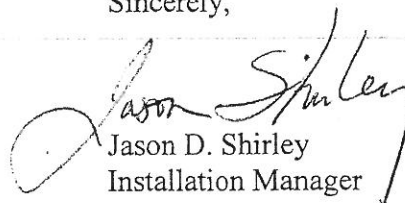
The Camp Stanley Storage Activity (CSSA), McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Material Command, U.S. Army, is providing this letter to notify the TCEQ of CSSA's plan to move and manage non-hazardous metals-impacted soils generated during remedial actions at CSSA's Solid Waste Management Units (SWMU) and Area of Concerns (AOC) to CSSA's East Pasture Firing Range Berm located in Range Management Unit 1 (RMU-1).

CSSA currently has a need for additional soils on the small arms firing range berm in the east pasture. In recent years, this berm has been modified with non-hazardous soils generated from various SWMUs and AOCs remedial actions. The non-hazardous soil movement and management within the east pasture RMU-1 was authorized by TCEQ and USEPA during a Technical Interchange Meeting held on April 19, 2006 and subsequent letter by Mr. Sonny Rayos, TCEQ Project Manager, dated May 7, 2008. This letter is provided to TCEQ to reaffirm regulatory agreement with this practice.

To verify the generated remediation soils are non-hazardous prior to movement to the east pasture, soil samples will be collected and analyzed for TCLP metals in accordance with CSSA's approved RFI/IM Waste Management Plan dated May 2006. Movement of the non-hazardous metals-impacted soils from CSSA SWMUs and AOCs to the East Pasture Firing Range Berm is expected to occur on an as needed basis as determined by CSSA.

If you have any questions regarding this notification, please contact Gabriel Moreno-Fergusson at (210) 698-5208 or Mr. Ken Rice, Parsons, at (512) 719-6050.

Sincerely,


Jason D. Shirley
Installation Manager

cc: Mr. Greg Lyssy, EPA Region 6
Mr. Jorge Salazar, TCEQ Region 13
Ms. Julie Burdey, Parsons

Schoepflin, Shannon

From: Kirk Coulter [KCoulter@tceq.state.tx.us]
Sent: Monday, December 20, 2010 2:40 PM
To: Rice, Ken R
Subject: Re: Revised workplan fo Vapor Intrusion Survey Investigation at AOC-65

Hi Ken

On the movement of non-haz waste letter. I am sending this E-Mail to you as an informal approval of the letter sent to me on December 3, 2010. I understand that this procedure was approved during Technical meeting held on April 19, 2006 between Camp Stanley, Mr. Sonny Rayos (TCEQ), Parsons Engineering and Mr. Greg Lyssy (EPA).

If you have any questions, please call me

Thanks

Kirk

>>> "Rice, Ken R" <Ken.R.Rice@parsons.com> 12/7/2010 4:48 PM >>>

Greg,

I was preparing for our upcoming meeting in January and realized I have not set you the attached revised vapor intrusion survey work plan you requested from our last meeting. This was revised to include that three additional soil gas samples within AOC-65 southwest of building 90 for

TO-15 PCE SIM analysis. We have collected soil gas samples directly west of building 90 (at CSSA's fence line) and indoor air samples within building 90. The remaining effort is to collect soil gas data similar to what may be present off-post. That is, the groundwater PCE concentrations within the LGR aquifer in the southern portion of AOC-65 are conservatively similar in off-post groundwater PCE concentrations.

Therefore soil gas samples collected in the southern portion of AOC-65 may be more representative of the off-post soil gas present above similar LGR contaminated groundwater. We intend to take the soil gas samples for TO-15 PCE SIM analysis prior to our meeting so that all results may be discussed and finalization of the Vapor Intrusion Survey Report initiated. If you have any questions or concerns please do not hesitate to call or contact me.

Regards,

Ken Rice
Parsons
512-719-6050 (Austin)
512-497-0075 (mobile)

Safety - Make it Personal !