

RELEASE INVESTIGATION REPORT
AREA OF CONCERN 75
CAMP STANLEY STORAGE ACTIVITY



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EXECUTIVE SUMMARY

Area of Concern (AOC) 75 is an approximately 1.2-acre site located in the northeastern portion of Camp Stanley Storage Activity's (CSSA) Inner Cantonment Area approximately 1,700 yards east of the western CSSA boundary. AOC-75 was identified based on surface soil sampling at neighboring Solid Waste Management Unit B-4 (SWMU B-4) which indicated elevated levels of barium, lead, and mercury in the area. Work performed at the site included environmental sampling, the removal and proper disposal of soil containing contaminants above the identified Texas Risk Reduction Program (TRRP) Tier 1 based action levels, and proper documentation of all activities, including preparation of this Release Investigation Report (RIR). This RIR requests No Further Action (NFA) at AOC-75.

In summary, activities at AOC-75 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at AOC-75.
- The contaminants of concern (COCs) identified at AOC-75 were barium, cadmium, lead, and mercury. Areas of soil contamination exceeding identified TRRP action levels have been either excavated and removed from the site, or were used to calculate a 95% upper confidence limit (UCL) per Texas Administrative Code (TAC) §350.79(2)(A) which does not exceed the TRRP action level/critical PCL.

From information presented in this report, the results of the investigation at AOC-75 meet the three criteria as described in the Texas Commission on Environmental Quality (TCEQ) (2003) guidance *Determining Which Releases are Subject to TRRP*. Thus, the following three criteria were met:

- Soil found to have COC concentrations above the TRRP action levels were either excavated from the site or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL.
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-75. Soils found to have concentrations of metals above TRRP action levels were excavated and removed or used to calculate a 95% UCL, so there will be no future impact to groundwater, surface water, or sediment from AOC-75.
- AOC-75 passes the Tier 1 Ecological Exclusion Criteria Checklist (**Appendix B**).

Because these three criteria are met, AOC-75 is not subject to TRRP. Therefore, this RIR has been prepared to document the results and to request an NFA decision from 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
ft	feet
^{GW} Soil _{Ing}	soil to groundwater ingestion pathway (PCL)
IM	Interim Measures
LGR	Lower Glen Rose
mg/kg	milligrams per kilogram
MCL	maximum contaminant level
MQL	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
RMU	Range Management Unit
SAP	Sampling and Analysis Plan
SW	solid waste
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)
TRRP	Texas Risk Reduction Program
UCL	upper confidence limit

ACRONYMS AND ABBREVIATIONS (*continued*)

UGR	Upper Glen Rose
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WMP	Waste Management Plan

1.0 INTRODUCTION

Parsons is under contract to provide investigations and environmental services for waste sites located at Camp Stanley Storage Activity (CSSA) in Boerne, Texas (**Figure 1**). This contract includes characterization of selected waste disposal sites and preparation of appropriate documentation, including a Release Investigation Report (RIR) for Area of Concern (AOC) 75 (**Figure 2**). AOC-75 is located in the northeastern portion of CSSA's Inner Cantonment. This site covers approximately 1.2 acres. This work was performed in accordance with 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) of 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 performed at AOC-75 including environmental sampling; excavation and removal of impacted soil; waste characterization and confirmatory sampling and analysis; and proper documentation of all activities, including preparation of this closure report. 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 for AOC-75. Section 3 describes the objectives and rationale for preparing an RIR for AOC-75 and the findings from environmental investigations for the site. The groundwater and surface water for CSSA and the area near AOC-75 are also described in Section 3. Section 4 summarizes the findings from completing the Tier 1 Ecological Exclusion Criteria Checklist, which is included as Appendix B. Section 5 summarizes the overall findings and recommendations for the site. All figures and tables are provided at the end of this RIR (pages 10 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, 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 (Figure 1). Camp Bullis borders CSSA on the north, east, and south.

The land where CSSA is located was used for ranching and agriculture until the 1900s. 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 several historical waste sites, including Solid Waste Management Units (SWMUs), 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 AREA OF CONCERN 75

2.2.1 Overview

AOC-75 was identified based on surface soil sampling at neighboring Solid Waste Management Unit (SWMU B-4) which indicated elevated levels of metals in the area (see Section 3.1). The analytical results for contaminants of concern (COCs) detected at the site are discussed in Section 3.1. A series of historical aerial photos of the site are shown on **Figure 3** and photographs showing investigation and excavation activities at the site are provided in **Appendix A**.

2.2.2 Setting, Size, and Description

The approximately 1.2-acre site is located in the northeastern portion of CSSA's Inner Cantonment Area (Figure 1) approximately 1,700 yards east of the western CSSA boundary. There are no records or visible evidence of past military practices, waste handling, or disposal activities at the site. The site was identified as a potential AOC based on surface soil sampling at neighboring SWMU B-4 which indicated elevated levels of barium, lead, and mercury in the area. In addition, a disposal trench containing styrofoam and metal materials was discovered in December 2012 during excavation of the site (see Section 3.1.3). The excavation footprint was modified at this time to include the physical extent of the trench. Additional background information on AOC-75 can be found in the SWMU B-4 section of the [CSSA Environmental Encyclopedia, Volume 3-2](#).

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

Review of historic aerial photographs did not reveal any specific disturbed areas of concern. Soil contamination at AOC-75 may be related to historical waste management activities at SWMU B-4 or other nearby former SWMUs/AOCs (Figure 2).

Previous sampling performed during the investigation at neighboring SWMU B-4 (samples B4-SS2A through B4-SS35) delineated the AOC-75 area with barium, lead, and mercury concentrations above identified TRRP action levels (see Section 3.0).

3.0 OBJECTIVES OF RELEASE INVESTIGATION REPORT

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 TRRP action levels ;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at the site. Soils found to have concentrations of metals above TRRP action levels were excavated and removed or used to calculate a 95% UCL, so there will be no future impact to groundwater, surface water, or sediment from AOC-75; 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 a site, an RIR can be submitted to the TCEQ and a No Further Action (NFA) decision can be requested.

As referred to in the criteria listed above, the TRRP action levels were selected following TCEQ guidance (TCEQ, 2010). The TRRP action level identified for each chemical detected during this investigation (i.e., COC) is defined as the lowest value among the following: 1) the TRRP Tier 1 Residential 30-acre PCL for total soil combined ($^{Tot}Soil_{Comb}$); 2) the TRRP Tier 1 Residential 30-acre PCL for groundwater protection ($^{GW}Soil_{Ing}$); and 3) the TCEQ Ecological Benchmark for Soil.

Also based on the TCEQ guidance, if the background level or the method quantification limit (MQL) is a higher concentration than the TRRP action level, then the higher of the background or MQL is used as the TRRP action level. Based on the metals that are most common to past activities at CSSA, TCEQ has approved background concentrations for nine CSSA metals (*Evaluation of Background Metals Concentrations in Soils and Bedrock*, Parsons, 2002). The statistically calculated and TCEQ-approved background metal concentrations are shown in the analytical summary table (**Table 1**) and are also available in the CSSA EE ([Volume 2, Background Metals Levels](#)). It is noted that the TRRP action levels for five of the nine metals are based on the CSSA background concentrations (these five metals are arsenic, barium, cadmium, lead, and mercury). The identified TRRP action levels for this investigation are included in **Appendix C**.

3.1 FIELD ACTIVITIES AND INVESTIGATIONS

As shown on Figure 4, the initial SWMU B-4 samples (B4-SS2A through B4-SS14B) collected in this area were collected for the full suite of CSSA 9 metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc). Four of these samples (B4-SS2A, B4-SS2B, B4-SS6A and B4-SS6B) were also analyzed for explosives – none were detected. Based on these initial sampling results (also shown on **Figure 4**), the analyte lists for the subsequent samples was modified to be lead only (B4-SS18A), barium and mercury (B4-SS19A and B4-SS20A), and mercury only (B4-SS22 through B4-SS35). Given this pre-existing analytical data, COC list at the outset of the AOC-75 investigation included barium, lead, and mercury. When the new trench was encountered during the current investigation, the confirmation samples were analyzed for the nine CSSA metals and explosives. Based on those results (Figure 4), cadmium was also added to the COC list for the site.

In January 2012, additional soil samples were collected to help delineate the horizontal and vertical contamination at the site. Impacted soil was subsequently excavated in November and December 2012. As described above, during the excavation effort, a trench was encountered within the northern portion of the site for which the extent of the excavation footprint was modified to include. These activities are described in more detail in the following subsections.

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 4**. The data verification summary report for the sampling and analytical results is provided in **Appendix D**. Waste characterization results for samples collected from stockpiled soil excavated as part of this effort are shown in **Appendix E**. The clearance areas where soils were excavated and removed, and the sample locations for soils remaining at the site are shown on Figure 4. Waste characterization sampling is described in Section 3.1.4. Additional information about past activities and investigations at the sites can be found in the SWMU B-4 section of the CSSA EE ([Volume 3-2, AOC-75](#)).

3.1.1 Excavation, Removal, and Confirmation Sampling

In January 2012, Parsons conducted soil sampling at several locations across AOC-75 to help further delineate both the horizontal and vertical contamination (see Figure 4: AOC75-SS36 through AOC75-SS40). These samples were collected from varying depths (surface, 1 to 1.5 feet, and 2 to 2.5 feet below ground surface [bgs]) and analyzed for barium, lead, and mercury. Samples were also collected for waste characterization purposes and analyzed for TCLP metals.

The excavation of contaminated soils began on November 28, 2012. On December 3, a disposal trench was encountered in the northern portion of the site containing styrofoam and metal debris. The approximate excavated trench dimensions were 100 feet long by 12 feet wide by five to seven feet deep (Figure 4). The trench was excavated on December 3 and 4, and the remainder of the excavation of the contamination footprint was completed by December 6. On December 18, confirmation samples were collected from the new floor of the excavation

footprint (which averaged 1 to 2 feet bgs: AOC75-SS41 through AOC75-SS45) and from the side walls and trench bottom (AOC75-SW01 through AOC75-SW04, AOC75-BOT01, and AOC75-BOT02). The samples collected from the trench were analyzed for the full suite of CSSA metals and explosives. The metals cadmium and mercury were detected above the respective TRRP action levels in the two of the side walls and one of the bottom samples. These areas, in addition to the portion of the main excavation footprint in the vicinity of AOC75-SS41 (which contained mercury above the critical PCL), were over-excavated in the beginning of February 2012. The final confirmation samples collected February 6, 2013 (AOC75-SS46, AOC-75-SW05, AOC75-SW06, and AOC75-BOT03) showed no contamination remaining in these areas.

In January 2013, an area located to the northeast of AOC-75 was identified as a potential trench (Figure 4). The trees in the suspect trench footprint were cleared to facilitate conducting a geophysical survey of the surface in order to identify potentially buried objects. The tree clearance effort resulted in the incidental take of 6,404.6 sq. ft of Golden-cheeked Warbler potential habitat. The report documenting this action, submitted to the U.S. Fish and Wildlife Service on February 26, 2013, is included as **Appendix F**. On January 30 and 31, the geophysical survey was conducted using an electro-magnetometer (EM-61). The survey showed no indication of buried anomalies in the vicinity of the suspect trench. Subsequent exploratory excavations performed in the vicinity of the suspect trench area, which were performed on February 26, also found no evidence of disposal trenches.

In all, a total volume of approximately 4,480 cubic yards (CY) of soil and material were removed from the site. This included the 480 CY of soil mixed with styrofoam and electronic cabinet debris from the uncovered trench. As described in Section 3.1.3, waste characterizations samples were collected from the excavated soils and materials. Based on these results, 4,000 CY of non-hazardous soil were transported for management at the East Pasture berm and the 480 CY of soils mixed with styrofoam and electronic cabinet debris were disposed of as Class 2 nonhazardous waste at Covell Gardens Landfill.

All but one confirmation sample location with COC concentrations above their respective TRRP action level were excavated (Table 1). The one remaining sample is AOC75-SS39. While the results of the parent sample did not indicate lead above the 84.5-mg/kg critical PCL (77 mg/kg for lead), the field duplicate (AOC75-SS39-DUP) exceeded it with a concentration of 94 mg/kg (Table 1). Per TAC §350.79(2)(A), a 95% upper confidence limit (UCL) may be calculated to determine if there is a statistical basis for no further action on a particular COC. A 95% UCL of 66.2 mg/kg was calculated for the lead concentrations remaining in site soils, which does not exceed the critical PCL/TRRP action level (**Appendix G**).

3.1.2 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](#),

[Sampling and Analysis Plan](#)). 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, 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 delivery/task order specific Field Sampling Plans (FSP) constitutes 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 AOC-75 were performed using U.S. Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste* (SW-846): Method 6010 (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc) and Method 8330 (explosives). Prior to soil/waste disposal, waste characterization samples were collected from the excavated material and analyzed for toxicity characteristic leaching procedure (TCLP) metals (Methods SW1311/6010B and SW1311/7470A). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analysis.

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 AOC-75, dated November 2012.

Excavated material was stockpiled at the assigned staging area for waste characterization. Waste characterization samples were collected on December 5, 2012. TCLP results from the stockpiled soils indicated 4,000 CY met non-hazardous Class 2 criteria and were transported to the East Pasture Berm for reuse, as per TCEQ approval December 20, 2010 (**Appendix H**). The remaining 480 CY, which were removed from the trench and contained soil with a mixture of Styrofoam and electronic cabinets, were disposed of as Class 2 non-hazardous waste at Covell Gardens Landfill. Results of the waste characterization samples are included in Appendix E.

3.2 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 AOC-75. 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 Area of Concern 75 Groundwater and Surface Water

Although there are no monitoring wells within the AOC-75 boundary, a number of wells associated with the SWMU B-3 bioreactor and monitoring program are located in the vicinity of the site. The closest monitoring wells to the site include wells B3-EXW02 (88 feet to the southwest) and CS-B3-MW30 (112 feet to the west). Depth to groundwater is not tabulated at B3-EXW02 as it is an actively-pumped extraction well. Water levels at CS-B3-MW30, which has been monitored either quarterly or semi-annually since May 2010, have ranged from 18.55 feet below top of casing (BTOC) in May 2010 to to dry (i.e., not enough water in the casing to get a measurement). Groundwater samples have been collected from both wells and analyzed for

metals and volatile organic compounds (VOCs) since 2010. No metals have been detected above their maximum contaminant levels (MCLs) throughout the history of sampling these wells. VOCs have been detected above their respective MCLs in both wells. The VOCs detected in these wells are not COCs at AOC-75 and are attributed to contaminated groundwater from the SWMU B-3 bioreactor plume. The SWMU B-3 bioreactor plume is currently under ongoing remediation and monitoring.

The closest surface water body to AOC-75 is an unnamed intermittent tributary to Salado Creek approximately 540 ft west of the site (**Figure 5**). The tributary, which only contains water immediately after significant rain events, drains to Salado Creek, located approximately 600 ft east of AOC-75. The north-south trending creek exits the CSSA boundary approximately 7,850 ft south-southeast of the site. No significant degradation of high quality receiving waters is anticipated from AOC-75.

4.0 TIER 1 ECOLOGICAL EXCLUSION CRITERIA CHECKLIST

In accordance with TCEQ (2003) 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 AOC-75. Thus, based on the absence of any complete or significant ecological exposure pathways, AOC-75 may be excluded from further ecological assessment.

5.0 SUMMARY AND RECOMMENDATIONS

AOC-75 is located in the northeastern portion of the Inner Cantonment Area, approximately 1,700 yards east of the western CSSA boundary. AOC-75 covers approximately 1.2 acres, and was identified as a potential AOC based on surface soil sampling at neighboring SWMU B-4 which indicated high levels of mercury, barium, and lead in the area. Prior uses are unknown.

In summary, activities at AOC-75 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at AOC-75.
- Soils found to have COC concentrations above the TRRP action levels were either excavated from the site or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level.
- A total volume of 4,480 CY of soil and material were removed from the site. This included approximately 4,000 CY of non-hazardous soil that was managed of at the East Pasture berm and 480 CY of soil mixed with styrofoam and debris which was hauled to Covell Gardens Landfill for disposal.
- Confirmation samples were collected from trench bottoms and sidewalls to confirm all waste had been removed.

From information presented in this report, the results of the investigation at AOC-75 meet the three criteria as described in TCEQ's (2003) guidance *Determining Which Releases are Subject to TRRP*. Thus, the following three criteria were met:

- Soils found to have COC concentrations above TRRP action levels were either excavated from the site or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at the site. Soils found to have concentrations of metals above TRRP action levels were excavated and removed or used to calculate a 95% UCL, so there will be no future impact to groundwater, surface water, or sediment from AOC-75; and
- AOC-75 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, AOC-75 is not subject to TRRP. Therefore, this RIR has been prepared to document the results and to request an NFA decision from the TCEQ.

TABLES AND FIGURES

Table 1. Summary of Chemical Constituents Detected in Soils at AOC-75

	SVOCs										Metals																				
	bis(2-Ethylhexyl) phthalate CAS: 117-81-7	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	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	
Tier 1 Soil PCLs - 30 acre																															
Residential Combined Exposure ^[1]	4.30E+01	c		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]	8.20E+01	m		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																															
CSSA 9 Metals Background Concentration ^[3]	na			19.6 ^{††}			300 ^{†††}			3 ^{††}			40.2 ^{††}			23.2 ^{††}			84.5 ^{††}			0.77 ^{††}			35.5 ^{††}			73.2 ^{††}			
Sample Locations (Date Collected)																															
AOC75-BOT01 (18-Dec-2012)	0.030	U	1	3.6	F	1	35	J	1	0.030	U	1	8.9	F	1	4.7	J	1	6.8	F	1	0.30	J	1	6.3	J	1	24	J	1	
AOC75-BOT01-DUP (18-Dec-2012)	0.030	U	1	3.4	F	1	32	J	1	0.030	U	1	7.8	F	1	4.6	J	1	6.1	F	1	0.27	J	1	5.6	J	1	23	J	1	
AOC75-BOT02 (18-Dec-2012) Excavated	0.050	F	1	2.5	F	1	23	J	1	11	J	1	7.9	F	1	19	J	1	9.0	F	1	35	J	40	11	J	1	37	J	1	
AOC75-BOT03 (06-Feb-2013)	--			--			--			0.030	U	1	--			--			--			--			--						
AOC75-SS36(1-1.5) (10-Jan-2012)	--			--			46	J	1	--			--			--			7.6	F	1	0.63	J	1	--						
AOC75-SS36(2-2.5) (11-Jan-2012)	--			--			12	J	1	--			--			--			0.18	U	1	0.030	F	1	--						
AOC75-SS37(1-1.5) (11-Jan-2012)	--			--			55	J	1	--			--			--			8.2	F	1	1.8	J	5	--						
AOC75-SS37(2-2.5) (11-Jan-2012)	--			--			11	J	1	--			--			--			0.18	U	1	0.19	J	1	--						
AOC75-SS38 (11-Jan-2012)	--			--			70	J	1	--			--			--			10	J	1	0.46	J	1	--						
AOC75-SS39 (11-Jan-2012)	--			--			240	J	1	--			--			--			77	J	1	0.44	J	1	--						
AOC75-SS39-DUP (11-Jan-2012)	--			--			260	J	1	--			--			--			94	J	1	0.42	J	1	--						
AOC75-SS40 (10-Jan-2012) Excavated	--			--			80	J	1	--			--			--			15	J	1	1.3	J	1	--						
AOC75-SS41 (18-Dec-2012)	--			--			18	J	1	--			--			--			1.1	F	1	2.4	J	5	--						
AOC75-SS42 (18-Dec-2012)	--			--			28	J	1	--			--			--			3.5	F	1	0.24	J	1	--						
AOC75-SS43 (18-Dec-2012)	--			--			23	J	1	--			--			--			2.4	F	1	0.010	U	1	--						
AOC75-SS44 (18-Dec-2012)	--			--			--			--			--			--			--			0.070	F	1	--						
AOC75-SS45 (18-Dec-2012)	--			--			--			--			--			--			--			0.010	U	1	--						
AOC75-SS46 (06-Feb-2013)	--			--			--			--			--			--			--			0.40	J	1	--						
AOC75-SW01 (18-Dec-2012)	--			3.6	F	1	27	J	1	0.030	U	1	8.6	F	1	3.1	J	1	6.0	F	1	0.27	J	1	6.1	J	1	11	J	1	
AOC75-SW02 (18-Dec-2012)	--			5.2	F	1	59	J	1	0.080	F	1	13	F	1	5.7	J	1	8.0	F	1	0.33	J	1	8.4	J	1	16	J	1	
AOC75-SW03 (18-Dec-2012) Excavated	--			4.5	F	1	47	J	1	0.12	F	1	13	F	1	5.2	J	1	9.2	F	1	1.5	J	1	8.1	J	1	18	J	1	
AOC75-SW04 (18-Dec-2012) Excavated	--			5.4	F	1	65	J	1	5.6	J	1	17	F	1	13	J	1	12	J	1	1.2	J	1	18	J	1	83	J	1	
AOC75-SW05 (06-Feb-2013)	--			--			--			--			--			--			--			0.13	J	1	--						
AOC75-SW06 (06-Feb-2013)	--			--			--			0.030	U	1	--			--			--			0.32	J	1	--						

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.
- Critical 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.
>S = solubility limit exceeded during calculation.
na = not applicable.

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.
- Values shown in **BOLD** indicate detections above the MDL.
- Values **HIGHLIGHTED** indicate detections above the critical PCL.

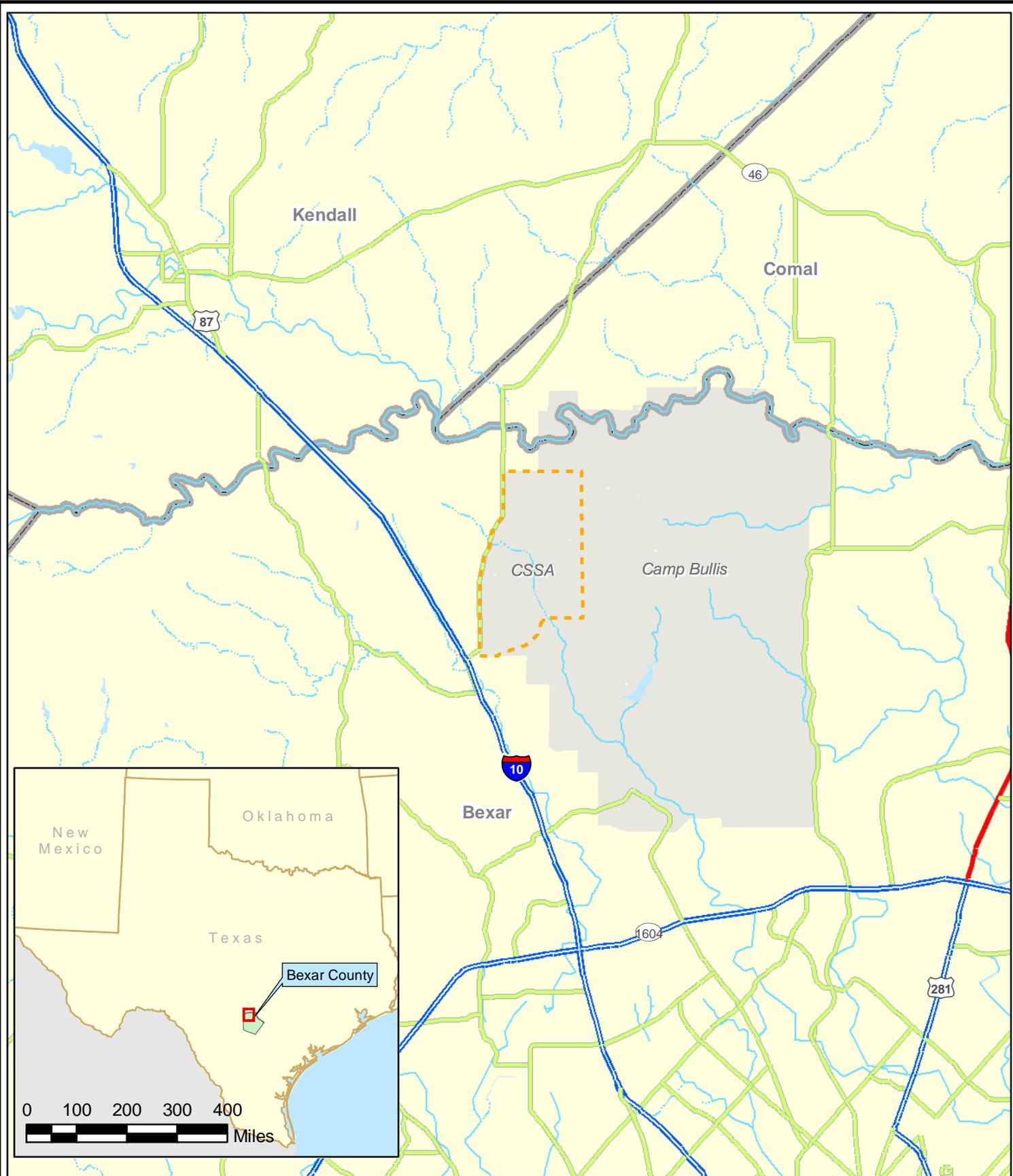
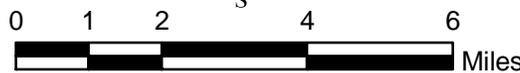


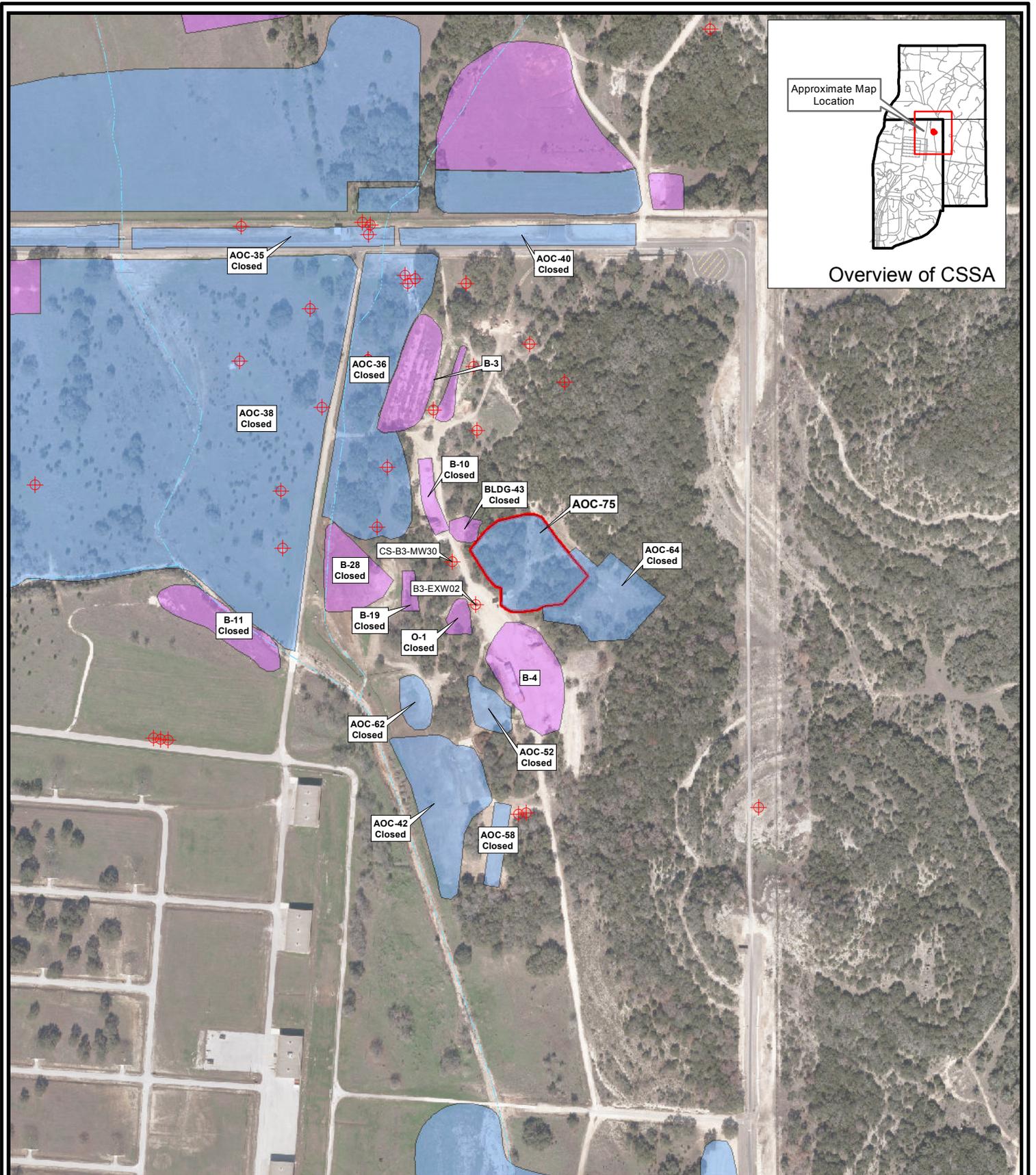
Figure 1

CSSA Location Map
Camp Stanley Storage Activity

PARSONS

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





Aerial Photo Date: 2012



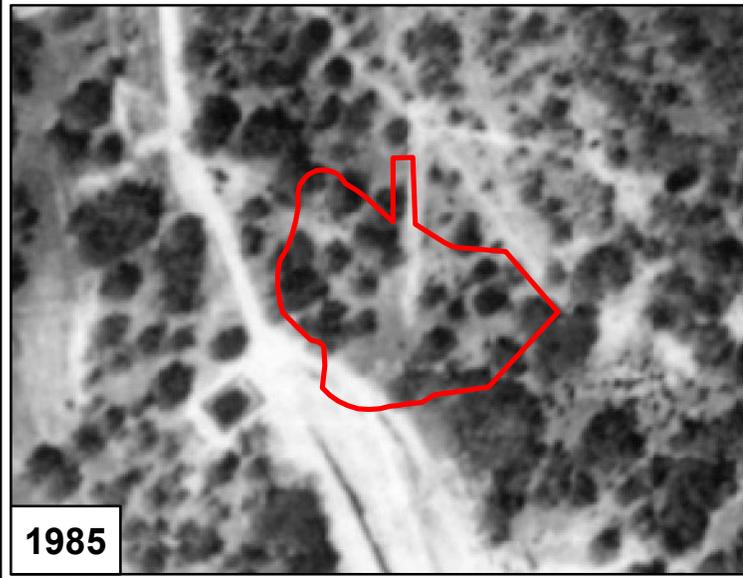
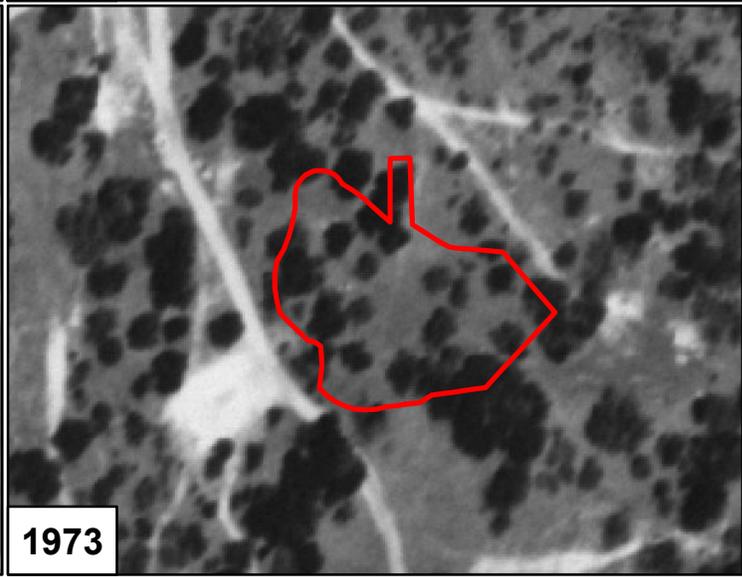
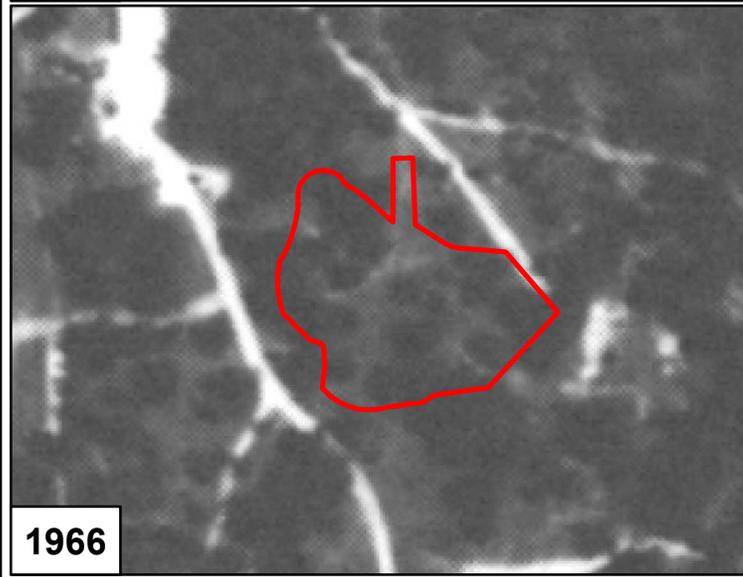
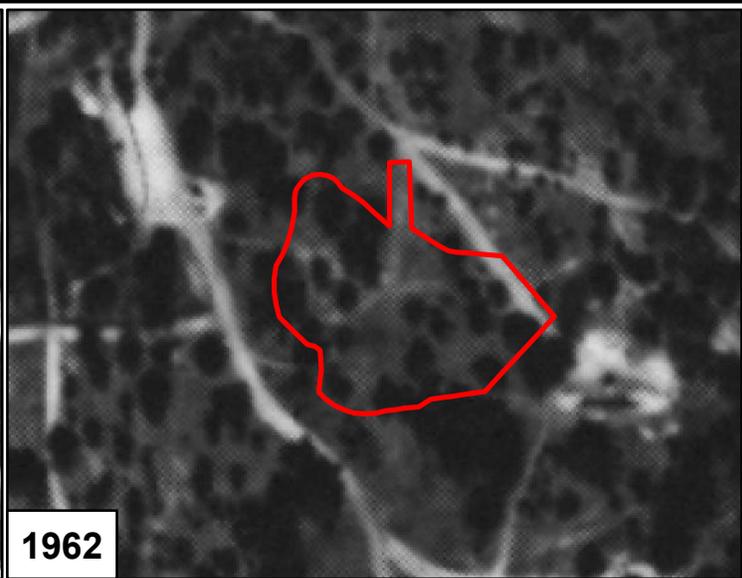
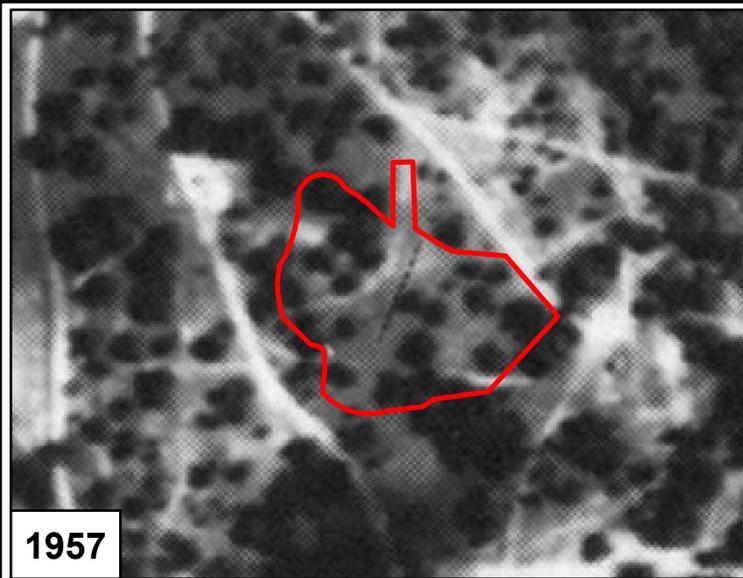
300 150 0 300 Feet

- Well Location
- AOC-75 Site Boundary
- AOC Boundary
- SWMU Boundary

Figure 2

AOC-75
Site Location Map
Camp Stanley Storage Activity

PARSONS



1957

1962

1966

1973

1985

2008



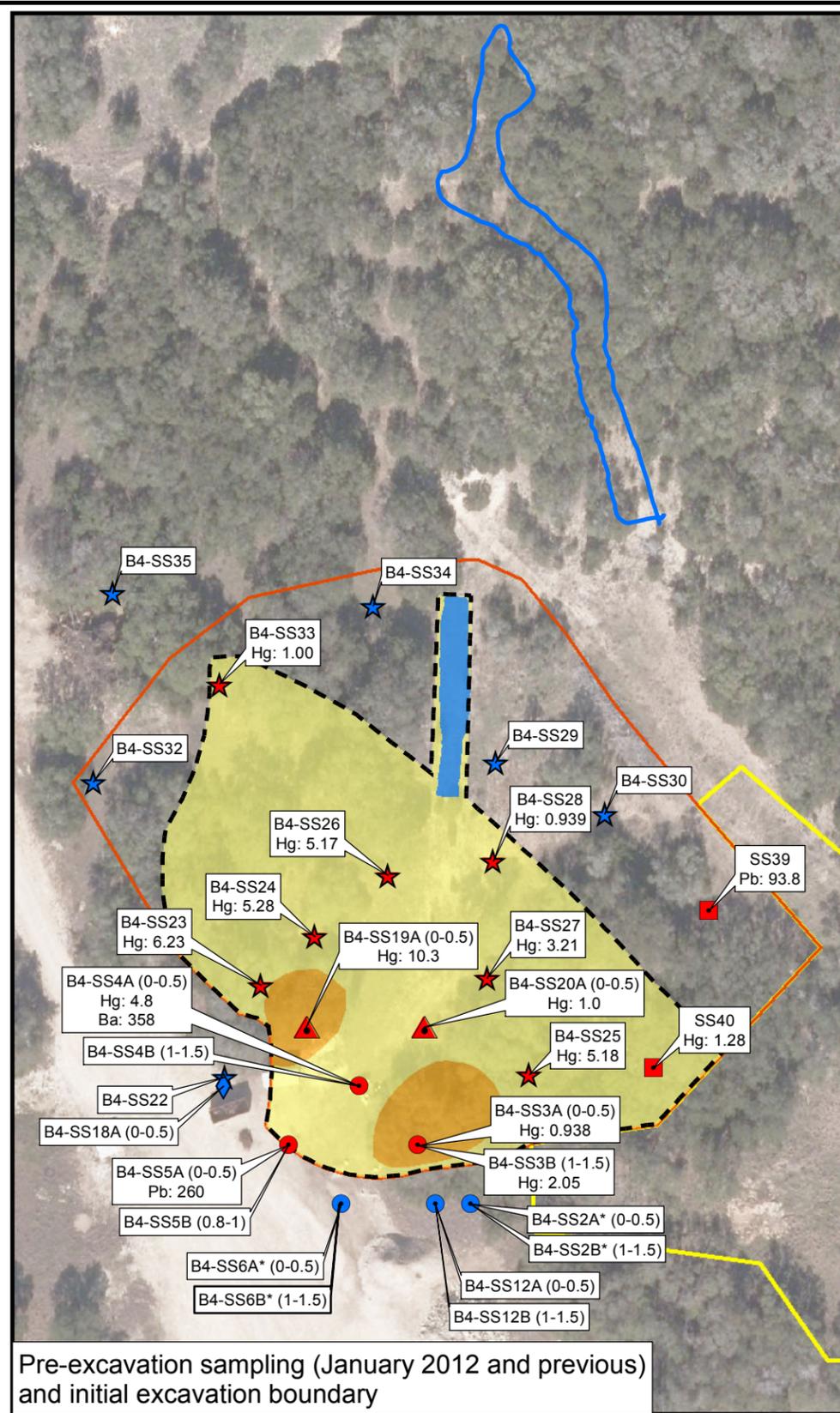
 AOC-75 Boundary

0 100 200 400
 Feet

Figure 3

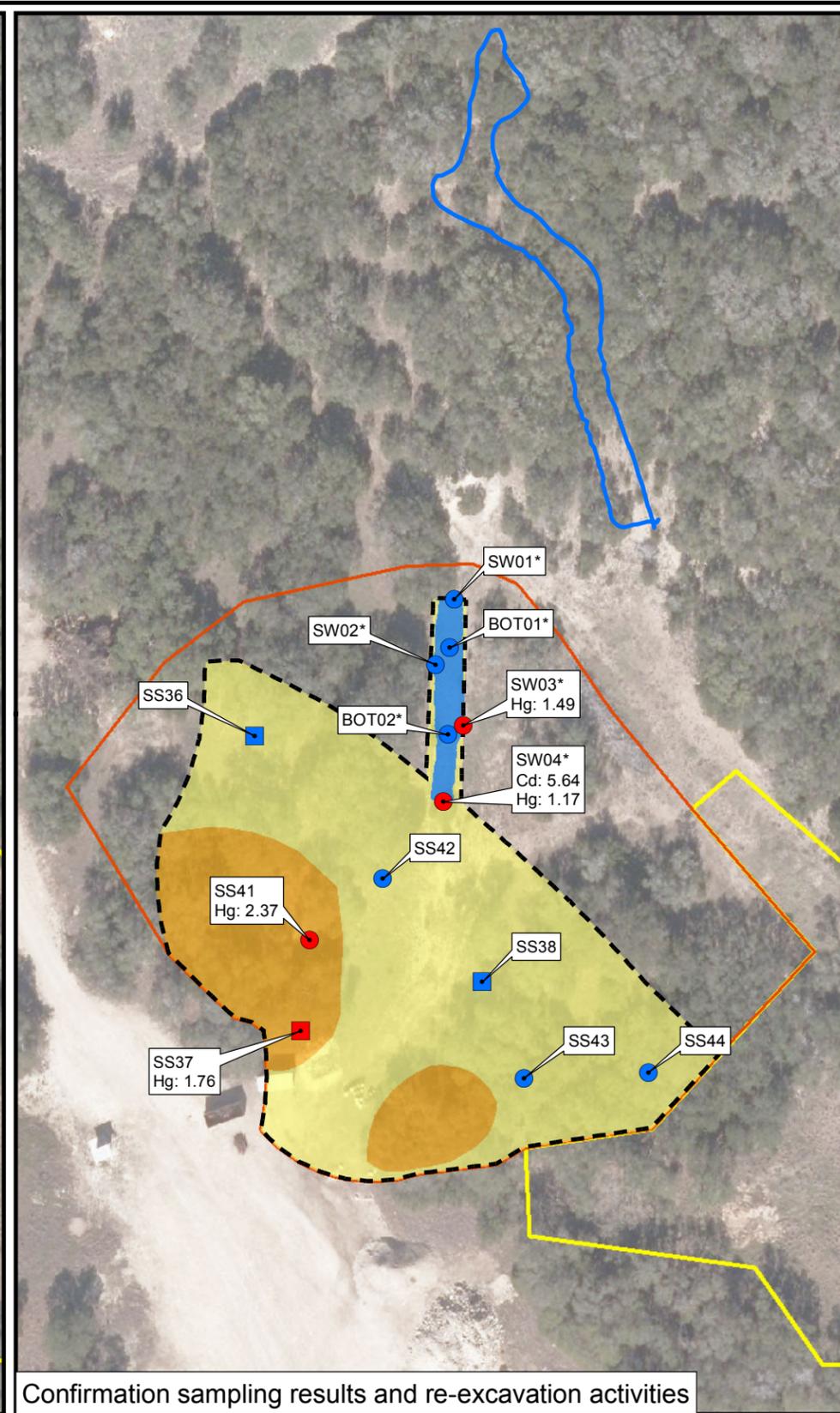
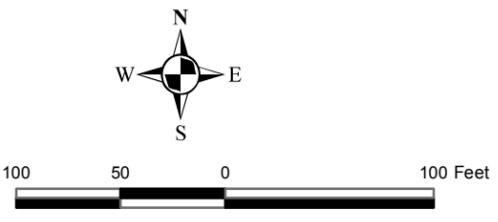
AOC-75
Historical Aerial Photographs
Camp Stanley Storage Activity

PARSONS

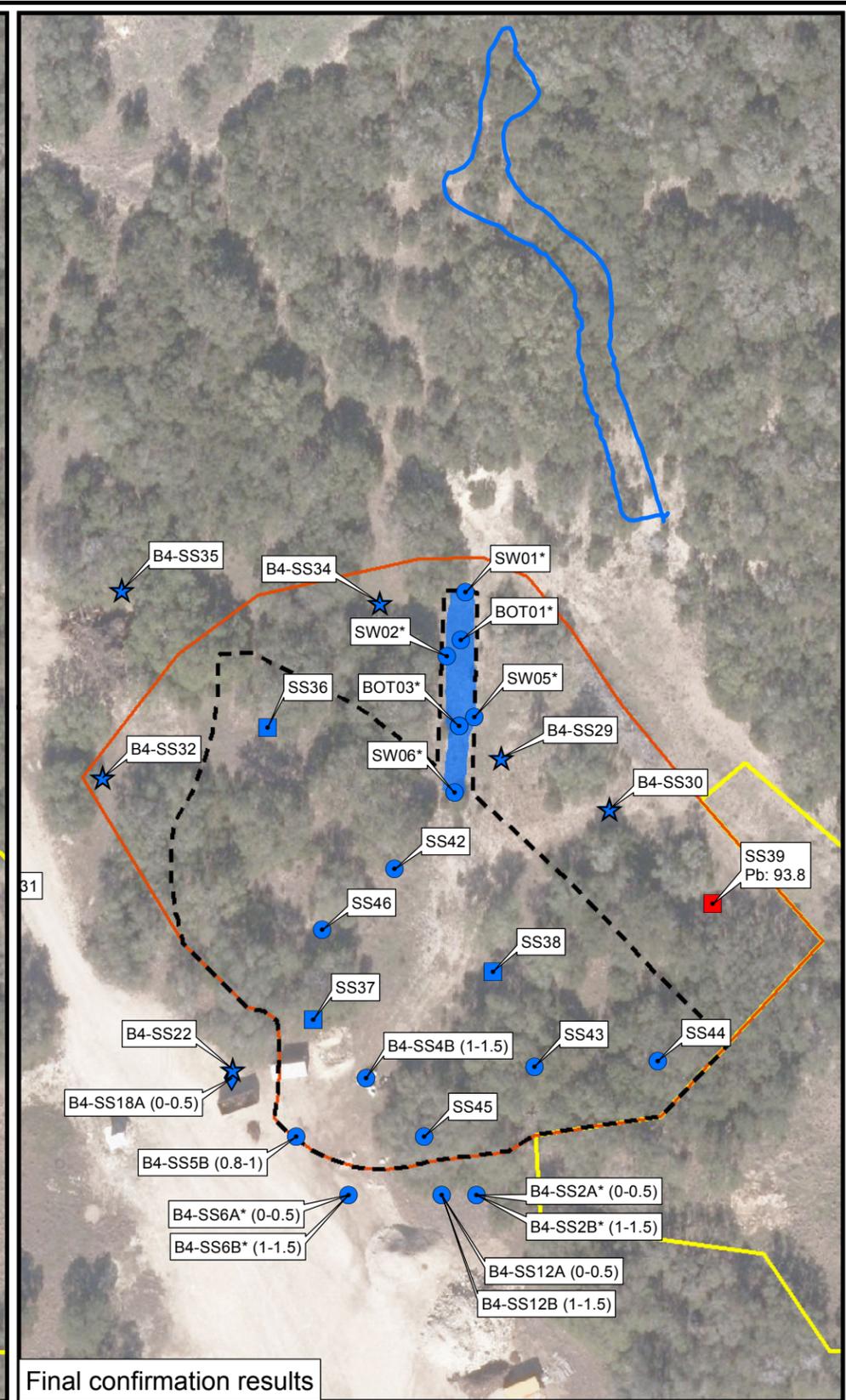


Pre-excitation sampling (January 2012 and previous) and initial excavation boundary

Aerial Photo Date: 2012



Confirmation sampling results and re-excitation activities



Final confirmation results

<ul style="list-style-type: none"> AOC-75 Boundary Suspect Trench Area Weston AOC-64 Boundary Excavated to 1' Excavated to 2' Trench Excavated to 5-7' Total Excavation Area 	<p>Soil Sample Locations and Analytes</p> <ul style="list-style-type: none"> ★ Mercury ◆ Lead ▲ Barium, Mercury ■ Barium, Mercury, Lead ● Ba, Cd, Ch, Cu, Pb, Hg, Ni, Zn (* indicates also tested for explosives) <p><i>(Red indicates an exceedance of the Tier 1 PCL. Exceeding concentrations are indicated on figure.)</i></p>
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Figure 4
AOC-75
Sample and Excavation Locations
Camp Stanley Storage Activity

PARSONS

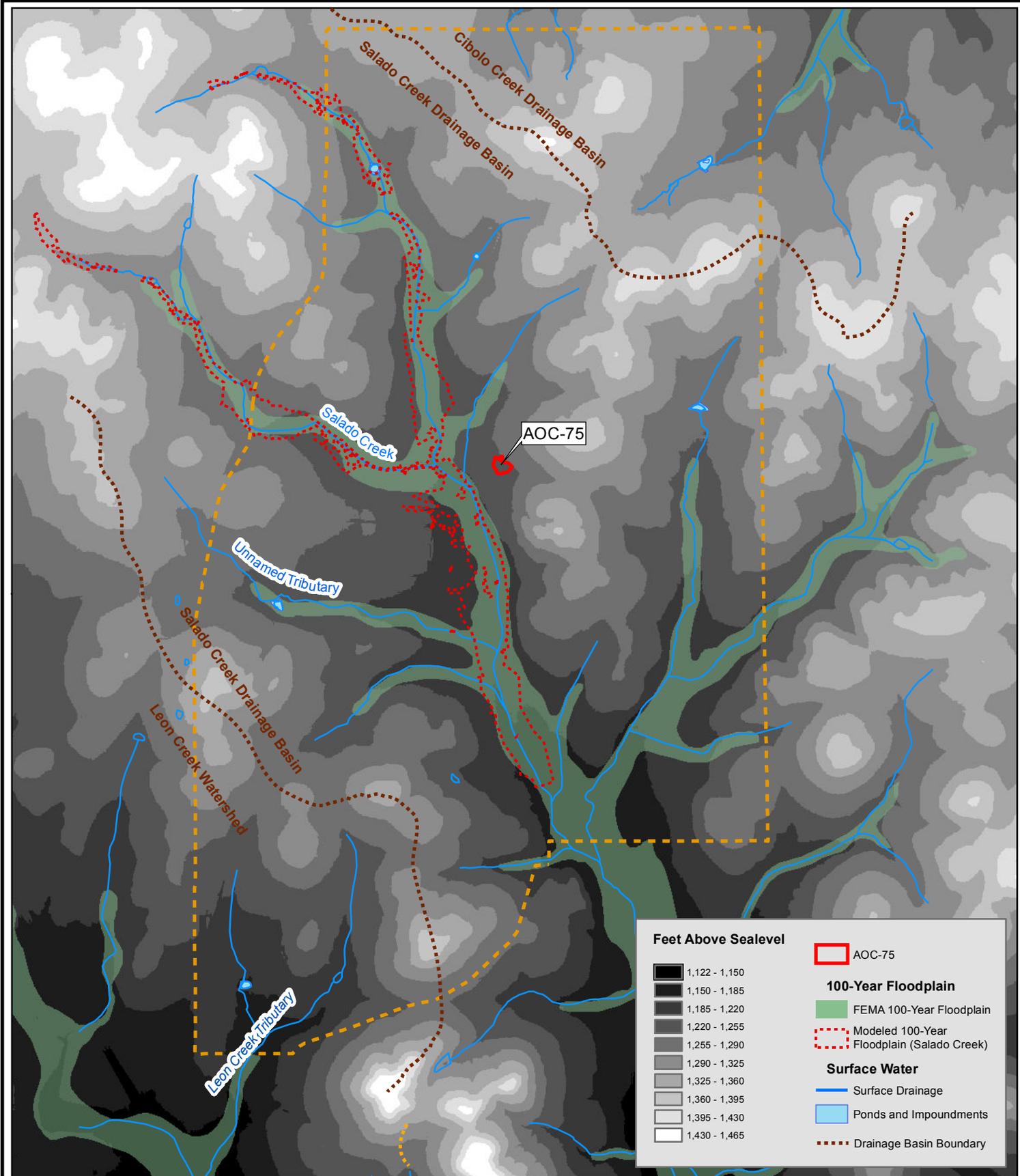


Figure 5

AOC-75 Topography,
Surface Water, and Floodplains
Camp Stanley Storage Activity

PARSONS

APPENDIX A
Site Photographs



Photo 1. Excavation of material at AOC-75, looking north.



Photo 2. Excavation of the trench in the northern portion of AOC-75.



Photo 3. Geophysical survey conducted in suspect trench area located to the north of the AOC.



Photo 4. View of final excavation footprint, looking east.

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:

Area of Concern (AOC) 75 (AOC-75) is located in the northeastern portion of the Inner Cantonment Area, approximately 1,700 yards east of the western CSSA boundary (see Figure 2 of the RIR). The site covers approximately 1.2 acres.

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.

Figure: 30 TAC §350.77(b)

Definitions¹

Affected property - The entire area (i.e., on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for residential land use and groundwater classification.

Assessment level - A critical protective concentration level for a chemical of concern used for affected property assessments where the human health protective concentration level is established under a Tier 1 evaluation as described in §350.75(b) of this title (relating to Tiered Human Health Protective Concentration Level Evaluation), except for the protective concentration level for the soil-to-groundwater exposure pathway which may be established under Tier 1, 2, or 3 as described in §350.75(i)(7) of this title, and ecological protective concentration levels which are developed, when necessary, under Tier 2 and/or 3 in accordance with §350.77(c) and/or (d), respectively, of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels).

Bedrock - The solid rock (i.e., consolidated, coherent, and relatively hard naturally formed material that cannot normally be excavated by manual methods alone) that underlies gravel, soil or other surficial material.

Chemical of concern - Any chemical that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity. Depending on the program area, chemicals of concern may include the following: solid waste, industrial solid waste, municipal solid waste, and hazardous waste as defined in Texas Health and Safety Code, §361.003, as amended; hazardous constituents as listed in 40 Code of Federal Regulations Part 261, Appendix VIII, as amended; constituents on the groundwater monitoring list in 40 Code of Federal Regulations Part 264, Appendix IX, as amended; constituents as listed in 40 CFR Part 258 Appendices I and II, as amended; pollutant as defined in Texas Water Code, §26.001, as amended; hazardous substance as defined in Texas Health and Safety Code, §361.003, as amended, and the Texas Water Code §26.263, as amended; regulated substance as defined in Texas Water Code §26.342, as amended and §334.2 of this title (relating to Definitions), as amended; petroleum product as defined in Texas Water Code §26.342, as amended and §334.122(b)(12) of this title (relating to Definitions for ASTs), as amended; other substances as defined in Texas Water Code §26.039(a), as amended; and daughter products of the aforementioned constituents.

Community - An assemblage of plant and animal populations occupying the same habitat in which the various species interact via spatial and trophic relationships (e.g., a desert community or a pond community).

Complete exposure pathway - An exposure pathway where a human or ecological receptor is exposed to a chemical of concern via an exposure route (e.g., incidental soil ingestion, inhalation of volatiles and particulates, consumption of prey, etc).

De minimus - The description of an area of affected property comprised of one acre or less where the ecological risk is considered to be insignificant because of the small extent of contamination, the absence of protected species, the availability of similar unimpacted habitat nearby, and the lack of adjacent sensitive environmental areas.

Ecological protective concentration level - The concentration of a chemical of concern at the point of exposure within an exposure medium (e.g., soil, sediment, groundwater, or surface water) which is determined in accordance with §350.77(c) or (d) of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels) to be protective for ecological receptors. These concentration levels are primarily intended to be protective for more mobile or wide-ranging ecological receptors and, where appropriate, benthic invertebrate communities within the waters in the state. These concentration levels are not intended to be directly protective of receptors with limited mobility or range (e.g., plants, soil invertebrates, and small rodents), particularly those residing within active areas of a facility, unless these receptors are threatened/endangered species or unless impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more

¹These definitions were taken from 30 TAC §350.4 and may have both ecological and human health applications. For the purposes of this checklist, it is understood that only the ecological applications are of concern.

mobile or wide-ranging receptors (e.g., impacts to an off-site grassland habitat eliminate rodents which causes a desirable owl population to leave the area).

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 Solid Waste Management Units (SWMUs), 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.

AOC-75: AOC-75 is located in the northeastern portion of the Inner Cantonment Area, approximately 1,700 yards east of the western CSSA boundary (see Figure 2 of the RIR). The site covers approximately 1.2 acres.

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 AOC-75.

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):

The closest monitoring wells to the site include downgradient wells CS-MW2-LGR/CC (630 feet to the south-southwest) and CS-MW5-LGR (915 feet to the southeast), and crossgradient well CS-MW1-LGR/BS/CC (1,475 feet west-southwest). Between April 1996 and March 2013, measured water levels at CS-MW2-LGR have ranged from 68 ft below top of casing (BTOC) (September 2007) to 283 ft BTOC (March 2009). Groundwater samples have been collected from this well and analyzed for metals and volatile organic compounds (VOCs) since 1998. No COCs have been detected above their maximum contaminant levels (MCLs) throughout the history of sampling at this well. VOCs were detected above their respective MCLs prior to 2002 when the well was upgraded and re-screened. Following the well upgrade, only sporadic low or trace level VOCs have been detected; all of which are not COCs at AOC-75 and are likely attributed to contaminated groundwater from the SWMU B-3 bioreactor plume.

The closest surface water body to AOC-75 is an unnamed intermittent tributary to Salado Creek approximately 540 ft west of the site. The tributary, which only contains water immediately after significant rain events, drains to Salado Creek, located approximately 600 ft east of AOC-75. The north-

south trending creek exits the CSSA boundary approximately 7,850 ft south-southeast of the site. No significant degradation of high quality receiving waters is anticipated from AOC-75.

Metals with concentrations exceeding Tier 1 PCLs at the site were excavated and removed or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL. There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-75.

3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs 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.

The nearest surface water body, **an unnamed tributary to Salado Creek**, is **approximately 540 feet southeast (downgradient) from** the affected property (AOC-75). The water body is best described as a:

freshwater stream: _____ perennial (has water all year)
 intermittent (dries up completely for at least 1 week a year) [only has water during and immediately after rain events.]

_____ intermittent with perennial pools

- freshwater swamp/marsh/wetland
 saltwater or brackish marsh/swamp/wetland
 reservoir, lake, or pond; approximate surface acres:
 drainage ditch
 tidal stream bay estuary
 other; specify

Is the water body listed as a State classified segment in Appendix C of the current Texas Surface Water Quality Standards; §§307.1 - 307.10?

- Yes** Segment # _____ Use Classification: **1910**
 No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name:

Salado Creek Drainage Basin

Segment #:

Segment 1910 – From the confluence with the San Antonio River in Bexar County to Rocking Horse Lane west of Camp Bullis in Bexar County.

Use Classification:

Salado Creek is classified as an intermittent creek upstream (south) of CSSA to Loop 410 in San Antonio. The creek is classified as perennial downstream of Loop 410. Although water uses are not

distinguished between the upstream intermittent and the downstream perennial sections, the designated uses of Segment 1910 as a whole are high aquatic life, contact recreation, public water supply, and aquifer protection. No significant degradation of high quality receiving waters is anticipated from AOC-75.

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

The nearest surface water body is an unnamed tributary to Salado Creek and is approximately 1,200 feet west of the site. This unnamed tributary is intermittent. Salado Creek is intermittent and only contains water during and immediately following rain events. Salado Creek is intermittent in the area due to limited-duration flowing springs during the winter and spring.

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 AOC-75. Since soils that were found to have concentrations of metals above their PCLs were removed or used to calculate a 95% upper confidence limit (UCL) that does not exceed the Tier 1 PCL, there will be no impact to groundwater, surface water, or sediment from AOC-75.

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:

AOC-75 is an approximately 1.2-acre site located in the northeastern portion of the Inner Cantonment Area at CSSA. Figure 2 of the RIR shows the location of AOC-75 and the surrounding area.

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:

Soils at the site found to have metals concentrations above their critical PCLs were excavated and removed from the site or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 critical PCL.

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-75. Since soils found to have concentrations of COCs above their critical PCLs were excavated and removed or used to calculate a 95% UCL, there will be no impact to groundwater, surface water, or sediment in the area.

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, TNRCC 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)

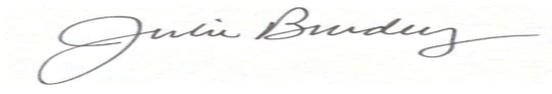
Principal Geologist (Title)

July 5, 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)

July 5, 2013 (Date Signed)

APPENDIX C

Confirmation Sample Results for All Analytes at AOC-75

Appendix C. Summary of Chemical Constituents Remaining in Soils at AOC-75

	Semi-Volatile Organics																							
	bis(2-Ethylhexyl) phthalate CAS: 117-81-7		Chrysene CAS: 218-01-9		Dibenzo(a,h)anthracene CAS: 53-70-3		Dibenzofuran CAS: 132-64-9		Diethyl phthalate CAS: 84-66-2		Dimethyl phthalate CAS: 131-11-3		Di-n-butyl phthalate CAS: 84-74-2		Di-n-octyl phthalate CAS: 117-84-0		Fluoranthene CAS: 206-44-0		Fluorene CAS: 86-73-7					
	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]	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		na			
Sample Locations (Date Collected)																								
AOC75-BOT01 (18-Dec-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	0.040	U 1		
AOC75-BOT01-DUP (18-Dec-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	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1		
AOC75-BOT02 (18-Dec-2012) Excavated	0.050	F 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	0.040	U 1		
AOC75-BOT03 (06-Feb-2013)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS36(1-1.5) (10-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS36(2-2.5) (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS37(1-1.5) (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS37(2-2.5) (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS38 (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS39 (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS39-DUP (11-Jan-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS40 (10-Jan-2012) Excavated	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS41 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS42 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS43 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS44 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS45 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SS46 (06-Feb-2013)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW01 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW02 (18-Dec-2012)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW03 (18-Dec-2012) Excavated	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW04 (18-Dec-2012) Excavated	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW05 (06-Feb-2013)	--		--		--		--		--		--		--		--		--		--		--			
AOC75-SW06 (06-Feb-2013)	--		--		--		--		--		--		--		--		--		--		--			

Appendix C. Summary of Chemical Constituents Remaining in Soils at AOC-75

	Explosives														Inorganics																		
	3-Nitrotoluene CAS: 99-08-1	Qualifier	Dilution	4-Nitrotoluene CAS: 99-99-0	Qualifier	Dilution	HMX CAS: 2691-41-0	Qualifier	Dilution	Nitrobenzene CAS: 98-95-3	Qualifier	Dilution	RDX CAS: 121-82-4	Qualifier	Dilution	Tetryl CAS: 479-45-8	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			
Tier 1 Soil PCLs - 30 acre[†]																																	
Residential Combined Exposure ^[1]	6.70E+02	n		2.70E+02	n		1.60E+03	n		3.40E+01	c		4.30E+01	c		2.70E+02	n		2.40E+01	n		8.10E+03	n		5.20E+01	n		2.70E+04	n				
Residential Groundwater Exposure ^[2]	9.20E-01	n		2.20E-01	c		1.20E+00	n		1.80E-01	n		1.80E-02	c		5.50E-01	n		2.50E+00	m	>S	2.20E+02	m	>S	7.50E-01	m	>S	1.20E+03	m	>S			
TCEQ-Approved Background Values																																	
CSSA 9 Metals Background Concentration ^[3]	na			na			na			na			na			na			19.6^{††}			300^{†††}			3^{††}			40.2 ^{††}					
Sample Locations (Date Collected)																																	
AOC75-BOT01 (18-Dec-2012)	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	3.6	F	1	35		1	0.030	U	1	8.9	F	1			
AOC75-BOT01-DUP (18-Dec-2012)	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	3.4	F	1	32		1	0.030	U	1	7.8	F	1			
AOC75-BOT02 (18-Dec-2012) Excavated	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	2.5	F	1	23		1	11		1	7.9	F	1			
AOC75-BOT03 (06-Feb-2013)	--			--			--			--			--			--			--			--			0.030	U	1	--					
AOC75-SS36(1-1.5) (10-Jan-2012)	--			--			--			--			--			--			--			46	J	1	--		--						
AOC75-SS36(2-2.5) (11-Jan-2012)	--			--			--			--			--			--			--			12	J	1	--		--						
AOC75-SS37(1-1.5) (11-Jan-2012)	--			--			--			--			--			--			--			55	J	1	--		--						
AOC75-SS37(2-2.5) (11-Jan-2012)	--			--			--			--			--			--			--			11	J	1	--		--						
AOC75-SS38 (11-Jan-2012)	--			--			--			--			--			--			--			70	J	1	--		--						
AOC75-SS39 (11-Jan-2012)	--			--			--			--			--			--			--			240	J	1	--		--						
AOC75-SS39-DUP (11-Jan-2012)	--			--			--			--			--			--			--			260	J	1	--		--						
AOC75-SS40 (10-Jan-2012) Excavated	--			--			--			--			--			--			--			80	J	1	--		--						
AOC75-SS41 (18-Dec-2012)	--			--			--			--			--			--			--			18		1	--		--						
AOC75-SS42 (18-Dec-2012)	--			--			--			--			--			--			--			28		1	--		--						
AOC75-SS43 (18-Dec-2012)	--			--			--			--			--			--			--			23		1	--		--						
AOC75-SS44 (18-Dec-2012)	--			--			--			--			--			--			--			--			--		--						
AOC75-SS45 (18-Dec-2012)	--			--			--			--			--			--			--			--			--		--						
AOC75-SS46 (06-Feb-2013)	--			--			--			--			--			--			--			--			--		--						
AOC75-SW01 (18-Dec-2012)	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	3.6	F	1	27		1	0.030	U	1	8.6	F	1			
AOC75-SW02 (18-Dec-2012)	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	5.2	F	1	59		1	0.080	F	1	13	F	1			
AOC75-SW03 (18-Dec-2012) Excavated	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	4.5	F	1	47		1	0.12	F	1	13	F	1			
AOC75-SW04 (18-Dec-2012) Excavated	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	5.4	F	1	65		1	5.6		1	17	F	1			
AOC75-SW05 (06-Feb-2013)	--			--			--			--			--			--			--			--			--		--						
AOC75-SW06 (06-Feb-2013)	--			--			--			--			--			--			--			--			0.030	U	1	--					

Appendix C. Summary of Chemical Constituents Remaining in Soils at AOC-75

	Inorganics														
	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: 7440-66-6	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]															
Residential Combined Exposure ^[1]	5.50E+02	n		5.00E+02	n		2.10E+00	n		8.40E+02	n		9.90E+03	n	
Residential Groundwater Exposure ^[2]	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															
CSSA 9 Metals Background Concentration ^[3]	23.2	††		84.5	††		0.77	††		35.5	††		73.2	††	
Sample Locations (Date Collected)															
AOC75-BOT01 (18-Dec-2012)	4.7		1	6.8	F	1	0.30		1	6.3		1	24		1
AOC75-BOT01-DUP (18-Dec-2012)	4.6		1	6.1	F	1	0.27		1	5.6		1	23		1
AOC75-BOT02 (18-Dec-2012) Excavated	19		1	9.0	F	1	35		40	11		1	37		1
AOC75-BOT03 (06-Feb-2013)	--			--			--			--			--		
AOC75-SS36(1-1.5) (10-Jan-2012)	--			7.6	F	1	0.63		1	--			--		
AOC75-SS36(2-2.5) (11-Jan-2012)	--			0.18	U	1	0.030	F	1	--			--		
AOC75-SS37(1-1.5) (11-Jan-2012)	--			8.2	F	1	1.8		5	--			--		
AOC75-SS37(2-2.5) (11-Jan-2012)	--			0.18	U	1	0.19		1	--			--		
AOC75-SS38 (11-Jan-2012)	--			10		1	0.46		1	--			--		
AOC75-SS39 (11-Jan-2012)	--			77		1	0.44		1	--			--		
AOC75-SS39-DUP (11-Jan-2012)	--			94		1	0.42		1	--			--		
AOC75-SS40 (10-Jan-2012) Excavated	--			15		1	1.3		1	--			--		
AOC75-SS41 (18-Dec-2012)	--			1.1	F	1	2.4		5	--			--		
AOC75-SS42 (18-Dec-2012)	--			3.5	F	1	0.24		1	--			--		
AOC75-SS43 (18-Dec-2012)	--			2.4	F	1	0.010	U	1	--			--		
AOC75-SS44 (18-Dec-2012)	--			--			0.070	F	1	--			--		
AOC75-SS45 (18-Dec-2012)	--			--			0.010	U	1	--			--		
AOC75-SS46 (06-Feb-2013)	--			--			0.40		1	--			--		
AOC75-SW01 (18-Dec-2012)	3.1		1	6.0	F	1	0.27		1	6.1		1	11		1
AOC75-SW02 (18-Dec-2012)	5.7		1	8.0	F	1	0.33		1	8.4		1	16		1
AOC75-SW03 (18-Dec-2012) Excavated	5.2		1	9.2	F	1	1.5		1	8.1		1	18		1
AOC75-SW04 (18-Dec-2012) Excavated	13		1	12		1	1.2		1	18		1	83		1
AOC75-SW05 (06-Feb-2013)	--			--			0.13		1	--			--		
AOC75-SW06 (06-Feb-2013)	--			--			0.32		1	--			--		

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] ^{10t}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.
- Critical 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.
- >S = solubility limit exceeded during calculation.
- na = not applicable.

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

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

APPENDIX D
Data Verification Summary Report

DATA VERIFICATION SUMMARY REPORT
for samples collected from RMU3
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) sample collected from Camp Stanley Storage Activity (CSSA) on January 3rd, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from RMU3:

66637

Samples were tested for explosives and selected metals. Not all samples were tested for all parameters.

There were two pairs of parent/field duplicate (FD) samples and one set of matrix spike/matrix spike duplicate (MS/MSD) 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 a temperature of 2.0° C which was within the recommended range is 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 seventeen (17) soil samples including two FDs and one pair of MS/MSD. All samples were collected on January 3rd, 2012. Two samples were tested for TCLP arsenic, barium, cadmium, chromium, lead, selenium and silver; the rest of samples were analyzed for total lead only.

The ICP metals analyses were performed using USEPA SW846 Method 6010B and the TCLP procedure was based on SW1311. 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. Lead in sample RMU3-SS12 required a 50 fold dilution and RMU3-SS13 required a 10 fold dilution due to the high concentration of lead. All other samples were analyzed undiluted for metals.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two laboratory control samples (LCS) and MS/MSD results. Sample RMU3-SS15 was designated as the parent sample for MS and MSD analyses. The parent sample was analyzed for lead, according to Chain of Custody (COC).

All LCS recoveries were within acceptance criteria.

The %R of both MS/MSD met the 75-125% criteria for lead.

Precision

Precision was evaluated based on the %RPD of the MS/MSD results and two sets of parent/FD sample results. Samples RMU3-SS20 and RMU3-SS15 were collected in duplicate.

%RPD of the MS/MSD for lead met the criteria.

%RPD calculation of the parent and FD results is only applicable when both concentrations are greater than reporting limits.

RMU3-SS20

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Lead	134.80	134.68	0.1	≤20

RMU3-SS15

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Lead	56.22	62.53	11	≤20

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 three ICVs were prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample RMU3-SS15.

RMU3-SS15

Metal	%D	Criteria
Lead	18	%D ≤ 10

- Post digestion spike (PDS) was analyzed on the same sample as the DT.

RMU43-SS15

Metal	%R	Criteria, %R
Lead	80	75 - 125

There were two method blanks (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%.

MERURY

General

The mercury portion of this SDG consisted of two (2) soil waste characterization samples. These samples were collected on January 3rd, 2012, prepared and analyzed for TCLP mercury using USEPA Method SW1311/SW7470A.

Both samples were analyzed following the procedures outlined in the CSSA QAPP, prepared and analyzed within the holding time required by the method.

Both samples were digested in batch #162995. The analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS.

The LCS recovery for mercury was within acceptance criteria.

Precision

Precision could not be evaluated for mercury since there were no duplicate analyses involved in this SDG.

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 analysis.

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

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

There was one method blank 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.

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

EXPLOSIVES

General

This data package consisted of six (6) soil samples including two field samples, two FDs and one pair of MS/MSD. All samples were collected on January 3rd, 2012 and were analyzed for a full list of explosives by SW8330B.

The explosive analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8330B. The samples were analyzed in one analytical batch under one set 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 LCS, MS, MSD, and the surrogate spikes. Sample RMU3-SS15 was designated as the parent sample for the MS/MSD analyses by Parsons.

All LCS, MS, MSD, and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of MS/MSD and parent/FD. Samples RMU3-SS20 and SS15 were collected in duplicate.

Neither parent or FD had explosives detected at reporting limits in both pairs, therefore, the %RPD calculation is not applicable. All %RPDs of MS/MSD were compliant.

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 preparation and 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.
- 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.

There were one MB and several calibration blanks associated with the explosive analyses in this SDG. All blanks were non-detect for all target explosives.

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 explosive 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%.

DATA VERIFICATION SUMMARY REPORT
for samples collected from RMU3, AOC75, and B8
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) sample collected from Camp Stanley Storage Activity (CSSA) on January 10 and 11, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from RMU3, AOC75, and B8:

66684

Samples were tested for selected metals. There were two pairs of parent/field duplicate (FD) samples and two sets of matrix spike/matrix spike duplicate (MS/MSD) 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 a temperature of 2.0°C which was within the recommended range is 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 twenty-seven (27) soil samples including two FDs and two pairs of MS/MSD. All samples were collected on January 10 and 11, 2012. Five samples were tested for TCLP arsenic, barium, cadmium, chromium, lead, selenium and silver. Samples from AOC75 were analyzed for barium and lead, samples from RMU3 were analyzed for lead only and samples from B8 were analyzed for barium, copper, lead and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B and the TCLP procedure was based on SW1311 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 three batches. All analyses were performed without any dilution.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the three laboratory control samples (LCS) and two sets of MS/MSD results. Sample AOC75-SS39 and B6-SS51 were designated as the parent sample for MS and MSD analyses.

All LCS recoveries were within acceptance criteria for all three batches.

The %R of both sets of MS/MSD met the 75-125% criteria except barium was recovered 1% below the 75-125%R limit in the MSD of AOC75-SS39. The “M” flag applied by the lab was removed by Parsons data validator due to minor exceedance.

Precision

Precision was evaluated based on the %RPD of the two sets of MS/MSD results and two sets of parent/FD sample results. Samples AOC75-SS39 and B8-SS51 were collected in duplicate.

%RPD of the MS/MSD met the criteria in both pairs.

%RPD calculation of the parent and FD results is only applicable when both concentrations are greater than reporting limits.

AOC75-SS39

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	240.3	255.5	6.1	≤20
Lead	76.74	93.83	20	

B8-SS51

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	81.3	87.2	7.0	≤20
Copper	11.36	12.93	13	
Lead	31.43	32.11	2.1	
Zinc	36.2	37.4	3.3	

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 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 three ICVs were prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution tests (DT) were analyzed on samples AOC75-SS39 and B8-SS51.

AOC75-SS39

Metal	%D	Criteria
Barium	18	%D ≤ 10
Lead	23	

B8-SS51

Metal	%D	Criteria
Barium	15	%D ≤ 10
Copper	0.22	
Lead	20	

- Post digestion spikes (PDS) were analyzed on the same samples as the DT.

AOC75-SS39

Metal	%R	Criteria, %R
Barium	58	75 - 125
Lead	80	

“J” flags were applied to the barium results of all associated samples.

B8-SS51

Metal	%R	Criteria, %R
Barium	79	

Lead	88	75 - 125
Zinc	86	

There were three method blanks (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%.

MERURY

General

The mercury portion of this SDG consisted of fifteen (15) soil samples including one FD and one set of MS/MSD. These samples were collected on January 10 and 11, 2012. Five samples were prepared and analyzed for TCLP mercury using USEPA Method SW1311/SW7470A and the remainder were analyzed for total mercury with method SW7471A.

All analyses were done by following the procedures outlined in the CSSA QAPP, prepared and analyzed within the holding time required by the method.

The sample was digested in two batches, #163066 and #163068, one for TCLP and one for total. The analyses were performed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs and one set of MS/MSD. Sample AOC75-SS39 was designated as the parent sample for the MS/MSD analyses.

Both LCS recoveries for mercury were within acceptance criteria.

Precision

Precision was evaluated based on the parent/FD and MS/MSD results. Sample AOC75-SS39 was collected in duplicate.

The %RPD of the MS/MSD met the criteria.

AOC75-SS39

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Mercury	0.44	0.42	4.7	≤20

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 analysis.

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

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

There were two method blanks 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.

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

DATA VERIFICATION SUMMARY REPORT

for samples collected from AOC75 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 December 18, 2012. The samples in the following Sample Delivery Group (SDG) included samples collected from AOC75:

69579

Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), explosives, 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 and one 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 both at a temperature of 1.5°C which was slightly below the recommended range is 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 eleven (11) soil samples including ten field soil samples and one FD. All samples were collected on December 18, 2012 and

were analyzed for arsenic, barium, cadmium, chromium, copper, lead, nickel, and zinc. Three soil samples were analyzed for barium and lead only.

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 analytical batch, #174072.

Accuracy

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

All LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated with the relative percent difference (%RPD) of the parent/FD results. Sample AOC75-BOT01 was collected in duplicate.

AOC75-BOT01

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	34.9	31.9	9.0	≤20
Copper	4.70	4.60	2.2	
Nickel	6.29	5.59	12	
Zinc	23.9	23.1	3.4	

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. The ICV was 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:

AOC75-SS43

Metal	%D	Criteria
Barium	16.3	%D ≤ 10
Chromium	15.4	
Nickel	14.8	

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

AOC75-SS43

Metal	%R	Criteria
Arsenic	90.6	75-125%
Barium	80.3	
Cadmium	78.5	
Chromium	81.7	
Copper	96.7	
Nickel	82.0	
Lead	81.0	
Zinc	75.6	

There were one method blank 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 samples including eleven field samples and one FD. All samples were collected on December 18, 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 %R obtained from the LCS.

The LCS recovery was within acceptance criteria.

Precision

Precision was evaluated with the %RPD of parent/FD sample results. Sample AOC75-BOT01 was collected in duplicate.

Mercury was detected at 0.30 mg/kg in the parent and 0.27 mg/kg in the FD. The %RPD is 10.5% which was within the criteria.

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 three (3) soil samples including one FD and one TB. These samples were collected on December 18, 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 %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 using %RPD of the parent/FD samples. Sample AOC75-BOT01 was collected in duplicate.

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 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.
- Both two 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.

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 three (3) soil samples, including one FD. These samples were collected on December 18, 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. 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 %R obtained from the LCS and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using %RPD of the parent/FD samples. Sample AOC75-BOT01 was collected in duplicate.

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

EXPLOSIVES

General

This data package consisted of seven (7) soil samples including six field samples and one FD. All samples were collected on December 18, 2012 and were analyzed for a full list of explosives by SW8330B.

The explosive analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8330B. The samples were analyzed in one analytical batch under one set 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 %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/FD results. Sample AOC75-BOT01 was collected in duplicate.

Neither parent nor FD had explosives detected at reporting limits; therefore, the %RPD calculation is 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 sample preparation and 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.
- 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.

There were one MB and several calibration blanks associated with the explosive analyses in this SDG. All blanks were non-detect for all target explosives.

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 explosive 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%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from AOC75

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers four soil samples and two associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) on February 6, 2013. The samples in the following Sample Delivery Group (SDG) included samples collected from AOC75:

69867

Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), explosives, 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 and one equipment blank (EB) sample which was analyzed for all above listed parameters.

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 1.5°C which was slightly below the recommended range is 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 two (2) soil samples and one (1) EB. All samples were collected on February 6, 2013. Both soil samples were analyzed

for cadmium and the EB was 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 analytical batches, #174851 for the EB and #174898 for the two soil samples.

Accuracy

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

All LCS recoveries were within acceptance criteria.

Precision

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

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 blank 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. The two ICVs were prepared using a secondary source.
- All interference check criteria were met.
- All internal standard criteria were met.
- For the soil batch, a post digestion spike (PDS) was analyzed on sample AOC75-SW06.

AOC75-SW06

PAGE 2 OF 7

Metal	%R	Criteria
Cadmium	76	75-125%

There were one method blank (MB), 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 three (3) soil samples and one (1) EB. All samples were collected on February 6, 2013 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 two analytical batches, #174797 for water and #174835 for soil.

Accuracy

Accuracy was evaluated using the %R obtained from the two LCSs.

Both LCS recoveries were within acceptance criteria.

Precision

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

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 EB 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 one MB, one EB, 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 EB and one TB. These samples were collected on February 6, 2013 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 EB 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 %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 in this SDG.

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.
- Both two 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, 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 EB which was collected on February 6, 2013 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. This sample was analyzed following the procedures outlined in the CSSA QAPP, prepared and analyzed undiluted within the holding time required by the method.

Accuracy

Accuracy was evaluated using the %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 in this SDG.

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 and EB for cross contamination of samples during sample collection and 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.
- 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, 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 EB in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

EXPLOSIVES

General

This data package consisted of one EB which was collected on February 6, 2013 and was analyzed for a full list of explosives by SW8330B.

The explosive analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8330B. This EB sample was analyzed

following the procedures outlined in the CSSA QAPP, prepared and analyzed undiluted within the holding time required by the method.

Accuracy

Accuracy was evaluated using the %Rs 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 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 and EB for cross contamination of samples during sample collection, preparation and 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.
- 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.

There were one MB, one EB, and several calibration blanks associated with the explosive analyses in this SDG. All blanks were non-detect for all target explosives.

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

APPENDIX E

Waste Characterization Sampling Results for AOC-75

APPENDIX F

Report of Incidental Take near AOC-75



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

February 26, 2013

U-067-13

Adam Zerrenner, Field Supervisor
US Fish and Wildlife Service
Austin Ecological Services Office
10711 Burnett Road Suite 200
Austin, Texas 78758

Dear Mr. Zerrenner,

For your staff's review, we are reporting the incidental take of trees of 0.14703 acres or 6,404.6 sq. ft of Golden-cheeked Warbler (GCWA) potential habitat during late January and February 2013 near the Area of Concern (AOC) 75 area during a field survey of a potential historic waste trench. This report is submitted in accordance with page 25 "reporting requirements" of Biological Opinion, BO, 21450-2007-F-0128 (January 14, 2008), our ten year programmatic BO for operations at Camp Stanley.

The area was not occupied GCWA habitat. Prior to our 2012 updated vegetation survey which increased Camp Stanley's potential habitat by nearly 30% , it was not even identified as potential GCWA habitat. The narrow shape of this affected area should have negligible effect. Note in the enclosed imagery it resembles current narrow voids in the trees in other parts of this block.

The exploratory field work was done under our 3008(H) Resource and Conservation and Recovery Act (RCRA) order with USEPA Region 6. Analysis of historic imagery led us to believe there may have been a waste trench in this area, but fortunately, our field work only turned up very small quantities of metal surface debris. We took the minimal amount of trees needed to be able to conduct the field survey. Also, all field work was outside the GCWA nesting season.

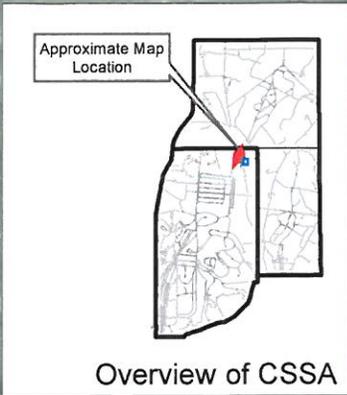
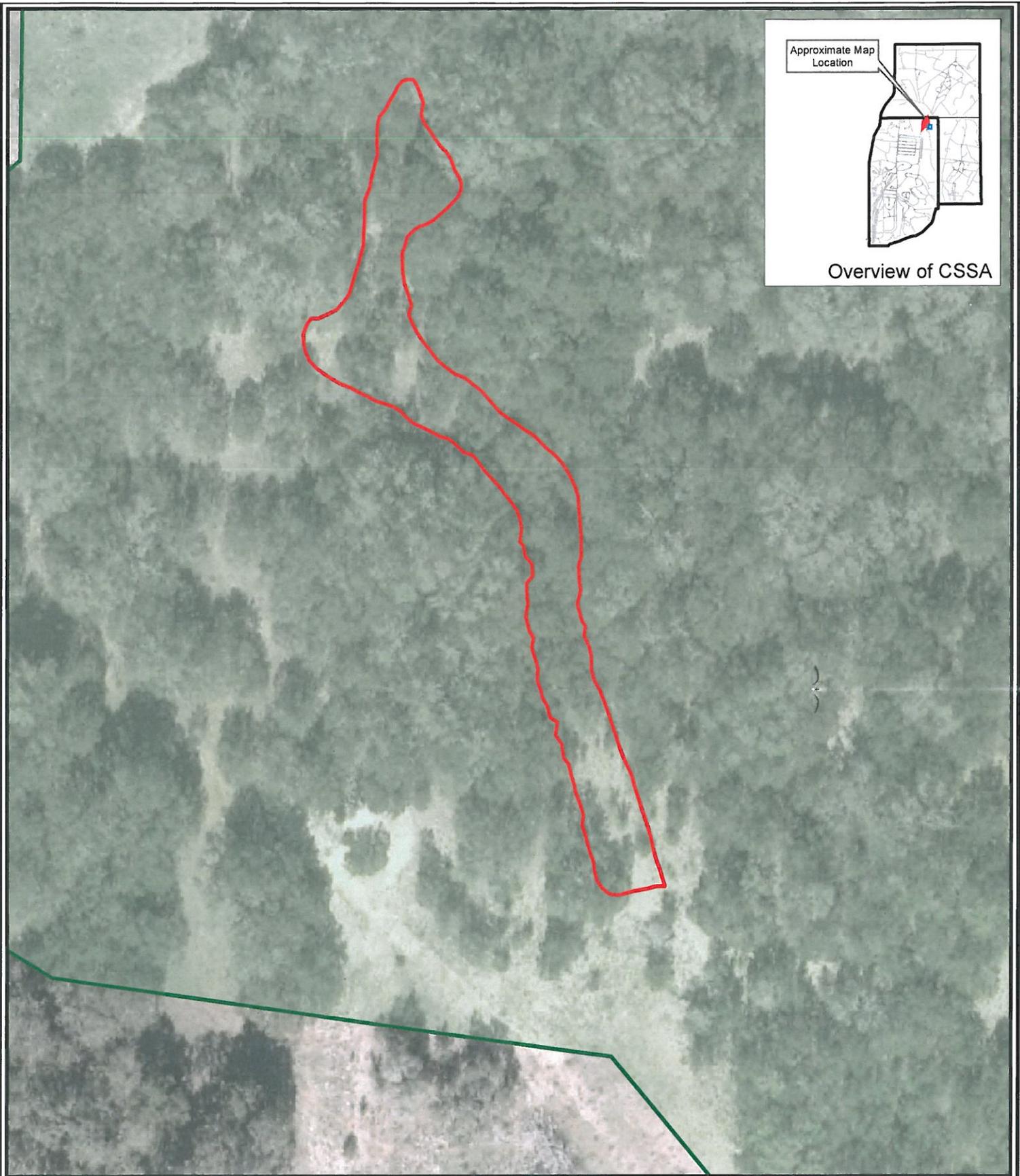
Under our 2008 operational programmatic BO, our annual incidental take is .8 of an acre of permanent take, thus we have .65297 of an acre remaining for the year. We try to avoid using this incidental take allowance and have not used any of it three of the six years that this BO has been in effect (counting six years, 2008 – 2013).

My points of contact are Mr. Gabriel Moreno-Fergusson at (210) 295-7453 or Mr. Jim Cannizzo at (210) 295-7082 or 9830.

Sincerely,


Jason D. Shirley
Installation Manager

Enclosures



Aerial Photo Date: Jan. 2012



- CSSA Potential ESA Bird Habitat 24-Oct-2012
- Disturbed Area (0.15 acres)

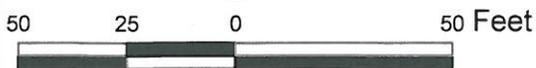
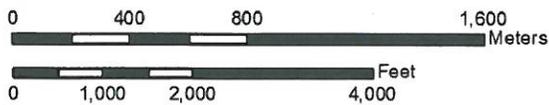
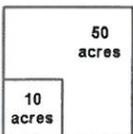
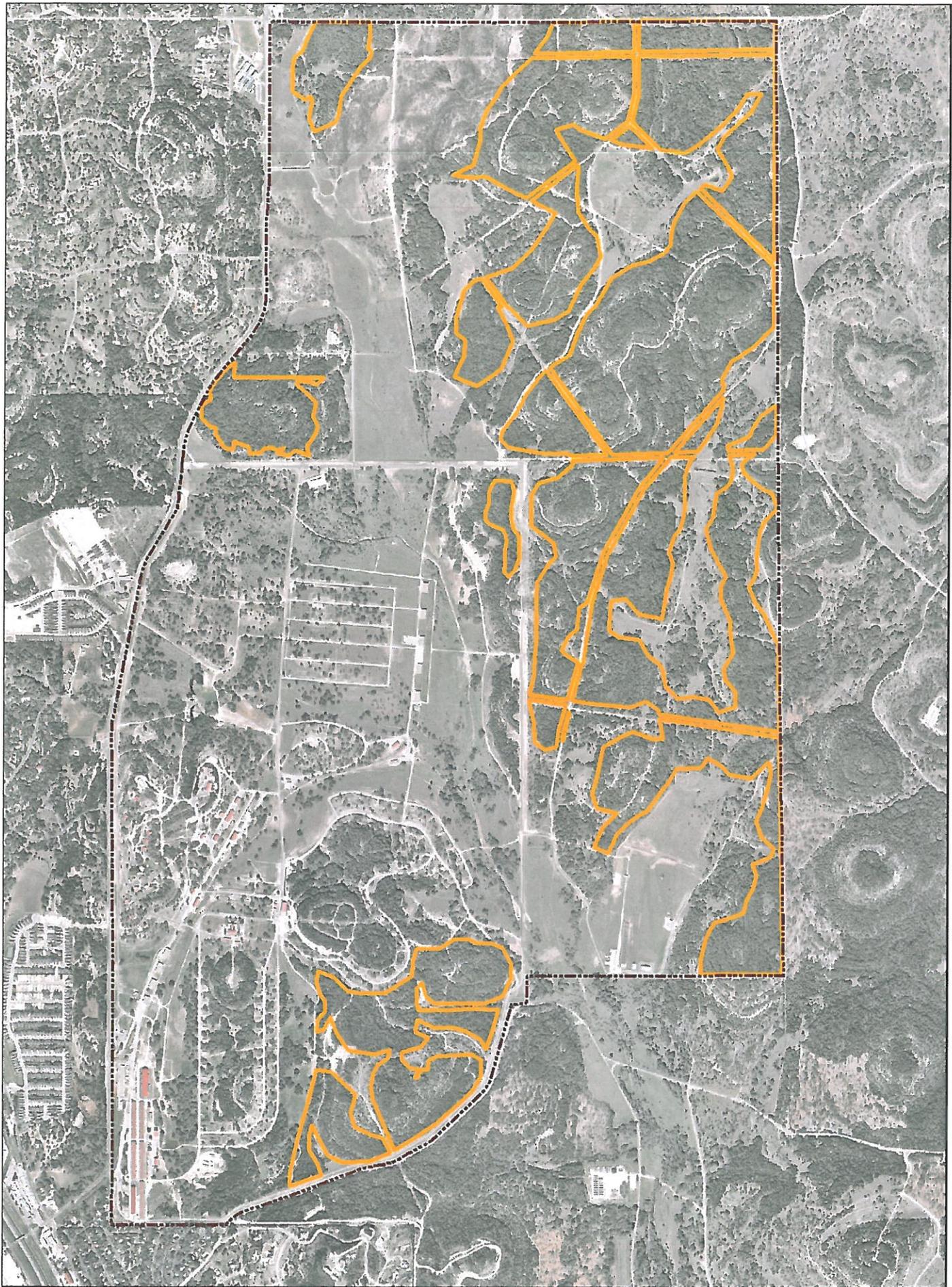


Figure X

Suspected Trench
Cedar Clearance
Camp Stanley Storage Activity

PARSONS



Camp Stanley Storage Activity
Integrated Natural Resources Management Plan
2013 Update

APPENDIX G

ProUCL Calculation Summaries for Lead in AOC-75 Soils

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 !

	A	B	C	D	E	F	G	H	I	J	K	L				
1	General UCL Statistics for Data Sets with Non-Detects															
2	User Selected Options															
3	From File			WorkSheet.wst												
4	Full Precision			OFF												
5	Confidence Coefficient			95%												
6	Number of Bootstrap Operations			2000												
7																
8																
9	Lead															
10																
11	General Statistics															
12	Number of Valid Data				14				Number of Detected Data				12			
13	Number of Distinct Detected Data				12				Number of Non-Detect Data				2			
14									Percent Non-Detects				14.29%			
15																
16	Raw Statistics						Log-transformed Statistics									
17	Minimum Detected			1.1			Minimum Detected			0.0953						
18	Maximum Detected			94			Maximum Detected			4.543						
19	Mean of Detected			19.23			Mean of Detected			2.095						
20	SD of Detected			31.27			SD of Detected			1.261						
21	Minimum Non-Detect			0.18			Minimum Non-Detect			-1.715						
22	Maximum Non-Detect			0.18			Maximum Non-Detect			-1.715						
23																
24																
25	UCL Statistics															
26	Normal Distribution Test with Detected Values Only						Lognormal Distribution Test with Detected Values Only									
27	Shapiro Wilk Test Statistic			0.562			Shapiro Wilk Test Statistic			0.875						
28	5% Shapiro Wilk Critical Value			0.859			5% Shapiro Wilk Critical Value			0.859						
29	Data not Normal at 5% Significance Level						Data appear Lognormal at 5% Significance Level									
30																
31	Assuming Normal Distribution						Assuming Lognormal Distribution									
32	DL/2 Substitution Method						DL/2 Substitution Method									
33	Mean			16.49			Mean			1.452						
34	SD			29.59			SD			2.005						
35	95% DL/2 (t) UCL			30.5			95% H-Stat (DL/2) UCL			431.5						
36																
37	Maximum Likelihood Estimate(MLE) Method						Log ROS Method									
38	Mean			13.5			Mean in Log Scale			1.688						
39	SD			31.71			SD in Log Scale			1.559						
40	95% MLE (t) UCL			28.51			Mean in Original Scale			16.55						
41	95% MLE (Tiku) UCL			27.83			SD in Original Scale			29.56						
42							95% t UCL			30.54						
43							95% Percentile Bootstrap UCL			29.47						
44							95% BCA Bootstrap UCL			35.44						
45							95% H UCL			94.45						
46																
47	Gamma Distribution Test with Detected Values Only						Data Distribution Test with Detected Values Only									
48	k star (bias corrected)			0.582			Data appear Lognormal at 5% Significance Level									
49	Theta Star			33.04												
50	nu star			13.96												
51																
52	A-D Test Statistic			1.458			Nonparametric Statistics									
53	5% A-D Critical Value			0.769			Kaplan-Meier (KM) Method									
54	K-S Test Statistic			0.769			Mean			16.64						
55	5% K-S Critical Value			0.256			SD			28.44						
56	Data not Gamma Distributed at 5% Significance Level						SE of Mean									
57							95% KM (t) UCL									
58	Assuming Gamma Distribution						95% KM (z) UCL									
59	Gamma ROS Statistics using Extrapolated Data						95% KM (jackknife) UCL									
60	Minimum			0.000001			95% KM (bootstrap t) UCL			136.2						
61	Maximum			94			95% KM (BCA) UCL			30.49						
62	Mean			16.48			95% KM (Percentile Bootstrap) UCL			29.89						
63	Median			6.45			95% KM (Chebyshev) UCL			51.24						
64	SD			29.6			97.5% KM (Chebyshev) UCL			66.21						
65	k star			0.236			99% KM (Chebyshev) UCL			95.62						
66	Theta star			69.78												
67	Nu star			6.612			Potential UCLs to Use									
68	AppChi2			1.96			97.5% KM (Chebyshev) UCL									
69	95% Gamma Approximate UCL			55.58												
70	95% Adjusted Gamma UCL			66.32												
71	Note: DL/2 is not a recommended method.															
72																
73	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.															
74	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).															
75	For additional insight, the user may want to consult a statistician.															
76																

APPENDIX H

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:

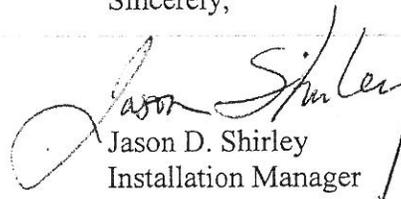
The Camp Stanley Storage Activity (CSSA), McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Material Command, U.S. Army, is providing this letter to notify the TCEQ of CSSA's plan to move and manage non-hazardous metals-impacted soils generated during remedial actions at CSSA's Solid 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