

# RELEASE INVESTIGATION REPORT

## AREA OF CONCERN 69 (AOC-69) CAMP STANLEY STORAGE ACTIVITY



*Prepared for:*

### **Camp Stanley Storage Activity Boerne, Texas**

*Prepared by:*

**PARSONS**  
Austin, Texas

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## ACRONYMS AND ABBREVIATIONS

AOC	Area of concern
APPL	Agriculture & Priority Pollutants Laboratory, Inc.
BCVI	Black-capped vireo
bgs	below ground surface
BS	Bexar Shale
CC	Cow Creek
CESWF	Corps of Engineers Fort Worth District
CFR	Code of Federal Regulations
COC	Chemical of concern
CSSA	Camp Stanley Storage Activity
CY	cubic yard
DO	Delivery Order
DQO	Data Quality Objective
EE	Environmental Encyclopedia
FD	Field duplicate (sample)
FSP	Field Sampling Plan
GCWA	Golden-cheeked warbler
<sup>GW</sup> Soil <sub>ing</sub>	Soil to groundwater ingestion pathway (PCL)
IM	Interim Measures
LGR	Lower Glen Rose
LTMO	Long-Term Monitoring Optimization
MDL	Method detection limit
mg/kg	milligrams per kilogram
MLQ	Method quantitation limit
N	Normal (sample)
NFA	No further action
PCL	Protective concentration level
PQL	Practical quantitation limit
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RIR	Release Investigation Report
RL	Reporting limit
RMU	Range management unit
SAP	Sampling and Analysis Plan
SVOC	Semivolatile organic compound

SWMU	Solid waste management unit
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity characteristic leaching procedure
TO	Task Order
TPH	Total petroleum hydrocarbon
<sup>Tot</sup> Soil <sub>Comb</sub>	Combined soil (PCL)
TRRP	Texas Risk Reduction Program
UGR	Upper Glen Rose
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	Volatile organic compound
WMI	Waste Management, Inc.

## 1.0 INTRODUCTION

Parsons is under contract with the U.S. Army Corps of Engineers (USACE), Fort Worth District (CESWF), Contract DACA87-02-D-0005, Task Order (TO) DY01, and Contract W9126G-07-D-0028, Delivery Order (DO) DO 0011, to provide investigations and environmental services for waste sites located at Camp Stanley Storage Activity (CSSA) in Boerne, Texas. These contracts include characterization of selected waste sites and preparation of appropriate documentation, including a Release Investigation Report (RIR) for Area of Concern (AOC) 69 (AOC-69). This work has been 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 has been prepared following TCEQ reporting and documentation requirements for releases that do not trigger applicability to the TRRP rule.

This RIR describes environmental investigation activities at AOC-69. Work has included environmental sampling; excavation and removal of material necessary to support the sampling effort; waste characterization and confirmatory sampling and analysis; and proper documentation of all activities, including closure reports such as this RIR. All work was performed according to applicable federal, state, and local rules and regulations.

For this report, Section 1 provides the introduction and the documentation to support this RIR. Section 2 provides historical background information for CSSA and for AOC-69. Section 3 describes the objectives and rationale for preparing an RIR for AOC-69 and the findings from environmental investigations for the site. Section 4 summarizes the findings from completing the Tier 1 Ecological Exclusion Criteria Checklist, which is included as an appendix to this RIR. Section 5 summarizes the overall findings and recommendations for the site. All figures and tables are provided at the end of this RIR (pages 11 through 19). References cited in this report can be found in the [CSSA Environmental Encyclopedia \(EE\) \(Volume 1-1, Bibliography\) 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 (SWMU), AOCs, and range management units (RMU).

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 AOC-69

AOC-69 is located in the Inner Cantonment of CSSA (Figure 2). It is approximately 1,588 feet south of the fence that separates the Inner Cantonment from the North Pasture of the installation. It is approximately 310 feet east of Ralph Fair Road, which forms the western boundary of CSSA. The site covers approximately 4.765 acres.

The site is located on exposed bedrock, on a topographic high, and has minimal soil horizon. Vegetation is scarce at this location due to lack of soil profile and shallow or exposed bedrock. Karst features are present at CSSA and three features were found at AOC-69 (see photo 3 in Appendix A). The karst features are not situated in locations that receive runoff from the site. Also, as discussed in Section 3.2.2, there is no evidence of groundwater contamination due to past practices at AOC-69.

There is no documented record of any military practice or waste disposal activity at AOC-69. The area was initially identified as a potential waste site based on preliminary interviews with CSSA personnel, as well as the physical characteristics of the site, primarily the lack of vegetation and the exposed limestone bedrock that was pinkish in color, which can be an indication of possible waste burning activities. Aerial photographs of the site are shown on Figure 3 and indicate that the site came into use between 1946 and 1957. Waste found at the site during investigation activities included a small amount of nails, hinges, screws and other similar metal debris; box tags (dated 1957); and field rifle cleaning kits, which used only a wire brush and a pull string (no chemicals were used in these type of cleaning kits). The intermittent and small amount of metal debris was most likely a result of burning wooden boxes at the site in 1957 (the date on the box tags). Burning wooden boxes would cause the exposed limestone to have the pinkish color. There were no trenches or any other signs of disposal at the site. No ammunition or ash was found at the site.

Field activities for the site began in 2008 and thus this report includes the most current description of the site. Except for site photos taken in 2001, preliminary information about the site as found in the CSSA EE has been updated by this RIR. The 2001 site photos from the

CSSA EE have been included in this RIR; the other photos are from the 2008 field activities (Appendix A).

### 3.0 OBJECTIVES OF RIR FOR AOC-69

In accordance with TCEQ (2003) guidance, *Determining Which Releases are Subject to TRRP* ([www.tceq.state.tx.us/assets/public/remediation/trrp/releasesTRRPrev.pdf](http://www.tceq.state.tx.us/assets/public/remediation/trrp/releasesTRRPrev.pdf)), an RIR can be performed for a site when results of an investigation lead to the following conclusions:

- Concentrations of chemicals detected at the site do not exceed Tier 1 residential soil action levels;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at the site; and
- The site passes the Tier 1 Ecological Exclusion Criteria Checklist.

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 document the results and a no further action (NFA) decision can be requested from the TCEQ.

As referred to in the criteria listed above, the Tier 1 residential soil action levels are provided by TCEQ and were selected following TCEQ guidance (TCEQ, 2007). The most current action levels were used (TCEQ, 2009). These action levels are referred to as protective concentration levels (PCL) and are selected for each chemical detected at the site (*i.e.*, chemical of concern [COC]). The PCLs are based on the general size of the site, which is also referred to as the “source area” size. If the source area is greater than 0.5 acre, then the source area is assumed to be 30 acres. Thus, the soil action levels for AOC-69 are based on a 30-acre source area. The PCL is then selected based on the lower of the two PCLs listed for either (1) the total soil combined pathway ( $^{Tot}Soil_{Comb}$ ) (*i.e.*, exposure to a COC from incidental ingestion, dermal contact, inhalation of volatiles and particulates, and vegetable consumption); or (2) the soil to groundwater pathway ( $^{GW}Soil_{Ing}$ ) (*i.e.*, soil-to-groundwater leaching of a COC to groundwater, where the PCL is the highest concentration of COC allowed in soil to be protective of Class 1 or Class 2 groundwater).

Also based on the TCEQ guidance, if the background level or the method quantitation limit (MQL) is a higher concentration than the PCL, then the higher of the background or MQL is used as the action level. Based on the metals that are most common to past activities at CSSA, TCEQ has approved background concentrations for nine metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc) (Parsons, 2002). The statistically calculated and TCEQ-approved background metal concentrations are shown in the analytical summary table (which is Table 2 in this RIR) and are also available in the [CSSA EE \(Volume 2, Background Metals Levels\)](#). It is noted that the action levels for four of the nine metals are based on the background concentrations (these four metals are arsenic, cadmium, lead, and mercury).

### 3.1 FIELD ACTIVITIES AND INVESTIGATIONS

Soil sampling and excavation activities that have been performed at AOC-69 are summarized in Table 1. A summary of the sampling results for soils remaining at the site (*i.e.*, soils not excavated and removed from the site) are shown in Table 2 and the final soil sampling locations that remain at the site are shown on Figure 4.

#### 3.1.1 Sampling and Analytical Procedures

For all sampling and analytical activities at CSSA, Parsons follows TCEQ-approved Quality Assurance (QA) and Quality Control (QC) procedures as described in the post-wide CSSA Quality Assurance Project Plan (QAPP) which can be found at <http://www.stanley.army.mil/Volume1-4/Quality-Assurance-Project-Plan.PDF>. The detailed CSSA QAPP presents specific policies, organization, functions, and QA/QC requirements for environmental programs at CSSA, including TCEQ-approved analytical methods, reporting limits (RL), and QA/QC procedures.

The CSSA QAPP: (1) was prepared for use by contractors that perform environmental services at CSSA to ensure that the data are scientifically valid and defensible; (2) establishes the analytical protocols and documentation requirements to ensure that the samples are collected and analyzed, and that the data are reviewed and validated in a specified manner; and (3) provides detailed guidance for using the Data Quality Objective (DQO) process for specific investigations. The CSSA QAPP and delivery/task order specific Field Sampling Plans (FSP) constitute the CSSA Sampling and Analysis Plan (SAP). The SAP defines data quality for a specific project. Information regarding post-wide and site-specific plans and TCEQ correspondence can be found at <http://www.stanley.army.mil/Volume1-1/Correspondence/Index.htm#TCEQ>.

Following the CSSA-specific plans, the investigative soil analyses for AOC-69 were performed using U.S. Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste* (SW-846): Method 8260B (volatile organic compounds [VOC]); Method 8270C (semivolatile organic compounds [SVOC]); Method 8330A (explosives); Method 6020 (arsenic, barium, cadmium, chromium, copper, lead, nickel, and zinc); and Method 7471A (mercury). 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) and total petroleum hydrocarbons (TPH) (Method TX1005). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analyses.

#### 3.1.2 Initial Soil Sampling (April 2008)

Initial soil samples were collected at AOC-69 on April 10, 2008. Ten soil samples were collected as listed in Table 1. The soil samples were collected from depths up to 0.5 feet below ground surface (bgs). The sampling locations were field determined based on visible areas of waste that included nails, hinges, screws and other similar metal debris; box tags; and field rifle

cleaning kits that contained only a wire brush and a string (no chemicals were associated with the kits). Site-specific features (*e.g.*, low lying areas where runoff could occur) were also used in determining sampling locations. The rationale for the type of analyses for the initial investigation included the following:

- Since AOC-69 may have been used for ammunition burning and/or munitions disposal, the COCs investigated included VOCs, SVOCs, explosives, and metals.
- VOC and SVOC analyses were included to test for the presence of contaminants commonly associated with waste disposal sites.
- Metals included the nine metals common to the metallic nature of waste generated at CSSA (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc). As discussed above, TCEQ-approved background levels have been established for these nine metals at CSSA.
- Explosives were included due to the nature of past military and waste activities at CSSA.

As described in Table 1, the initial investigation showed that three metals (lead, copper, and zinc) were detected at concentrations above their respective PCLs. No other chemicals were above PCLs. As summarized in Table 1, lead was detected above its PCL at three sample locations. One of these locations also had copper and zinc concentrations above their respective PCLs. Two of the three sample locations were along the northern side of the site (down slope of the topographic mound) and the other sample location was in a low-lying area where soil had collected along the central north-eastern portion of the site. Although some volatiles and semivolatiles were detected, all detections were much lower than their PCLs. See Table 1 for a summary of these results. The list of the analytical results for soils remaining at the site is provided in Table 2. Sample locations for soils remaining at the site are shown on Figure 4. The clearance areas where soils were excavated and removed are also shown on Figure 4 (described below.)

### 3.1.3 Sampling to Identify Extent of Contamination (June 2008)

A second round of samples was collected on June 23, 2008 to identify the extent of metal contamination at AOC-69. Five samples were collected in the areas of the three sample locations that were found to have high metal concentrations in the initial (April 10, 2008) sampling event. The samples were analyzed for the nine CSSA metals. Results showed that three of the five sampling locations had metals concentrations above PCLs. Lead was detected above its PCL at the three locations. Cadmium, copper, mercury and zinc were also each detected above their respective PCLs at one of the three locations. No other sample results exceeded PCLs. See summary of results in Table 1; the list of analytical results for soils remaining at the site in Table 2; and the sample locations for soils remaining at the site on Figure 4.

It is noted that one of the three sampling locations (where lead and mercury were both detected above their PCLs) was a field duplicate (FD) sample; the normal (N) sample results at

this location were below the lead and mercury PCLs. The FD results showed lead at 93.16 milligrams per kilogram (mg/kg) and mercury at 1.73 mg/kg, while the N results showed lead at 77.89 mg/kg and mercury at 0.73 mg/kg. The PCLs for lead and mercury are 84.5 mg/kg and 0.77 mg/kg, respectively, and as discussed above, both of these PCLs are based on the TCEQ-approved background concentrations for CSSA. Also, even though only one of the pair of samples had lead and mercury above their PCLs, this sample location was excavated and removed as discussed below.

#### **3.1.4 Initial Excavation and Confirmation Sampling (November 2008)**

Excavation activities were initiated in November 2008 to remove soils at and near the sample locations where metals concentrations exceeded their respective PCLs (from the April and June sampling events). The clearance areas for these sample locations were along the northern rim of the site and in the central north-eastern portion of the site (refer to Figure 4). Approximately 390 cubic yards (CY) of soil/waste material was removed. Because of the thin soil profile at AOC-69, the equipment used to remove the soil/waste material included magnetic rollers (including a hand roller and a tractor roller); a trac-hoe fitted with a flat blade; and a front-end loader (with a 3 CY bucket). The excavated material was temporarily stockpiled on site and was removed in February of 2009 (see discussion below). Following this excavation, six confirmation samples were collected and analyzed for lead, cadmium, copper, and zinc. One sample location was found to have a lead concentration above its PCL (the sample concentration was 103.82 mg/kg compared to its PCL of 84.5 mg/kg). This sample location and surrounding area were also excavated and removed as described below. Refer to Table 1 for a summary of the activities.

#### **3.1.5 Final Excavation, Confirmation Sampling, and Removal Action (February 2009)**

During February 2009, additional excavation was conducted at and around the sample location from November 2008 where lead was detected above its PCL. Approximately 50 CY of additional soil/waste material was removed. Three confirmation samples were then collected and analyzed for lead, copper, and zinc. All sample results were below the PCLs.

The excavated soil/waste material from AOC-69 was also removed off post during February 2009. Waste characterization efforts were performed in accordance with requirements of CSSA's RCRA Facility Investigation (RFI) and Interim Measures (IM) Waste Management Plan – Revised, dated May 2006 (approved by TCEQ in August 2006). Results of waste characterization showed that the impacted media met State of Texas Class 2 non-hazardous criteria (30 TAC §335 Subchapter R). A total of approximately 440 CY of AOC-69 impacted soil media and waste were transported and disposed of off post at Waste Management, Inc. (WMI), Covell Gardens Landfill in San Antonio, Texas.

### **3.2 SITE GEOLOGY/HYDROGEOLOGY**

Based on the sampling results and the geological and hydrogeological characteristics of the site, surface water and groundwater have not been affected by historical activities at AOC-69. 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 *Environmental Encyclopedia (Volume 1-1, Background Information Report)*. The report can be found at [www.stanley.army.mil](http://www.stanley.army.mil).

### 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 feet 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 feet 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 is unconfined and 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 foot (Ashworth, 1983). 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 AOC-69 Groundwater

No site-specific information regarding groundwater is available for AOC-69. Historical data for CSSA suggest that the groundwater gradient is generally to the southeast, but can seasonally vary to more southerly or easterly gradients. Based on these potential groundwater gradients, the nearest wells to AOC-69 are the CS-MW12 wells (CS-MW12-LGR, CS-MW12-BS, and CS-MW12-CC), which are approximately 1,700 feet east-southeast of the site. The other closest wells to AOC-69 include CS-11 to the south (3,000 feet), and

CS-MW19-LGR to the southeast (3,600 feet). Water levels at the nearest wells (the CS-MW12 well cluster) have been monitored on a quarterly basis since April 2003. Based on these monitoring data, water levels in the vicinity of AOC-69 are expected to vary from approximately 130 to 350 feet bgs, depending on whether it is a wet or dry season. Based on mapping by the U.S. Geological Survey (USGS), AOC-69 falls within the Northern Fault Zone. The northernmost fault of this system is shown to bisect the AOC-69 perimeter.

Inorganic groundwater contamination has not been reported in the closest wells to AOC-69 (CS-MW12-LGR, CS-MW12-BS, and CS-MW12-CC). For additional information on groundwater data collected at CSSA, refer to the [CSSA EE \(Volume 5, Groundwater Monitoring\)](#).

### 3.2.3 AOC-69 Surface Water

Salado, Leon and Cibolo Creeks drain surface water from CSSA (Figure 5). All creeks at CSSA are intermittent and only contain water during and immediately following rain events.

As shown on Figure 5, the closest creek to AOC-69 is an unnamed tributary located 956 feet to the southwest. This unnamed tributary does not receive potential surface water runoff from the site. It is also not a State classified segment under Texas Surface Water Quality Standards (§§307.1 - 307.10). The nearest downgradient creek from AOC-69 is Salado Creek (which is classified under Texas Surface Water Quality Standards as Segment 1910 from the confluence with the San Antonio River in Bexar County to Rocking Horse Lane west of Camp Bullis). The creek is 1,050 feet north-northeast of AOC-69.

Salado Creek is classified as an intermittent creek upstream (south) of CSSA to Loop 410 in San Antonio. Downstream of Loop 410, the creek is classified as perennial. 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 expected from AOC-69.

The nearest perennial surface water body to AOC-69 is the D-Tank pond which is located 1,830 feet to the south-southeast of the site (Figure 5). This pond is 105 feet upgradient from the unnamed tributary of Salado Creek. At this point along the unnamed tributary, the distance to Salado Creek is 4,450 feet.

Additional information on surface water in the area is described in the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

## 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 for AOC-69. Thus, based on the absence of any complete or significant ecological exposure pathways, the site may be excluded from further ecological assessment.

## 5.0 SUMMARY AND RECOMMENDATIONS

AOC-69 is an approximately 4.765 acre site located on exposed bedrock. The area was identified as a potential waste site based on preliminary interviews with CSSA personnel, as well as the physical characteristics of the site, primarily the lack of vegetation and the exposed limestone bedrock that was pinkish in color, which can be an indication of possible waste burning activities. Aerial photographs of the site indicate that the site came into use between 1946 and 1957. Waste found at the site during investigation activities included a small amount of nails, hinges, screws and other similar metal debris; box tags (dated 1957); and field rifle cleaning kits, which used only a wire brush and a pull string (no chemicals were used in the kits). The intermittent and small amount of metal debris was most likely a result of burning wooden boxes at the site in 1957 (the date on the box tags). Burning wooden boxes would cause the exposed limestone to have the pinkish color. There were no trenches or any other signs of disposal at the site. No ammunition or ash was found at the site.

In summary, the previous activities at AOC-69 showed the following results:

- In April 2008, ten soil samples were collected and analyzed for VOCs, SVOCs, explosives, and metals (arsenic, cadmium, lead, mercury, barium, chromium, copper, nickel, and zinc). Three sample locations had lead concentrations above the PCL and at one of these locations, copper and zinc were also above their respective PCLs.
- In June 2008, sampling was performed at five locations to identify the extent of contamination around the three (April 2008) samples that had PCL exceedances. Lead was above the PCL at three locations and at one of these locations, cadmium, copper and zinc were also above their PCLs. Mercury was also above its PCL at one of the elevated lead locations.
- In November 2008, initial excavation activities and confirmation sampling was performed for the locations with PCL exceedances. Six confirmation samples were collected. Lead was detected above its PCL at one location. No other sample results exceeded PCLs.
- In February 2009, a second excavation in the area of the lead PCL exceedance was conducted, and three confirmation samples were collected. All sample results were below the PCLs. Waste characterization (showing the material met Class 2 non-hazardous criteria) and off-post removal action were also performed at this time.

From the information summarized above and presented in this report, the results of the investigations at AOC-69 meet the three criteria as described in TCEQ's (2003) guidance *Determining Which Releases are Subject to TRRP*. Thus, the following criteria were met:

- Concentrations of chemicals detected in soil samples do not exceed Tier 1 residential soil action levels. Soils that were found to have metal concentrations above their respective PCLs have been excavated and removed from the site.
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-69. Since soils that were found to have concentrations of metals above their PCLs have been excavated and removed, there will be no impact to groundwater, surface water, or sediment in the area.
- AOC-69 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, AOC-69 is not subject to TRRP. Therefore, this RIR has been prepared to document that NFA is appropriate for the site.

**TABLES AND FIGURES**

**Table 1 Summary of Investigations and Results at AOC-69**

Date	Investigation Description	Type of Analyses	Results †
April 10, 2008	10 soil samples collected: eight surface and two subsurface samples. AOC-69_SB01 AOC-69_SB02 AOC-69_SS01 AOC-69_SS02 AOC-69_SS03 AOC-69_SS04 AOC-69-SS05 AOC-69_SS06 AOC-69_SS07 AOC-69_SS08 and FD	VOCs, SVOCs, explosives, and metals.	Lead detected above PCL at three locations. Copper and zinc also detected above PCLs at one location. No other sample results exceeded PCLs. AOC-69_SS06 (lead, copper, zinc) AOC-69_SS07 (lead) AOC-69_SS08 and FD (lead) These three sample locations and the areas near these locations were excavated (see below).
June 23, 2008	Sampling at five locations to identify extent of contamination and boundaries of excavation. AOC69-SS09 AOC69-SS10 AOC69-SS11 and FD AOC69-SS12 AOC69-SS13	Nine CSSA metals.	Lead detected above PCL at three locations. Cadmium, copper, mercury and zinc also detected above PCLs at one location each. No other sample results exceeded PCLs. AOC69-SS11 FD (lead and mercury only above PCLs in the FD sample; the N sample results were below the lead and mercury PCLs - refer to Section 3.1.4) AOC69-SS12 (lead, cadmium, copper, zinc) AOC69-SS13 (lead) These three sample locations and the areas near these locations were excavated (see below).
November 2008	Initial excavation activities in areas of PCL exceedances.  Confirmation sampling at six locations (11-17-08). AOC69-SS14 AOC69-SS15 AOC69-SS16 and FD AOC69-SS17 AOC69-SS18 AOC69-SS19	---  Metals (lead, cadmium, copper, zinc).	Excavated soil/waste material from the clearance areas was temporarily stockpiled on site.  Confirmation sampling showed lead detected above PCL at one location. No other sample results exceeded PCLs. AOC69-SS14 (lead) This sample location and the area near this location were further excavated (see below).

(Table 1 continued)

Table 1 continued

Date	Investigation Description	Type of Analyses	Results <sup>†</sup>
February 2009	<p>Second excavation in area of lead PCL exceedance at AOC69-SS14.</p> <p>Confirmation sampling at three locations (2-19-09). AOC69-SS20 AOC69-SS21 and FD AOC69-SS22</p> <p>Removal activities for the soil/waste material from AOC-69.</p>	<p>---</p> <p>Metals (lead, copper, and zinc).</p> <p>Waste characterization showed the material met Class 2 non-hazardous criteria (30 TAC §335 Subchapter R).</p>	<p>Material from this (second) excavation and the Nov 08 (first) excavation was removed (see below).</p> <p>All samples results below PCLs.</p> <p>Approximately 440 CY of material was taken off post for disposal at WMI, Covell Gardens Landfill in San Antonio, Texas.</p>

<sup>†</sup> Table 2 and Figure 4 show results and locations of soils remaining at the site. Clearance areas are also shown on Figure 4.

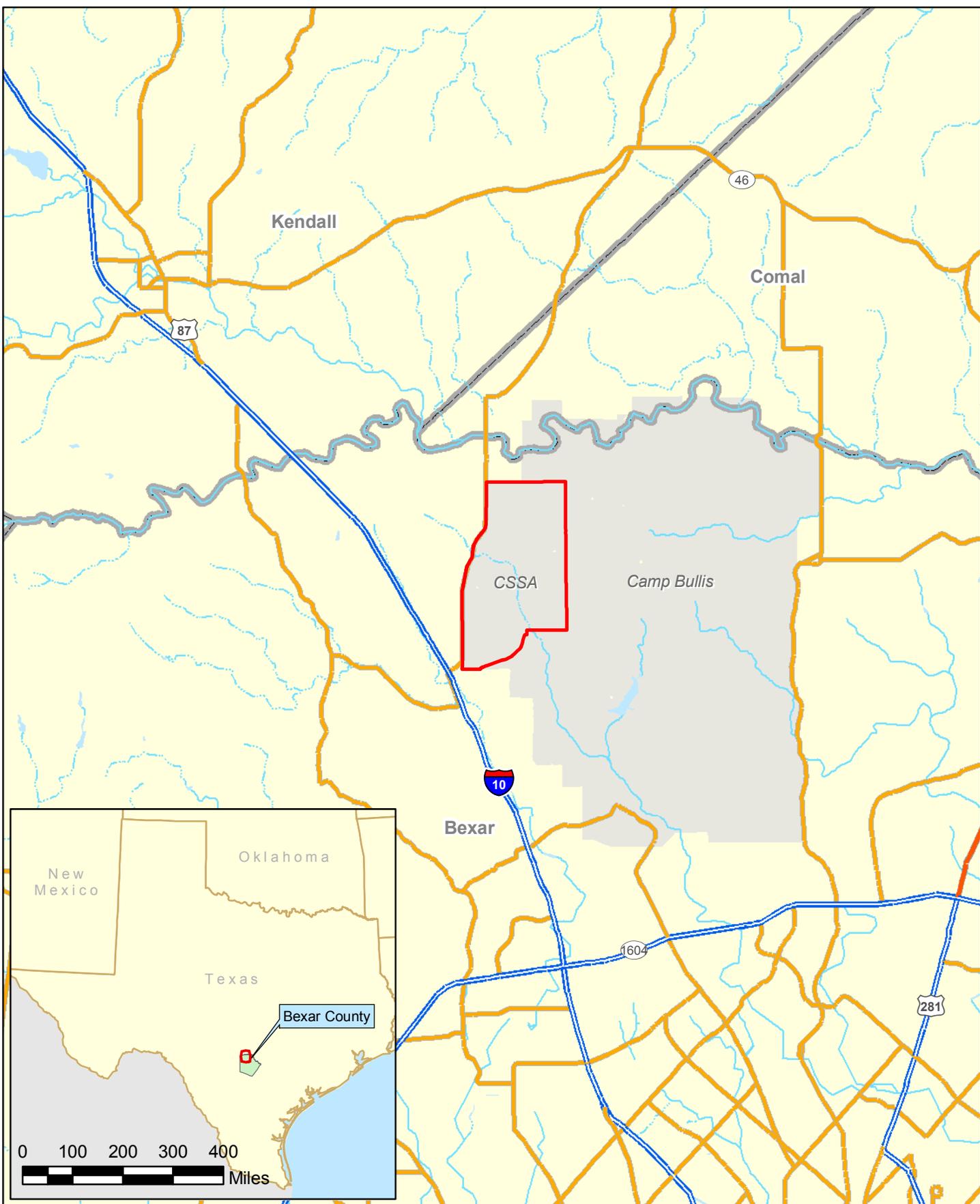
**Table 2. Summary of Chemical Constituents Remaining in Soils at AOC-69**

Detected Chemicals	CAS Number	Tier 1 Soil PCLs <sup>†</sup>		TCEQ-Approved CSSA Background Metal Concentrations <sup>††</sup>	Sample Locations																								
		Residential Source Area 30 acre			AOC-69_SB01	Qual	DF	AOC-69_SB02	Qual	DF	AOC-69_SS01	Qual	DF	AOC-69_SS02	Qual	DF	AOC-69_SS03	Qual	DF	AOC-69_SS04	Qual	DF	AOC-69_SS05	Qual	DF				
		Soil mg/kg [1]	Soil mg/kg [2]		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
<b>Volatile Organic Compounds</b>																													
Chloroform	67-66-3	8.0E+00	c	5.1E-01	n	na	0.0007	U	1	0.0008	F	1	0.0007	U	1	0.0007	U	1											
Methylene chloride	75-09-2	2.6E+02	c	6.5E-03	m	na	0.0017	F	1	0.0013	U	1	0.0013	U	1														
<b>Semivolatile Organic Compounds</b>																													
Benzo(a)anthracene	56-55-3	5.6E+00	c	8.9E+00	c	na	0.04	U	1	0.12	F	1	0.12	F	1	0.11	F	1											
Benzo(a)pyrene	50-32-8	5.6E-01	c	3.8E+00	m	na	0.05	U	1	0.11	F	1	0.15	F	1	0.14	F	1											
Benzo(b)fluoranthene	205-99-2	5.7E+00	c	3.0E+01	c	na	0.06	U	1	0.06	U	1	0.07	F	1	0.08	F	1	0.23	F	1	0.32	F	1	0.31	F	1		
Benzo(g,h,i)perylene	191-24-2	1.8E+03	n	2.3E+04	n >S	na	0.04	U	1	0.08	F	1	0.13	F	1	0.14	F	1											
Chrysene	218-01-9	5.6E+02	c	7.7E+02	c >S	na	0.04	U	1	0.04	U	1	0.05	F	1	0.05	F	1	0.14	F	1	0.16	F	1	0.17	F	1		
Fluoranthene	206-44-0	2.3E+03	n	9.6E+02	n >S	na	0.04	U	1	0.04	U	1	0.08	F	1	0.10	F	1	0.28	F	1	0.31	F	1	0.33	F	1		
Indeno(1,2,3-c,d)pyrene	193-39-5	5.7E+00	c	8.7E+01	c	na	0.04	U	1	0.08	F	1	0.12	F	1	0.12	F	1											
Phenanthrene	85-01-8	1.7E+03	n	2.1E+02	n	na	0.04	U	1	0.12	F	1	0.10	F	1	0.15	F	1											
Pyrene	129-00-0	1.7E+03	n	5.6E+02	n >S	na	0.05	U	1	0.05	U	1	0.06	F	1	0.08	F	1	0.20	F	1	0.24	F	1	0.26	F	1		
<b>Inorganic Metals</b>																													
Arsenic	7440-38-2	2.4E+01	n	2.5E+00	m >S	19.6	1.65	F	1	0.99	F	1	2.81	1	11.30	1	2.29	1	6.89	1	7.16	1	7.16	1	7.16	1	7.16	1	
Barium	7440-39-3	7.8E+03	n	2.2E+02	m >S	186	10.43	1	12.20	1	41.24	1	80.88	1	55.69	1	51.69	1	58.80	1	58.80	1	58.80	1	58.80	1	58.80	1	
Cadmium	7440-43-9	5.2E+01	n	7.5E-01	m >S	3	0.17	F	1	0.23	1	0.57	1	1.33	1	0.41	1	0.95	1	1.03	1	1.03	1	1.03	1	1.03	1	1.03	1
Chromium	7440-47-3	2.3E+04	n	1.2E+03	m >S	40.2	7.03	F	1	7.76	F	1	11.89	J	1	31.87	J	1	15.05	J	1	19.93	J	1	23.91	J	1	23.91	J
Copper	7440-50-8	5.5E+02	n	5.2E+02	a >S	23.2	1.47	F	1	1.62	F	1	24.32	1	11.00	1	38.42	1	8.07	1	8.01	1	8.01	1	8.01	1	8.01	1	
Lead	7439-92-1	5.0E+02	n	1.5E+00	a >S	84.5	1.56	1	1.40	1	35.15	1	23.45	1	51.37	1	43.39	1	38.58	1	38.58	1	38.58	1	38.58	1	38.58	1	
Mercury	7439-97-6	2.1E+00	n	3.9E-03	m	0.77	0.01	U	1	0.01	U	1	0.02	F	1	0.03	F	1	0.01	U	1	0.04	F	1	0.04	F	1		
Nickel	7440-02-0	8.3E+02	n	7.9E+01	n >S	35.50	15.85	1	15.95	1	9.08	1	24.36	1	24.36	1	15.20	1	20.73	1	21.10	1	21.10	1	21.10	1	21.10	1	
Zinc	7440-66-6	9.9E+03	n	1.2E+03	n >S	73.2	4.22	F	1	3.78	F	1	215.83	1	81.17	1	307.96	1	51.83	1	43.66	1	43.66	1	43.66	1	43.66	1	

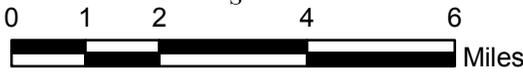
Detected Chemicals	CAS Number	Tier 1 Soil PCLs <sup>†</sup>		TCEQ-Approved CSSA Background Metal Concentrations <sup>††</sup>	Sample Locations																																												
		Residential Source Area 30 acre			AOC-69-SS09	Qual	DF	AOC-69-SS10	Qual	DF	AOC-69-SS15	Qual	DF	AOC-69-SS16	Qual	DF	AOC-69-SS17	Qual	DF	AOC-69-SS18	Qual	DF	AOC-69-SS19	Qual	DF	AOC-69-SS20	Qual	DF	AOC-69-SS21	Qual	DF	AOC-69-SS22	Qual	DF															
		Soil mg/kg [1]	Soil mg/kg [2]		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg																
<b>Inorganic Metals</b>																																																	
Arsenic	7440-38-2	2.4E+01	n	2.5E+00	m >S	19.6	8.50	1	7.22	1																																							
Barium	7440-39-3	7.8E+03	n	2.2E+02	m >S	186	83.19	1	75.04	1																																							
Cadmium	7440-43-9	5.2E+01	n	7.5E-01	m >S	3	1.47	J	1	0.93	J	1	0.25	F	1	0.12	F	1	0.04	F	1	1.13	J	1	0.03	UJ	1	0.03	UJ	1																			
Chromium	7440-47-3	2.3E+04	n	1.2E+03	m >S	40.2	24.02	1	18.63	1																																							
Copper	7440-50-8	5.5E+02	n	5.2E+02	a >S	23.2	39.56	1	9.99	1																																							
Lead	7439-92-1	5.0E+02	n	1.5E+00	a >S	84.5	84.40	1	68.17	1																																							
Mercury	7439-97-6	2.1E+00	n	3.9E-03	m	0.77	0.12	J	1	0.14	J	1																																					
Nickel	7440-02-0	8.3E+02	n	7.9E+01	n >S	35.50	21.12	1	17.63	1																																							
Zinc	7440-66-6	9.9E+03	n	1.2E+03	n >S	73.2	185.82	1	67.07	1																																							

**NOTES:**  
 Sample locations are shown on Figure 4 of this RIR.  
 † TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: March 25, 2009).  
 †† CSSA Soil Background Concentrations. Second Revision, Evaluation of Background Metals Concentrations in Soils and Bedrock at CSSA. February 2002. Values from Table 3.3.  
 PCLs and CSSA background values coded in this table as [1, 2, 3].  
 [1] <sup>TR</sup>Soil<sub>comb</sub> = 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] <sup>GW</sup>Soil<sub>lg</sub> = 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.  
 5.6E+00 Values highlighted green are the selected PCLs. See description of PCL selection in Section 3.0 of this RIR.  
 2.5E+00 If PCL is highlighted blue (and background value is highlighted green, 19.6), the PCL is lower than background and the background value is used for comparison.  
 mg/kg = milligrams per kilogram.  
 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:**  
 U - Analyte was not detected. The value reported is the method detection limit (MDL).  
 UJ - The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.  
 F - AFCEE qualifier indicating that the detected concentration is an estimated value between the MDL and the PQL. The 'F' qualifier in the table indicates that the results are usable as detected values.  
 J - The analyte was positively identified but the associated concentration is estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

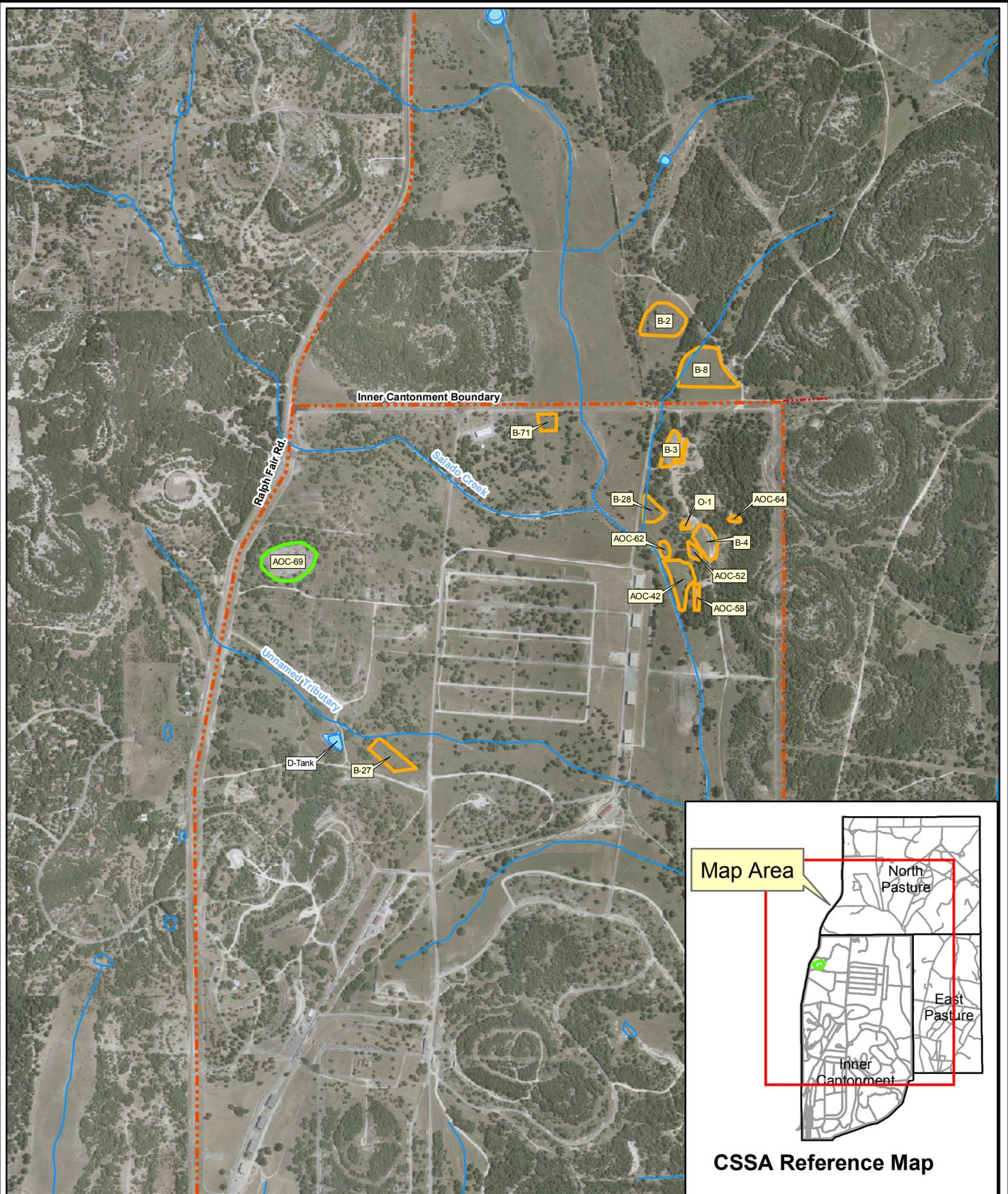


- CSSA
- Freeway
- Highway
- Major Road
- County Boundary
- Military Installation



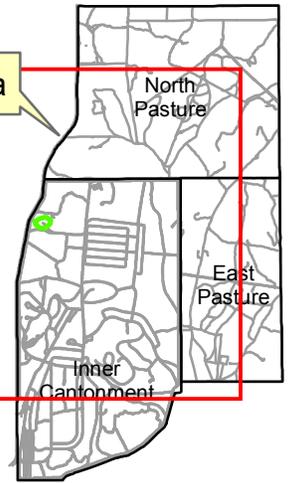
**Figure 1**  
**CSSA Location Map**  
**Camp Stanley Storage Activity**

**PARSONS**



- AOC-69
- Solid Waste Management Units and other Areas of Concern
- Fence Line

Map Area



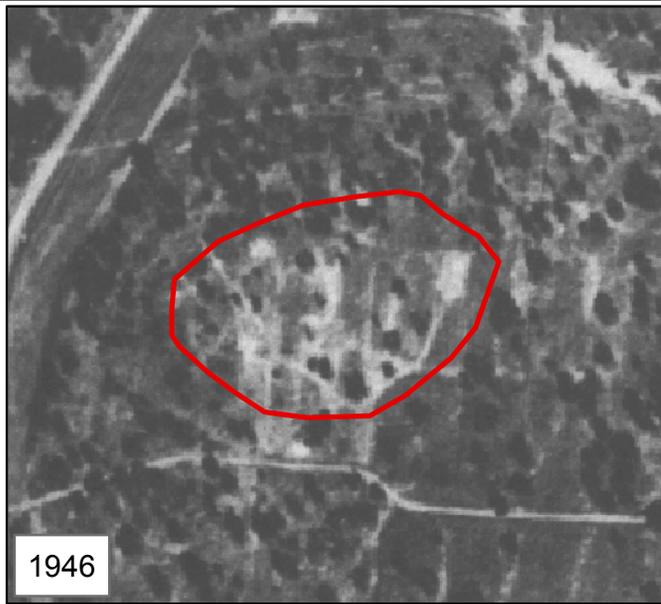
**CSSA Reference Map**

**Figure 2**

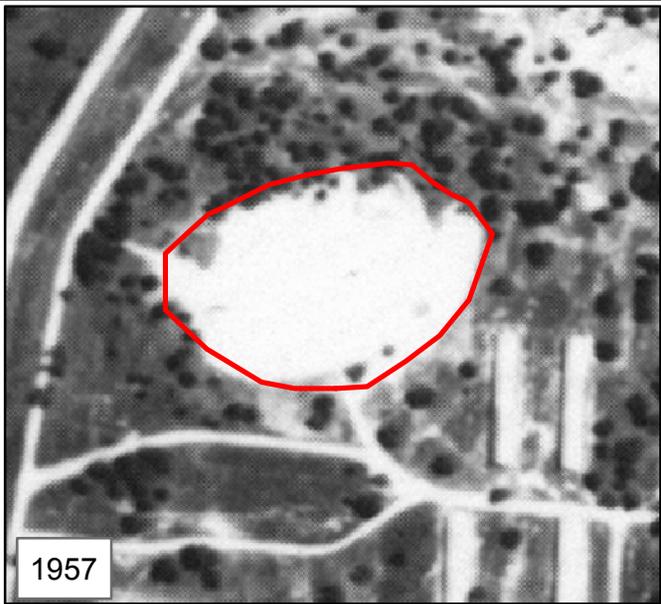
**AOC-69 Location Map**

**Camp Stanley Storage Activity**

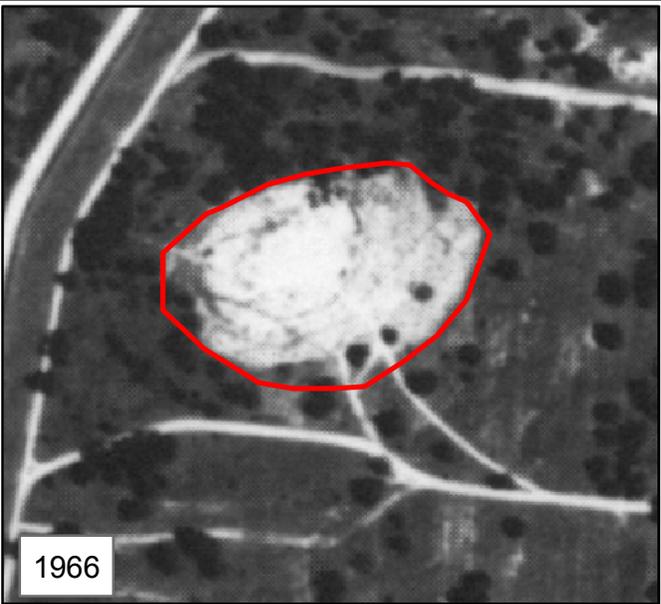
**PARSONS**



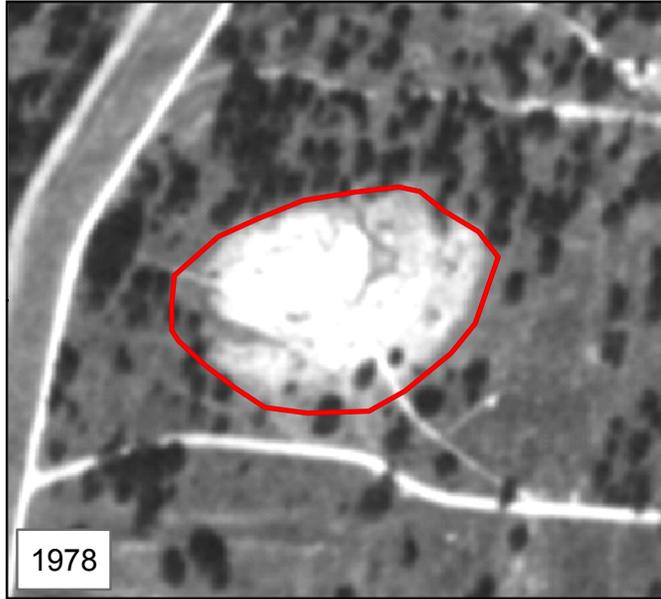
1946



1957



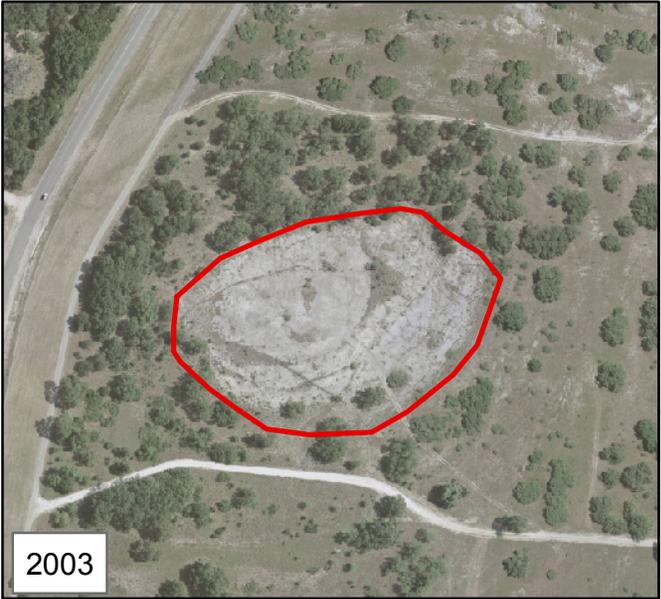
1966



1978



1985



2003

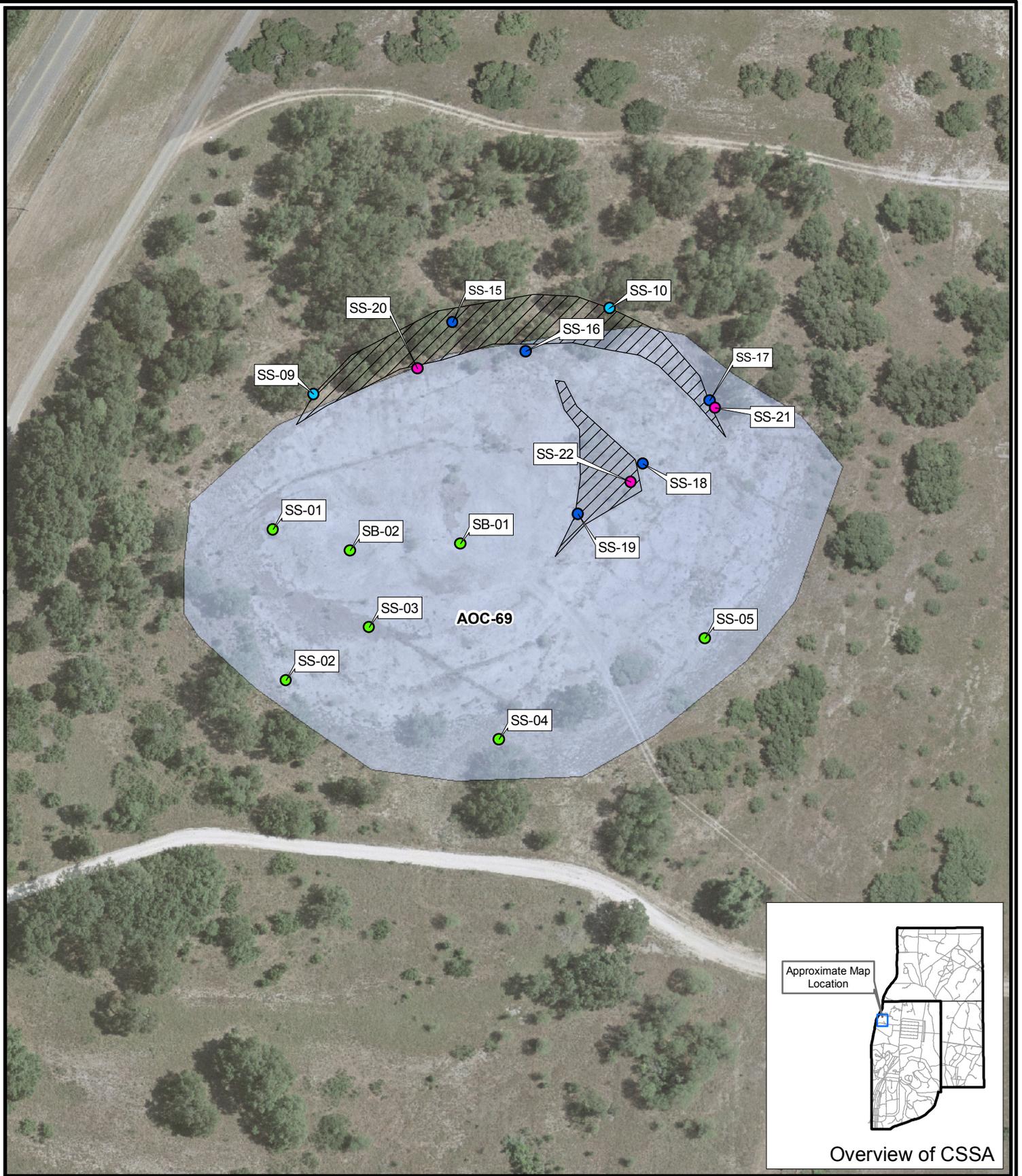


800 400 0 800 Feet

Scalebar for Aerial Photographs.

Figure 3  
AOC-69  
Aerial Photographs  
Camp Stanley Storage Activity

**PARSONS**



Aerial Photo Date: 2003



120 60 0 120 Feet

AOC-69  
 AOC-69 Clearance Area

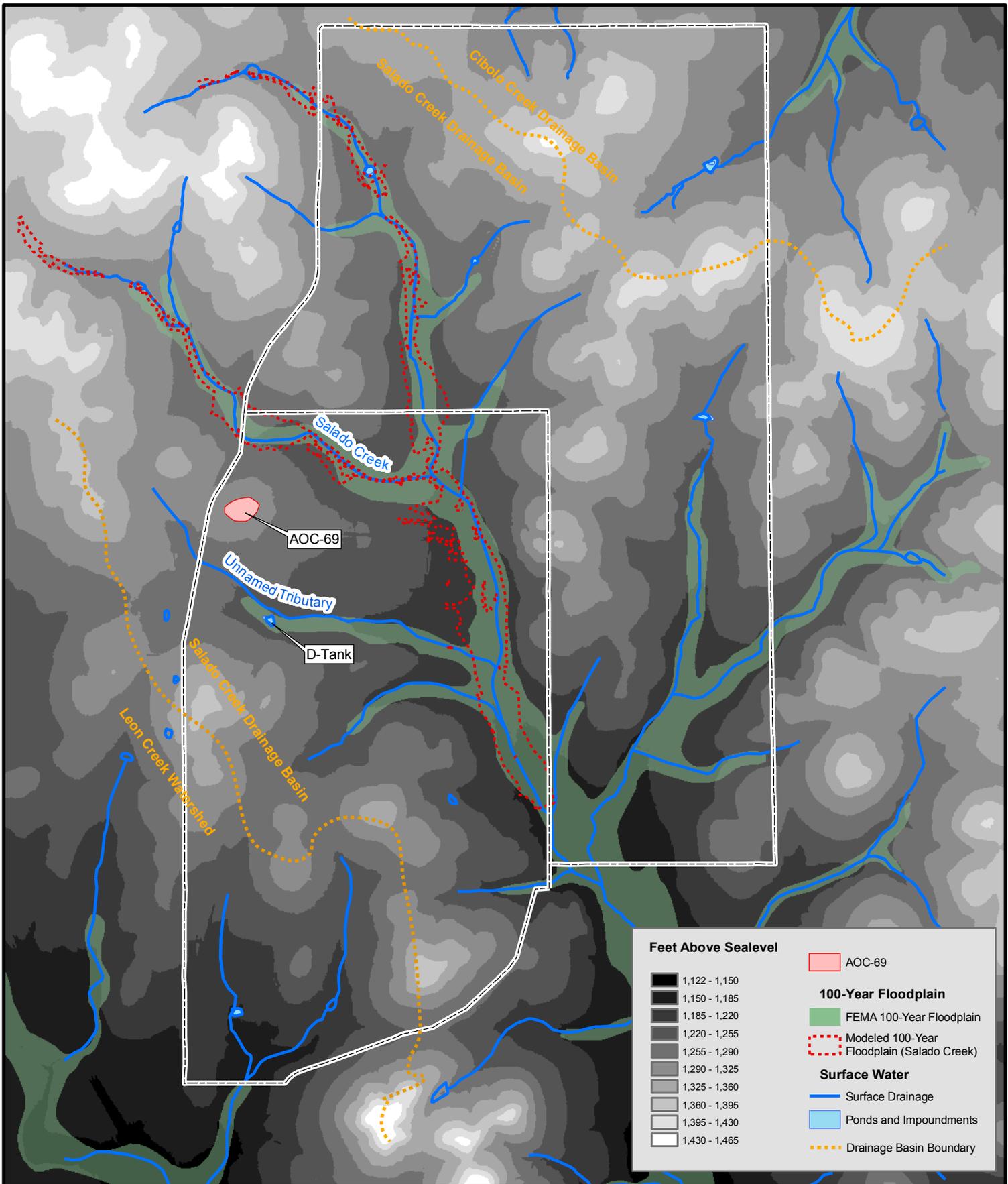
Sample Locations

- April 10, 2008
- June 23, 2008
- November 17, 2008
- February 19, 2009

Figure 4

AOC-69 Sample Locations  
Camp Stanley Storage Activity

**PARSONS**



**Figure 5**

Topography, Surface Water, and  
Floodplains at CSSA  
Camp Stanley Storage Activity

**PARSONS**

**APPENDIX A**  
**Site Photographs**



**Photo 1. View of AOC-69 facing northwest. (Photo taken 12-28-01.)**



**Photo 2. Exposed bedrock and typical vegetation at AOC-69. (Photo taken 12-28-01.)**



**Photo 3. Karst feature at AOC-69. (Photo taken 12-28-01.)**



**Photo 4. Magnetic roller used to clean up scrap metal at AOC-69. (Photo taken 11-13-08.)**



**Photo 5. Stockpile facing west at AOC-69. (Photo taken 11-13-08.)**



**Photo 6. Stockpile facing east at AOC-69. (Photo taken 11-13-08.)**



**Photo 7. View of AOC-69 during February 2009 excavation and confirmation sampling activities.  
(Photo taken 2-19-09.)**



**Photo 8. View of AOC-69 during February 2009 excavation removal activities.  
(Photo taken 2-19-09.)**



**Photo 9. View of AOC-69 during February 2009 excavation removal activities.  
(Photo taken 2-19-09.)**

**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:

**AOC-69 is located in the Inner Cantonment of CSSA (see Figure 2 of the RIR). It is approximately 1,588 feet south of the fence that separates the Inner Cantonment from the North Pasture of CSSA. It is approximately 310 feet east of Ralph Fair Road, which forms the western boundary of CSSA. The site covers approximately 4.765 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)

**Definitions**<sup>1</sup>

**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

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<sup>1</sup>These 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.

impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more 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 SWMUs, AOCs, and RMUs. The present mission of CSSA is the receipt, storage, issue, and maintenance of ordnance as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its mission, CSSA has been designated a restricted access facility. No changes to the CSSA mission and/or military activities are expected in the future.

**AOC-69:** AOC-69 is located in the Inner Cantonment of CSSA (see Figure 2 of the RIR). It is approximately 1,588 feet south of the fence that separates the Inner Cantonment from the North Pasture of CSSA. It is approximately 310 feet east of Ralph Fair Road, which forms the western boundary of CSSA. The site covers approximately 4.765 acres.

Waste found at the site during investigation activities included a small amount of nails, hinges, screws and other similar metal debris; box tags (dated 1957); and field rifle cleaning kits, which used only a wire brush and a pull string (thus, no chemicals were used in the kits). The intermittent and small amount of metal debris was most likely a result of burning wooden boxes at the site in 1957 (the date on the tags). There were no trenches or any other signs of disposal at the site. No ammunition or ash was found at the site.

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

- Topo map
- Aerial photo
- Other

**Aerial photos of the site and land adjacent to the site are shown on Figure 3 of the RIR. Figure 2 of the RIR shows the general location of AOC-69.**

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"/> <b>NO</b> – Soil ≤ 5 ft below ground surface	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> <b>NO</b> – Soil >5 ft below ground surface	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> <b>NO</b> – Groundwater	<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> <b>NO</b> – Surface Water/Sediments	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Explain (previously submitted information may be referenced):

**Described in Sections 3.1 and 3.2 of the RIR.**

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 is **approximately 956 feet** from the affected property (**southwest of the site**) and is an **“unnamed tributary.”** 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:

**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-69.**

**Salado Creek, as well as all other creeks at CSSA, are intermittent and only have water during and immediately following rain events. Refer to Section 3.2.3 of the RIR.**

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

**The nearest perennial surface water body to AOC-69 is the D-Tank pond which is located approximately 1,830 feet to the south-southeast of the site (see Figure 5 of the RIR). This pond is**

**105 feet upgradient from the unnamed tributary of Salado Creek. At this point along the unnamed tributary, the distance to Salado Creek is 4,450 feet.**

## **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:

**Concentrations of chemicals detected in soil samples do not exceed Tier 1 residential soil action levels. Soils that were found to have metals concentrations above their respective PCLs have been excavated and removed from the site.**

**There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-69. Since soils that were found to have concentrations of metals above their PCLs have been excavated/removed, there will be no impact to groundwater, surface water, or sediment from AOC-69.**

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-69 is located in the Inner Cantonment of CSSA (see Figure 2 of the RIR), approximately 1,588 feet south of the fence that separates the Inner Cantonment from the North Pasture of CSSA. It is approximately 310 feet east of Ralph Fair Road, which forms the western boundary of CSSA. The site covers approximately 4.765 acres.**

Concentrations of chemicals detected in soil samples do not exceed Tier 1 residential soil action levels. Soils that were found to have metals concentrations above their PCLs have been excavated and removed from the site.

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at AOC-69. Since soils that were found to have concentrations of metals above their PCLs have been excavated/removed, there will be no impact to groundwater, surface water, or sediment in the area.

Additionally, several surveys have been conducted at CSSA for T&E species. The only T&E species that have been documented at CSSA are the black-capped vireo (*Vireo atricapillus*) [BCVI] and golden-cheeked warbler (*Dendroica chrysoparia*) [GCWA]. AOC-69 is not located within BCVI or GCWA habitat. Additional information can be found in the following references:

- Parsons, 2007. *Final Integrated Natural Resource Management Plan*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. October 2007.
- Parsons, 2008. *Final Species and Habitat Distributions of Black-Capped Vireos and Golden-Cheeked Warblers, 2007 Breeding/Nesting Season*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. March 2008.

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:

**The site is located on exposed bedrock, on a topographic high. What contaminated soil horizon that was present at the site was removed during excavation activities. Vegetation at this location is minimal due to lack of soil profile and exposed bedrock. Site does not provide suitable habitat or soil exposure pathways for ecological receptors.**

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 above criteria.**

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: Lea Aurelius, P.G. (Typed/Printed Name)

Senior Scientist / Senior Risk Assessor (Title)

June 11, 2009 (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)

June 11, 2009 (Date Signed)