

RELEASE INVESTIGATION REPORT

Area of Concern 70 (AOC-70) CAMP STANLEY STORAGE ACTIVITY



Prepared for:

Camp Stanley Storage Activity Boerne, Texas

Prepared by:

PARSONS

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May 2011

EXECUTIVE SUMMARY

AOC-70 is a small concrete building (Building 66) used in the 1990s through 1997 as a pesticide storage area. It was originally built in 1943 and used by railroad workers as a latrine. The site is located in the Inner Cantonment, north of Building 1, south of Roberts Drive next to the former railroad track. No trenches or any other signs of disposal are present at the site, and no ammunition or metal debris were found at the site. Based on the absence of waste or contamination, this Release Investigation Report (RIR) requests No Further Action (NFA) at AOC-70.

In summary, activities at AOC-70 as described in this RIR included the following:

- Historical aerial photographs were reviewed and a visual site inspection was performed for evidence of past waste management.
- The building at AOC-70 (Building 66) was cleaned out and remodeled in 2006. Rinsate water from the cleaning process was analyzed for and shown to be free of pesticides and herbicides.
- Surface soil sampling was conducted in January 2011. Samples were analyzed for pesticides and herbicides based on past storage activity at the site.

From the information summarized above and presented in this report, the results of the investigations at AOC-70 meet the three criteria as described in Texas Commission on Environmental Quality (TCEQ) (2003) guidance *Determining Which Releases are Subject to the Texas Risk Reduction Program (TRRP)*. Thus, the following criteria were met:

- Concentrations of chemicals in soil samples 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 AOC-70. Since soils were not found to have concentrations of pesticides or herbicides above Tier 1 PCLs, there will be no impact to groundwater, surface water, or sediment from AOC-70.
- AOC-70 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, AOC-70 is not subject to TRRP. Therefore, this RIR has been prepared to document the results and a NFA decision is requested from the TCEQ.

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ACRONYMS AND ABBREVIATIONS

µg/L	microgram(s) per liter
AOC	Area of concern
APPL	Agriculture & Priority Pollutants Laboratory, Inc.
BCVI	Black-capped vireo
BTOC	below top of casing
bgs	below ground surface
BS	Bexar Shale
CC	Cow Creek
COC	Chemical of concern
CSSA	Camp Stanley Storage Activity
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DQO	Data Quality Objective
EE	Environmental Encyclopedia
FD	Field duplicate
FSP	Field Sampling Plan
GCWA	Golden-cheeked warbler
^{GW} Soil _{Ing}	Soil to groundwater ingestion pathway (PCL)
LGR	Lower Glen Rose
mg/kg	milligrams per kilogram
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
RIR	Release Investigation Report
RL	Reporting limit
RMU	Range Management Unit
SAP	Sampling and Analysis Plan
SWMU	Solid waste management unit
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
^{Tot} Soil _{Comb}	Combined soil (PCL)
TRRP	Texas Risk Reduction Program
UGR	Upper Glen Rose
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

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 70 (AOC-70) (**Figure 2**). AOC-70 is a small concrete building formerly used as a pesticide storage area. The site is located in the Inner Cantonment, north of Building 1, south of Roberts Drive next to the former railroad track. 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 at AOC-70. Work included historical aerial photograph review, visual survey of the site, decontamination of the building interior, soil sampling, 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-70. Section 3 describes the objectives and rationale for preparing an RIR for AOC-70 and the findings from environmental investigations for the site. The groundwater and surface water for CSSA and the area near AOC-70 are also described in Section 3. Section 4 summarizes the findings from completing the Tier 1 Ecological Exclusion Criteria Checklist, which is included as an appendix to this RIR. Section 5 summarizes the overall findings and recommendations for the site. All figures and tables are provided at the end of this RIR (pages 8 through 14). 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 AOCs, solid waste management units (SWMUs), 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-70

2.2.1 Overview

AOC-70 is a small (80 square feet) concrete building formerly used as a pesticide storage area. The site is located north of Building 1, south of Roberts Drive next to the former railroad track. The date that building 66 was decommissioned as a latrine to a pesticide storage building is unknown. The building currently has a concrete, slab floor. There are no drains or sinks in the building.

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

2.2.2 Setting, Size, and Description

The small stucco building at AOC-70, also known as Building 66, was built in 1943. The building was originally used along the East Spur of the former railroad tracks, and was converted at an unknown date to a storage shed for pesticides. According to the 1993 Environmental Assessment (EA), CSSA was using Building 66 to store small quantities of nonrestricted-use pesticides. During a November 1992 site visit, only Kocide 101 (copper hydroxide), copper sulfate, and rat traps and bait were observed there. The EA indicated that, in the past, CSSA stored chlordane, malathion, diazinon, and weed killers, but the specific storage location for these chemicals was not identified. All pesticides were relocated to Building 30 in December 1997, and the building at AOC-70 was remodeled in August 2006.

A series of historical aerial photos of the sites are shown on Figure 3 (photos prior to 1952 did not include coverage of the AOC-70 area). While not visible due to older photo quality, railroad tracks were once present in the vicinity of AOC-70. The tracks were removed in 2006 and the building was preserved for storage as described above. None of the photos or site visits showed evidence of trenching, or other waste disposal or burial activities.

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

No previous investigations have been conducted at AOC-70. Chemicals of concern (COCs) at AOC-70 include pesticides and herbicides due to past storage of these items at the site. When the building was remodeled in 2006, it was thoroughly washed out and a sample collected of the rinsate water prior to disposal (**Table 1**). Laboratory analysis of the rinsate sample showed no detections of pesticides or herbicides, and one very low detection of lead (2.1 micrograms per liter [$\mu\text{g/L}$]) that is below the USEPA drinking water action level for lead of 15 $\mu\text{g/L}$.

3.0 OBJECTIVES OF RIR FOR AOC-70

In accordance with TCEQ (2003) guidance, *Determining Which Releases are Subject to TRRP* (www.tceq.state.tx.us/assets/public/remediation/trrp/releasesTRRPprev.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 (the completed checklist is provided in **Appendix B**).

When these three criteria are met for a site, the release is not subject to TRRP. For such sites, an RIR can be submitted to document the results and an 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 (2010) and were selected following TCEQ guidance (TCEQ, 2007). These action levels are referred to as protective concentration levels (PCL) and are selected for each chemical detected at the site (*i.e.*, COC). The PCLs are based on the general size of the site, which is also referred to as the “source area” size. The source area is either 0.5 acre or less in size, or assumed to be 30 acres if the site is larger than 0.5 acre in size. Thus, the soil action levels for AOC-70 are based on a 0.5-acre source area, since the size of the site is approximately 0.09 acre. 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).

3.1 FIELD ACTIVITIES AND INVESTIGATIONS

A summary of the soil sampling results at AOC-70 is shown in **Table 2** (detected compounds only) and **Appendix C** (all analytes), and the sampling locations are shown on **Figure 4**.

The sampling at AOC-70 was conducted to assess whether historical activities affected the site. Soil samples were analyzed for pesticides and herbicides based on past storage of these COCs at the site.

Each discrete grab soil sample was collected with a stainless steel hand trowel from a depth of up to 6 inches below ground surface. Photos of the site taken during and after cleanup activities are provided in Appendix A.

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 [CSSA EE, Volume 1-4](#). 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 [CSSA EE, Volume 1-1, Correspondence](#).

Following the CSSA-specific plans, the following investigative soil analyses for AOC-70 were performed using U.S. Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste* (SW-846): Method 8081A (pesticides) and Method 8751 (herbicides). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analyses.

3.2 SOIL SAMPLE RESULTS

As shown in Table 2, the pesticides 4,4'-dichlorodiphenyldichloroethylene (DDE), 4,4'-dichlorodiphenyltrichloroethane (DDT), and endrin were detected at low concentrations at the site. All detected concentrations were well below the Tier 1 PCLs for these compounds. Herbicides were not detected above laboratory MDLs in any of the samples. The data verification summary report for the sampling and analytical results is provided in **Appendix C**.

3.3 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-70. 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 \(Volume 1-1, Background Information Report\)](#).

3.3.1 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 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.

3.3.2 AOC-70 Groundwater

No site-specific information regarding groundwater is available. However, between September 2002 and June 2010, measured water levels at Well CS-MW18-LGR, which is located approximately 700 feet west of the site, have ranged from 104.4 feet below top of casing (ft BTOC) (December 2004) to 350.34 ft BTOC (September 2009).

3.3.3 AOC-70 Surface Water

Surface waters drain into an unnamed tributary to Salado Creek located approximately 696 feet northeast of the site. The north-south trending Salado Creek exits the CSSA boundary approximately 1.6 miles (8,350 feet) downstream of the site (**Figure 6**).

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-70. Thus, based on the absence of any complete or significant ecological exposure pathways, AOC-70 may be excluded from further ecological assessment.

5.0 SUMMARY AND RECOMMENDATIONS

AOC-70 is a small concrete building formerly used as a pesticide storage area. The site is located in the Inner Cantonment, north of Building 1, south of Roberts Drive next to the former railroad track. No trenches or any other signs of disposal are present at the site, and no ammunition or metal debris were found at the site.

From the information summarized above and presented in this report, the results of the investigations at AOC-70 meet the three criteria as described in the TCEQ (2003) guidance

Determining Which Releases are Subject to the Texas Risk Reduction Program (TRRP). Thus, the following criteria were met:

- Concentrations of chemicals in soil samples 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 AOC-70. Since soils were not found to have concentrations of pesticides or herbicides above Tier 1 PCLs, there will be no impact to groundwater, surface water, or sediment from AOC-70.
- AOC-70 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, AOC-70 is not subject to TRRP. Therefore, this RIR requests an NFA decision from the TCEQ.

TABLES AND FIGURES

Table 1. AOC-70 Building Cleanout Rinsate Sample

SAMPLE ID: DATE SAMPLED: LAB SAMPLE ID:	AOC70 RINSATE2 8/29/2006 (µg/L)	
4,4'-DDD	0.010	U
4,4'-DDE	0.010	U
4,4'-DDT	0.010	U
Aldrin	0.010	U
alpha Endosulfan	0.010	U
alpha-BHC	0.010	U
alpha-Chlordane	0.010	U
beta Endosulfan	0.010	U
beta-BHC	0.025	U
Chlordane	0.070	U
delta-BHC	0.010	U
Dieldrin	0.010	U
Endosulfan sulfate	0.010	U
Endrin	0.010	U
Endrin aldehyde	0.010	U
Endrin ketone	0.010	U
gamma-BHC (Lindane)	0.010	U
gamma-Chlordane	0.010	U
Heptachlor	0.010	U
Heptachlor Epoxide	0.010	U
Methoxychlor	0.020	U
Toxaphene	0.13	U
Herbicides - SW8151A		
2,4 DB	0.13	U
2,4,5-T	0.071	U
2,4,5-TP (Silvex)	0.13	U
2,4-D	0.15	U
Dalapon	0.055	U
Dicamba	0.10	U
Dichlorprop	0.068	U
Dinoseb	0.10	U
MCPP	8.2	U
Total Metals - SW6020		
Lead	2.1	

QA NOTES AND DATA QUALIFIERS:

(NO CODE) - Confirmed identification.

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

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

Detections are bolded.

Table 2. Summary of Chemical Constituents Remaining in Soils at AOC-70

Chemicals Tested	CAS Number	Tier 1 Soil PCLs [†]				Sample Locations																			
		Residential				AOC70-SS01			AOC70-SS02			AOC70-SS03			AOC70-SS04			AOC70-SS04-DUP							
		Source Area				12-Jan-2011			12-Jan-2011			12-Jan-2011			12-Jan-2011			12-Jan-2011							
		0.5 acre				mg/kg			mg/kg			mg/kg			mg/kg			mg/kg							
Soil		Soil		Qual		DF		Qual		DF		Qual		DF		Qual		DF							
mg/kg		mg/kg																							
[1]		[2]																							
Pesticides																									
4,4'-DDE	72-55-9	1.0E+01	c	1.2E+01	c	0.071				1	1.3	M	5	0.011				0.0091			1	0.012	J	1	
4,4'-DDT	50-29-3	5.4E+00	c	1.5E+01	c	0.018				1	0.13	M	1	0.0060				0.0093			1	0.0096		1	
Endrin	72-20-8	8.8E+00	n	7.5E-01	m	0.0011		U		1	0.070		1	0.0011		U		0.0011		U	1	0.0011		U	1

NOTES:

† 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] ^{TOI}Soil_{comb} = PCL for COPC in soil for a 0.5 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 0.5 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.

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:

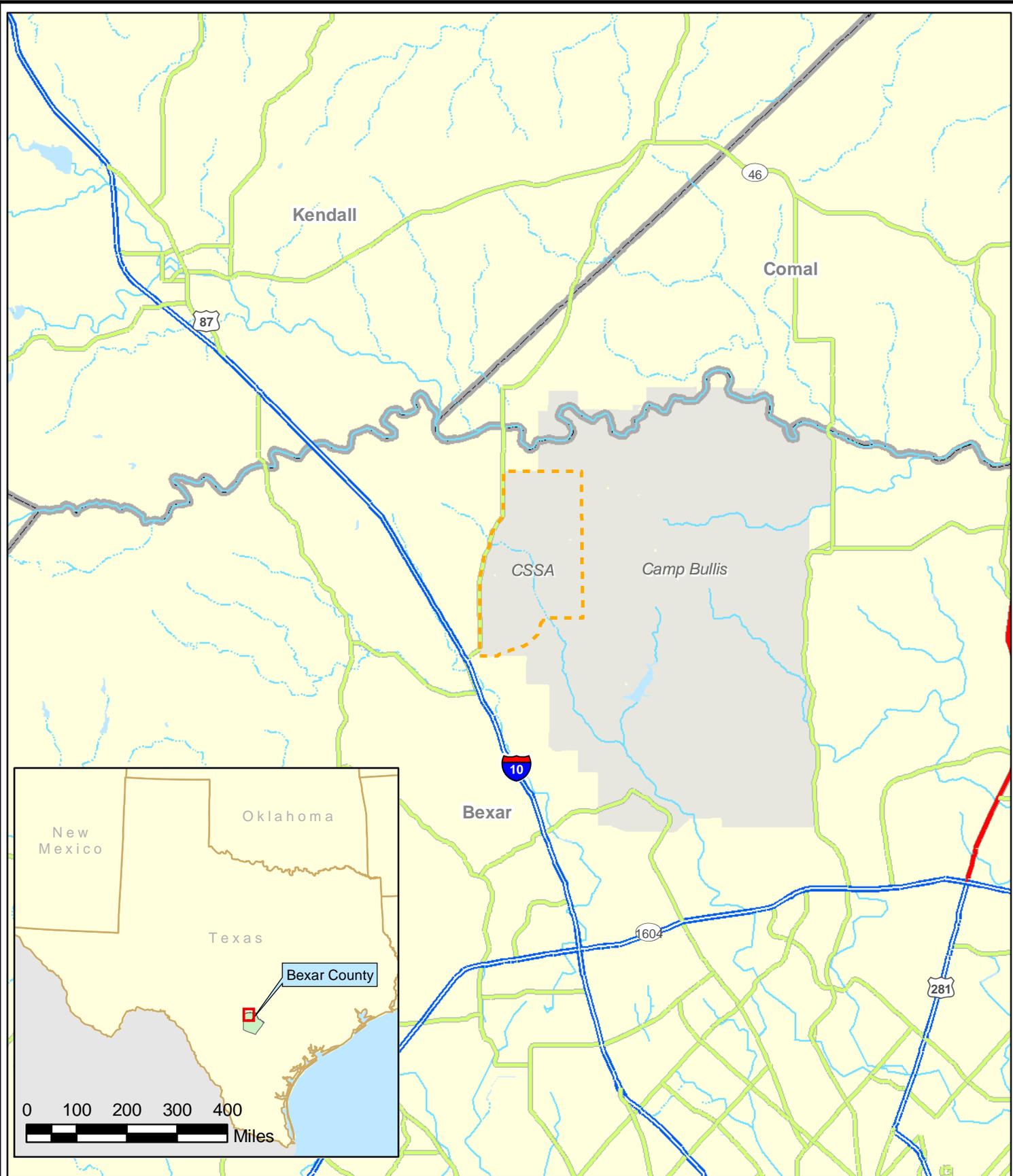
(NO CODE) - Confirmed identification.

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

M = Concentration is estimated due to a matrix effect.

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

Detections are bolded.



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

Figure 1

CSSA Location Map
Camp Stanley Storage Activity

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Aerial Photo Date: 2009

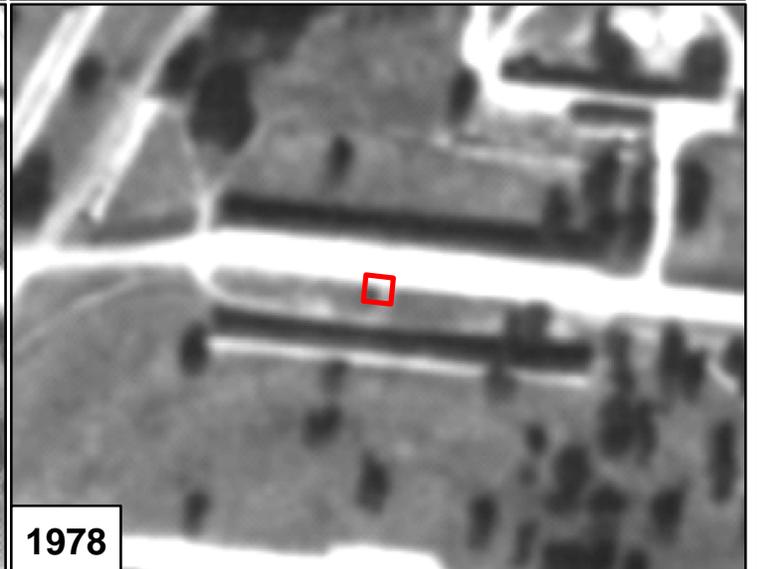
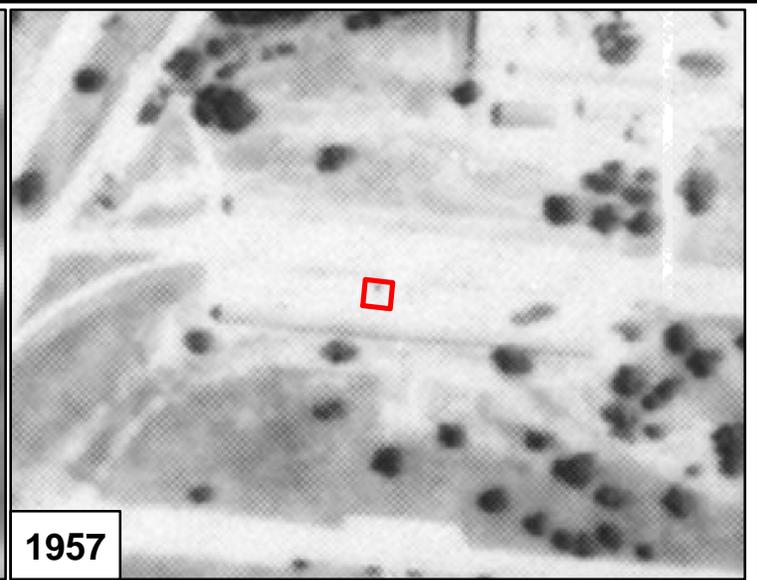
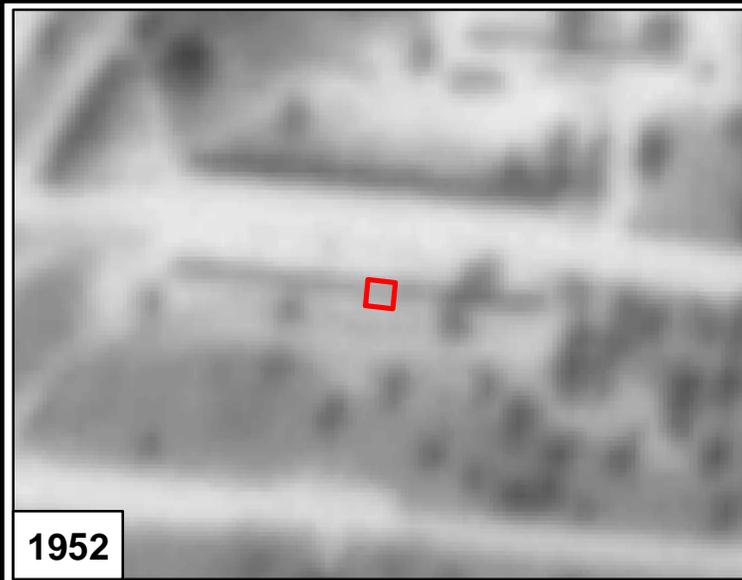


- Water Well
- AOC-70
- AOC Boundary
- SWMU Boundary
- Stream
- CSSA Outer Fence Line

Figure 2

AOC-70
Site Location Map
Camp Stanley Storage Activity

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 AOC-70

0 62.5125 250
Feet

Figure 3

AOC-70
Aerial Photographs
Camp Stanley Storage Activity

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Aerial Photo Date: 2009



- Soil Sample
- AOC-70



Figure 4

AOC-70
Sample Locations
Camp Stanley Storage Activity

PARSONS

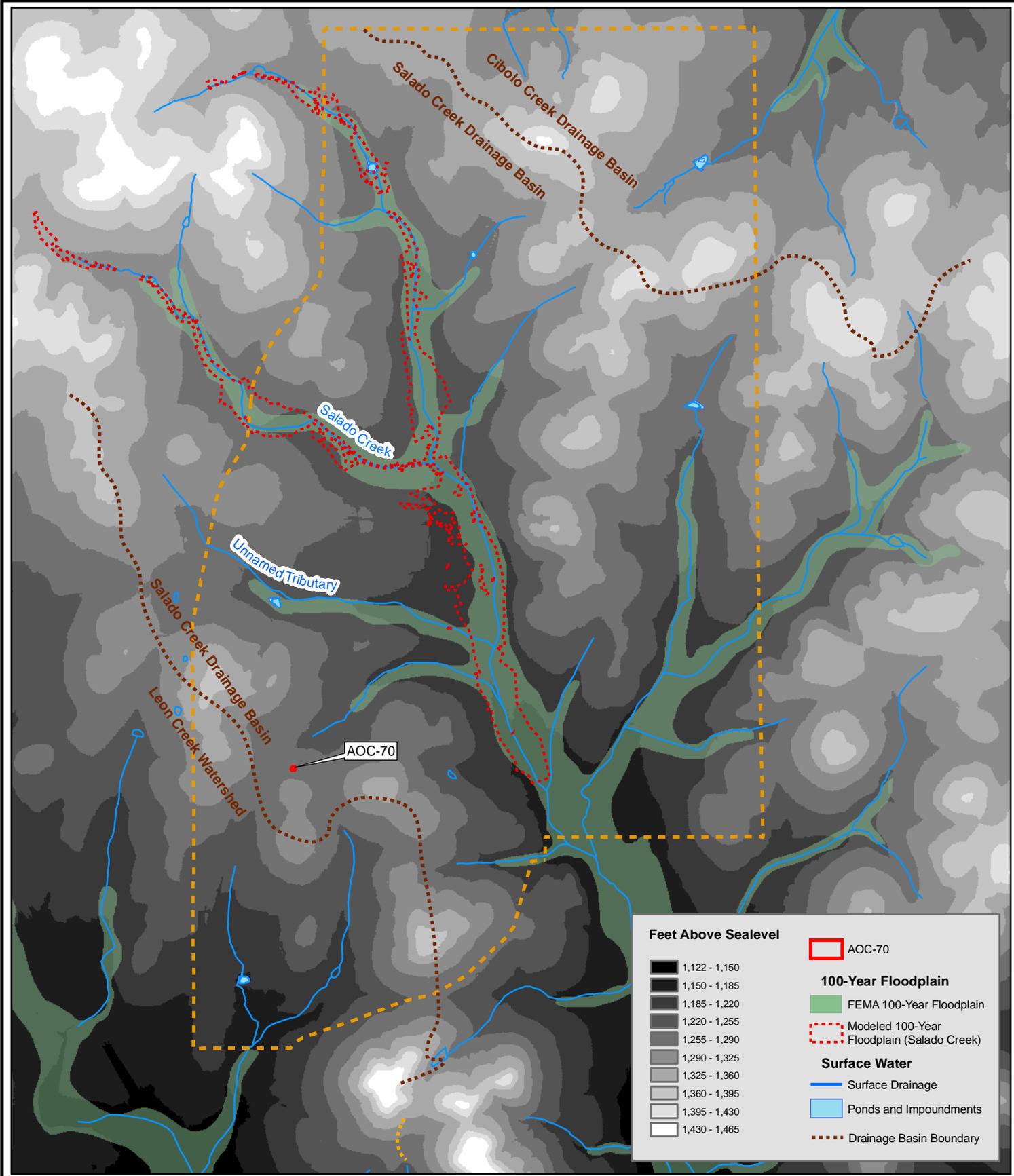


Figure 5

AOC-70 Topography,
Surface Water, and Floodplains
Camp Stanley Storage Activity

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APPENDIX A
Site Photographs



Photo 1. View of AOC-70, looking southeast.



Photo 2. Soil sample collection at AOC-70, looking northwest.



Photo 3. Soil sample collection at AOC-70, looking northeast.

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-70 is a small (15 feet by 15 feet) concrete building formerly used as a pesticide storage area. The site is located north of Building 1, south of Roberts Dr., next to the railroad track.

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 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-70 is a small (15 feet by 15 feet) concrete building formerly used as a pesticide storage area. The site is located north of Building 1, south of Roberts Dr., next to the railroad track.

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. Figures 1 and 2 of the RIR show the general location of AOC-70.

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):

None of the soil sample results showed pesticide or herbicide concentrations above the action levels.

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 696 feet** from the affected property (**northeast of AOC-70**) and is an. The water body is best described as a:

freshwater stream: _____ perennial (has water all year)

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

Subpart B. Affected Property Setting

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

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

Yes No

Explain:

Concentrations of chemicals detected in soil samples at AOC-70 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 AOC-70. Pesticide and herbicide groundwater contamination has not been reported in the closest wells to AOC-70.

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-70 is not located within BCVI or GCWA habitat. The nearest potential habitats for local endangered species are approximately 1,890 feet southeast. Additional information can be found in the following references:

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

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

S Subpart C. Soil Exposure

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

Yes **See explanation** No

Explain:

Based on Table 1 of this RIR there are no COCs at the site.

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 Subparts C and D skipped based on answers to Subparts A and B.

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)

May 23, 2011 (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)

May 23, 2011 (Date Signed)

APPENDIX C

Confirmation Sample Results for All Analytes at AOC-70

Appendix C. Summary of Chemical Constituents Remaining in Soils at AOC70

Chemicals Tested	CAS Number	Tier 1 Soil PCLs †		Sample Locations													
		Residential		Source Area 0.5 acre													
				AOC70-SS01		AOC70-SS02		AOC70-SS03		AOC70-SS04		AOC70-SS04-DUP					
		Soil mg/kg [1]	Soil mg/kg [2]	12-Jan-2011 mg/kg	Qual DF	12-Jan-2011 mg/kg	Qual DF	12-Jan-2011 mg/kg	Qual DF	12-Jan-2011 mg/kg	Qual DF	12-Jan-2011 mg/kg	Qual DF				
Pesticides																	
4,4'-DDD	72-54-8	1.4E+01	c	1.3E+01	c	0.00090	U 1	0.00090	U 1	0.00090	U 1						
4,4'-DDE	72-55-9	1.0E+01	c	1.2E+01	c	0.071	1	1.3	M 5	0.011	1	0.0091	1	0.012	J	1	
4,4'-DDT	50-29-3	5.4E+00	c	1.5E+01	c	0.018	1	0.13	M 1	0.0060	1	0.0093	1	0.0096	1	1	
Aldrin	309-00-2	5.0E-02	c	1.0E-01	c	0.0014	U 1	0.0014	U 1	1							
alpha Endosulfan	959-98-8	6.1E+01	n	3.1E+01	n	0.0010	U 1	0.0010	U 1	1							
alpha-BHC	319-84-6	2.6E-01	c	7.9E-03	c	0.0010	U 1	0.0010	U 1	1							
alpha-Chlordane	5103-71-9	1.3E+01	c	7.4E+02	c	0.00090	U 1	0.00090	U 1	1							
beta Endosulfan	33213-65-9	2.7E+02	n	9.2E+01	n	0.00090	U 1	0.00090	U 1	1							
beta-BHC	319-85-7	9.3E-01	c	2.9E-02	c	0.0010	U 1	0.0010	U 1	1							
delta-BHC	319-86-8	2.9E+00	c	1.7E-01	c	0.0011	U 1	0.0011	U 1	1							
Dieldrin	60-57-1	1.5E-01	c	4.9E-02	c	0.0011	U 1	0.0011	U 1	1							
Endosulfan sulfate	1031-07-8	3.8E+02	n	4.7E+03	n	>S	0.0011	U 1	0.0011	U 1	0.0011	U 1	0.0011	U 1	0.0011	U 1	
Endrin	72-20-8	8.8E+00	n	7.5E-01	m	0.0011	U 1	0.070	1	0.0011	U 1	0.0011	U 1	0.0011	U 1	1	
Endrin aldehyde	7421-93-4	1.9E+01	n	6.3E+02	n	0.0010	U 1	0.0010	U 1	1							
gamma-BHC (Lindane)	58-89-9	1.1E+00	c	9.2E-03	m	0.00090	U 1	0.00090	U 1	1							
gamma-Chlordane	57-74-9	7.4E+00	c	4.1E+01	c	0.00090	U 1	0.00090	U 1	1							
Heptachlor	76-44-8	1.3E-01	c	1.9E-01	m	0.0011	U 1	0.0011	U 1	1							
Heptachlor Epoxide	1024-57-3	2.4E-01	c	5.8E-02	m	0.0011	U 1	0.0011	U 1	1							
Methoxychlor	72-43-5	2.7E+02	n	1.2E+02	m	0.0010	U 1	0.0010	U 1	1							
Toxaphene	8001-35-2	1.2E+01	c	1.2E+01	m	0.0090	U 1	0.0090	U 1	1							
Herbicides																	
2,4 DB	94-82-6	5.3E+02	n	3.9E-01	n	0.040	U 1	0.040	U 1	1							
2,4,5-T	93-76-5	5.6E+02	n	9.9E-01	n	0.0100	U 1	0.0100	U 1	1							
2,4,5-TP (Silvex)	93-72-1	5.2E+02	n	5.3E+00	m	0.0100	U 1	0.0100	U 1	1							
2,4-D	94-75-7	4.9E+02	n	2.6E+00	m	0.020	U 1	0.020	U 1	1							
Dalapon	75-99-0	2.0E+03	n	5.8E-01	m	0.050	U 1	0.050	M 1	0.050	U 1	0.050	U 1	0.050	U 1	1	
Dicamba	1918-00-9	9.4E+02	n	1.5E+00	n	0.0100	U 1	0.0100	M 1	0.0100	U 1	0.0100	U 1	0.0100	U 1	1	
Dichlorprop	120-36-5	6.7E+02	n	4.7E-01	n	0.020	U 1	0.020	U 1	1							
Dinoseb	88-85-7	6.7E+01	n	3.5E-01	m	0.0100	U 1	0.0100	U 1	1							
MCPA	94-74-6	3.3E+01	n	2.3E-02	n	3.8	U 1	3.8	M 1	3.8	U 1	3.8	U 1	3.8	U 1	1	
MCPP	93-65-2	6.7E+01	n	4.7E-02	n	4.4	U 1	4.4	U 1	1							

NOTES:

† 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] ^{tot}Soil_{comb} = PCL for COPC in soil for a 0.5 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-gr

[2] ^{gw}Soil_{ing} = PCL for COPC in soil for a 0.5 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:

(NO CODE) - Confirmed identification.

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

M = Concentration is estimated due to a matrix effect.

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

Detections are bolded.

APPENDIX D

Data Verification Summary Report

(Includes AOC-57, AOC-59, and AOC-70)

DATA VERIFICATION SUMMARY REPORT
for samples collected from AOCs 57, 59, and 70 at
CAMP STANLEY STORAGE ACTIVITY
BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and associated field quality control (QC) water samples collected from Camp Stanley Storage Activity (CSSA) under BRAC 50 on January 12, 2011. The samples in the following Sample Delivery Group (SDG) were analyzed for pesticides, herbicides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), explosives, and metals:

63657

Not all samples were analyzed for all parameters. Field QC samples collected in association with this SDG included (1) two trip blanks for VOCs; (2) two equipment blank for all above listed parameters; (3) three pairs of parent and field duplicate (FD) samples for all above listed parameters; and (4) three sets of matrix spike/matrix spike duplicate (MS/MSD).

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

The samples in this SDG were shipped to the laboratory in two coolers. Those coolers were received by the laboratory at a temperature of 2.5°C and 1.5°C. The recommended range is 2-6°C. One cooler was received 0.5°C below the recommended range, this small non-compliant exceedance should not affect data quality of this SDG.

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 (20) soil samples and two (2) EBs. The samples were collected on January 12, 2011 and were analyzed for arsenic, barium,

cadmium, chromium, copper, lead, nickel and zinc. Not all samples were run for the full list of metals.

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 four batches, two for soil and two for water.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the four laboratory control samples (LCS), one for each analytical batch and two sets of MS/MSD, AOC57-SS04FD and AOC59-SS03.

All LCS recoveries were within acceptance criteria for both LCSs.

All %Rs of metal failed to meet the 80 – 120% criteria in MS and/or MSD analyses of both sets of MS/MSD. “M” flags were applied to all metal results of parent samples.

Precision

Precision was evaluated with the relative percent difference (%RPD) of the two sets of parent and FD samples and two sets of MS/MSD. %RPD calculation is only applicable when both results are greater than reporting limit (RL).

All %RPD of both sets of MS/MSD were compliant

AOC57-SS04

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	40.2	39.7	1.3	≤ 20
Copper	4.65	4.99	7.1	
Nickel	6.64	7.37	10	
Zinc	16.2	18.2	12	

AOC59-SS01

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	44.5	44.6	0.2	≤ 20
Copper	10.05	10.71	6.4	
Lead	32.78	34.23	4.3	
Nickel	9.38	9.26	1.3	
Zinc	20.7	24.7	18	

Representativeness

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

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

- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks and EBs for cross contamination of samples during 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 AOC57-SS04FD. 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:

AOC57-SS04FD

Metal	%D	Criteria
Barium	123	%D ≤ 10
Chromium	53	
Nickel	60	

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

AOC57-SS04FD

Metal	%R	Criteria
Arsenic	86	75-125%
Barium	114	
Cadmium	79	
Chromium	87	
Copper	92	
Nickel	84	
Lead	80	
Zinc	82	

There were four method blanks (MBs), two EBs 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 twenty (20) soil samples and two (2) EB. The samples were collected on January 12, 2011 and were analyzed for mercury.

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

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

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs.

Both LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated with the %RPD of the two sets of parent and FD samples and two sets of MS/MSD. %RPD calculation is only applicable when both results are greater than RL.

Since both sets of parent and FD samples had no detection of mercury at RL, the %RPD calculation was not applicable.

Both %RPDs of the two sets 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 and EBs for cross contamination of samples during sample collection and analysis.

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

- All initial calibration criteria were met.

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

There were two MBs, 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%.

PESTICIDES

General

The pesticide portion of this SDG consisted of seven (7) soil samples and one (1) EB. The samples were collected on January 12, 2011 and were analyzed for pesticides.

The pesticides analyses were performed using USEPA SW846 Method 8081. 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 pesticide samples were prepared in two analytical batches, one for each matrix.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs, one set of MS/MSD, and surrogates.

All LCSs and surrogates recoveries were within acceptance criteria for both analytical batches.

The non-compliant %Rs of the MS/MSD are listed below:

AOC70-SS02

Compound	MS, %R	MSD, %R	Control Limits, %R
4,4-DDE	462	(102)	68 – 126
4,4-DDT	156	(95)	46 - 135

() indicates the %R was compliant.

“M” flag was applied to the parent sample result of these two compounds.

Precision

Precision was evaluated with the %RPD of the one set of parent and FD samples and MS/MSD results. %RPD calculation is only applicable when both results are greater than RL.

Since none of the target compounds were detected at or greater than RL, %RPD calculation was not applicable.

All %RPDs of MS/MSD were compliant.

The only compound with detected concentration greater than RL is 4,4-DDT in sample AOC70-SS04 and its FD:

Compound	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
4,4-DDE	0.0091	0.0121	28	≤50
4,4-DDT	0.0093	0.0096	3.2	

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 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.
- The %RPD of 4,4-DDE detected in the sample AOC70-SS04 and its FD is >40%, lab applied “J” to the sample result according to the CSSA QAPP.

There were two MBs, two EBs, and several calibration blanks associated with the pesticides analyses in this SDG. All blanks were free of pesticides 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 pesticides results for the samples in this SDG were considered usable. The completeness for the pesticides portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

HERBICIDES

General

The herbicides portion of this SDG consisted of seven (7) soil samples and one (1) EB. The samples were collected on January 12, 2011 and were analyzed for herbicides.

The herbicides analyses were performed using USEPA SW846 Method 8151A. 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 herbicide samples were prepared in two analytical batches, one for each matrix.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs, MS, MSD, and surrogate.

Both LCSs and surrogate recoveries were within acceptance criteria.

The non-compliant %Rs of the MS/MSD are listed below:

AOC70-SS02

Compounds	MS, %R	MSD, %R	Control Limits, %R
Dalapon	2.7	2.0	22 - 125
Dicamba	6.7	6.7	56 - 120
MCPA	52	57	65 - 120

“M” flag was applied to the parent sample result of the above compounds.

Precision

Precision was evaluated with the %RPD of the one set of parent and FD samples and MS/MSD results. %RPD calculation is only applicable when both results are greater than RL.

Since none of the target compounds were detected at or greater than RL, %RPD calculation was 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 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 two MBs, one EB, and several calibration blanks associated with the herbicides analyses in this SDG. All blanks were free of herbicides 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 herbicides results for the samples in this SDG were considered usable. The completeness for the herbicides portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

VOLATILES

General

This data package consisted of seven (7) soil samples, one (1) TB, and one (1) EB. The samples were collected on January 12, 2011 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 three analytical batches under two separate initial calibration (ICAL) curves, one for soil, one for TB and one for EB. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted. EB and TB were run with the same set of ICAL.

Accuracy

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

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

There were numerous non-compliant %Rs in the MS/MSD. "M" flags were applied.

Precision

Precision was evaluated with the %RPD of the one set of parent and FD samples. %RPD calculation is only applicable when both results are greater than RL.

Since none of the target compounds were detected at or greater than RL in the parent sample, AOC57-SS04 and its FD, %RPD calculation was not applicable.

Representativeness

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

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

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

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All three 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 three MBs, one EB, one TB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs.

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 seven (7) soil samples and one (1) EB. The samples were collected on January 12, 2011 and were analyzed for a full list of SVOCs.

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

Accuracy

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

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

The non-compliant %Rs of the MS/MSD are listed below:

AOC57-SS04FD

Compound	MS, %R	MSD, %R	Control Limits, %R
2,4-Dimethylphenol	(36)	29	35 – 149
Benzoic Acid	2.4	1.8	25 - 172

() indicates the %R was compliant.

“M” flag was applied to the parent sample result of these two compounds.

Precision

Precision was evaluated with the %RPD of the one set of parent and FD samples and MS/MSD results. %RPD calculation is only applicable when both results are greater than RL.

Since none of the target compounds were detected at or greater than RL in the parent, AOC57-SS04 and its FD, %RPD calculation was 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 EB and laboratory blanks for cross contamination of samples during collection 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 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 EB, and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

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

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

EXPLOSIVES

General

This data package consisted of seven (7) soil samples and one (1) EB. The samples were collected on January 12, 2011 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 two analytical batches under two separate sets of initial calibration (ICAL) curves, one for each matrix. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs, MS, MSD, and the surrogate spikes. MS/MSD were performed with sample AOC59-SS03.

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

Precision

Precision was evaluated with the %RPD of the one set of parent and FD samples and MS/MSD results. %RPD calculation is only applicable when both results are greater than RL.

Since none of the target compounds were detected at or greater than RL in the parent, AOC59-SS01 and its FD, %RPD calculation was 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 EB and laboratory blanks for cross contamination of samples during collection 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 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.

There were two MBS, one EB, and few 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%.