

WORK PLAN AND SAMPLING AND ANALYSIS PLAN ADDENDUM

AREA OF CONCERN 72



Prepared for:

**Camp Stanley Storage Activity
Boerne, Texas**

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ADDENDUM TO WORK PLAN AND SAMPLING AND ANALYSIS PLAN SITE CLOSURE INVESTIGATION FOR AOC 72

Parsons is currently under contract to provide a Site Closure Investigation for Area of Concern 72 (AOC-72), at Camp Stanley Storage Activity (CSSA), Boerne, Texas. This document serves as both an addendum to the existing *CSSA Work Plan*, February, 1996 (see *CSSA Environmental Encyclopedia* (www.stanley.army.mil), Volume 1-1) and work plan addenda contained therein, and an addendum to the existing *CSSA Field Sampling Plan*, February, 1996 (see *CSSA Environmental Encyclopedia*, Volume 1-4) and sampling and analysis plan addenda contained therein.

This effort will be performed to remove potentially impacted media and waste located at AOC-72 (Figure 1). Any potential sources of contamination including construction debris and all soils with contamination levels that exceed the identified Texas Risk Reduction Program (TRRP) protective concentration limits (PCLs) (see Section 2.3) will be removed. It is expected that upon completion of this investigation, a Release Investigation Report (RIR) will be completed for AOC-72. Both the identified PCLs and the type of closure report may be modified based on the results of the investigation.

This Addendum describes additional activities to be conducted as part of this investigation and addresses specific sampling and analysis items related to those activities. Work will be performed in accordance with the requirements of the Resource Conservation and Recovery Act (RCRA) 3008(h) Order in effect for CSSA and in accordance with 30 Texas Administrative Code (TAC) §350, the Texas Risk Reduction Program (TRRP) administered by the Texas Commission on Environmental Quality (TCEQ).

Additional specific activities associated with this investigation are described in the *RCRA Facility Investigation Interim Measures Waste Management Plan (RFI/IM WMP) Addendum for AOC 72*, June, 2011.

1.0 SITE DESCRIPTION AND BACKGROUND

1.1 Description

AOC-72 is located in the southwestern portion of the Inner Cantonment Area, approximately 50 feet east of Building 305 (Figure 1). The 0.1-acre site lies on an eastern-facing slope which opens into a flat grassy area and is currently by trees and brush. It was used as a disposal area for construction debris (e.g., concrete rubble, wire binding, bricks, asphalt, etc.) during the 1930s-1940s. During a previous assessment of the site, construction rubble, bricks, wire, asphalt, and siding were identified in rubble piles on the slope. The half-buried nature of the rubble piles, combined with the uneven nature of the slope, suggests that more waste may be buried at the site.

Due to the age of the construction debris, regulated asbestos-containing material (RACM) may be present at the site. According to the U.S. Environmental Protection Agency (EPA), RACM is defined as any material containing greater than 1% asbestos and is friable where the material can be crumbled, pulverized or reduced to a powder by hand pressure when dry. Use of asbestos in the manufacturing of several building products was banned by the year 1978.

Additional background information on AOC-72 can be found in CSSA Environmental Encyclopedia, Volume 3-2.

1.2 Previous Investigations

Previous investigations at AOC-72 are limited to an X-Ray Fluorescence (XRF) survey conducted in December of 2010 to delineate metal levels within the AOC at 17 in-situ surface soil locations. Of the detectable metals, the results for zinc and lead have been shown to have a strong statistical correlation with laboratory verified samples, so these metals were used as indicators of potential areas of metals contamination at the site. One location, as shown on Figure 2, indicated a zinc level higher than background, however neither zinc nor lead were detected by the XRF at the site above Tier 1 levels. No other sampling has been conducted at AOC-72.

2.0 INVESTIGATION PROCEDURES

This investigation involves the excavation of construction debris found on the slope face at AOC-72, as shown in Figure 3; appropriate management of all associated debris and soils; appropriate management of all potential RACM; and confirmation soil sampling to ensure the success of the excavation.

All removal work will be performed in Level D personal protective equipment and under the health and safety protocol included in the *Health and Safety Plan*, December, 2010. No munitions are suspected to be present at AOC-72. If munitions debris or munitions and explosives of concern (MEC) are encountered during the excavation effort, all work will stop and unexploded ordinance (UXO) support will be brought in to provide support. If other foreign materials, such as medical debris, is encountered, removal work and the management of the debris will proceed as is appropriate and in coordination with CSSA.

2.1 Excavation Effort

The construction debris and soils within the proposed excavation area will be excavated to a depth where confirmation samples indicate the concentrations of contaminants of concern are below the criteria described below in Section 2.3. The extent of the excavation will be guided by, but not limited to, the proposed excavation area outlined in Figure 3. For the 0.02-acre excavation area shown in Figure 3, it is estimated that approximately 300 CY of material will be managed at AOC-72 based on

an excavation depth of ten feet. There is a very shallow sewer line leading to the manhole located adjacent to the south side of AOC-72 and is visible in Figure 3. Prior to site activities, the sewer line will be covered so that it is protected and heavy equipment will not operate over the line.

During the excavation effort, waste material will be sorted and managed as appropriate. Remaining excavated soil media will be staged in 500-cubic-yard (CY) piles in the staging areas (Figure 3) and will be characterized for management as described below. Any trees removed during site operations will be placed in a pile for later management (such as with the Public Works “Cedar Eater”) in coordination with the CSSA Environmental Office.

If RACM is reported in samples collected during the AOC-72 site investigation, field activities will proceed as follows:

- 1) Personnel licensed in RACM removal will be brought on-site to manage the RACM containing material.
- 2) An area air monitoring program will be established at the site to confirm that asbestos fibers are not being released into the air during site activities. If fibers are detected, then site excavation and debris handling methods will be adjusted at the site.
- 3) Three work zones (exclusion zone, contaminant reduction zone and support zone) will be identified and maintained at the job site.
- 4) Work will be performed in Level C with a half face air-purifying respirator and the equipment operator will conduct excavation activities while in an enclosed cab.
- 5) A water truck will be mobilized to the site and used to minimize dusting during excavation activities and to wet all surfaces prior to excavation. During excavation, debris that appears to be associated with RACM will be segregated and managed within a designated area at the site.
- 6) Excavation activities will be temporarily suspended when the wind speed is greater than 10 miles per hour (mph). To help access the approximate wind speed and wind direction, a temporary wind sock will be located on the site during the excavation activities.
- 7) The segregated RACM will be wetted, placed into a dumpster that has been lined with polyethylene sheeting. The dumpster will be properly covered and then transported offsite to disposal facility licensed in the handling of asbestos.
- 8) A decontamination area will be established and the equipment used on-site will be properly decontaminated prior to demobilizing from the site. Any wastewater

collected during decontamination will be collected and filtered with a minimum 5.0 micron filter prior to discharge.

2.2 Waste Management

It is anticipated that approximately 300 CY of construction debris and excavated material will require some form of management at AOC-72. All contaminated soils will be managed in accordance with CSSA's *RFI Interim Measures Waste Management Plan*, Parsons, 2006 and the *RFI/IM Addendum for AOC 72*, Parsons, 2011.

For soils excavated and designated for offsite transport to a disposal facility, waste characterization sampling will occur at a frequency rate of 1 sample per 500 CY. Waste characterization samples will be analyzed by the toxicity characteristic leaching procedure (TCLP) for RCRA 8 metals, total analysis for CSSA 9 metals, in addition to other analysis, such as asbestos and pesticides, as appropriate. All non-impacted soil, as per the results of the total analysis for CSSA 9 metals and other analyses conducted, will be reused on site. All impacted soil media that meets non-hazardous criteria, and CSSA standards for berm reuse, will be transported to the East Pasture berm for reuse.

Any soil media identified above characteristic hazardous criteria (40 Code of Federal Regulations [CFR] 261.24) may be treated (i.e. with use of phosphate induced metal stabilization [PIMS], etc.) in accordance with the *RFI/Interim Measures Waste Management Plan* to non-hazardous levels and managed at the East Pasture berm or off-post as appropriate. Parsons will coordinate the transportation of the soils to the East Pasture berm with CSSA personnel. If RACM is encountered, the excavated soil will be properly managed and disposed at a facility approved for accepting RACM.

2.3 Soil Sampling

The TRRP Tier 1 PCL identified for this investigation is defined as the lowest value among following: 1) the TRRP Tier 1 Residential 0.5-acre PCL for total soil combined ($^{Tot}Soil_{Comb}$) and 2) the TRRP Tier 1 Residential 0.5-acre PCL for groundwater protection ($^{GW}Soil_{Ing}$). If the lowest of these values is less than the CSSA soil background value, the soil background value becomes the Tier 1 PCL. The TCEQ EcoBenchmarks are not included in the evaluation as the site is less than one acre in size and meets the De Minimus Land Area conditions as identified in Subpart D, Part II, TIER 1: Exclusion Criteria Checklist (30 TAC 350.77(b)).

Table 1 outlines these values and identifies PCLs for the CSSA 9 metal analytes. Table 2 outlines these values and identifies PCLs for pesticide analytes. The TRRP Human Health PCL for VOCs and SVOCs can be found at <http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html>. The TRRP Human Health PCL for asbestos can be found at <http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html>. The identified PCLs may be modified based on investigation findings, if necessary.

Soil samples for laboratory analysis will be collected during and post-excavation, as necessary, to confirm the successful removal of the contaminated soils. Based on previous findings and results from the investigation, confirmation samples may be collected and analyzed for CSSA 9 metals, VOCs, SVOCs, and pesticides. If the presence of asbestos is suspected or confirmed through laboratory analysis results, soil samples will also be analyzed to determine if they contain RACM, according to 40 CFR Part 763, Subpart E, Appendix E, Section 1.

Soil samples with results lower than the identified for PCLs will be used to confirm contamination removal at a rate of approximately 1 sample per 50 feet along the horizontal excavation boundary, and 1 sample per 10,000 square feet to confirm the vertical excavation boundary. If any results indicate contamination above the identified PCLs, the excavation of soils will be expanded in that direction until confirmation samples show no indication of contamination above PCLs. The number and location of confirmation samples will be dependent on the extent of excavation.

Soil samples will be discrete grab samples and will be collected as prescribed in the *CSSA SAP*, February, 1996. The collection and analysis of quality assurance/quality control (QA/QC) samples is described in the *CSSA Base-wide Quality Assurance Project Plan, Version 1.0*, January, 2003 (see [CSSA Environmental Encyclopedia, Volume 1-4](#)). The QA/QC samples and their collection frequency are as follows:

- One Field Duplicate (FD) per 10 samples
- One Matrix Spike (MS) and one Matrix Spike Duplicate (MSD) per 20 samples
- One Equipment Blank (EB) per site.

Full QA/QC will be performed on these samples and 100% of the results will be validated/verified by a chemist.

The necessary turnaround time (TAT) for the samples will be based on the current timeframe of the excavation and may range from expedited (3-day) to the standard TAT (21-day).

2.4 Erosion Control Measures and Site Rehabilitation

There is a small unnamed ephemeral stream located approximately 500 feet east of the site (Figure 2). Due to the small footprint of the proposed excavation area, less than 1 acre, the development of a Storm Water Pollution Prevention Plan (SWPPP) is not necessary for AOC-72. However, a silt fence will be placed downgradient of the excavation as shown in Figure 3. A Notice of Intent is not required for construction sites less than 5 acres.

There will be no permanent storm water controls. Once the excavation is complete, the site will be restored in coordination with CSSA's future plans for the area. If the area is to remain free of construction, native grasses will be planted to help control erosion.

3.0 SCHEDULE

The investigation may take place at any time and the field effort is projected to take approximately one week. Confirmation and waste characterization sampling will be conducted, as appropriate, throughout the excavation procedure.

Upon completion of the field effort, it is expected that an RIR will be completed for AOC-72. As discussed previously, if the investigation results warrant, another type of closure report may be completed instead.

Table 1- Assessment Levels for Chemicals of Potential Concern
 CSSA 9 Metals
 AOC-72

Chemical of Potential Concern	Residential Tier 1 ^{Tot} Soil _{Comb} (mg/kg) ¹	Residential Tier 1 ^{GW} Soil _{Ing} (mg/kg) ²	CSSA Soil Background (mg/kg) ³	EcoBenchmark (mg/kg) ⁴
Arsenic	24.2	5.0	19.6	NA
Barium	7,962.3	443.8	186	NA
Cadmium	52.4	1.5	3.0	NA
Chromium	32,607.1	2,400.2	40.2	NA
Copper	547.9	1,042.5	23.2	NA
Lead	500	3.0	84.5	NA
Mercury	3.7	0.0078	0.77	NA
Nickel	839.7	157.4	35.5	NA
Zinc	9,921.5	2,360.5	73.2	NA
1) Texas Risk Reduction Program Rule Tier 1 Residential Protective Concentration Levels (PCLs) ^{Tot} Soil _{Comb} (0.5-acre source areas), March 31, 2010 (http://www.tceq.state.tx.us/remediation/trrp/trppcls.html). 2) Texas Risk Reduction Program Rule Tier 1 Residential Protective Concentration Levels (PCLs) ^{GW} Soil _{Ing} (0.5-acre source areas), March 31, 2010 (http://www.tceq.state.tx.us/remediation/trrp/trppcls.html). 3) Second Revision to Evaluation of Background Metals Concentrations in Soils and Bedrock, February 2002. 4) Figure 30 TAC `350.77 (b) Tier 1 Exclusion Criteria Checklist, Subpart D, De Minimus Land Area- AOC 72 is less than one acre, therefore ecological evaluation is not necessary. Identified PCLs are shown in bold .				

Table 2- Assessment Levels for Chemicals of Potential Concern
Pesticides in Soil SW8081B
AOC-72

Chemical of Potential Concern	Residential Tier 1 ^{Tot} Soil _{Comb} (mg/kg) ¹	Residential Tier 1 ^{GW} Soil _{Ing} (mg/kg) ²	EcoBenchmark (mg/kg) ³
Aldrin	0.05	0.10	NA
Chlordane, cis- (alpha chlordane)	13	740	NA
Chlordane, gamma	7.4	41	NA
DDD	14	13	NA
DDE	10	12	NA
DDT	5.4	15	NA
Dieldrin	0.15	0.049	NA
Endosulfan I	61	31	NA
Endosulfan II	270	92	NA
Endosulfan sulfate	380	4700	NA
Endrin	8.8	0.75	NA
Endrin aldehyde	19	630	NA
Endrin ketone	19	51	NA
Heptachlor	0.13	0.19	NA
Heptachlor epoxide	0.24	0.058	NA
Hexachlorocyclohexane, alpha (alpha-BHC)	0.26	0.0079	NA
Hexachlorocyclohexane, beta (beta-BHC)	0.93	0.0290	NA
Hexachlorocyclohexane, delta (delta-BHC)	2.9	0.17	NA
Hexachlorocyclohexane, gamma (lindane; gamma-BHC)	1.1	0.0092	NA
Methoxychlor	270	120	NA
Toxaphene	1.2	12	NA
<p>1) Texas Risk Reduction Program Rule Tier 1 Residential Protective Concentration Levels (PCLs) ^{Tot}Soil_{Comb} (0.5-acre source areas), March 31, 2010 (http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html).</p> <p>2) Texas Risk Reduction Program Rule Tier 1 Residential Protective Concentration Levels (PCLs) ^{GW}Soil_{Ing} (0.5-acre source areas), March 31, 2010 (http://www.tceq.state.tx.us/remediation/trrp/trrppcls.html).</p> <p>3) Figure 30 TAC 350.77 (b) Tier 1 Exclusion Criteria Checklist, Subpart D, De Minimus Land Area- AOC 72 is less than one acre, therefore ecological evaluation is not necessary</p> <p>Identified PCLs are shown in bold.</p>			

Figure 1
Site Location Map

Figure 2
Sampling Results

Figure 3
Proposed Excavation Effort