TO19 DATA VERIFICATION SUMMARY REPORT

for samples collected from

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

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INTRODUCTION

The following data verification summary report covers soil and rock samples collected from Camp Stanley Storage Activity (CSSA) under Task Order 0019 on March 6 and 8, 2004. The samples in the following Sample Delivery Group (SDG) were analyzed for volatile organic compounds (VOCs) and metals:

43920

The field quality control (QC) samples collected in association with this SDG included one field duplicate and one trip blank. No ambient blanks were collected. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at these sites.

All samples were collected by Parsons and analyzed by APPL Inc. following the procedures outlined in the Statement of Work and CSSA QAPP, version 1.0. The cooler associated with this SDG was received by the laboratory at a temperature of 3.0^0 C which is within the $2\text{-}6^0$ C range recommended by the QAPP.

The samples in this SDG consisted of two matrices, rock and soil. All samples were soil except for the following: AOC67-BOT01, AOC67-SW01, AOC67-SW03. The samples were divided into these two matrix groups for the purposes of flagging.

It should be noted that the waste characterization sample B33-WC01 listed on the chain-of-custody (COC) was logged and reported in a separate SDG (43931).

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; sample receipt checklist and COC forms. 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.

VOLATILES

General

The VOC portion of this SDG consisted of seven (7) samples, including five (5) environmental soil and rock samples, one field duplicate (FD) and one trip blank. Only the samples collected from AOC67 required analysis for VOCs. The samples were collected on March 8, 2004 and were analyzed for the full list of VOCs as specified in the CSSA QAPP. The VOC analyses were performed according to the United States Environmental Protection Agency (USEPA) SW846 Method 8260B.

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.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control spike (LCS) samples and the surrogate spikes. No sample was designated for MS/MSD analysis on the COC.

Two LCS samples were analyzed, one for the soil/rock batch and one for the water batch. All recoveries met criteria for the soil/rock LCS. All recoveries met criteria for the water LCS, except for the following:

Analyte	%R	Criteria
1,2-Dibromo-3-chloropropane	135	59-125%
1,2-EDB	128	75-125%
1,3-Dichloropropane	126	75-125%
Chloroethane	130	65-125%

The LCS also served as the secondary source, so the non-compliant analytes were flagged "R" in the trip blank in accordance with the CSSA QAPP flagging criteria for secondary source failures.

All surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the field duplicate samples. Sample AOC67-SW04 was collected in duplicate. The second sample from this location was submitted and analyzed as a field duplicate.

All analytes were non-detect in both the parent and field duplicate, so the RPD calculation was not applicable.

Representativeness

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

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

- All instrument tune criteria were met. Sample AOC67-SW04(DUP) was analyzed approximately 15 minutes outside of the 12-hour BFB clock. Both the parent (which was analyzed within the 12-hour BFB clock) and the field duplicate were non-detect for all analytes, so no corrective action was necessary.
- All initial calibration criteria were met.
- The LCS was analyzed using a secondary source. All second source verification criteria were met for the soil/rock batch. All second source verification criteria were met for the water batch, except for the following:

Analyte	%D	Criteria
1,2-Dibromo-3-chloropropane	34.6	%D = 25
1,2-EDB	27.6	
1,3-Dichloropropane	26.4	
Chloroethane	30.1	

The non-compliant analytes were flagged "R" in the trip blank in accordance with the CSSA QAPP.

- No calibration verification was necessary for the soil/rock batch because the samples were analyzed immediately following the ICAL. All calibration verification criteria were met for the water batch, except for the following:

Analyte	%D	Criteria
1,2,3-Trichloropropane	22.0	%D = 20
1,2,4-Trichlorobenzene	22.1	
1,2-Dibromo-3-chloropropane	23.2	
2-Chlorotoluene	26.9	
4-Chlorotoluene	21.3	

The non-compliant analytes were flagged "R" in the trip blank in accordance with the CSSA QAPP.

- All internal standard criteria were met.
- All manual integrations were reviewed and approved.

Two method blanks (one for the soil/rock batch and one for the water batch) were analyzed in association with the VOC analyses in this SDG. Both method blanks were free of all VOCs 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.

Several analytes were flagged "R" in the trip blank. However, all rejected analytes were non-detect in the associated samples, so data quality was not affected and all VOC results for the samples in this SDG were considered usable. The completeness of the VOC portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

ICP METALS

General

The ICP metals portion of this SDG consisted of eleven (11) samples, including ten environmental soil and rock samples and one field duplicate. The samples were collected on March 6 and 8, 2004 and were analyzed for a reduced list of ICP metals. The samples collected from AOC67 required analysis for barium, chromium, copper and zinc. The samples collected from B33 required analysis for barium, chromium, nickel and zinc.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. The 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.

Accuracy

Accuracy was evaluated using the %R obtained from the LCS and LCS Duplicate (LCSD) samples. No sample was designated for MS/MSD analysis on the COC.

All LCS/LCSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the LCS/LCSD samples and the field duplicate samples. Sample AOC67-SW04 was collected in duplicate. The second sample from this location was submitted and analyzed as a field duplicate.

All LCS/LCSD RPDs were within acceptance criteria.

For the FD pair on B11-SW02, all RPDs met criteria except for chromium:

Parent	Metal	FD RPD	Criteria
AOC67-SW04	Barium	3.15	RPD = 20
	Chromium	29.9	
	Copper	0.97	
	Zinc	15.8	

All samples from AOC67 were collected on March 8, 2004, so the chromium results for all AOC67 samples were flagged "J" if detected above the RL, unless the result was previously flagged "M". (The "M" and "F" flags supercede the "J" flag in the CSSA QAPP flag hierarchy.)

Representativeness

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

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

The 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 time required by the method.

- All initial calibration criteria were met.
- All initial and continuing calibration verification criteria were met.
- All second source calibration criteria were met. The ICV was prepared using a secondary source.
- All interference check criteria were met.
- A dilution test (DT) was analyzed on soil sample B33-SW04. The DT was not applicable for copper or nickel because all sample results were less than 50x the MDL for these metals. The DT was applicable for barium, chromium and zinc. The %D for these metals failed to meet criteria as follows:

Metal	%D	Criteria
Barium	14.2	%D = 10
Chromium	14.7	
Zinc	19.4	

No MS/MSD was available, so the results for these metals were flagged "M" for all soil samples.

One method blank and several calibration blanks were analyzed in association with the ICP analyses in this SDG. All blanks were free of 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 metals results for the samples in this SDG were considered usable. The completeness for the ICP metals portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

CADMIUM

General

The cadmium portion of this SDG consisted of five (5) environmental soil samples. The samples were collected on March 6, 2004 and were analyzed for cadmium using USEPA SW846 Method 7131A. Only the samples collected from B33 required analysis for cadmium.

The samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. The samples were prepared and analyzed within the holding time required by the method.

Accuracy

Accuracy was evaluated using the %R obtained from the LCS/LCSD samples. No sample was designated for MS/MSD analysis on the COC.

Both LCS/LCSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the LCS/LCSD samples.

The LCS/LCSD RPD was within acceptance criteria.

Representativeness

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

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

- All initial calibration criteria were met.
- All initial and continuing calibration verification criteria were met.

- All second source calibration criteria were met. The ICV was prepared using a secondary source.
- No dilution test was required because all sample results were less than 25 times the MDL.

One method blank and several calibration blanks were analyzed in association with the cadmium analyses in this SDG. All blanks were free of cadmium 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 cadmium results for the samples in this SDG were considered usable. The completeness for the cadmium portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

LEAD

General

The lead portion of this SDG consisted of eleven (11) samples, including ten environmental soil and rock samples and one field duplicate. The samples were collected on March 6 and 8, 2004 and were analyzed for lead using USEPA SW846 Method 7421.

The samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. The samples were prepared and analyzed within the holding time required by the method.

It should be noted that all samples from AOC67 (six samples) required a dilution due to the high levels of lead present.

Accuracy

Accuracy was evaluated using the %R obtained from the LCS/LCSD samples. No sample was designated for MS/MSD analysis on the COC.

Both LCS/LCSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the LCS/LCSD samples and the field duplicate analyte concentrations. Sample AOC67-SW04 was collected in duplicate. The second sample from this location was submitted and analyzed as a field duplicate.

The LCS/LCSD RPD was within acceptance criteria.

The field duplicate RPD failed to meet criteria as follows:

Parent	Metal	RPD	Criteria
AOC67-SW04	Lead	84.6	RPD = 25

Only the samples from AOC67 were collected on March 8, 2004, so all AOC67 sample results were flagged "J" due to the failing field duplicate RPD.

Representativeness

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

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

The 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 time required by the method.

- All initial calibration criteria were met.
- All initial and continuing calibration verification criteria were met.
- All second source calibration criteria were met. The ICV was prepared using a secondary source.
- The dilution test was analyzed on soil sample B33-SW04. The DT met criteria with a %D of 3.0.

One method blank and several calibration blanks were analyzed in association with the lead analyses in this SDG. All blanks were free of lead 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 lead results for the samples in this SDG were considered usable. The completeness for the lead portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.