

**RL 53 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 environmental soil samples and associated field quality control (QC) samples collected from the Camp Stanley Site (under RL53) on March 1 and 2, 2000. The samples in the following laboratory Sample Delivery Group (SDG) were analyzed for semivolatile organic compounds (SVOCs); volatile organic compounds (VOCs); and metals including barium, chromium, copper, nickel, zinc, mercury, arsenic, cadmium, and lead:

32130

Field quality control samples collected were trip blank; equipment blanks; matrix spike/matrix spike duplicates (MS/MSD); and field duplicates. During the initiation of this project, it was determined that ambient blanks were not necessary due to the absence of a source at the site. The trip blank was analyzed for volatile organics only. All other field quality control samples were analyzed for the same parameters as their associated samples.

All samples were collected by Parsons Engineering Science (Parsons ES). All analyses were performed by APPL, Inc. following procedures outlined in the AFCEE QAPP, version 3.0.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the AFCEE QAPP, version 3.0. Information reviewed in the data packages include sample results; the summary of laboratory quality control results; case narrative; raw data; and chain-of-custody forms. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the AFCEE QAPP were met.

SVOC SDG 32130

General

This SDG consisted of seven (7) samples, including three (3) confirmation environmental soil samples, one field duplicate soil sample, one set of matrix spike/matrix spike duplicate samples and one equipment blank sample. The samples were collected on March 1, 2000 and analyzed for semi-volatile organic compounds (SVOCs).

SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples; LCS sample; and surrogate spikes. Sample BLD43-SB01 (0.5-1.0') was used as the MS/MSD sample in this SDG.

All MS/MSD %Rs were within acceptance criteria except for as follows:

Sample BLD43-SB01 (0.5-1.0')

Analyte	MS %R	MSD %R	QC (%)
2,4-dinitrophenol	24.1	(28.2)	25-161

() %R was compliant.

The 2,4-dinitrophenol result in the samples from the building 43 with similar matrix as the MS/MSD sample was flagged "M" to indicate a matrix effect was present.

All LCS and surrogate %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. Sample BLD43-SB01 (0.5-1.0') was used as the MS/MSD sample in this SDG. Sample BLD43-SB01 (0.5-1.0') FD was the field duplicate of sample BLD43-SB01 (0.5-1.0').

All MS/MSD and field duplicate RPDs were within acceptance criteria.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All results were considered usable. The completeness for this SDG is 100.0% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during collection or analysis.

All samples in this SDG were analyzed following chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding time required for the analysis.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All continuing calibration criteria were met.
- All second source verification criteria were met.
- All internal standard criteria were met.

There were two method blanks and one equipment blank associated with the SVOC analyses in this SDG. The blanks were free of SVOCs above the RL.

VOC SDG 32130

General

This SDG consisted of nine (9) samples, including six (6) confirmation environmental soil samples, one field duplicate soil sample, one equipment blank and one trip blank sample. The samples were collected on March 2, 2000 and analyzed for volatile organic compounds (VOCs).

VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples; LCS samples; and surrogate spikes. There was no MS/MSD analysis for this SDG.

All LCS %Rs were within acceptance criteria.

The surrogate %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

All field duplicate RPDs were within acceptance criteria.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All results were considered usable. The completeness for this SDG is 100.0% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during collection or analysis.

All samples in this SDG were analyzed following chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed with the holding times required for the analysis.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- All continuing calibration criteria were met.
- All second source verification criteria were met.
- All internal standard criteria were met.

There were three method blanks, one equipment blank and one trip blank associated with the VOC analyses in this SDG. The method blanks and equipment blank were free of VOCs above the RL. The trip blank contained the following:

Blank ID	Analyte	Concentration
RL53-TB06	Chloroform	0.33 µg/L

All chloroform data are flagged with “B” except samples with positive hits for chloroform are already flagged “F”.

METALS SDG 32130

General

This SDG consisted of eight (8) samples, including six (6) confirmation environmental soil samples, one field duplicate soil sample and one equipment blank sample. The samples were collected on March 2, 2000 and analyzed for metals; barium, chromium, copper, nickel, and zinc.

The barium, chromium, copper, nickel, and zinc analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 6010B. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples and LCS samples. There was no MS/MSD analysis for this SDG.

The LCS %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the laboratory and field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

All field duplicate RPDs were within acceptance criteria except for as follows:

Sample I2-SB02 (0.5-1.0')

Analyte	RPD	QC (%)
copper	47.4	20
nickel	64.1	20

The copper and nickel results in the associated samples collected on the same day as the field duplicate pair were considered estimated and flagged "J".

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All results were considered usable. The completeness for this SDG is 100% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection and analysis.

All samples in this SDG were analyzed following the chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding times required for the analysis.

- All initial and continuing calibration criteria were met.
- All second source calibration criteria were met.
- All interference check criteria were met.
- All dilution test criteria were met except for as follows:

Sample I2-SB02 (0.5-1.0')

Analyte	%D	QC (%)
barium	37.3	10
copper	31.3	10
nickel	58.4	10
zinc	39.2	10

The barium, copper, nickel and zinc results in the associated samples were considered estimated and flagged "J". The chromium result for the diluted sample was less than the reporting limit; therefore, the dilution test was not required for this analyte.

- All post digestion spike addition criteria were met except for as follows:

Sample I2-SB02 (0.5-1.0')

Analyte	%R	QC (%)
barium	70.2	75-125
nickel	73.0	75-125

The barium and nickel results in the associated samples were considered estimated and flagged “J”.

There were two method blanks, one equipment blank and several calibration blanks associated with the metal analyses in this SDG. All method and calibration blanks were free of any metals above the RL. The equipment blank contained 0.056 mg/L of zinc. No action was taken since the zinc results are already flagged “J” due to non-compliant dilution test results.

MERCURY SDG 32130

General

This SDG consisted of eight (8) samples, including six (6) confirmation environmental soil samples, one field duplicate sample and equipment blank sample. The samples were collected on March 2, 2000 and analyzed for mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A. Except where indicated in this report, all samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the respective method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples and LCS samples. There was no MS/MSD analysis for this SDG.

All LCS %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

The field duplicate RPD was within acceptance criteria.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All results were considered usable. The completeness for this SDG is 100% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;

- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection and analysis.

All samples in this SDG were analyzed following the chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding times required for the analysis.

- All initial and continuing calibration criteria were met.
- All second source calibration criteria were met.

There were two method blanks, one equipment blank and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of any mercury above the RL.

ARSENIC SDG 32130

General

This SDG consisted of eight (8) samples, including six (6) confirmation environmental soil samples, one field duplicate soil sample and equipment blank samples. The samples were collected on March 2, 2000 and analyzed for arsenic.

The arsenic analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 7060A. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples and LCS samples. There was no MS/MSD analysis for this SDG.

The LCS %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

The field duplicate RPD can not be calculated due to the concentration of arsenic in the parent sample was less than 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 results were considered usable. The completeness for this SDG is 100% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;

- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection and analysis.

All samples in this SDG were analyzed following chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding times required for the analysis.

- All initial and continuing calibration criteria were met.
- All second source calibration criteria were met.
- The dilution test criteria was met with %D of 9.1%.

There was one method blank, one equipment blank and several calibration blanks associated with the arsenic analyses in this SDG. All blanks were free of any arsenic above the RL.

CADMIUM SDG 32130

General

This SDG consisted of eight (8) samples, including six (6) confirmation environmental soil samples, one field duplicate sample and one equipment blank sample. The samples were collected March 2, 2000 and analyzed for cadmium.

The cadmium analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 7131. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples and LCS samples. There was no MS/MSD analysis for this SDG.

The LCS %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

The field duplicate RPD was not available due the fact that both parent sample and field duplicate had cadmium values less than 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 results were considered usable. The completeness for this SDG is 100% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;
- Comparing actual analytical procedures to those described in the AFCEE QAPP;

- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection and analysis.

All samples in this SDG were analyzed following chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding times required for the analysis.

- All initial and continuing calibration criteria were met.
- All second source calibration criteria were met.
- The dilution test was not required since the concentration of cadmium in the sample chose for the test was less than the reporting limit.
- All recovery test criteria were met.

There was one method blank, one equipment blank, and several calibration blanks associated with the cadmium analyses in this SDG. All blanks were free of any cadmium above the RL.

LEAD SDG 32130

General

This SDG consisted of eight (8) samples, including six (6) confirmation environmental soil samples, one field duplicate soil sample and one equipment blank sample. The samples were collected on March 2, 2000 and analyzed for lead.

The lead analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 7421. All samples for this SDG were analyzed following the procedures outlined in the AFCEE QAPP. All samples collected were prepared and analyzed within the holding times required by the method.

Accuracy

Accuracy was evaluated using the %R results for the MS/MSD samples and LCS samples. There was no MS/MSD analysis for this SDG.

The LCS %Rs were within acceptance criteria.

Precision

Precision was evaluated using the Relative Percent Difference (RPD) results obtained from MS/MSD results; and the field duplicate analyte values. There was no MS/MSD analysis for this SDG. Sample I1-SB03 (9.5-10.0') FD was the field duplicate of sample I1-SB03 (9.5-10.0').

The field duplicate RPD was outside acceptance criteria for lead (26.4% RPD). The lead result in the associated samples collected on the same day as the field duplicate pair was considered estimated and flagged "J".

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All results were considered usable. The completeness for this SDG is 100% compared to the minimum acceptance limit of 90%.

Representativeness

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

- Comparing the chain-of-custody procedures to those described in the AFCEE QAPP;

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

All samples in this SDG were analyzed following the chain-of-custody forms (COCs) and analytical procedures described in the AFCEE. All samples were prepared and analyzed within the holding time required for the analysis.

- All initial and continuing calibration criteria were met.
- All second source calibration criteria were met.
- All dilution test criteria were not met:

Sample I1-SB01 (9.5-10.0')

Analyte	%D	QC (%)
lead	10.8	10

The lead result in the associated samples was considered estimated and flagged “J”.

- All recovery test criteria were met.

There were two method blanks, one equipment blank and several calibration blanks associated with the lead analyses in this SDG. All blanks were free of any lead above the RL.