

APPENDIX G
Analytical Data QA/QC Report

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Data Validation Summary Report
for environmental samples collected from the
FORMER SCHILLING AIR FORCE BASE
Salina, KS
(2010)

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The following data validation report covers 22 soil samples collected from the Former Schilling AFB located in Salina, KS. These samples were collected on June 16, 2010 as part of the Chemical Warfare Material (CWM) Site Inspections (SIs) for Multiple Sites and were shipped to GEOMET Technologies, LLC. All results were submitted to Parsons in one sample delivery group (SDG).

A chemist at Parsons has reviewed the data submitted by GEOMET Technologies, LLC. The data package included the following samples:

Field Sample ID	Matrix	Lab Sample ID	Sample Collection Date
SAFB-CWM-SS12-18-001	Soil	Soil-1	16-Jun-2010
SAFB-CWM-SS12-18-002	Soil	Soil-2	16-Jun-2010
SAFB-CWM-SS12-18-003	Soil	Soil-3	16-Jun-2010
SAFB-CWM-SS12-18-004	Soil	Soil-4	16-Jun-2010
SAFB-CWM-SS12-18-005	Soil	Soil-5	16-Jun-2010
SAFB-CWM-SS12-18-006	Soil	Soil-6	16-Jun-2010
SAFB-CWM-SS12-18-007	Soil	Soil-7	16-Jun-2010
SAFB-CWM-SS12-18-008	Soil	Soil-8	16-Jun-2010
SAFB-CWM-SS12-18-009	Soil	Soil-9	16-Jun-2010
SAFB-CWM-SS12-18-010	Soil	Soil-10	16-Jun-2010
SAFB-CWM-SS12-18-011	Soil	Soil-11	16-Jun-2010
SAFB-CWM-SS12-18-012	Soil	Soil-12	16-Jun-2010
SAFB-CWM-SS12-18-013	Soil	Soil-13	16-Jun-2010
SAFB-CWM-SS12-18-014	Soil	Soil-14	16-Jun-2010
SAFB-CWM-SS12-18-015	Soil	Soil-15	16-Jun-2010
SAFB-CWM-SS12-18-016	Soil	Soil-16	16-Jun-2010
SAFB-CWM-SS12-18-017	Soil	Soil-17	16-Jun-2010
SAFB-CWM-SS12-18-018	Soil	Soil-18	16-Jun-2010
SAFB-CWM-SS12-18-019	Soil	Soil-19	16-Jun-2010
SAFB-CWM-SS12-18-020	Soil	Soil-20	16-Jun-2010
SAFB-CWM-SS12-18-901	Soil	Soil-21	16-Jun-2010
SAFB-CWM-SS12-18-911	Soil	Soil-22	16-Jun-2010

All samples were requested to be analyzed for Sulfur Mustard (HD), Lewisite (L), and agents breakdown products (ABPs) on the chain of custody. Laboratory reported 1,4-Dithiane, 1,4-Thioxane, HD, and L (L/CVAAA/CVAO) for all samples in the data package. Thiodiglycol analysis was not performed since no HD was detected in the samples.

Samples were collected by Parsons and analyzed by GEOMET Technologies, LLC, Chemical Defense Laboratory Division (CDLD) by following the procedures specified in CDLD SOP #38 “The determination of Lewisite in Soil and Water Sample” and CDLD SOP #44 “The Determination of Sulfur Mustard (HD), Nitrogen Mustard (HN-1 & HN-3), 1,4-Thioxane, and 1,4-Dithiane in Soil and Water Samples”.

Review Criteria

Data submitted by the laboratory has been reviewed. Information reviewed included chain of custody, sample results, matrix spike and matrix spike duplicate recovery (MS/MSD), method blank, instrument blank, holding time, laboratory control spike and duplicate (LCS/LCSD) recoveries, practical reporting limits (PQL), instrument initial calibration curves (ICALs), continuing calibration verifications (CCVs), and raw data. The conclusions in the report are based on the criteria stated in the Sampling and Analysis Plan (One Stop Environmental, LLC; November 2009) and laboratory Standard Operating Procedures (SOPs) and whether the laboratory derived tolerances were met. Data flags used in the final report were based on the definition of USEPA National Functional Guidelines for Data Review (current version). ADR was not provided by the GEOMET laboratory and couldn't be used as part of data validation by Parsons' chemist.

Method Detection Limits (MDLs) and PQLs used for soil samples are:

Analyte	MDL (ug/kg)	PQL (ug/kg)
HD	0.01	10
1,4-Dithiane	0.1	100
1,4-Thioxane	0.1	100
L	0.1	100
CVAA	0.1	100
CVAO	0.1	100

Control limits used for soil are:

Analyte	LCS/LCSD (%R)	LCS/LCSD (%RPD)	MS/MSD (%R)	MS/MSD (%RPD)
HD	50-150	20	50-150	20
L (L, CVAA, CAVO)	50-150	20	50-150	20
1,4-Dithiane	50-150	20	50-150	20
1,4-Thioxane	50-150	20	50-150	20

Accuracy

Accuracy is determined by evaluating the percent recovery (%R) of the LCS/LCSD and MS/MSD. No MS/MSDs were requested on the COC; however the lab performed two sets of MS/MSD analyses with two of the project field samples in the SDG.

All %Rs in LCS, LCSD, MS, and MSD were compliant.

Precision

Precision is determined by comparing the Relative Percent Difference (%RPD) of the LCS/LCSD and MS/MSD results. All %RPD criteria were met for LCS/LCSD and MS/MSD. Two laboratory duplicate analyses were also performed on two field samples and these results also show precision was well within control during the analysis of the samples.

Representativeness

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

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

All samples were prepared and analyzed following the COC. All samples were prepared and analyzed within the hold time required for the analysis.

All instrument blanks and method blank were reviewed and found to be free of target analytes above ½ of the PQL.

- Linearity was compliant for all target compounds in each of the initial calibration curves with the lowest point either equal to or less than the PQL for each compound.
- The initial calibration verifications injected immediately after the establishment of each ICAL in the data package were compliant.
- Results of all continuing calibration verifications (CCVs) injected in each injection batch were compliant.

Completeness

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

All results for the samples in these data packages were usable. The completeness is 100%.

Data Usability

No target analytes were detected in the samples included in this report. Since no target analyte was detected above the PQL, lab did not perform analysis of Thiodiglycol.

2-Chlorovinyl Arsenous Acid (CVAA) and 2-Chlorovinyl Arsenous Oxide (CVAO) were derivatized to the same product as Lewisite (L). Data reported for L could be any of or combination of these three compounds. Since all sample results had <PQL amount of

L, it can be concluded that there were no L/CVAA/CVAO existed at PQL level in any of samples included in this report.

Since there were 22 samples included in this SDG, the laboratory inadvertently omitted additional batch QC (method blank and LCS/LCSD) to account for the number of samples greater than 20. Once this issue was identified, the lab re-extracted and re-analyzed two of the samples with the appropriate batch QC samples. This re-extraction occurred outside of hold time; therefore the data should be used only to confirm the results of the previous analysis, which was non-detect for all analytes.

No results were qualified due to QC issues in this data set and data are usable for decision making purposes.