

Data Validation Report
Remedial Investigation at RVAAP-66 Facility Wide Groundwater
Semi-Annual & Quarterly Sampling Event for December 2017

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract Number: W9133L-14-D-0008

Task Order Number: 0003

Laboratory SDG 280-104281-2

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CONTRACTOR STATEMENT OF INDEPENDENT TECHNICAL REVIEW

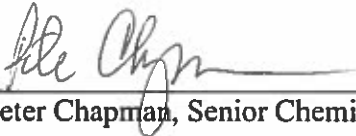
TEC-WESTON Joint Venture has completed this Data Validation Report. Data validation was performed by the Validator and Secondary QC Review was performed by the Senior Chemist. Signatures indicate the report is approved for release.



Erica Fisher, Validator, TEC-WESTON JV

12/28/2017

Date



Peter Chapman, Senior Chemist, TEC-WESTON JV

12/28/2017

Date

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INTRODUCTION

This report summarizes the results of the **EPA Stage 2B** data validation performed on groundwater samples and quality control (QC) sample data for the Remedial Investigation for RVAAP-66, Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio. Results are reported in laboratory sample delivery group (SDG) **280-104281-2**.

TestAmerica, Inc., Denver, Colorado performed the analyses listed in the table below:

Parameters	Analytical Method	Laboratory Location
Free Cyanide	4500 CN I Standard Method (SM)	Denver, CO

Analytical Method 4500 for free cyanide is a Standard Method (SM) jointly published by the American Public Health Association (APHA), the American Water Works Association (AWWA), and the Water Environment Federation (WEF) in *Standard Methods for the Examination of Water and Wastewater* (APHA, AWWA and WEF, 2017). That is, it is not an EPA SW-846 Method.

TestAmerica Denver does not hold DoD ELAP accreditation for free cyanide.

The data were reviewed using guidance and quality control criteria documented in the *Draft Remedial Investigation Work Plan for Groundwater and Environmental Services for RVAAP-66 Facility-Wide Groundwater, Appendix A: Sampling Analysis Plan, A.2: Uniform Federal Policy Quality Assurance Project Plan (UFP-QAPP) Former Ravenna Army Ammunition Plant, Portage and Trumbull Counties, Ohio Attachment A Data Validation Evaluation Sheets (January 2016)* which are based on the *Department of Defense Quality Systems Manual (DoD QSM), Version 5.0*; *USEPA National Functional Guidelines for Organic Data Review (EPA 2014)*; and *USEPA National Functional Guidelines for Inorganic Data Review (EPA 2014)*, the analytical methods, and professional judgment.

During data validation, qualifiers are assigned to assist in proper data interpretation. If values are estimated, data may be used for site evaluation purposes but reasons for data qualification should be taken into consideration when interpreting sample concentrations. Data that have been rejected (R) should not be used for any purpose. Results with no qualifiers meet all data quality goals as outlined in the UFP-QAPP.

The data was reviewed and validated by calculating Relative Percent Difference (RPD) between spiked sample values according to the *USEPA National Functional Guidelines for Organic Data Review (EPA 2014)* and *USEPA National Functional Guidelines for Inorganic Data Review (EPA 2014)*. Therefore, the RPDs were calculated using the percent recovery values as stated in the above referenced USEPA documents. Standard Methods for the Examination of Water and Wastewater were utilized for this project and they recommend using the actual spiked sample values to calculate RPD values. However, the laboratory used varying spike amounts due to sample aliquot and percent moisture differences which lead to variations in the spike amounts making it very difficult to compare the spiked sample values. These differences would have created poor precision results for the spiked sample values that were not necessarily indicative of the data quality. The use of comparing spike recovery values in this case was a much better indicator of analytical precision.

The following samples were validated:

Sample ID	Laboratory ID	Sample Date	Matrix	QC Sample	Free Cyanide
FBQmw-172-120417-GW	280-104281-7	12/04/17	Groundwater		✓
NTAmw-118-120417-GW	280-104281-12	12/04/17	Groundwater		✓
LL11mw-005-120417-GW	280-104281-15	12/04/17	Groundwater		✓

Additional analyses reported for all samples are reported and validated under separate cover.

DATA VALIDATION REPORT

1.1 DATA PACKAGE COMPLETENESS

The laboratory submitted all required deliverables. The laboratory followed adequate corrective action processes and all anomalies were discussed in the case narrative.

It is noted that the COCs included with this SDG request various analyses on 28 samples. However, this SDG only reports the three samples analyzed for Method 4500 CN I free cyanide. All other analytes are logged and/or reported under separate SDGs.

1.2 SAMPLE RECEIPT

The samples were received by the laboratory on December 5, 2017; the samples were received in good condition, under chain-of-custody, and custody seals intact. Samples were properly preserved and cooler temperatures were less than 4°C.

1.3 TECHNICAL DATA VALIDATION

1.3.1 Free Cyanide by Method 4500 CN I SM

The following parameters were evaluated and met the required criteria. No validation flags were assigned based on the following:

- Holding times
- LODs and LOQs
- LCS recoveries
- Method blank
- Low and high level control samples
- Initial calibration verification
- Continuing calibration verification
- Initial calibration blank
- Continuing calibration blank

No analytical or quality parameters requiring further discussion were identified for Method 4500 CN I SM.

No qualifications were made in this SDG.