

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

Former Ravenna Army Ammunition Plant
Portage and Trumbull Counties, Ohio

Contract Number: W9133L-14-D-0008

Task Order Number: 0003

Laboratory SDG 280-96392-1

Prepared For:



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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 Validation Chemist and Secondary QC Review was performed by a Senior Chemist. Signatures indicate the report is approved for release.



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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) **280-96392-1**.

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

Parameters	Analytical Method	Laboratory Location
Volatile Organic Compounds (VOCs)	8260B	Denver, CO
Semivolatile Organic Compounds (SVOCs)	8270D	Denver, CO
Polycyclic Aromatic Hydrocarbons (PAHs)	8270D SIM	Denver, CO
Organochlorine Pesticides	8081B	Denver, CO
Polychlorinated Biphenyls (PCBs)	8082A	Denver, CO
Explosives	8330B	Denver, CO
Nitroguanidine	8330	Sacramento, CA
Metals	6010C/6020A/7470A	Denver, CO
Perchlorate	6860	Denver, CO
Alkalinity	2320B	Denver, CO
Total Cyanide	9012B	Denver, CO
Hexavalent Chromium	7196A	Denver, CO
Nitrocellulose	353.2	Sacramento, CA
Sulfide	9034	Denver, CO
Chloride, Sulfate, Nitrate, Nitrite	9056A	Denver, CO

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. SW-846 Methods 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	VOCs	SVOCs (phthalates)	SVOCs (full list)	PAHs	Pesticides	PCBs	Explosives	Nitroguanidine	Perchlorate	Metals	Total Cyanide	Hexavalent Chromium	Alkalinity	Nitrocellulose
LL6mw-006-042617-GW	280-96392-1	04/26/17	Groundwater			✓					✓				✓			
LL6mw-001-042617-GW	280-96392-2	04/26/17	Groundwater			✓									✓			
LL6mw-002-042617-GW	280-96392-3	04/26/17	Groundwater				✓				✓				✓			
FWGmw-007-042617-GW	280-96392-4	04/26/17	Groundwater			✓					✓			✓				
BL2mw-011-042617-GW	280-96392-5	04/26/17	Groundwater			✓					✓			✓				
BK6mw-025-042617-GW	280-96392-6	04/26/17	Groundwater	MS/MSD	✓						✓			✓				✓
FWGmw-018-042617-GW	280-96392-7	04/26/17	Groundwater		✓						✓			✓				
FWGmw-020-042617-GW	280-96392-8	04/26/17	Groundwater		✓						✓			✓				
TB-042617	280-96392-9	04/26/17	Groundwater	Trip Blank	✓													
LL11mw-005-042617-GW	280-96392-10	04/26/17	Groundwater												✓			
MBSmw-004-042617-GW	280-96392-11	04/26/17	Groundwater								✓				✓			
MBSmw-006-042617-GW	280-96392-12	04/26/17	Groundwater								✓				✓			

Additional analyses reported for sample LL11mw-005-042617-GW are reported and validated under separate cover. Some samples were analyzed for natural attenuation parameters. Natural attenuation parameters are reported, but not validated in accordance with the QAPP.

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. All requested target analytes were reported for each sample.

1.2 SAMPLE RECEIPT

The samples were received by the laboratory on April 27, 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 6°C.

Nitroguanidine and nitrocellulose analyses were performed by TestAmerica Sacramento.

Nine trip blanks were received by the laboratory; however, only one trip blank sample was listed on the chain of custody. The laboratory lobbied all trip blank vials under the one sample.

The chain of custody requests an MS/MSD to be performed for alkalinity by Method 2320B. The laboratory does not perform MS/MSDs for this method.

It was noted in the case narrative that the 500 mL sample bottle for metals analyses was received by the laboratory containing approximately 400 mL of sample, but was sufficient volume to complete the requested analyses.

One container submitted for the MS/MSD on sample BKGmw-025-042617-GW was received by the laboratory broken. Sufficient sample volume remained for analysis.

1.3 DEFINITIONS

Detection limit (DL): The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration with 99% confidence. At the DL, the false positive rate is 1%. A DL may be used as the lowest concentration for reliably reporting a detection of a specific matrix with a specific method with 99% confidence.

Limit of detection (LOD): The smallest concentration of a substance that must be present in a sample in order to be detected at the DL with 99% confidence. At the LOD, the false negative rate is 1%. An LOD may be used as the lowest concentration for reliably reporting a non-detect of a specific analyte in a specific matrix with a specific method with 99% confidence.

Limits of Quantitation (LOQ): The smallest concentration that produces a quantitative result with known and recorded precision and bias. For DoD/DOE projects, the LOQ shall be set at or above the concentration of the lowest initial calibration standard and within the calibration range.

The following validation flags and reason codes were applied:

Validation Flag	Reason Code	Description
U	B	Non-detection; blank detection.
UJ	S	Estimated non-detection; surrogate outlier.
UJ	M	Estimated non-detection; MS/MSD percent recovery or RPD exceedance.
J	IC	Estimated detection; initial calibration criteria not met.
J	CC	Estimated detection; continuing calibration criteria not met.

1.4 TECHNICAL DATA VALIDATION

1.4.1 Volatile Organic Compounds by Method 8260B

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

- Holding times
- LCS recoveries
- Method blanks
- MS/MSD recoveries and RPDs
- LODs and LOQs
- Instrument tuning
- Internal standard area counts
- Initial calibration
- Initial calibration verification
- Closing calibration verification
- Trip blank

All analytical or quality parameters requiring further discussion for Method 8260B are described in the sections below.

1.4.1.1 Surrogate Recoveries

Surrogate toluene-d8 (115%) recovered above the control limits (89-112%) in sample BKGMw-025-042617-GW. All associated sample results were non-detect; therefore, no qualification was necessary.

1.4.2 Semivolatile Organic Compounds by Method 8270D

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

- Holding times
- Method blanks
- LCS recoveries
- Surrogate recoveries
- LODs and LOQs
- Instrument tuning
- Internal standard area counts
- Initial calibration
- Initial calibration verification
- Continuing calibration verification
- Closing calibration verification

All analytical or quality parameters requiring further discussion for Method 8270D are described in the sections below.

1.4.2.1 Matrix Spike/Matrix Spike Duplicate

An MS/MSD was performed on sample BKGMw-025-042617-GW. The RPD for hexachlorocyclopentadiene (65%) exceeded the control limit (20%). The MS and MSD recoveries were within control limits; therefore, no qualification was necessary.

1.4.3 Polycyclic Aromatic Hydrocarbons by Method 8270D SIM

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

- Holding times
- Surrogate recoveries blanks
- Laboratory control samples
- LODs and LOQs
- Instrument tuning
- Internal standard area counts
- Initial calibration
- Initial calibration verification
- Closing calibration verification

All analytical or quality parameters requiring further discussion for Method 8270D SIM are described in the sections below.

1.4.3.1 Surrogate Recoveries

Surrogate 2-fluorobiphenyl (50%) recovered below control limits (53-106%) in sample FWGmw-020-042617-GW. All associated sample results were qualified as estimated (UJ S).

1.4.3.2 Matrix Spike/Matrix Spike Duplicate

An MS/MSD was performed on sample BKGmw-025-042617-GW. All MS/MSD recoveries and RPDs were within control limits with the exception of the exceedances presented in the following table:

Parent Sample	Analyte	MS %R	MSD %R	%R QC Limits	RPD	RPD Limits	Assigned Flags
BKGmw-025-042617-GW	Acenaphthene	44	48	48-114	10	20	None
	Anthracene	47	53	53-119	13	20	None
	Benzo[a]anthracene	64	82	59-120	25	20	None
	Benzo[b]fluoranthene	64	83	53-126	26	20	None
	Benzo[k]fluoranthene	62	80	54-125	25	20	None
	Benzo[g,h,i]perylene	58	78	44-128	29	20	None
	Benzo[a]pyrene	59	76	53-120	25	20	None
	Chrysene	67	86	57-120	25	20	None
	Dibenz(a,h)anthracene	61	81	44-131	29	20	None
	Fluoranthene	57	69	58-120	19	20	None
	Fluorene	46	49	50-118	8	20	UJ M
	Indeno[1,2,3-cd]pyrene	59	75	48-130	24	20	None
	Naphthalene	39	45	43-114	12	20	None
	Phenanthrene	48	53	53-115	11	20	None

%R = percent recovery

Bolded values are outside control limits.

The MS and MSD recoveries were below control limits for fluorene. The fluorene result in the associated parent sample was qualified as estimated (UJ M).

The MS recovery was below control limits for acenaphthene, anthracene, fluoranthene, naphthalene, and phenanthrene. The MSD recovery and RPD were within control limits for these analytes; therefore, no qualification was necessary.

The RPDs for benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[g,h,i]perylene, benzo[a]pyrene, chrysene, dibenz(a,h)anthracene, and indeno[1,2,3-cd]pyrene

exceeded the RPD limit. The MS and MSD recoveries were within control limits for these analytes; therefore, no qualification was necessary.

1.4.4 Organochlorine Pesticides by Method 8081B

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

- Holding times
- LODs and LOQs
- Surrogate recoveries
- Method blank
- LCS recoveries
- MS/MSD recoveries and RPDs
- Initial calibration
- Initial calibration verification
- Internal standards
- Endrin/DDT breakdown check
- Second column confirmation

All analytical or quality parameters requiring further discussion for Method 8081B are described in the sections below.

1.4.4.1 Continuing Calibration Verification

Several analytes in the continuing calibration verifications recovered above the control limits. These exceedances are outlined in the following table:

Calibration Verification	Associated Samples	Analyte	%D	%D Limits
CCV 280-372632/28	BKGmw-025-042617-GW FWGmw-018-042617-GW FWGmw-020-042617-GW	Aldrin	23.2	20
		Heptachlor epoxide	26.4	20
		gamma-Chlordane	30	20
		alpha-Chlordane	31.3	20
		4,4'-DDE	30.9	20
		Endosulfan I	31.2	20
		Dieldrin	33.1	20
		Endrin	40.1	20
		4,4'-DDD	31.9	20
		Endosulfan II	31.8	20
		4,4'-DDT	27.3	20
		Endrin aldehyde	26.6	20
		Methoxychlor	29.7	20
		Endrin ketone	21.7	20
CCV 280-372632/45	BKGmw-025-042617-GW FWGmw-018-042617-GW FWGmw-020-042617-GW	gamma-Chlordane	21.8	20
		alpha-Chlordane	22.6	20
		4,4'-DDE	24.3	20
		Endosulfan I	23.6	20
		Dieldrin	26.5	20
		Endrin	31.1	20
		4,4'-DDD	26.9	20
		Endosulfan II	26.5	20
		4,4'-DDT	23.2	20
		Endrin aldehyde	22.4	20
Endosulfan sulfate	25.7	20		

%D = percent difference

All sample results associates with the exceedances in the above table were non-detect; therefore, no qualification was necessary.

1.4.5 Polychlorinated Biphenyls by Method 8082A

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

- Holding times
- LODs and LOQs
- Surrogate recoveries
- Method blank
- LCS recoveries
- MS/MSD recoveries and RPDs
- Initial calibration
- Initial calibration verification
- Continuing calibration verification
- Internal standards

- Second column confirmation

All analytical or quality parameters requiring further discussion for Method 8082A are described in the sections below.

1.4.5.1 Analyst Error

It was noted in the case narrative that the analyst performing the extraction did not record the pH of sample BKGmw-025-042617-GW, FWGmw-018-042617-GW, or FWGmw-020-042617-GW. Based on professional judgement, no qualifications were necessary.

1.4.6 Explosives by Method 8330B

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

- Holding times
- Method blanks
- LCS recoveries
- Initial calibration
- Initial calibration verification
- Initial calibration blank
- Continuing calibration verification
- Continuing calibration blank
- LODs and LOQs
- Initial calibration verification
- 2nd column confirmation

All analytical or quality parameters requiring further discussion for Method 8330B are described in the sections below.

1.4.6.1 Sample Preparation

Sample MBSmw-006-042617-GW was filtered prior to analysis to reduce matrix interferences.

1.4.6.2 Surrogate Recoveries

Surrogate 1,2-dinitrobenzene recovered below control limits (83-119%) in samples LL6mw-006-042617-GW (82%) and MBSmw-004-042617-GW (75%). All associated sample results were qualified as estimated (UJ S).

1.4.6.3 Matrix Spike/Matrix Spike Duplicate

An MS/MSD was performed on sample BKGmw-025-042617-GW. The RPD was above the RPD limit (20%) for 1,3-dinitrobenzene (22%), HMX (30%), and RDX (41%). The MS and MSD

recoveries for these analytes were all within the control limits; therefore, no qualification was necessary.

1.4.7 Nitroguanidine by Method 8330

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

- Holding times
- Method blanks
- LCS recoveries
- Initial calibration
- Initial calibration verification
- Initial calibration blank
- Continuing calibration verification
- Continuing calibration blank
- LODs and LOQs
- Initial calibration verification

No analytical or quality parameters required further discussion for Method 8330.

1.4.8 Perchlorate by Method 6860

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
- Initial calibration verification
- Initial calibration blank
- Continuing calibration verification
- Continuing calibration blank
- Detection limit check
- Interference check standards

No analytical or quality parameters required further discussion for Method 6860.

1.4.9 Total Metals by Method 6010C/6020A/7470A

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
- Post digestion spike
- Serial dilution
- Initial calibration blanks
- Contract required detection limit standard
- Instrument tuning
- Interference check solutions
- Field duplicates

All analytical or quality issues requiring further discussion for Methods 6010C, 6020A, and/or 7470A are described in the sections below.

1.4.9.1 Method Blanks

Potassium (441 µg/L), sodium (269 µg/L), and beryllium (0.0980 µg/L) were detected in the method blank at concentrations below their respective LOQs (3000 µg/L, 5000 µg/L, 1.0 µg/L). Potassium was detected at a concentration below the LOQ in samples FWGmw-007-042617-GW (2000 µg/L), BKGmw-025-042617-GW (1000 µg/L), and FWGmw-018-042617-GW (2000 µg/L). Beryllium was detected at a concentration below the LOQ in sample FWGmw-020-042617-GW (0.1 µg/L). These sample results were qualified as non-detect at the LOQ (U B). All other associated sample results were either non-detect or at a concentration above the LOQ; therefore, no qualification was necessary.

1.4.9.2 Continuing calibration Blanks

Manganese (0.340 µg/L) was detected in the continuing calibration blank CCB 280-372581/92 at a concentration below the LOQ (1.0 µg/L). All associated manganese sample results were at a concentration above the LOQ; therefore, no qualification was necessary.

Beryllium (0.135 µg/L) was detected in the continuing calibration blank CCB 280-372581/92 at a concentration below the LOQ (1.0 µg/L). All associated samples were non-detect for beryllium; therefore, no qualification was necessary.

1.4.9.3 Matrix Spike/Matrix Spike Duplicates

An MS/MSD was performed on sample BKGmw-025-042617-GW. Sodium (116%) recovered above control limits (87-115%) in the MS. The MSD recovery and RPD were within control limits; therefore, no qualification was necessary.

1.4.9.4 Initial/Continuing Calibrations Verifications

Iron (127%) recovered above control limits (80-120%) in the low-level initial calibration verification ICVL 280-373110/8. All associated iron detections were qualified as estimated (J IC).

Sodium (121%) recovered above control limits (80-120%) in the low-level continuing calibration verification CCVL 280-373110/106. All associated sodium detections were qualified as estimated (J CC).

Beryllium recovered above control limits (80-120%) in the low-level continuing calibration verifications CCVL 280-372581/93 (134%) and CCVL 280-372581/106 (132%). All associated samples were non-detect for beryllium; therefore, no qualification was necessary.

Barium (124%) recovered above control limits (80-120%) in the low-level continuing calibration verification CCVL 280-372581/106. All associated barium detections were qualified as estimated (J CC).

1.4.10 Nitrocellulose by Method 353.2

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
- MS/MSD recoveries and RPDs
- Initial calibration verification
- Continuing calibration verification
- Initial calibration blank
- Continuing calibration blank

No analytical or quality parameters required further discussion for Method 353.2.

1.4.11 Hexavalent Chromium by Method 7196A

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
- Initial calibration verification
- Continuing calibration verification
- Initial calibration blank
- Continuing calibration blank

All analytical or quality issues requiring further discussion for Method 7196A are described in the sections below.

1.4.11.1 Matrix Spike/Matrix Spike Duplicate

An MS/MSD was performed on sample BKGmw-025-042617-GW. Hexavalent chromium (89%) recovered below control limits (90-111) in the MS. The MSD recovery and RPD were within control limits; therefore, no qualification was necessary.

1.4.12 Total Cyanide by Method 9012B

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 blanks
- MS/MSD recoveries and RPDs
- Initial calibration verification
- Continuing calibration verification
- Initial calibration blank
- Continuing calibration blank
- Field duplicates

No analytical or quality issues required further discussion for Methods 9012B.

1.4.13 Alkalinity by Method 2320B

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
- Initial calibration verification
- Continuing calibration verification
- Initial calibration blank
- Continuing calibration blank

All analytical or quality issues requiring further discussion for Methods 2320B are described in the sections below.

1.4.13.1 Method Blanks

Alkalinity (2.26 µg/L) was detected in the method blank at a concentration above the LOQ (5.0 µg/L). Alkalinity was detected at a concentration above the LOQ in all associated samples; therefore, no qualification was necessary.

DATA VALIDATION TABLE

SDG	Field Sample ID	Lab Sample ID	Matrix	Parameter	CAS Number	Units	Result	Lab Flag	DV Flag	Detection	LOQ	LOD	MDL	Analytic/Method	Reason Code
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	1,3,5-Trinitrobenzene	99-35-4	µg/L	0.42	u,q	uj	n	1.1	0.42	0.21	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	1,3-Dinitrobenzene	99-65-0	µg/L	0.21	u,q	uj	n	0.42	0.21	0.093	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	2,4,6-Trinitrobenzene	118-96-7	µg/L	0.21	u,q	uj	n	0.42	0.21	0.076	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	2,4-Dinitrobenzene	121-14-2	µg/L	0.21	u,q	uj	n	0.42	0.21	0.088	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	2,6-Dinitrobenzene	606-20-2	µg/L	0.21	u,q	uj	n	0.21	0.21	0.068	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	2-Amino-4,6-dinitrotoluene	35572-78-2	µg/L	0.13	u,q	uj	n	0.21	0.13	0.053	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	2-Nitrotoluene	88-72-2	µg/L	0.21	u,q	uj	n	0.42	0.21	0.09	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	3-Nitrotoluene	99-08-1	µg/L	0.21	u,q	uj	n	0.42	0.21	0.088	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	4-Amino-2,6-dinitrotoluene	19406-51-0	µg/L	0.13	u,q	uj	n	0.21	0.13	0.061	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	4-Nitrotoluene	99-99-0	µg/L	0.42	u,q	uj	n	1.1	0.42	0.21	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	HMX	2691-41-0	µg/L	0.21	u,q	uj	n	0.42	0.21	0.092	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	Nitrobenzene	98-95-3	µg/L	0.21	u,q	uj	n	0.42	0.21	0.096	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	Nitroglycerin	55-63-0	µg/L	2.1	u,q	uj	n	3.2	2.1	0.97	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	PETN	78-11-5	µg/L	1.3	u,q	uj	n	2.1	1.3	0.44	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	RDX	121-82-4	µg/L	0.13	u,q	uj	n	0.21	0.13	0.055	Explosives	S
280-96392-1	LL6mw-006-042617-GW	280-96392-1	Ground Water	Tetryl	479-45-8	µg/L	0.21	u,q	uj	n	0.25	0.21	0.083	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	1,3,5-Trinitrobenzene	99-35-4	µg/L	0.42	u,q	uj	n	1.1	0.42	0.21	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	1,3-Dinitrobenzene	99-65-0	µg/L	0.21	u,q	uj	n	0.42	0.21	0.094	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	2,4,6-Trinitrobenzene	118-96-7	µg/L	0.21	u,q	uj	n	0.42	0.21	0.076	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	2,4-Dinitrobenzene	121-14-2	µg/L	0.21	u,q	uj	n	0.42	0.21	0.088	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	2,6-Dinitrobenzene	606-20-2	µg/L	0.13	u,q	uj	n	0.21	0.13	0.068	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	2-Amino-4,6-dinitrotoluene	35572-78-2	µg/L	0.13	u,q	uj	n	0.21	0.13	0.054	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	2-Nitrotoluene	88-72-2	µg/L	0.21	u,q	uj	n	0.42	0.21	0.09	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	3-Nitrotoluene	99-08-1	µg/L	0.21	u,q	uj	n	0.42	0.21	0.088	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	4-Amino-2,6-dinitrotoluene	19406-51-0	µg/L	0.13	u,q	uj	n	0.21	0.13	0.061	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	4-Nitrotoluene	99-99-0	µg/L	0.42	u,q	uj	n	1.1	0.42	0.21	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	HMX	2691-41-0	µg/L	0.21	u,q	uj	n	0.42	0.21	0.092	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	Nitrobenzene	98-95-3	µg/L	0.21	u,q	uj	n	0.42	0.21	0.096	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	Nitroglycerin	55-63-0	µg/L	2.1	u,q	uj	n	3.2	2.1	0.97	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	PETN	78-11-5	µg/L	1.3	u,q	uj	n	2.1	1.3	0.44	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	RDX	121-82-4	µg/L	0.13	u,q	uj	n	0.21	0.13	0.055	Explosives	S
280-96392-1	MBSmw-004-042617-GW	280-96392-1	Ground Water	Tetryl	479-45-8	µg/L	0.21	u,q	uj	n	0.25	0.21	0.084	Explosives	S
280-96392-1	FWGmw-007-042617-GW	280-96392-4	Ground Water	Iron	7439-89-6	µg/L	210	v	j	y	100	85	22	Metals	IC
280-96392-1	FWGmw-007-042617-GW	280-96392-4	Ground Water	Potassium	7440-09-7	µg/L	3000	j	u	n	3000	940	240	Metals	B
280-96392-1	FWGmw-007-042617-GW	280-96392-4	Ground Water	Sodium	7440-23-5	µg/L	10000	v	j	y	5000	350	120	Metals	CC
280-96392-1	FWGmw-007-042617-GW	280-96392-4	Ground Water	Barium	7440-39-3	µg/L	20	v	j	y	3	0.95	0.29	Metals	CC
280-96392-1	BKGMw-025-042617-GW	280-96392-6	Ground Water	Iron	7439-89-6	µg/L	890	v	j	y	100	85	22	Metals	IC
280-96392-1	BKGMw-025-042617-GW	280-96392-6	Ground Water	Potassium	7440-09-7	µg/L	3000	j	u	n	3000	940	240	Metals	B
280-96392-1	BKGMw-025-042617-GW	280-96392-6	Ground Water	Sodium	7440-23-5	µg/L	9800	j	j	y	5000	350	120	Metals	CC
280-96392-1	BKGMw-025-042617-GW	280-96392-6	Ground Water	Barium	7440-39-3	µg/L	89	v	j	y	3	0.95	0.29	Metals	CC
280-96392-1	BKGMw-025-042617-GW	280-96392-6	Ground Water	Fluorene	86-73-7	µg/L	0.04	u,j	uj	n	0.1	0.04	0.0056	PAHs	M
280-96392-1	FWGmw-018-042617-GW	280-96392-7	Ground Water	Iron	7439-89-6	µg/L	540	v	j	y	100	85	22	Metals	IC
280-96392-1	FWGmw-018-042617-GW	280-96392-7	Ground Water	Potassium	7440-09-7	µg/L	3000	j	u	n	3000	940	240	Metals	B

280-96392-1	FWGmw-018-042617-GW	280-96392-7	Ground Water	Sodium	7440-23-5	µg/L	20000	v	j	y	5000	350	120	Metals	CC
280-96392-1	FWGmw-018-042617-GW	280-96392-7	Ground Water	Barium	7440-39-3	µg/L	61	v	j	y	3	0.95	0.29	Metals	CC
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Iron	7439-89-6	µg/L	720	v	j	y	100	85	22	Metals	IC
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Sodium	7440-23-5	µg/L	16000	v	j	y	5000	350	120	Metals	CC
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Barium	7440-39-3	µg/L	84	v	j	y	3	0.95	0.29	Metals	CC
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Beryllium	7440-41-7	µg/L	1	j,q	u	n	1	0.3	0.08	Metals	B
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Acenaphthene	83-32-9	µg/L	0.042	u,q	uj	n	0.11	0.042	0.0044	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Acenaphthylene	208-96-8	µg/L	0.042	u,q	uj	n	0.11	0.042	0.0054	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Anthracene	120-12-7	µg/L	0.042	u,q	uj	n	0.11	0.042	0.0059	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Fluoranthene	206-44-0	µg/L	0.013	u,q	uj	n	0.11	0.013	0.0051	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Fluorene	86-73-7	µg/L	0.042	u,q	uj	n	0.11	0.042	0.0058	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Phenanthrene	85-01-8	µg/L	0.021	u,q	uj	n	0.11	0.021	0.0098	PAHs	S
280-96392-1	FWGmw-020-042617-GW	280-96392-8	Ground Water	Pyrene	129-00-0	µg/L	0.021	u,q	uj	n	0.11	0.021	0.0064	PAHs	S