GROUNDWATER AND SURFACE WATER MONITORING DATA RELEASE 2018 SAMPLING EVENT SHALLOW LAND DISPOSAL AREA FUSRAP SITE

U.S. Army Corps of Engineers
Building Strong®
Pittsburgh District

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Formerly Utilized Sites Remedial Action Program (FUSRAP)

FUSRAP was initiated in 1974 to identify, investigate, and if necessary, cleanup or control sites throughout the United States that were part of the Nation's early atomic weapons and energy programs during the 1940s, 1950s, and 1960s. When implementing FUSRAP, the United States Army Corps of Engineers (USACE) follows the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

The USACE is the lead federal agency under FUSRAP remediating the Shallow Land Disposal Area (SLDA) site.

Site Description

The SLDA is located in Parks Township, Armstrong County, Pennsylvania, about 23 miles (37 kilometers) east-northeast of Pittsburgh, Pennsylvania (Figure 1). The 44-acre (18-hectare) site is predominantly an open field partially bordered by woodland. Ten (10) disposal trenches were excavated in the overburden soils and together encompass approximately 1.2 acres (0.49 hectares); the trenches are separated geographically into the Trench 1 through 9 area (or the upper trench area) and Trench 10 (the lower trench area). Site topography declines approximately 115 feet (35 meters) from the southeast to northwest, or from Trenches 1 through 9 toward Trench 10 (Figure 2). The depths of the upper trenches vary between 10 and 15 feet, whereas Trench 10 varies up to 20 feet in depth.

The upper trench area is underlain by up to 20 feet of native silty soils that blanket the following four groundwater-bearing bedrock zones:

- First Shallow Bedrock - averages 13 feet in thickness between elevation 881 and 894 feet,
- Second Shallow Bedrock - averages 14-feet in thickness between elevation 856 and 870 feet,
- Upper Freeport Coal – averages 4 feet in thickness between elevations 832 and 836 feet and was subjected to room and pillar mining (now exhibits open-channel flow), and
- Deep Bedrock Zone - averages about 36 feet in thickness between elevations 757 and 793 feet.

In the Trench 10 area, the Freeport coal seam was strip mined and the general area backfilled with approximately 22 feet of shale rock spoils. Figure 3 presents a generalized northwest to southeast geologic cross section through the site to depict these site entities and groundwater zones.

Groundwater under the upper trench area flows predominantly in the following directions in each layer:

- Northerly in the soil layer (Figure 4),
- North to northeasterly in the first shallow bedrock zone (Figure 5),
- Both the northeasterly and southwesterly in the second shallow bedrock zone (Figure 6) due to a flow divide under the site,
- Southerly in the Freeport Coal (Figure 7), and
- Southwesterly in the deep bedrock zone (Figure 8).

Groundwater surrounding Trench 10 appears to enter the Upper Freeport Coal seam, which generally drains to the south (Figure 7). These flow observations are consistent with previous sampling events.

The site is drained by a small ephemeral stream identified as Dry Run (Figure 2). A portion of the flow in Dry Run infiltrates into the coal mine spoils near Trench 10 and then the abandoned coal mines that underlie most of the site (see Figure 2-14 in USACE 2005). The balance of flow in Dry Run continues northwest into the Kiskiminetas River.

Land use surrounding the SLDA site consists of medium-sized residential communities and individual rural residences, small farms with croplands and pastures, idle farmland, forestlands, and light industrial areas. The closest community is Kiskimere, which is adjacent to and to the south of the SLDA; some residences are located within several hundred feet of the SLDA.

Previous Groundwater Monitoring Results

A series of non-USACE groundwater monitoring actions began in 1981 and led to a quarterly monitoring program that ceased in 2000; the USACE initiated site activities in 2002. The historical and USACE-generated data are summarized in the Remedial Investigation (RI) performed by the USACE (USACE 2005).

Groundwater sampling conducted by the USACE during the RI included the following radionuclides:

- Radium-228
- Uranium-234, -235, -238
- Thorium-228, -232
- Plutonium-239,-241
- Americium-241

In addition, 10% of the RI samples were analyzed for cesium-137, cobalt-60, thorium-230, radium-226, plutonium-238, -240, -242, and gross alpha and beta. The RI sampling of groundwater indicated that FUSRAP-related constituents were not a threat to human health and the environment (USACE 2005).

From April to December 2011 (during the initial remedial action), groundwater was sampled monthly at 14 locations for the following constituents: isotopic uranium (U-234, -235, -238), isotopic thorium (Th-228, -232), radium-228, plutonium-239 and -241, americium-241, total uranium, target analyte list (TAL) metals (plus molybdenum), anions, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), total organic carbon, and total dissolved solids. The radiological and metals analyses include both unfiltered and filtered samples. These sampling results were consistent with the RI sampling (i.e., FUSRAP-related radiologic constituents are not a risk to

groundwater at the SLDA). This monitoring effort was suspended in 2012 due to a remediation hiatus and will re-initiate once remediation recommences; the 2011 data are presented in the 2013 groundwater sampling report (USACE 2014).

Annual Sampling Program Purpose

The groundwater monitoring plan that was developed in 2013 is used to guide annual sampling activities through the completion of the remedial action (USACE 2013). The overarching objective of the sampling effort is to ensure the protection of human health and the environment from FUSRAP-related constituents of concern at the SLDA site. The USACE plan delineated an optimal monitoring program to detect the potential for off-site migration, specifically towards the Kiskimere community.

The goals of the groundwater monitoring program include:

- Specify analytical parameters for collected samples (Table 1)
- Identify the locations to be sampled (Table 2)
- Identify the frequency of sampling (i.e., annual sampling)

This sampling program was developed in consultation with the U.S. Environmental Protection Agency (USEPA), who independently sampled on-site and nearby wells through 2017; the agency ceased sampling since the USEPA and USACE data are comparable.

Sampling Scope

Annual groundwater monitoring for 2018 at the SLDA was conducted from July 30 and August 2, 2018. Twenty-two (22) groundwater locations were sampled and generally lie between the 10 trenches and the neighboring residences (Figure 9). One (1) on-site surface-water location was also sampled to verify the protection of human health and the environment; storm-related high flows in Carnahan Run and bridge construction at the sampling point produced unsafe conditions that precluded sampling Carnahan Run in 2018. Eight (8) wells planned for sampling were either dry or did not yield adequate sampling volumes, which were then substituted with five (5) other wells to maximize the sampling program. Table 1 lists the constituents analyzed and Table 2 lists the planned locations, along with well substitutions. The constituents listed in Table 1 are a subset of the analytes sampled during the RI and remedial action; this annual sampling program focuses on site contaminants specifically listed in the record of decision (ROD) (USACE 2007).

Static water levels from all site wells were recorded synchronously to the nearest 0.01 foot to determine whether adequate volumes were available for sampling and to confirm groundwater flow directions. These measurements are listed in Table 3; wells omitted from this list were either decommissioned during remedial action or previously damaged (unreliable). Figures 4 through 8 graphically present the groundwater elevation data and inferred flow directions for the five water bearing zones underlying the SLDA.

Low-flow sampling techniques consistent with USEPA guidance (Puls and Barcelona 1996) and the Department of Defense (DoD) (DoD 2013) were utilized for the groundwater sampling. Prior to sampling, wells were purged until the following field parameters stabilized according to the sampling plan: temperature, pH, specific conductance, oxidation-reduction potential (ORP), turbidity, and dissolved oxygen. These data are listed in Table 4.

Both unfiltered (total fraction) and field-filtered (dissolved fraction) groundwater samples were obtained where well yield allowed; MW-51 was the only well that did not yield enough water to collect a metals sample. Filtered samples

were collected by utilizing a disposable 0.45 micron in-line filter. Field duplicates provided quality control samples, which were collected at a rate of approximately one duplicate for every ten regular samples.

Samples were packaged according to standard practices and shipped to DoD Environmental Laboratory Accreditation Program (ELAP) accredited laboratories. Laboratory data were reviewed and qualified per laboratory performance quality indicators, the applicable laboratory and method criteria, and the DoD Quality Systems Manual.

The sampling task produced investigation derived waste (IDW) that consisted of solids and liquids. The solid IDW generated from groundwater sampling and decontamination activities (i.e., personal protective equipment, sample tubing, etc.) was assessed for radioactivity and either disposed of as general trash or retained on site for disposition. The liquid IDW consisted of purge water that was containerized on site for future disposition.

Sampling Results

Figure 9 highlights the wells that were sampled in 2018; Tables 5 and 6 list the unfiltered (total) and filtered (dissolved phase) analytical results for all groundwater sampling events for comparison. Table 7 presents a summary of all groundwater sampling results (2003-2018), comparative drinking water standards, and up-gradient values for radionuclides derived during the USACE RI. The 2018 analytical results are consistent with past sampling and select wells exhibit unique values for some analytes relative to the overall dataset; these are discussed below.

Metals Data:
The site-wide ranges of the 2018 data fall within the historical site ranges. The following metals exceeded their respective water quality standards in 2018 (Table 5):

- Aluminum
- Arsenic
- Beryllium
- Iron
- Manganese
- Nickel

The site-wide average values for aluminum, iron, and manganese exceed the primary or secondary drinking water standards (Table 7) due to the naturally low-oxygen or reducing conditions in the coal mine and deep groundwater zones below the coal mine. Arsenic in MW-03 (coal mine) and MW-22 (deep zone) exceeded the MCL in 2018 and reflects previous values seen in these wells. The reducing conditions in these groundwater zones commonly solubilize such metals from natural minerals, which are persistent in the historic data ranges. The beryllium MCL was exceeded only in well MW-03 and the site-wide average now falls below the drinking water standard (Table 7). Nickel also was exceeded in well MW-03, which reflects previous values form this well.

Radionuclides:
The ranges of radionuclide results for 2018 sampling event are generally consistent with past sampling data. No radionuclides exceed the drinking water standards, as listed in Tables 6 and 7. Table 7 shows the 2018 data generally reflect natural background ranges or are well below the drinking water standards. However, wells MW-44, MW-51, and MW-53 exhibit increased results (see total uranium) that are derived from the highly turbid (cloudy) samples obtained from each well, as noted by the turbidity value for MW-44 listed on Table 4. Wells MW-51 and MW-53 produced minimal amounts of turbid groundwater, which was containerized directly for analyses, and therefore no field parameter readings were recorded (i.e., the turbidity was visually observed). The uranium increase occurs when cloudy samples are placed in acid-preserved laboratory containers, where natural metals are

dissolved from the soil particles and liberated into solution (the analyzed water). These wells will be sampled in 2019 to verify whether the observed results are a turbidity artifact or reflect changes in groundwater conditions.

Conclusions

The 2018 USACE sampling shows that radionuclides are present in site groundwater at concentrations indicative of background and well below USEPA MCLs or dose-based drinking water standards. Sampling results for metals show select constituents are above drinking water standards, primarily in the coal mine and deeper water-bearing zones. Other exceptions for metals vary throughout the hydrogeologic zones at the site and do not indicate a contiguously contaminated zone. The overall sampling results are consistent with past USACE findings that indicate no FUSRAP-related radionuclides exceed the USEPA MCLs or dose-based drinking water standards.

References

Department of Defense (DoD), 2013. DoD Environmental Field Sampling Handbook, Revision 1.0, DoD Environmental Data Quality Workgroup, April 2013.

Puls, R. and M. Barcelona, 1996. Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA Issue Paper (EPA/540/S-95/04), April 1996.

U.S. Army Corps of Engineers (USACE), 2005. Shallow Land Disposal Area Remedial Investigation Report, U.S. Army Corps of Engineers, October 2005.

U.S. Army Corps of Engineers (USACE), 2007. Record of Decision for the Shallow Land Disposal Area, U.S. Army Corps of Engineers, August 2007.

U.S. Army Corps of Engineers (USACE), 2013. Groundwater and Surface Water Data Release, U.S. Army Corps of Engineers, December 2013.

U.S. Environmental Protection Agency (USEPA), 2001. Directive number 9283.1-14, Memorandum: Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192 as Remediation Goals for Groundwater at CERCLA sites.

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TABLES

Table 1. Site Monitoring Program and Analytical Methods

Analyte	Fraction	Method
Target Analyte List (TAL) Metals	Filtered and Unfiltered	EPA 6020, Inductively Coupled Plasma Mass-Spectrometry (ICPMS)
Total Uranium	Filtered and Unfiltered	ASTM D5174, Trace Uranium by Pulsed-Laser Phosphorimetry
Thorium-228 Thorium-230 Thorium-232 Uranium-234 Uranium-235 Uranium-238 Plutonium-238 Plutonium-239/240 Americium-241	Filtered and Unfiltered	Alpha Spectrometry
Plutonium-241	Filtered and Unfiltered	Liquid Scintillation

Table 2. Shallow Land Disposal Area FUSRAP Site Groundwater Monitoring Well Summary (2018)

Well/Location	Top of Casing Elevation (ft AMSL)	Zone	Up (U) or Down (D) Gradient from Disposal Areas	Monitoring Activity			Rationale
				Water Level	Unfiltered GW	Filtered GW	
02U11	925.99	OB	D	X			Water Levels
02U13	923.45	OB	D	X			Water Levels
03U05	924.1	OB	D	X			Water Levels
05U07	935.1	OB	U	X			Water Levels
06U05	941.26	OB	D	X			Water Levels
08U04	938.94	OB	D	X			Water Levels
08U05	940.93	OB	D	X			Water Levels
09U07	927.69	OB	D	X			Water Levels
10L31	859.84	UF	U	X	X	X	Trench Containment Verification
10L32	848.69	UF	U	X			Water Levels
MW-01	845.79	UF	U	X	◊	◊	Water Levels
MW-02	884.22	DB	U	X			Water Levels
MW-02A	885.43	UF	D	X	X	X	Trench Containment Verification
MW-03	890.5	UF	D	X	X	NS	Trench Containment Verification
MW-04	NA	UF	D	X			Water Levels
MW-05	865.49	UF	U	X	X	X	Trench Containment Verification
MW-07	921.52	1S	U/cross gradient	X	X	X	Trench Containment Verification
MW-08	931.77	1S	U	X	X	X	Trench Containment Verification
MW-09A	945.45	1S	U	X	X	X	Trench Containment Verification
MW-11D	909.8	2S	D	X			Water Levels
MW-11S	909.27	OB	D	X			Water Levels
MW-12D	919.31	1S	D	X			Water Levels
MW-13	948.68	1S	U	X	X	X	Trench Containment Verification
MW-14	947.33	1S	U	X	X	X	Trench Containment Verification
MW-15	940.31	1S	U	X	X	X	Trench Containment Verification
MW-17	913.71	2S	D	X			Water Levels
MW-19	861.45	DB	U	X			Water Levels
MW-20	889.87	UF	D	X	NS	NS	Trench Containment Verification
MW-21	888.32	UF	D	X	NS	NS	Trench Containment Verification
MW-22	893.41	DB	D	X	X	X	Trench Containment Verification
MW-25	910.07	1S	D	X			Water Levels
MW-26	919.56	1S	D	X			Water Levels
MW-27	929.99	1S	D	X			Water Levels
MW-29	912.53	1S	D	X			Water Levels
MW-32	925.89	1S	U	X	NS	NS	Trench Containment Verification
MW-33	940.76	2S	U	X	X	X	Trench Containment Verification
MW-34A	926.84	DB	D	X	NS	NS	Trench Containment Verification
MW-35	913.68	DB	U	X			Water Levels
MW-37	926.58	2S	D	X			Water Levels
MW-38	943.81	1S	U	X			Water Levels

Well/Location	Top of Casing Elevation (ft AMSL)	Zone	Up (U) or Down (D) Gradient from Disposal Areas	Monitoring Activity			Rationale
				Water Level	Unfiltered GW	Filtered GW	
MW-39	891.99	UF	D	X	X	X	Trench Containment Verification
MW-40	939.63	DB	D	X	NS	NS	Trench Containment Verification
MW-41	912.86	1S	D	X			Water Levels
MW-42	916.5	1S	D	X			Water Levels
MW-43	916.32	2S	D	X			Water Levels
MW-44	930.98	1S	D	X	◊	◊	Water Levels
MW-45	929.9	2S	U	X	NS	NS	Trench Containment Verification
MW-46	924.18	UF	D	X	NS	NS	Trench Containment Verification
MW-47	925.18	OB	U	X	X	X	Trench Containment Verification
MW-50	902.02	1S	D	X			Water Levels
MW-51	925.43	1S	D	X	X		Water Levels
MW-52	924.73	2S	U	X	X	X	Trench Containment Verification
MW-53	925.34	2S	D	X	◊	◊	Water Levels
MW-58	838.93	DB	U	X			Water Levels
MW-59	932.45	OB	U	X	◊	◊	Water Levels
MW-61	932.49	2S	U	X	NS	NS	Trench Containment Verification
MW-62	926.22	UF	D	X			Water Levels
MW-64	946.5	OB	U	X			Water Levels
MW-69	947.43	OB	U	X			Water Levels
MW-74	925.3	OB	U	X			Water Levels
MW-80	916.07	1S	D	X			Water Levels
MW-81	898.22	1S	D	X			Water Levels
MW-82	921.22	1S	D	X			Water Levels
MW-83	916.03	OB	D	X			Water Levels
MW-84	923.36	1S	D	X			Water Levels
MW-86	928.02	1S	D	X			Water Levels
NWS-01A	931.57	Varies	Varies	--			FLUTe Well – Not Measured
NWS-02	946.35	Varies	Varies	--			FLUTe Well – Not Measured
NWS-03	946.87	Varies	Varies	--			FLUTe Well – Not Measured
NWS-04	925.25	Varies	Varies	--			FLUTe Well – Not Measured
NWS-05	914.28	Varies	Varies	--			FLUTe Well – Not Measured
PZ-01	907.53	OB	D	X	◊	◊	Water Levels
PZ-02	913.49	OB	D	X			Water Levels
PZ-03A	920.72	OB	D	X			Water Levels
PZ-04	920.85	OB	D	X			Water Levels
PZ-05	929.78	OB	D	X			Water Levels
PZ-06A	943.23	OB	D	X			Water Levels
PZ-07	942.67	OB	U	X			Water Levels
PZ-08	933.31	OB	U	X			Water Levels
PZ-09	938.49	OB	U	X	X	X	Trench Containment Verification
TPZ-01	924.3	1S	U	X			Water Levels
TPZ-02	926.38	1S	U	X			Water Levels

Well/Location	Top of Casing Elevation (ft AMSL)	Zone	Up (U) or Down (D) Gradient from Disposal Areas	Monitoring Activity			Rationale
				Water Level	Unfiltered GW	Filtered GW	
TPZ-03	895.5	1S	D	X			Water Levels
TPZ-04	914.09	1S	D	X			Water Levels
TPZ-05	916.51	1S	D	X			Water Levels
TPZ-06	907.77	OB	D	X			Water Levels
TPZ-07	917.35	OB	D	X			Water Levels
TPZ-08	924.45	OB	D	X			Water Levels

Notes:

ft AMSL	feet above mean sea level	UF	Upper Freeport Coal
GW	Groundwater	DB	Deep Bedrock Zone
OB	Overburden	NA	Data Not Available
1S	First Shallow Bedrock Zone	NS	Not Sampled (Dry/Non-producing Well)
2S	Second Shallow Bedrock Zone		
◊	Water-level Well Sampled as a Replacment for Dry or Non-producing Trench Containment Well		

Table 3. 2018 SLDA Groundwater Levels

Well ID	Date	Depth to Water	Depth to Bottom from TOC	New Remarks
01U17	7/30/2018	10.90	16.18	
03U05	7/30/2018	9.32	11.41	
06U05	7/30/2018	9.52	17.33	
08U04	7/31/2018	--	17.33	1" PVC snapped off at surface, unable to locate hole
10L31	7/30/2018	22.30	25.00	3' water only
10L32	7/30/2018	10.66	12.20	1.5' water only
MW-01	7/30/2018	7.31	20.00	
MW-02	7/30/2018	77.65	92.00	
MW-02A	7/30/2018	46.84	51.30	
MW-03	7/30/2018	52.33	53.20	
MW-05	7/30/2018	25.03	27.33	Not much water, maybe 3'
MW-07	7/30/2018	31.62	35.44	
MW-08	7/30/2018	11.33	35.88	
MW-09A	7/30/2018	19.38	37.21	
MW-11D	7/30/2018	Dry	42.90	Dry at 40.45
MW-11S	7/30/2018	Dry	11.90	Dry at 11.75
MW-13	7/30/2018	22.75	38.65	
MW-14	7/30/2018	13.30	32.20	
MW-15	7/30/2018	11.13	31.23	
MW-17	7/30/2018	42.35	79.00	
MW-19	7/30/2018	15.25	109.20	
MW-20	7/30/2018	51.73	55.00	
MW-21	7/30/2018	Dry	50.50	
MW-22	7/30/2018	89.01	113.70	
MW-25	7/30/2018	17.52	38.65	
MW-26	7/30/2018	28.88	28.22	
MW-27	7/30/2018	34.12	38.61	5' water only
MW-29	7/30/2018	17.97	39.16	
MW-32	7/30/2018	Dry	26.15	Dry at 26.35
MW-33	7/30/2018	56.32	83.75	
MW-34A	7/30/2018	Dry	100.60	Dry at 100.6
MW-35	7/30/2018	112.61	167.70	
MW-37	7/30/2018	Dry	69.20	Cap broken, cracked
MW-38	7/30/2018	40.80	63.30	
MW-39	7/30/2018	55.22	58.35	
MW-40	7/30/2018	121.90	191.80	
MW-41	7/30/2018	20.47	36.70	
MW-42	7/30/2018	24.67	41.70	
MW-43	7/30/2018	41.40	46.81	Maintenance Required
MW-44	7/30/2018	40.18	54.65	Not painted or marked or locked
MW-45	7/30/2018	65.54	67.25	Dry
MW-46	7/31/2018	Dry	39.47	Dry at 39.3, not painted, no lock
MW-47	7/30/2018	16.73	20.95	
MW-50	7/30/2018	Dry	35.10	Dry at 34.45
MW-51	7/30/2018	32.39	36.24	5' water only
MW-52	7/30/2018	35.20	44.29	Riser has internal bulge, requires narrow bladder pump
MW-53	7/30/2018	54.76	62.11	8' water only
MW-58	7/30/2018	5.69	36.75	Possibly Damaged at 36.75 feet - Clogged

Well ID	Date	Depth to Water	Depth to Bottom from TOC	New Remarks
MW-59	7/30/2018	5.37	14.14	Not painted but marked
MW-61	7/30/2018	67.38	68.00	Not painted but marked
MW-62	7/30/2018	93.67	90.70	
MW-64	7/31/2018	14.13	21.95	Riser and casing leaning
MW-69	7/31/2018	15.09	22.54	Casing dented, riser OK
MW-74	7/30/2018	14.81	15.24	Not much water, bottom at 15.2', needs paint and tag/mark
MW-80	7/30/2018	26.72	39.42	
MW-81	7/30/2018	8.25	15.10	
MW-82	7/31/2018	27.95	38.31	Not painted
MW-84	7/30/2018	33.49	39.56	4' water only
MW-86	7/30/2018	Dry	38.09	Dry at 38.35
PZ-01	7/30/2018	13.18	18.60	
PZ-02	7/30/2018	16.45	19.80	
PZ-05	7/30/2018	19.69	19.74	Maybe 4' water
PZ-06A	7/30/2018	6.81	17.31	
PZ-07	7/30/2018	6.59	19.80	
PZ-08	7/30/2018	7.45	19.88	
PZ-09	7/30/2018	6.98	19.28	
TPZ-01	7/30/2018	--	--	Not Measured - Off-site Location
TPZ-02	7/30/2018	--	--	Not Measured - Off-site Location
TPZ-03	7/30/2018	0.67	13.90	
TPZ-04	7/30/2018	0.65	27.66	Needs J plug
TPZ-05	7/30/2018	0.64	32.26	
TPZ-06	7/30/2018	--	7.55	Bent - unusable 1" PVC
TPZ-07	7/30/2018	--	7.55	Bent - unusable 1" PVC

Table 4. Groundwater Sampling Field Data (2018)

Well ID	Collect Date	Temperature (F)	pH (standard unit)	ORP (mV)	Specific Conductance (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Purge Rate (mL/min)	Comments
10L31	31-Jul-18	61.6	6.19	70	0.448	0.2	5.78	135	Negligible drawdown (<0.1 foot)
MW-01	31-Jul-18	64.9	5.49	178	0.322	0.0	4.52	140	No Drawdown
MW-02A	1-Aug-18	54.9	6.48	160	0.219	0.0	5.94	49.47	2.2 feet of drawdown
MW-03	1-Aug-18	--	--	--	--	--	--	--	Bailed well dry and obtained only Total Rad and Total Metals. No field parameters available due to minimal volume in well.
MW-05	31-Jul-18	62.8	5.59	195	0.401	4.1	5.86	120	Negligible drawdown (<0.4 foot)
MW-07	31-Jul-18	57.0	6.65	244	0.370	0.0	2.56	500	Negligible drawdown (<0.1 foot)
MW-08	31-Jul-18	74.2	7.12	33	0.255	2.5	1.03	125	Slight drawdown (<0.6 foot)
MW-09A	31-Jul-18	58.0	7.03	60	0.273	0.0	1.69	280	2.9 feet of drawdown
MW-13	31-Jul-18	75.3	6.74	44	0.195	0.0	3.42	100	Negligible drawdown (<0.1 foot)
MW-14	31-Jul-18	64.6	6.15	-23	0.235	14.0	0.62	300	Slight drawdown (<0.6 foot)
MW-15	31-Jul-18	59.6	6.56	224	0.275	75.2	2.13	1800	5.7 feet of drawdown
MW-22	1-Aug-18	60.4	6.43	-81	1.280	0.0	1.70	450	Negligible drawdown (<0.1 foot)
MW-33	31-Jul-18	61.5	7.16	187	0.447	17.1	3.71	800	15.4 feet of drawdown
MW-39	31-Jul-18	57.7	3.70	351	0.685	0.0	8.20	500	Negligible drawdown (<0.1 foot)
MW-44	1-Aug-18	67.4	6.54	164	0.360	169.0	3.02	520	1.2 feet of drawdown
MW-47	31-Jul-18	70.0	4.73	284	0.169	52.5	2.81	70	1.1 feet of drawdown
MW-51	--	--	--	--	--	--	--	--	Attempted puring ~2.5 feet of standing wad, pumped jammed with sand < 1 L retrieval (no field parameters)
MW-52	1-Aug-18	70.8	7.13	-23	0.508	2.9	1.06	75	No Drawdown
MW-53	1-Aug-18	--	--	--	--	--	--	--	Purged well into IDW container - grab sample (no field parameters)
MW-59	31-Jul-18	65.6	4.77	285	0.143	0.0	1.79	280	3.0 feet of drawdown
PZ-01	1-Aug-18	61.0	5.52	284	0.310	0.0	2.56	125	Negligible drawdown (<0.3 foot)
PZ-09	1-Aug-18	64.1	4.38	386	0.191	0.0	4.14	125	Negligible drawdown (<0.2 foot)
SP-DR-01	1-Aug-18	67.1	5.18	176	0.085	210.0	4.79	--	Recent heavy rain
WS-CR-06	--	--	--	--	--	--	--	--	Location inaccessible due to safety (road construction and high rapid water flow)

Maximum	75.3	7.2	386	1.280	210.0	8.2	1800.0
Minimum	54.9	3.7	-81	0.085	0.0	0.6	49.5
Average	63.9	6.0	160	0.359	27.4	3.4	341.8
Geometric Mean	63.7	5.9	--	0.300	--	2.8	216.1

NOTES:
Temperature (F) - Degrees Fahrenheit
Specific Conductance (mS/cm) - millisiemens per centimeter
ORP (mV) - Oxidation Reduction Potential in milliivolts
Turbidity (NTU) - Nephelometric Turbidity Units
Purge Rate (mL/min) - milliliters per minute ("Pump Max" reflects maximum peristaltic rate of approximately 0.4 gallons [1.5 liters] per minute)

Table 5. Comprehensive Metals Sampling Results at SLDA

Well	Year	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM, TOTAL	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/Lg/L
10L31	2013	0.01 J	0.00052 U	0.00061 U	0.039		0.00027 U	79	0.0013 J	0.00036 J	0.0008 J	0.29	0.00024 U	42	0.046	0.000086 J	0.0042 J	3.1	0.0015 U	0.00018 U	9	0.00016 U	0.00054 J	0.016 J
	2014	0.0038 J	0.001 U	0.001 U	0.043	0.0005 U	0.0005 U	67	0.0028 J	0.0005 U	0.00035 J	0.26	0.0005 U	36	0.013	0.0001 U	0.002 J	2.7	0.003 J	0.0005 U	6.8	0.0005 U	0.0005 U	0.0031 J
	2015	0.0084 J	0.001 U	0.001 U	0.06	0.0005 U	0.0005 U	54	0.00061 J	0.0005 U	0.0005 U	0.15 J	0.0005 U	27	0.0057	0.0001 U	0.0013 J	2.8	0.0025 U	0.0005 U	5.1	0.0005 U	0.0005 U	0.0018 U
	2016	0.015 J	0.00075 U	0.001 U	0.078	0.0005 U	0.0005 U	54	0.00062 J	0.00016 J	0.00073 J	0.62 U	0.0005 U	32	0.0015 J	0.0001 U	0.0039 J	2.3 J	0.0016 J	0.0005 U	1.9 J	0.0005 U	0.0005 U	0.0054 J
	2017	0.13	0.0011 J	0.001 U	0.082	0.0005 U	0.0005 U	53	0.00044 J	0.00034 J	0.00089 J	0.66	0.00036 J	30	0.013	0.0001 U	0.0029 J	2.5	0.0021 J	0.0005 U	2	0.0005 U	0.0025 U	0.003 J
	2018	0.012 J	0.00075 U	0.001 U	0.11	0.0005 U	0.00028 J	48	0.0006 J	0.00015 J	0.0024 J	0.46	0.0005 U	25	0.029	0.0001 U	0.0029 J	2.3	0.0025 U	0.0005 U	1.2	0.0005 U	0.0025 U	0.011 J
10L31 (Filtered)	2013	0.0099 J	0.00052 U	0.00061 U	0.03	0.00025 U	0.00027 U	65	0.0016 J	0.00018 J	0.00088 J	0.098 J	0.00024 U	32	0.037	0.00012 J	0.0037 J	2.5	0.0017 J	0.00028 J	7	0.00016 U	0.00049 U	0.013 J
	2014	0.0025 U	0.001 U	0.001 U	0.038	0.00034 J	0.0005 U	65	0.0018 J	0.00022 J	0.0015 J	0.47	0.0005 U	33	0.013	0.0001 U	0.0017 J	2.6	0.0025 U	0.0005 U	6.2	0.0005 U	0.00094 J	0.0035 J
	2015	0.0027 J	0.00062 J	0.001 U	0.054	0.0005 U	0.0005 U	54	0.002 J	0.00026 J	0.0005 U	0.16 J	0.0005 U	29	0.00093 J	0.0001 U	0.0014 J	2.8	0.0016 J	0.0005 U	5.5	0.0005 U	0.00054 J	0.0027 J
	2016	0.38	0.00075 U	0.001 U	0.075	0.0005 U	0.0005 U	52	0.00071 J	0.00013 J	0.0013 J	0.62 U	0.0005 U	29	0.0005 U	0.0001 U	0.0023 J	2.3 J	0.0022 J	0.0005 U	1.9 J	0.0005 U	0.0005 U	0.004 J
	2017	0.005 U	0.00075 U	0.001 U	0.076	0.0005 U	0.0005 U	32	0.0005 U	0.00022 J	0.00096 J	0.47	0.0005 U	28	0.00036 J	0.0001 U	0.0032 J	2.4	0.002 J	0.0005 U	2	0.0005 U	0.0025 U	0.005 U
	2018	0.0054 J	0.00075 U	0.001 U	0.11	0.0005 U	0.0004 J	50	0.00044 J	0.00043 J	0.00093 J	0.47	0.0005 U	27	0.022	0.0001 U	0.0026 J	2.3	0.0025 U	0.0005 U	1.1	0.0005 U	0.0025 U	0.009 J
MW-01	2013	0.012 J	0.00052 U	0.00061 U	0.048		0.00027 U	46	0.00092 J	0.00022 J	0.0008 J	0.19 J	0.0003 J	23	0.014	0.000091 J	0.0034 J	1.8	0.0022 J	0.00018 U	4.8	0.0002 J	0.00049 U	0.0067 J
	2014	0.0043 U	0.00076 J	0.001 U	0.046	0.0005 U	0.0005 U	37	0.00066 J	0.0005 U	0.00046 U	0.12 U	0.0005 U	19	0.0015 J	0.0001 U	0.0014 J	1.5	0.0019 J	0.0005 U	3.2	0.0005 U	0.0005 U	0.0061 J
	2015	0.027 J	0.001 U	0.0032	0.07	0.0005 U	0.0005 U	26	0.0005 U	0.00013 J	0.00024 U	4.2	0.0005 U	13	0.011	0.0001 U	0.001 J	1.5	0.0025 U	0.0005 U	2.1	0.0005 U	0.0005 U	0.0018 U
	2016	0.012 J	0.00075 U	0.001 U	0.048	0.0005 U	0.0005 U	29	0.00054 J	0.0005 U	0.00055 J	0.62 U	0.0005 U	18	0.00042 J	0.0001 U	0.0016 J	1.5 J	0.0023 J	0.0005 U	3.7	0.0005 U	0.0005 U	0.0058 J
	2017	0.0032 U	0.00075 U	0.001 U	0.053	0.0005 U	0.0005 U	31	0.00038 J	0.0005 U	0.00057 J	0.19 J	0.0005 U	19	0.001 U	0.0001 U	0.0021 J	1.7	0.0025 U	0.0005 U	3.7	0.0005 U	0.0025 U	0.0037 J
	2018	0.008 J	0.00075 U	0.001 U	0.047	0.0005 U	0.00027 J	30	0.0007 J	0.0005 U	0.0006 J	0.28	0.0005 U	17	0.0012 J	0.0001 U	0.002 J	1.7	0.0015 J	0.0005 U	4.3	0.0005 U	0.0025 U	0.011 J
MW-01 (Filtered)	2013	0.0017 J	0.00052 U	0.00061 U	0.043	0.00025 U	0.00027 U	44	0.00031 J	0.00012 U	0.0004 J	0.048 U	0.00024 U	21	0.00086 J	0.000085 J	0.0032 J	1.7	0.0018 J	0.00018 U	4.5	0.00016 U	0.00049 U	0.0027 J
	2014	0.0025 U	0.001 U	0.001 U	0.047	0.0005 U	0.0005 U	33	0.00078 J	0.0005 U	0.0003 J	0.12 U	0.0005 U	17	0.00061 J	0.0001 U	0.0012 J	1.3	0.0024 J	0.0005 U	3	0.0005 U	0.00068 J	0.0022 J
	2015	0.0044 J	0.001 U	0.001 U	0.054	0.0005 U	0.0005 U	26	0.0012 J	0.00057 J	0.0005 U	0.31	0.0005 U	13	0.012	0.0001 U	0.00098 J	1.7	0.0022 J	0.0005 U	2.4	0.0005 U	0.0005 U	0.0027 J
	2016	0.46	0.00075 U	0.001 U	0.048	0.0005 U	0.0005 U	32	0.00041 J	0.0005 U	0.0024 J	0.62 U	0.0005 U	17	0.0005 U	0.0001 U	0.0019 J	1.6 J	0.0016 J	0.0005 U	3.7	0.0005 U	0.0005 U	0.0055 J
	2017	0.005 U	0.00075 U	0.001 U	0.054	0.0005 U	0.0005 U	32	0.0005 U	0.0005 U	0.0015 U	0.31	0.0005 U	18	0.001 U	0.0001 U	0.0023 J	1.7	0.002 J	0.0005 U	3.7	0.0005 U	0.0025 U	0.005 U
	2018	0.0052 J	0.00075 U	0.001 U	0.046	0.0005 U	0.0005 U	30	0.00057 J	0.0005 U	0.001 J	0.28	0.0005 U	17	0.001 U	0.0001 U	0.0019 J	1.7	0.0025 U	0.0005 U	4.2	0.0005 U	0.0025 U	0.0082 J
MW-02A	2013	0.041 J	0.0011 J	0.00061 U	0.035		0.00027 U	58	0.0017 J	0.0033 J	0.0027 J	0.38	0.00046 J	15	0.21	0.000087 J	0.021	3.6	0.0015 U	0.00018 U	4.9	0.00036 J	0.00049 U	0.023 J
	2015	0.073	0.001 U	0.001 U	0.034	0.0005 U	0.0005 U	27	0.0012 J	0.00089 J	0.00024 U	0.27	0.0005 U	11	0.053	0.0001 U	0.0047 J	1.7	0.0025 U	0.0005 U	1.9	0.0005 U	0.0005 U	0.0018 U
	2016	0.028 J	0.00075 U	0.001 U	0.033	0.0005 U	0.0005 U	32	0.00041 J	0.00082 J	0.0017 J	0.62 U	0.0005 U	11	0.083	0.0001 U	0.0042 J	2.2 J	0.0017 J	0.0005 U	3.4	0.0005 U	0.0005 U	0.013 J
	2017	0.033 J	0.0031	0.001 U	0.034	0.0005 U	0.0005 U	40	0.0013 J	0.00028 J	0.0011 J	0.28	0.0005 U	13	0.021	0.0001 U	0.0048 J	2.6	0.0021 J	0.0005 U	3.6	0.0005 U	0.0025 U	0.016 J
	2018	0.026 J	0.00071 J	0.001 U	0.039	0.0005 U	0.00096 J	23	0.057	0.00018 J	0.003 U	0.37	0.0005 U	8.2	0.0077	0.0001 U	0.0061 J	1.8	0.0025 U	0.0005 U	2.3	0.0005 U	0.0025 U	0.0087 J
MW-02A (Filtered)	2013	0.0094 J	0.00052 U	0.00061 U	0.03	0.00025 U	0.00027 U	59	0.00075 J	0.003	0.0028 J	0.46	0.00024 U	14	0.25	0.000064 U	0.033	3.4	0.0023 J	0.00018 U	4.6	0.00016 U	0.00049 U	0.025 J
	2015	0.01 J	0.001 U	0.001 U	0.035	0.0005 U	0.0005 U	27	0.0011 J	0.00094 J	0.0005 U	0.091 J	0.0005 U	11	0.049	0.0001 U	0.0053 J	1.7	0.0025 U	0.0005 U	1.5	0.0005 U	0.0005 U	0.012 J
	2016	0.86	0.00075 U	0.001 U	0.029	0.0005 U	0.0005 U	35	0.00045 J	0.00084 J	0.0031 J	0.62 U	0.0005 U	11	0.089	0.0001 U	0.0045 J	2.2 J	0.0025 U	0.0005 U	3.5	0.0005 U	0.0005 U	0.0099 J
	2017	0.0096 J	0.00075 U	0.001 U	0.033	0.0005 U	0.0005 U	37	0.00054 J	0.00023 J	0.0011 J	0.33	0.0005 U	12	0.019	0.0001 U	0.0044 J	2.5	0.0025 U	0.0005 U	3.6	0.0005 U	0.0025 U	0.0099 J
	2018	0.0046 J	0.00075 U	0.001 U	0.026	0.0005 U	0.0005 U	21	0.032	0.00018 J	0.0015 U	0.24	0.0005 U	7.4	0.024	0.0001 UJ	0.0049 J	1.6	0.0025 U	0.0005 U	2.1	0.0005 U	0.0025 U	0.0046 J
MW-03	2014	55	0.00055 J	0.011	0.025 J	0.033	0.0044	200	0.051	0.18	0.15	99	0.0014	69	2	0.0001 U	0.68	1.6	0.0025 U	0.0005 U	7.1	0.0006 J	0.0005 U	2.2
	2015	31	0.002 J	0.005	0.0063 J	0.025	0.0013	170	0.035 J	0.14	0.074 J	69	0.0023	38	1.5	0.0001 U	0.49	2.5 U	0.0016 J	0.00018 U	2.7 J	0.00064 J	0.01 U	0.94
	2016	31	0.00075 U	0.002 U	0.0036 J	0.02	0.00072 J	160	0.022	0.12	0.042	67	0.001 U	59	1.3	0.0001 U	0.41	2.5 U	0.005 U	0.0005 U	6.4 J	0.00033 J	0.001 U	0.86
	2018	10	0.0018 J	0.017	0.014 J	0.0053	0.00055 J	52	0.13	0.029	0.035	310	0.039	21	1.3	0.0001 U	0.11	17	0.0025 U	0.0007 J	30	0.0007 J	0.0028 J	0.77
MW-03 (Filtered)	2015	49	0.001 U	0.0016	0.0035 J	0.028	0.0014	190	0.032	0.14	0.064	75	0.0021	64	1.7	0.0001 U	0.48	1.3	0.0025 U	0.0005 U	5.3	0.00044 J	0.00052 J	1.1
MW-05	2014	0.035 J	0.001 U	0.001 U	0.038	0.0005 J	0.0005 U	45	0.25	0.008	0.0028 J	1.3	0.0005 U	25	0.6	0.0001 U	0.34	2.2	0.0025 U	0.0005 U	17	0.0005 U	0.0005 U	0.0086 J
	2015	0.075	0.001 J	0.001 U	0.028	0.0005 U	0.0005 U	39	0.21	0.00065 J	0.0022 J	1.1	0.0005 U	20	0.012	0.0001 U	0.051	2.1	0.0025 U	0.0005 U	2.3	0.0005 U	0.0005 U	0.0018 U
	2016	0.012 J	0.00075 U	0.001 U	0.029	0.0005 U	0.0005 U	47	0.038	0.0003 J	0.0011 J	0.25 J	0.0005 U	28	0.0061	0.0001 U	0.04	2 J	0.0025 J	0.0005 U	12	0.0005 U	0.0005 U	0.0069 J
	2017	0.01 U	0.00075 U	0.001 U	0.025	0.0005 U	0.0005 U	46	0.04	0.00034 J	0.00093 J	0.45	0.0005 U	29	0.0054	0.0001 U	0.043	2.4	0.0025 U	0.0005 U	10	0.0005 U	0.0025 U	0.007 J
	2018	0.005 U	0.00075 U	0.001 U	0.027	0.0005 U	0.0005 U	35	0.076	0.0005 U	0.0016 J	0.58	0.0005 U	24	0.0031 J	0.0001 U	0.0064 J	1.8	0.0016 J	0.0005 U	2.2	0.0005 U	0.0025 U	0.0064 J
MW-05 (Filtered)	2014	0.018 J	0.001 U	0.001 U	0.027	0.0005 U	0.0005 U	44	0.0062 J	0.0043	0.002 J	0.095 J	0.0005 U	23	0.95	0.0001 U	0.16	2.1	0.0021 J	0.0005 U	17	0.0005 U	0.00064 J	0.011 J
	2015	0.63	0.001 U	0.001 U	0.028	0.00046 J	0.0005 U	43	0.01	0.0035	0.0016 J	1.5	0.0005 U	22	0.035	0.0001 U	0.045	2.2	0.0019 J	0.0005 U	2.5	0.0005 U	0.00057 J	0.023 J
	2016	0.35	0.00075 U	0.001 U	0.028	0.0005 U	0.0005 U	46	0.0027 J	0.0003 J	0.0069	0.62 U	0.0005 U	26	0.0075	0.0001 U	0.036	2 J	0.0016 J	0.0005 U	12	0.0005 U	0.0005 U	0.0057 J
	2017	0.005 U	0.00075 U	0.001 U	0.025 J	0.0005 U	0.0005 U	45	0.0034 J	0.00023 J	0.00054 J	0.45	0.0005 U	28	0.0026 J	0.0001 U	0.032	2.4	0.0025 U	0.0005 U	11	0.0005 U	0.0025 U	0.005 U
	2018	0.005 U	0.00075 U	0.001 U	0.026	0.0005 U	0.00033 J	35	0.00072 J	0.00017 J	0.0031 J	0.32	0.0005 U	24	0.0019 J	0.0001 U	0.0052 J	1.8	0.0025 U	0.0005 U	2.2	0.0005 U	0.0025 U	0.0058 J
MW-07	2013	0.015 J	0.0014 J	0.00061 U	0.2		0.00027 U	70	0.002 J	0.00049 J	0.0031 J	0.16 J	0.00038 J	13	0.46 J	0.000047 J	0.0062 J	2.5	0.0015 U	0.00086 J	5.2 J	0.00025 J	0.00049 U	0.023 J
	2014	0.024 J	0.001 U	0.001 U	0.24	0.00034 J	0.0005 U	59	0.0037 J	0.0003 J	0.007	0.15 J	0.00036 J	11	0.89	0.0001 U	0.006 J	3.2	0.0023 J	0.0005 U	4.9	0.0005 U	0.0005 U	0.0059 J
	2015	0.0078 J	0.001 U	0.001 U	0.17	0.0005 U	0.0005 U	57	0.00084 J	0.00015 J	0.0006 J	0.15 J	0.00026 J	9.9	0.25	0.0001 U	0.0022 J	2.1	0.0025 U	0.0005 U	3.3	0.0005 U	0.0005 U	0.0018 U
	2017	0.008 U	0.00075 U	0.001 U	0.17	0.0005 U	0.0005 U	52	0.0008 J	0.00017 J	0.00096 J	0.32	0.0005 U	11	0.2	0.0001 U	0.0033 J	2	0.0025 U	0.0005 U	3.6	0.0005 U	0.0025 U	0.01 J
	2018	0.0053 J	0.00075 U	0.001 U	0.17	0.0005 U	0.00085 J	54	0.00099 J	0.00016 J	0.0006 J	0.42	0.0005 U	11	0.24	0.0001 U	0.0028 J	1.7	0.0025 U	0.0005 U	3.4	0.0005 U	0.0025 U	0.0049 J
MW-07 (Filtered)	2013	0.0095 J	0.0012 J	0.00061 U	0.16	0.00025 U	0.00027 U	58	0.0015 J	0.00027 J	0.002 J	0.048 U	0.00024 U	9.9	0.39	0.00012 J	0.0049 J	2.1	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.015 J
	2014	0.0025 U	0.001 U	0.001 U	0.21	0.0005 U	0.0005 U	57	0.00078 J	0.00024 J	0.00098 J	0.12 U	0.0005 U	10	0.81	0.0001 U	0.0032 J	2.1	0.0025 U	0.00034 J	4.6	0.0005 U	0.0005 U	0.0023 J
	2015	0.0023 J	0.001 U	0.001 U	0.18	0.0005 U	0.0005 U	59	0.002 J	0.00018 J	0.0005 U	0.16 J	0.0005 U	11	0.25	0.0001 U	0.0025 J	2.1	0.0025 U	0.0005 U	3.9	0.0005 U	0.00055 J	0.061
	2017	0.005 U	0.00075 U	0.001 U	0.18	0.0005 U	0.0005 U	53	0.00056 J	0.0002 J	0.00064 J	0.49	0.0005 U	10	0.23	0.0001 U	0.0036 J	2	0.0025 U	0.0005 U	3.7	0.0005 U	0.0025 U	0.0087 J
	2018	0.0051 J	0.00075 U	0.001 U	0.18	0.0005 U	0.00083 J	55	0.00082 J	0.00015 J	0.0031 J	0.44	0.0005 U	11	0.19	0.0001 U	0.0033 J	1.7	0.0025 U	0.0005 U	3.4	0.0005 U	0.0025 U	0.0064 J
MW-08	2013	0.005 J	0.00052 U	0.0014 J	0.35 J		0.0012	43	0.0025 J	0.0015 J	0.0019 J	0.47	0.0014	8.5	0.1	0.000095 J	0.0027 J	1.7	0.002 J	0.00018 U	3.8 J	0.0009 J	0.0018 J	0.014 J
	2014	0.0028 J	0.001 U	0.001 U	0.35	0.0005 U	0.0005 U	40	0.0036 J	0.00012 J	0.0005 U	0.42	0.0005 U	8.5	0.12	0.0001 U	0.003 J	1.5	0.0025 U	0.0005 U	3.1	0.0005 U	0.0005 U	0.0019 J
	2015	0.0014 U	0.001 U	0.00064 J	0.34	0.0005 U	0.0005 U	39	0.0004 J	0.0005 U	0.00024 U	0.59	0.0005 U	7.7	0.29	0.0001 U	0.0013 J	1	0.0025 U	0.0005 U	2.8	0.0005 U	0.0005 U	0.0025 U
	2016	0.067 J	0.00075 U	0.001 U	0.37	0.0005 U	0.0005 U	38	0.00059 J	0.00032 J	0.00096 J	1.5	0.0005 U	8.7	0.55	0.0001 U	0.002 J	1.4 J	0.0025 U	0.0005 U	3.6	0.0005 U	0.0005 U	0.0088 J
	2017	0.0043 U	0.00075 U	0.001 U	0.36	0.0005 U	0.0005 U	37	0.00043 J	0.0005 U	0.00053 J	0.45	0.0005 U	8.9	0.29	0.0001 U	0.0019 J	1.6	0.0025 U	0.0005 U	4	0.0005 U	0.0025 U	0.015 J
	2018	0.005 U	0.00075 U	0.001 U	0.35	0.0005 U	0.0005 U	36	0.00077 J	0.00015 J	0.00057 U	1.5	0.0005 U	8.3	0.39	0.0001 U	0.0015 J	1.6	0.0025 U	0.0005 U	3.2	0.0005 U	0.0025 U	0.0049 J
MW-08 (Filtered)	2013	0.0016 J	0.00052 U	0.00061 U	0.33	0.00025 U	0.00027 U	44	0.0003 U	0.00012 U	0.00032 J	0.28	0.00024 U	8.3	0.052	0.000062 U	0.0013 J	1.7	0.0015 U	0.00018 U	3.3	0.00016 U	0.00049 U	0.013 J
	2014	0.0025 U	0.001 U	0.001 U	0.33	0.0005 U	0.0005 U	38	0.00066 J	0.0005 U	0.00049 J	0.11 J	0.0005 U	7.7	0.051	0.0001 U	0.0023 J	1.5	0.0025 U	0.0005 U	2.9	0.0005 U	0.00062 J	0.0018 J
	2015	0.0025 U	0.001 U	0.001 U	0.34	0.0005 U	0.0005 U	39	0.00092 J	0.0005 U	0.0005 U	0.28	0.0005 U	8	0.19	0.0001 U	0.0014 J	1.6	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0025 U
	2016	0.78	0.00075 U	0.001 U	0.33	0.0005 U	0.0005 U	38	0.0005 U	0.00016 J	0.0028 J	0.3 J	0.0005 U	8	0.24	0.000057 J	0.0014 J	1.3 J	0.0025 U	0.0005 U	3.4	0.0005 U	0.0005 U	0.0056 J
	2017	0.005 U	0.00075 U	0.001 U	0.36	0.0005 U	0.0005 U	37	0.0005 U	0.0005 U	0.0015 U	0.41	0.0005 U	8.3	0.2	0.0001 U	0.002 J	1.7	0.0025 U	0.0005 U	3.9	0.0005 U	0.0025 U	0.005 U
	2018	0.005 U	0.00075 U	0.001 U	0.34	0.0005 U	0.0082	36	0.0011 J	0.0005 U	0.0009 U	0.38	0.00074 J	8.1	0.17	0.0001 U	0.0016 J	1.7	0.0025 U	0.0005 U	3.2	0.0005 U	0.0025 U	0.0046 J
MW-09A	2013	0.044 J	0.00052 U	0.0043	0.46		0.00027 U	30	0.005 J	0.00044 J	0.013	0.51	0.00031 J	6	0.032	0.000083 J	0.0033 J	6.5	0.0015 U	0.00018 U	8.5	0.00016 U	0.00049 U	0.026 J
	2014	0.0032 J	0.001 U	0.001 U	0.43	0.0005 U	0.0005 U	26	0.0045 J	0.0005 U	0.00029 J	0.22	0.0005 U	5.4	0.021	0.0001 U	0.0014 J	11	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0019 J
	2015	0.0025 U	0.00052 U	0.001 U	0.44	0.0005 U	0.0005 U	26	0.0042 J	0.0005 U	0.0005 U	0.072 J	0.0005 U	5	0.0017 J	0.0001 U	0.00094 J	9.6	0.0025 U	0.0005 U	10	0.00019 J	0.0005 U	0.0025 U
	2016	0.014 J	0.00075 U	0.001 U	0.43	0.0005 U	0.0005 U	25	0.0032 J	0.00017 J	0.00086 J	0.62 U	0.0005 U	5.9	0.0011 J	0.0001 U	0.001 J	11	0.0025 U	0.0005 U	12	0.0005 U	0.0005 U	0.0054 J
	2017	0.0046 U	0.0012 J	0.001 U	0.46	0.0005 U	0.0005 U	27	0.004 J	0.00016 J	0.0006 J	0.18 J	0.0005 U	6.1	0.0069	0.0001 U	0.002 J	11	0.0025 U	0.00041 J	14	0.0005 U	0.0025 U	0.0083 J
	2018	0.005 U	0.00075 U	0.001 U	0.53	0.0005 U	0.0005 U	28	0.0023 J	0.0005 U	0.0036 J	0.46	0.0005 U	6.6	0.068	0.0001 U	0.0035 J	9.6	0.0025 U	0.0005 U	8.8	0.0005 U	0.0025 U	0.0065 J
MW-09A (Filtered)	2013	0.059	0.00052 U	0.00061 U	0.41	0.00025 U	0.00027 U	27	0.0036 J	0.00029 J	0.001 J	0.18 J	0.00024 U	5.4	0.0039 J	0.00011 J	0.0025 J	6	0.0015 U	0.00079 J	7.7	0.00016 U	0.00049 U	0.016 J
	2014	0.0025 U	0.001 U	0.001 U	0.4	0.0005 U	0.0005 U	25	0.0024 J	0.0005 U	0.00025 J	0.12 U	0.0005 U	5.3	0.0084	0.0001 U	0.0019 J	11	0.0025 U	0.0005 U	10	0.0005 U	0.0005 J	0.004 J
	2015	0.0045 J	0.001 U	0.001 U	0.47	0.0005 U	0.0005 U	29	0.0055 J	0.00023 J	0.0005 U	0.092 J	0.0005 U	5.6	0.0005 J	0.0001 U	0.0018 J	10	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0023 J
	2016	0.15 J	0.00075 U	0.001 U	0.43	0.0005 U	0.0005 U	24	0.0031 J	0.00016 J	0.071	0.62 U	0.0005 U	5.7	0.00028 J	0.0001 U	0.0039 J	11	0.0025 U	0.0005 U	12	0.0005 U	0.0005 U	0.0033 J
	2017	0.005 U	0.0017 J	0.001 U	0.46	0.0005 U	0.0005 U	25	0.0038 J	0.00018 J	0.0015 U	0.23	0.0005 U	5.6	0.001 U	0.0001 U	0.0015 J	10	0.0025 U	0.0005 U	13	0.0005 U	0.0025 U	0.005 U
	2018	0.005 U	0.00074 J	0.001 U	0.5	0.0005 U	0.00057 J	28	0.0012 J	0.00023 J	0.0034 J	0.22	0.0005 U	6.6	0.011	0.0001 U	0.0023 J	9.6	0.0025 U	0.0005 U	8.8	0.0005 U	0.0025 U	0.0033 J
MW-13	2013	0.01 J	0.00052 U	0.00062 J	0.49		0.00027 U	40	0.0024 J	0.00032 J	0.0012 J	1.1	0.00051 J	8	0.066	0.000076 J	0.0019 J	1.5	0.0015 U	0.00018 U	3.3	0.00024 J	0.00049 U	0.012 J
	2014	0.0017 J	0.001 U	0.001 U	0.47	0.0005 U	0.0005 U	33	0.00038 J	0.0005 U	0.0005 U	0.64	0.0005 U	6.8	0.056	0.0001 U	0.00079 J	1.2	0.0026 J	0.0005 U	2.7	0.0005 U	0.0005 U	0.0025 U
	2015	0.05	0.001 U	0.001 U	0.43	0.0005 U	0.0005 U	33	0.00062 J	0.00023 J	0.0005 U	0.79	0.0005 U	6	0.039	0.0001 U	0.0011 J	0.93	0.0025 U	0.0005 U	2	0.0005 U	0.0005 U	0.0018 U
	2016	0.017 J	0.00075 U	0.001 U	0.44	0.0005 U	0.0005 U	29	0.0005 U	0.00012 J	0.00064 J	0.56 J	0.0005 U	6.8	0.046	0.0001 U	0.00076 J	1 J	0.0025 U	0.0005 U	2.2 J	0.0005 U	0.0005 U	0.0057 J
	2017	0.0067 U	0.00075 U	0.00082 J	0.46	0.0005 U	0.0005 U	30	0.00038 J	0.0005 U	0.00051 J	1.8	0.0005 U	6.8	0.056	0.0001 U	0.0012 J	1.1	0.0025 U	0.0005 U	2.1	0.0005 U	0.0025 U	0.0029 J
	2018	0.005 U	0.00075 U	0.001 U	0.43	0.0005 U	0.00032 J	29	0.0005 U	0.0005 U	0.0012 U	0.83	0.0005 U	6.3	0.057	0.0001 U	0.0012 J	1	0.0025 U	0.0005 U	2	0.0005 U	0.0025 U	0.0082 J
MW-13 (Filtered)	2013	0.0092 J	0.0015 J	0.00061 U	0.43	0.00025 U	0.00027 U	35	0.00072 J	0.00012 J	0.00086 J	0.68	0.00024 U	6.6	0.052	0.000085 J	0.0016 J	1.2	0.0015 U	0.0012 J	2.5	0.00016 U	0.00049 U	0.014 J
	2014	0.0039 J	0.001 U	0.001 U	0.45	0.0005 U	0.0005 U	33	0.00034 J	0.0005 U	0.0005 U	0.59	0.00048 J	6.5	0.054	0.0001 U	0.00095 J	1.2	0.0025 U	0.0005 U	3.2	0.0005 U	0.00054 J	0.0025 U
	2015	0.026 J	0.001 U	0.001 U	0.44	0.0005 U	0.0005 U	33	0.00084 J	0.00036 J	0.0005 U	0.7	0.0005 U	6.2	0.045	0.0001 U	0.001 J	0.78	0.0025 U	0.0005 U	2.1	0.0005 U	0.0005 U	0.0047 J
	2016	1.2	0.00075 U	0.001 U	0.43	0.0005 U	0.0005 U	32	0.0005 U	0.0005 U	0.0027 J	0.53 J	0.0005 U	6.8	0.044	0.0001 U	0.0011 J	1.1 J	0.0025 U	0.0005 U	2.3 J	0.0005 U	0.0005 U	0.0092 J
	2017	0.005 U	0.00075 U	0.001 U	0.46	0.0005 U	0.0005 U	30	0.0005 U	0.00024 J	0.0015 U	0.65	0.0005 U	6.4	0.05	0.0001 U	0.0013 J	1.1	0.0025 U	0.0005 U	2.2	0.0005 U	0.0025 U	0.005 U
	2018	0.005 U	0.00075 U	0.001 U	0.43	0.0005 U	0.0017	29	0.0005 U	0.00015 J	0.0022 J	0.44	0.0005 U	6.4	0.053	0.0001 U	0.0014 J	1	0.0025 U	0.0005 U	2	0.0005 U	0.0025 U	0.0086 J
MW-14	2013	0.006 J	0.00052 U	0.0019	0.36		0.00027 U	34	0.00061 J	0.0038 J	0.0027 J	10	0.00038 J	6	0.41	0.000086 J	0.005 J	0.96	0.0015 U	0.00018 U	3.7	0.00017 J	0.00049 U	0.018 J
	2014	0.0027 J	0.001 U	0.0014 J	0.36	0.00046 J	0.0005 U	29	0.0005 U	0.0042 J	0.0005 U	7.7	0.0005 U	5	0.43	0.0001 U	0.0063 J	0.78	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0055 J
	2015	0.13	0.0039 J	0.12	1.6	0.0044	0.0005 U	35	0.0035 J	0.0046 J	0.001 U	190	0.00081 J	3.6	0.48	0.0001 U	0.0071 J	0.55 J	0.0025 U	0.00052 J	1.7	0.0005 U	0.001 U	0.05 J
	2016	0.013 J	0.00075 U	0.0036	0.37	0.0025 U	0.0005 U	27	0.0025 U	0.0035 J	0.0059 J	12	0.00032 J	5.4	0.37	0.0001 U	0.0056 J	0.66 J	0.0025 U	0.0005 U	3.1	0.0005 U	0.0025 U	0.01 J
	2017	0.0072 U	0.00075 U	0.0013 J	0.38	0.0005 U	0.0005 U	30	0.0011 J	0.004 J	0.0015 U	9.1	0.0005 U	6	0.46	0.0001 U	0.0059 J	0.77	0.0025 U	0.0005 U	3.1	0.0005 U	0.0025 U	0.012 J
	2018	0.0049 J	0.00075 U	0.0018	0.36	0.0005 U	0.0005 U	30	0.0034 J	0.0032 J	0.00072 J	11	0.0005 U	5.9	0.38	0.0001 U	0.0048 J	0.7	0.0025 U	0.0005 U	3	0.0005 U	0.0025 U	0.012 J
MW-14 (Filtered)	2013	0.0092 J	0.00081 J	0.00061 U	0.3	0.00025 U	0.00027 U	28	0.00076 J	0.003	0.00076 J	7.5	0.00024 U	4.9	0.33	0.00011 J	0.0043 J	0.77	0.0015 U	0.00082 J	3	0.00016 U	0.00049 U	0.017 J
	2014	0.0025 U	0.001 U	0.001 U	0.33	0.0005 U	0.0005 U	28	0.0005 U	0.0039	0.0003 J	6.5	0.0005 U	4.7	0.4	0.0001 U	0.0046 J	0.79	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0051 J
	2015	0.0025 U	0.001 U	0.001 J	0.39	0.0005 U	0.0005 U	31	0.00063 J	0.0031	0.0005 U	7.1	0.0005 U	5.2	0.38	0.0001 U	0.0037 J	0.51	0.0025 U	0.0005 U	2.9	0.0005 U	0.0005 U	0.0024 J
	2016	0.13 J	0.00075 U	0.0012 J	0.35	0.0005 U	0.0005 U	29	0.0005 U	0.003	0.00074 J	6.7	0.0005 U	5.4	0.36	0.0001 U	0.0049 J	0.7 J	0.0025 U	0.0005 U	3.2	0.0005 U	0.0005 U	0.0058 J
	2017	0.005 U	0.00075 U	0.0011 J	0.39	0.0005 U	0.0005 U	30	0.00072 J	0.0042	0.0015 U	8.4	0.0005 U	5.6	0.47	0.0001 U	0.0059 J	0.82	0.0025 U	0.0005 U	3.2	0.0005 U	0.0025 U	0.0046 J
	2018	0.023 J		0.002 U	0.36	0.005 U	0.001 U	29	0.001 U	0.0027 J	0.015 U	8.8	0.001 U	6.2 J	0.43	0.0001 U	0.0048 J	2.5 U	0.005 U		3.5 J	0.001 U	0.005 U	0.0057 J

Well	Year	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM, TOTAL	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/Lg/L
MW-15	2013	0.033 J	0.00052 U	0.00061 U	0.21		0.00027 U	17	0.00059 J	0.0007 J	0.00064 J	17	0.00027 J	4.5	0.23	0.000091 J	0.00097 J	1	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.016 J
	2014	0.007 J	0.001 U	0.001 U	0.2	0.00034 J	0.0005 U	16	0.0005 U	0.00064 J	0.00029 J	4.7	0.0005 U	4	0.28	0.0001 U	0.0013 J	0.93	0.0025 U	0.0005 U	4.1	0.0005 U	0.0005 U	0.0055 J
	2015	0.0058 J	0.001 U	0.00063 J	0.25	0.0005 U	0.0005 U	17	0.0005 U	0.0015 J	0.0005 U	6.2	0.0005 U	4.1	1.4	0.0001 U	0.0022 J	0.71	0.0025 U	0.0005 U	4	0.00018 J	0.0005 U	0.0025 U
	2016	0.018 J	0.00075 U	0.001 U	0.27	0.0025 U	0.0005 U	22	0.0025 U	0.002 J	0.029	3.8	0.0005 U	5.6	1.3	0.0001 U	0.0028 J	0.9 J	0.0025 U	0.0005 U	4.5	0.0005 U	0.0025 U	0.0056 J
	2017	0.018 U	0.00075 U	0.001 U	0.25	0.0005 U	0.0005 U	18	0.0016 J	0.0016 J	0.0007 J	9.2	0.0005 U	5.1	1.3	0.0001 U	0.003 J	0.96	0.0025 U	0.0005 U	4.3	0.0005 U	0.0025 U	0.0059 J
	2018	1.2	0.00075 U	0.00075 J	0.43	0.0005 U	0.0013	34	0.0047 J	0.0039 J	0.0035 J	5.7	0.0019	6.1	1.9	0.0001 U	0.0041 J	1.4	0.0025 U	0.0005 U	3.7	0.0005 U	0.0026 J	0.0098 J
MW-15 (Filtered)	2013	0.011 J	0.00052 U	0.00061 U	0.19	0.00025 U	0.00027 U	18	0.00078 J	0.00026 J	0.00086 J	0.14 J	0.00024 U	4.4	0.14	0.000093 J	0.0017 J	1.1	0.0015 U	0.0005 J	3.8	0.00016 U	0.00049 U	0.012 J
	2014	0.0025 U	0.001 U	0.001 U	0.2	0.0005 U	0.0005 U	18	0.0005 U	0.00029 J	0.0005 U	0.088 J	0.0005 U	4.2	0.16	0.0001 U	0.00096 J	0.97	0.0025 U	0.0005 U	4.1	0.0005 U	0.00049 J	0.002 J
	2015	0.0025 U	0.0006 J	0.001 U	0.26	0.0005 U	0.0005 U	18	0.0007 J	0.0014 J	0.0005 U	0.43	0.0005 U	4.5	1.4	0.0001 U	0.0024 J	0.72	0.0025 U	0.0005 U	4.5	0.0005 U	0.0005 U	0.0031 J
	2016	0.62	0.00075 U	0.001 U	0.27	0.0005 U	0.0005 U	23	0.0005 U	0.00088 J	0.085	0.48 J	0.0005 U	5.4	1	0.0001 U	0.0022 J	0.87 J	0.0025 U	0.0005 U	4.4	0.0005 U	0.0005 U	0.0079 J
	2017	0.005 U	0.00075 U	0.001 U	0.27	0.0005 U	0.0005 U	21	0.00067 J	0.0012 J	0.00068 J	0.52	0.0005 U	5.1	1.1	0.0001 U	0.0027 J	1	0.0025 U	0.0005 U	4.4	0.0005 U	0.0025 U	0.0028 J
	2018	0.005 U	0.00075 U	0.001 U	0.37	0.0005 U	0.00058 J	35	0.0005 U	0.0017 J	0.00074 U	0.51	0.0005 U	5.8	1	0.0001 U	0.0021 J	1.1	0.0025 U	0.0005 U	3.7	0.0005 U	0.0025 U	0.0044 J
MW-20	2015	27	0.00062 J	0.021	0.051	0.014	0.001	430	0.024 J	0.16	0.061	64	0.011	100	4.5	0.0001 U	0.37	4.8 J	0.0028 J	0.00097 J	5.7	0.0014 J	0.005 U	0.65
MW-20 (Filtered)	2015	17	0.001 U	0.0012 J	0.011 J	0.014	0.00097 J	400	0.015	0.13	0.05	52	0.0047	87	4.5	0.0001 U	0.29	4.5	0.004 J	0.0005 U	6.6	0.00086 J	0.00055 J	0.63
MW-22	2013	0.044 J	0.0014 J	0.02	0.022 J		0.00027 U	210	0.0011 J	0.00072 J	0.0008 J	37	0.00036 J	44	0.59	0.000089 J	0.0075 J	5.1	0.0015 U	0.00018 U	12	0.00018 J	0.00049 U	0.012 J
	2014	0.075	0.00056 J	0.014	0.027	0.0005 U	0.0005 U	170	0.0024 J	0.00052 J	0.0031 J	28	0.00042 J	38	0.54	0.0001 U	0.0057 J	4.3	0.0024 J	0.0005 U	10	0.0005 U	0.0005 U	0.006 J
	2015	0.0055 J	0.001 U	0.015	0.023 J	0.0005 U	0.0005 U	180	0.0005 U	0.00019 J	0.0005 U	27	0.0005 U	35	0.5	0.0001 U	0.0032 J	4.6	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0018 U
	2016	2.1	0.00074 J	0.017	0.036	0.0005 U	0.0005 U	150	0.0075 J	0.0019 J	0.0039 J	32	0.0017	41	0.53	0.0001 U	0.0078 J	4.4	0.0025 U	0.0005 U	13	0.0005 U	0.0058	0.023 J
	2017	0.99	0.00075 U	0.046	0.11	0.00025 J	0.0005 U	170	0.0069 J	0.0024 J	0.005 J	50	0.003	44	0.65	0.0001 U	0.012	4.4	0.0025 U	0.0005 U	12	0.0005 U	0.0023 J	0.028 J
	2018	0.19	0.00075 U	0.024	0.02 J	0.0005 U	0.0016	150	0.012	0.00056 J	0.003 U	41	0.00026 J	41	0.55	0.0001 U	0.0064 J	4.5	0.0025 U	0.0005 U	12	0.0005 U	0.0025 U	0.0065 J
MW-22 (Filtered)	2013	0.0027 J	0.00052 U	0.018	0.018 J	0.00025 U	0.00027 U	190	0.0003 U	0.00034 J	0.0004 J	35	0.00024 U	38	0.55	0.000073 J	0.0065 J	4.5	0.002 J	0.0003 J	10	0.00016 U	0.00049 U	0.013 J
	2014	0.0026 J	0.001 U	0.015	0.023 J	0.00029 J	0.0005 U	170	0.0006 J	0.0005 J	0.0061	30	0.0005 U	37	0.55	0.0001 U	0.0042 J	4.3	0.0025 U	0.0005 U	10	0.0005 U	0.0005 U	0.003 J
	2015	0.0025 U	0.001 U	0.019	0.023 J	0.0005 U	0.0005 U	180	0.00078 J	0.00025 J	0.0005 U	31	0.0005 U	37	0.56	0.0001 U	0.0042 J	4.6	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0025 U
	2016	2.9	0.00075 U	0.017	0.015 J	0.0005 U	0.0005 U	160	0.00033 J	0.00034 J	0.035	30	0.0005 U	38	0.48	0.0001 U	0.0058 J	4.1	0.0025 U	0.0005 U	12	0.0005 U	0.0005 U	0.026 J
	2017	0.0022 J	0.00075 U	0.022	0.016 J	0.0005 U	0.0005 U	170	0.0023 J	0.00052 J	0.0011 J	37	0.0005 U	43	0.58	0.0001 U	0.0067 J	4.1	0.0025 U	0.0005 U	12	0.0005 U	0.0025 U	0.005 U
	2018	0.0018 J	0.00075 U	0.023	0.016 J	0.0005 U	0.0005 U	140	0.0082 J	0.00054 J	0.001 J	38	0.0005 U	38	0.48	0.0001 UJ	0.0068 J	4	0.0025 U	0.0005 U	11	0.0005 U	0.0025 U	0.005 U
MW-33	2013	0.15	0.00052 U	0.0018	0.81		0.00027 U	36	0.0018 J	0.00057 J	0.0022 J	1	0.00098 J	6.8	0.08	0.0001 J	0.003 J	2.4	0.0015 U	0.00018 U	72	0.00025 J	0.0006 J	0.019 J
	2014	0.038 J	0.001 U	0.001 U	0.64	0.0005 U	0.0005 U	48	0.0014 J	0.00018 J	0.0013 J	0.71	0.00029 J	9.5	0.069	0.0001 U	0.0022 J	2.5	0.0025 U	0.0005 U	38	0.0005 U	0.0005 U	0.0043 J
	2015	6.5	0.00082 J	0.0034	0.85	0.0005 U	0.00029 J	34	0.015	0.0064	0.012	12	0.0086	8.3	0.23	0.0001 U	0.017	3.5	0.0025 U	0.00034 J	60	0.0005 U	0.0097	0.041 J
	2016	6.3	0.00075 U	0.0028	0.92	0.0025 U	0.0005 U	27	0.033 J	0.0045 J	0.016 J	7.8	0.0048	7.4	0.17	0.0001 U	0.027 J	3.7	0.0025 U	0.0005 U	68	0.0005 U	0.01 J	0.035 J
	2017	0.27	0.0021 J	0.001 U	0.26	0.0005 U	0.0005 U	52	0.0047 J	0.00038 J	0.0015 J	0.76	0.00046 J	11	0.048	0.0001 U	0.0043 J	2.3	0.0025 U	0.0005 U	21	0.0005 U	0.0025 U	0.017 J
	2018	0.63 J	0.00075 U	0.001 U	0.59	0.0005 U	0.0005 U	45	0.0036 J	0.00061 J	0.0016 J	0.89	0.00048 J	9.6	0.061	0.0001 U	0.0029 J	2.4	0.0025 U	0.0005 U	36	0.0005 U	0.0025 U	0.0094 J
MW-33 (Filtered)	2013	0.0031 J	0.00052 U	0.00061 U	0.67	0.00025 U	0.00027 U	45	0.00048 J	0.00013 J	0.00078 J	0.32	0.00024 U	8.1	0.067	0.000081 J	0.0022 J	2.4	0.0015 U	0.00018 U	44	0.00016 U	0.00049 U	0.011 J
	2014	0.0037 J	0.001 U	0.001 U	0.61	0.0004 J	0.0005 U	46	0.0011 J	0.00016 J	0.00066 J	0.35	0.0005 U	8.8	0.054	0.0001 U	0.0018 J	2.4	0.0025 U	0.0005 U	34	0.0005 U	0.0005 U	0.0019 J
	2015	0.016 J	0.001 U	0.0012 J	0.5	0.0005 U	0.0005 U	40	0.002 J	0.00013 J	0.0005 U	0.27	0.0005 U	8	0.03	0.0001 U	0.0014 J	2.4	0.0025 U	0.0005 U	47	0.0005 U	0.00062 J	0.0025 U
	2016	0.054 J	0.00068 J	0.0016	0.76	0.0005 U	0.0005 U	29	0.0005 U	0.0005 J	0.0047 J	0.32 J	0.0005 U	6	0.052	0.0001 U	0.0034 J	2.3 J	0.0025 U	0.0005 U	66	0.0005 U	0.0005 U	0.015 J
	2017	0.0014 J	0.00075 U	0.001 U	0.26	0.0005 U	0.0005 U	52	0.0011 J	0.0002 J	0.0015 U	0.49	0.0005 U	10	0.027	0.0001 U	0.0034 J	2.2	0.0025 U	0.0005 U	18	0.0005 U	0.0025 U	0.0084 J
	2018	0.052	0.00075 U	0.001 U	0.61	0.0005 U	0.0045	43	0.0022 J	0.00032 J	0.012	0.48	0.00088 J	9.1	0.06	0.0001 U	0.0049 J	2.4	0.0025 U	0.0005 U	42	0.0005 U	0.0025 U	0.026 J
MW-38	2017	0.11 J	0.001 J	0.0015	0.43	0.00035 J	0.0005 U	45	0.00073 J	0.0002 J	0.00091 J	1.3	0.00048 J	10	0.05	0.0001 U	0.0024 J	1.9	0.0025 U	0.00038 J	5.8	0.0005 U	0.0025 U	0.008 J
MW-38 (Filtered)	2017	0.0022 J	0.00075 U	0.0012 J	0.4	0.0005 U	0.0005 U	44	0.00038 J	0.0005 U	0.0015 U	1.1	0.0005 U	9.3	0.047	0.0001 U	0.0019 J	1.8	0.0025 U	0.0005 U	4.9	0.0005 U	0.0025 U	0.005 U
MW-39	2013	5.4	0.00052 U	0.00061 U	0.03		0.00027 U	50	0.002 J	0.036	0.014	22	0.0011	20	0.23	0.000088 J	0.1	4.1	0.0022 J	0.00018 U	13	0.00024 J	0.00049 U	0.16
	2014	2.3	0.001 U	0.001 U	0.036	0.0021	0.0005 U	37	0.0013 J	0.018	0.0054	12	0.00027 J	17	0.12	0.0001 U	0.05	2.6	0.0016 U	0.0005 U	14	0.0005 U	0.0005 U	0.096
	2015	2.9	0.001 U	0.002	0.062	0.0009 J	0.0005 U	22	0.0039 J	0.0084	0.0057	15	0.0052	8.6	0.059	0.0001 U	0.022	2.2	0.0025 U	0.0005 U	7.1	0.0005 U	0.0019 J	0.054 J
	2016	19	0.00052 J	0.0024	0.011 J	0.01	0.00038 J	52	0.0022 J	0.055	0.026	89	0.0015	22	0.27	0.0001 U	0.14	3.2	0.0025 U	0.00026 J	9.7	0.00018 J	0.0025 U	0.32
	2017	16	0.00075 U	0.0037	0.033	0.0075	0.00034 J	45	0.0076 J	0.042	0.022	51	0.0024	19	0.23	0.0001 U	0.1	2.9	0.0025 U	0.0005 U	8.1	0.00018 J	0.0027 J	0.26
	2018	3	0.00075 U	0.001 U	0.021 J	0.0022	0.00033 J	29	0.0031 J	0.013	0.0058	4.7	0.00045 J	14	0.077	0.0001 U	0.037	1.8	0.0018 J	0.0005 U	7.8	0.0005 U	0.0025 U	0.079
MW-39 (Filtered)	2013	5.4	0.00052 U	0.00061 U	0.026	0.0044	0.00027 U	43	0.0012 J	0.031	0.014	14	0.00074 J	17	0.2	0.00012 J	0.086	3.5	0.0015 U	0.00022 J	12	0.00016 U	0.00049 U	0.17
	2014	2.4	0.001 U	0.001 U	0.034	0.0025	0.0005 U	39	0.00062 J	0.02	0.0085	11	0.00039 J	17	0.13	0.0001 U	0.055	2.5	0.0019 J	0.0005 U	14	0.0005 U	0.0005 U	0.11
	2015	0.87	0.001 U	0.00083 J	0.032	0.00094 J	0.0005 U	24	0.00079 J	0.008	0.00032 J	14	0.0005 U	9.1	0.062	0.0001 U	0.02	1.8	0.0017 J	0.0005 U	7.7	0.0005 U	0.0005 U	0.045 J
	2016	18	0.00075 U	0.0025	0.011 J	0.0099	0.00032 J	52	0.0025 U	0.049	0.027	82	0.0014	21	0.25	0.0001 U	0.13	3.2	0.0022 J	0.0005 U	9.7	0.0005 U	0.0025 U	0.31
	2017	16	0.00075 U	0.0062	0.012 J	0.0085	0.00043 J	49	0.0064 J	0.047	0.029	61	0.0023	21	0.24	0.0001 U	0.12	3	0.0025 U	0.0005 U	7.9	0.00016 J	0.0016 J	0.3
	2018	3.6	0.00075 U	0.001 U	0.024 J	0.0027	0.0007 J	30	0.0043 J	0.014	0.009	9.7	0.00065 J	14	0.087	0.0001 U	0.043	1.9	0.0019 J	0.0005 U	7.7	0.0005 U	0.0025 U	0.089
MW-40	2013	0.017 J	0.00052 U	0.00061 U	0.4		0.00027 U	5.6	0.0011 J	0.00012 U	0.0034 J	0.35	0.00024 U	1.1	0.0098	0.000069 J	0.00022 J	1.8	0.0015 U	0.00018 U	240	0.00016 U	0.00049 U	0.0018 U
	2014	0.0083 J	0.001 U	0.001 U	0.32	0.00042 J	0.0005 U	4.5	0.0052 J	0.0005 U	0.0026 J	0.087 J	0.0005 U	0.8	0.0093	0.0001 U	0.007 J	1.3	0.003 J	0.0005 U	210	0.0005 U	0.0005 U	0.0018 J
	2015	0.063	0.001 U	0.001 U	0.32	0.0005 U	0.0005 U	4.7	0.0008 J	0.00038 J	0.00086 J	0.19 J	0.0005 U	0.64	0.016	0.0001 U	0.00082 J	1.2	0.0025 U	0.00042 J	190	0.0005 U	0.0005 U	0.0025 U
	2016	0.018 J	0.00075 U	0.001 U	0.3	0.0005 U	0.0005 U	3.7 J	0.00086 J	0.0005 U	0.0006 J	0.62 U	0.0005 U	0.77 J	0.0048 J	0.0001 U	0.0005 U	1.2 J	0.0025 U	0.0005 U	190	0.0005 U	0.0005 U	0.0049 J
	2017	0.032 J	0.00075 U	0.001 U	0.29	0.0005 U	0.0005 U	3.4	0.0032 J	0.0005 U	0.00085 J	0.16 J	0.0005 U	0.63	0.0059	0.0001 U	0.0008 J	1.2	0.0025 U	0.0005 U	200	0.0005 U	0.0025 U	0.013 J
MW-40 (Filtered)	2013	0.014 J	0.00052 U	0.00061 U	0.34	0.00025 U	0.00027 U	4.8	0.0004 J	0.00012 U	0.0029 J	0.052 J	0.00024 U	0.88	0.0082	0.000084 J	0.00058 J	1.5	0.0015 U	0.00037 J	230	0.00016 U	0.00049 U	0.0021 J
	2014	0.0047 J	0.001 U	0.001 U	0.31	0.00026 J	0.0005 U	4.4	0.0027 J	0.0005 U	0.0019 J	0.12 U	0.0005 U	0.75	0.0084	0.0001 U	0.0032 J	1.3	0.0025 U	0.0005 U	160	0.0005 U	0.0013 J	0.0025 U
	2015	0.048 J	0.001 U	0.001 U	0.32	0.0005 U	0.0005 U	4.8	0.0031 J	0.0012 J	0.0007 J	0.14 J	0.0005 U	0.59	0.017	0.0001 U	0.00072 J	1.3	0.0025 U	0.0005 U	190	0.0005 U	0.0008 J	0.0027 J
	2016	0.18 J	0.00075 U	0.001 U	0.29	0.0005 U	0.0005 U	3.6 J	0.0005 U	0.0005 U	0.00062 J	0.62 U	0.0005 U	0.77 J	0.0047 J	0.0001 U	0.0005 U	1.2 J	0.0025 U	0.0005 U	190	0.0005 U	0.0005 U	0.0025 U
	2017	0.0071 J	0.00075 U	0.001 U	0.27	0.0005 U	0.0005 U	3.5	0.0014 J	0.00017 J	0.0015 U	0.065 J	0.0005 U	0.65	0.0046 J	0.0001 U	0.0005 U	1.3	0.0025 U	0.0005 U	0.25 U	0.0005 U	0.0025 U	0.005 U
MW-44	2015	0.21	0.001 U	0.0013 J	0.036	0.0005 U	0.0005 U	37	0.00052 J	0.0012 J	0.0013 J	0.39	0.00032 J	3.4	0.98	0.0001 U	0.0018 J	3	0.0025 U	0.0005 U	2.3	0.0005 U	0.0008 J	0.0031 J
	2016	0.51	0.00075 U	0.002 U	0.24	0.001 U	0.001 U	52	0.0012 J	0.00043 J	0.0033 J	0.49 J	0.0009 J	9.6	0.19	0.0001 U	0.0034 J	2.2	0.005 U	0.0005 U	10	0.001 U	0.001 U	0.013 J
	2017	0.032 J	0.00072 J	0.001 U	0.22	0.0005 U	0.0005 U	45	0.00076 J	0.00022 J	0.00093 J	0.33	0.0005 U	9.2	0.019	0.0001 U	0.0026 J	2	0.0025 U	0.0005 U	6.5	0.0005 U	0.0025 U	0.0095 J
	2018	4.2	0.00075 U	0.0008 J	0.23	0.0005 U	0.00045 J	58	0.0042 J	0.00076 J	0.0021 J	3.1	0.0045	12	0.16	0.0001 U	0.0049 J	2	0.0025 U	0.0005 U	4.4	0.0005 U	0.0025 U	0.023 J
MW-44 (Filtered)	2015	0.0025 U	0.00056 J	0.001 U	0.1	0.0005 U	0.0005 U	32	0.0017 J	0.0005 U	0.0005 U	0.12 J	0.0005 U	7.1	0.018	0.0001 U	0.00069 J	1.6	0.0025 U	0.0005 U	4.7	0.0005 U	0.0005 U	0.0029 J
	2016	0.23 J	0.0005 J	0.001 U	0.25	0.0005 U	0.0005 U	56	0.0005 U	0.00048 J	0.00051 J	0.62 U	0.0005 U	12	0.2	0.0001 U	0.0031 J	2.5 J	0.0025 U	0.0005 U	13	0.0005 U	0.0005 U	0.013 J
	2017	0.0027 U	0.00075 U	0.001 U	0.17	0.0005 U	0.0005 U	38	0.0005 U	0.00015 J	0.00052 J	0.32	0.0005 U	8.8	0.011	0.0001 U	0.0022 J	1.7	0.0025 U	0.0005 U	5.6	0.0005 U	0.0025 U	0.0096 J
	2018	0.0078 J	0.00075 U	0.001 U	0.12	0.0005 U	0.0005 U	48	0.00044 J	0.00029 J	0.0015 U	0.5	0.0005 U	10	0.039	0.0001 UJ	0.0023 J	1.6	0.0025 U	0.0005 U	4	0.0005 U	0.0025 U	0.0083 J
	2015	0.0069 J	0.0015 J	0.001 U	0.47	0.0005 U	0.0005 U	91	0.0025 J	0.0012 J	0.0029 J	0.68	0.0005 U	22	0.11	0.0001 U	0.0091 J	9.3	0.0042 J	0.0005 U	120	0.0005 U	0.00072 J	0.0046 J
MW-47	2017	5.7	0.00075 U	0.0025	0.097	0.0007 J	0.0005 U	15	0.009 J	0.0036 J	0.019	4.6	0.0042	4.4	0.29	0.0001 U	0.029	3.9	0.0025 U	0.0005 U	8.3	0.0005 U	0.0096	0.029 J
	2018	1.5	0.00075 U	0.001 U	0.049	0.00034 J	0.0013	12	0.004 J	0.0015 J	0.0067	0.83	0.0011	3.5	0.16	0.0001 U	0.019	2.3	0.0025 U	0.0005 U	7.4	0.0005 U	0.0028 J	0.033 J
MW-47 (Filtered)	2017	0.033 J	0.00075 U	0.001 U	0.052	0.0003 J	0.0005 U	14	0.00096 J	0.0014 J	0.0037 J	0.15 J	0.0005 U	4.1	0.24	0.0001 U	0.024	2.2	0.0025 U	0.0005 U	7.9	0.0005 U	0.0025 U	0.012 J
	2018	0.023 J	0.00075 U	0.001 U	0.038	0.0005 U	0.00074 J	12	0.0023 J	0.0016 J	0.0032 J	0.097 J	0.0005 U	3.6	0.18	0.0001 U	0.019	1.9	0.0025 U	0.0005 U	7.2	0.0005 U	0.0025 U	0.018 J
MW-50	2017	0.014 U	0.00095 J	0.001 U	0.09	0.0005 U	0.0005 U	24	0.00076 J	0.0005 U	0.00054 J	0.16 J	0.00027 J	5.3	0.024	0.0001 U	0.0023 J	0.91	0.0025 U	0.00026 J	4.1	0.0005 U	0.0025 U	0.005 J
MW-50 (Filtered)	2016	0.027 J	0.00021 J	0.001 U	0.048	0.0005 U	0.0005 U	130	0.0005 U	0.00072 J	0.003 J	0.62 U	0.0005 U	34	0.058	0.0001 U	0.0074 J	5.7	0.0044 J	0.0005 U	13	0.0005 U	0.0005 U	0.026 J
	2017	0.0014 U	0.00075 U	0.001 U	0.09	0.0005 U	0.0005 U	22	0.00044 J	0.0005 U	0.0015 U	0.17 J	0.0005 U	5.5	0.022	0.0001 U	0.0023 J	0.86	0.0025 U	0.0005 U	3.9	0.0005 U	0.0025 U	0.005 U
MW-51	2014	0.087	0.001 U	0.001 U	0.29	0.00044 J	0.0005 U	57	0.0013 J	0.00053 J	0.0032 J	1.1	0.00059 J	12	0.13	0.0001 U	0.0028 J	2.2	0.0019 J	0.0005 U	7.8	0.00018 J	0.00078 J	0.0076 J
	2015	0.0057 J	0.00052 U	0.001 U	0.24	0.0005 U	0.0005 U	60	0.0017 J	0.0005 U	0.0005 U	0.28	0.0005 U	12	0.062	0.0001 U	0.0014 J	2.6	0.0025 U	0.00054 J	7.9	0.0005 U	0.0005 U	0.0018 U
	2016	0.018 J	0.00024 J	0.002 U	0.28	0.001 U	0.001 U	50	0.0015 J	0.001 U	0.003 J	0.44 J	0.00053 J	10	0.096	0.0001 U	0.003 J	1.8	0.005 U	0.0005 U	6.8	0.001 U	0.001 U	0.0074 J
	2017	0.036 J	0.00075 U	0.001 U	0.29	0.0005 U	0.0005 U	53	0.0006 J	0.00025 J	0.00076 J	0.83	0.0005 U	12	0.13	0.0001 U	0.0029 J	2.1	0.0025 U	0.0005 U	9	0.0005 U	0.0025 U	0.0078 J
MW-51 (Filtered)	2014	0.0016 J	0.0012 J	0.001 U	0.27	0.00036 J	0.0005 U	54	0.00082 J	0.00034 J	0.00048 J	0.28	0.0005 U	11	0.11	0.0001 U	0.002 J	2.2	0.0025 U	0.00055 J	7.5	0.0002 J	0.00074 J	0.0025 U
	2015	0.0099 J	0.001 U	0.001 U	0.25	0.0005 U	0.0005 U	60	0.0025 J	0.00017 J	0.0005 U	0.28	0.0005 U	14	0.066	0.0001 U	0.0018 J	2.6	0.0025 U	0.0005 U	8.9	0.0005 U	0.0007 J	0.0025 U
	2016	0.036 J	0.00075 U	0.001 U	0.31	0.0005 U	0.0005 U	50	0.0005 U	0.00025 J	0.00093 J	0.39 J	0.0005 U	11	0.094	0.0001 U	0.0027 J	2 J	0.0025 U	0.0005 U	7.1	0.0005 U	0.0005 U	0.019 J
	2017	0.005 U	0.00075 U	0.001 U	0.29	0.0005 U	0.0005 U	52	0.0005 U	0.00022 J	0.0015 U	0.76	0.0005 U	12	0.13	0.0001 U	0.0026 J	2	0.0025 U	0.0005 U	8.9	0.0005 U	0.0025 U	0.005 U
MW-52	2013	0.028 J	0.00052 U	0.00061 U	0.3		0.00027 U	94	0.0039 J	0.00052 J	0.003 J	1.4	0.00036 J	15	0.25	0.000077 J	0.0067 J	2.2	0.0015 U	0.00018 U	3.9	0.00016 U	0.00049 U	0.0035 J
	2014	0.016 J	0.001 U	0.001 U	0.26	0.0005 U	0.0005 U	86	0.00074 J	0.00029 J	0.00041 J	1.1	0.0005 U	14	0.23	0.0001 U	0.0027 J	2	0.0025 U	0.0005 U	3.4	0.0005 U	0.0005 U	0.0087 J
	2015	0.08 J	0.001 U	0.0012 J	0.26	0.00051 J	0.00059 J	77	0.0041 J	0.00087 J	0.00062 J	1.1	0.00061 J	12	0.2	0.0001 U	0.0025 J	2	0.0025 U	0.0005 U	3	0.00054 J	0.00099 J	0.0018 U
	2018	0.043 J	0.00075 U	0.001 U	0.33	0.0005 U	0.0014	84	0.00055 J	0.00023 J	0.003 U	1.2	0.00042 J	15	0.16	0.0001 U	0.0041 J	2.3	0.0025 U	0.0005 U	3.7	0.0005 U	0.0025 U	0.016 J
MW-52 (Filtered)	2013	0.011 J	0.00052 U	0.00061 U	0.24	0.00025 U	0.00027 U	84	0.0023 J	0.0011 J	0.0015 J	0.95	0.00024 U	13	0.18	0.00012 J	0.0053 J	2.1	0.0017 J	0.00056 J	3.3	0.00016 U	0.00049 U	0.004 J
	2014	0.0025 U	0.001 U	0.001 U	0.25	0.0005 U	0.0005 U	84	0.002 J	0.00031 J	0.0005 U	0.95	0.0005 U	13	0.22	0.0001 U	0.0022 J	2	0.0025 U	0.0005 U	3.4	0.0005 U	0.00085 J	0.0025 U
	2015	0.0025 U	0.001 J	0.001 U	0.28	0.0005 U	0.0005 U	86	0.0031 J	0.00031 J	0.0005 U	1.1	0.0005 U	13	0.23	0.0001 U	0.0021 J	2.2	0.0025 U	0.0005 U	3.4	0.0005 U	0.00077 J	0.0025 U
	2018	0.006 J	0.00075 U	0.001 U	0.33	0.0005 U	0.0005 U	78	0.00082 J	0.00028 J	0.0015 U	1.1	0.0005 U	14	0.15	0.0001 UJ	0.0039 J	1.9	0.0025 U	0.0005 U	3.3	0.0005 U	0.0025 U	0.0079 J
MW-53	2014	0.27	0.001 U	0.0032	0.17	0.0005 U	0.0005 U	27	0.0047 J	0.0012 J	0.0059	0.99	0.0012	10	0.037	0.0001 U	0.011	51	0.0025 U	0.0005 U	110	0.0005 U	0.0015 J	0.025 J
	2015	0.21 J	0.0011 J	0.00083 J	0.45	0.0005 U	0.0005 U	83	0.003 J	0.00092 J	0.0038 J	0.7	0.00049 J	28	0.072	0.0001 U	0.0058 J	26	0.014	0.00018 U	80	0.0003 J	0.0011 J	0.023 J
	2016	0.27	0.00088 J	0.002 U	0.46	0.001 U	0.001 U	97	0.0059 J	0.00087 J	0.0043 J	0.21 J	0.001 U	30	0.1	0.0001 U	0.0078 J	21	0.008 J	0.0005 U	77	0.001 U	0.001 U	0.015 J
	2017	0.19	0.00076 J	0.001 U	0.38	0.0005 U	0.0005 U	110	0.0014 J	0.0013 J	0.0018 J	1	0.00036 J	34	0.23	0.0001 U	0.0084 J	21	0.0054	0.0005 U	81	0.0005 U	0.0025 U	0.013 J
	2018	18	0.00066 J	0.0082	0.74	0.00094 J	0.00043 J	110	0.13	0.016	0.016	30	0.022	36	0.69	0.0001 U	0.086	24	0.0099	0.0005 U	55	0.0005 U	0.027	0.091
MW-53 (Filtered)	2014	0.15	0.0012 J	0.0042	0.12	0.0005 U	0.0005 U	12	0.0097 J	0.001 J	0.014	0.17 J	0.00045 J	10	0.012	0.0001 U	0.014	80	0.0025 U	0.00021 J	120	0.0005 U	0.0055	0.0077 J
	2015	0.0025 U	0.001 J	0.001 U	0.46	0.0005 U	0.0005 U	95	0.005 J	0.0011 J	0.0015 J	0.24	0.0005 U	29	0.056	0.0001 U	0.0052 J	30	0.012	0.0005 U	86	0.0005 U	0.0014 J	0.021 J
	2016	0.049 J	0.0012 J	0.001 U	0.41	0.0016	0.0023	91	0.0005 U	0.0029	0.0062	0.62 U	0.0011	31	0.047	0.0001 U	0.016	25	0.012	0.0005 U	71	0.0017 J	0.0005 U	0.042 J
	2017	0.0064 J	0.0025 J	0.001 U	0.37	0.00052 J	0.0005 U	91	0.0012 J	0.001 J	0.0016 J	0.72 J	0.00047 J	30	0.18	0.0001 U	0.0067 J	13 J	0.0028 J	0.0005 U	91	0.0005 U	0.0025 U	0.029 J
	2018	2.3	0.00075 U	0.0035	0.42	0.00046 J	0.0005 U	97	0.014	0.0077	0.012	11	0.014	30	0.44	0.0001 UJ	0.018	19	0.0087	0.0005 U	53	0.0005 U	0.0071	0.044 J
MW-59	2013	0.2	0.00058 J	0.00061 U	0.056		0.00038 J	9	0.00098 J	0.018	0.0019 J	1.2	0.00052 J	8	0.73	0.0001 J	0.032	1.2	0.0015 U	0.00018 U	7.1	0.0002 J	0.00049 U	0.044 J
	2014	0.91	0.001 U	0.001 U	0.039	0.00064 J	0.0005 U	12	0.0012 J	0.014	0.0035 J	3.8	0.0005 U	9.4	0.57	0.0001 U	0.033	0.94	0.002 J	0.0005 U	6.1	0.0005 U	0.0005 U	0.056
	2015	0.77	0.001 U	0.001 U	0.047	0.0003 J	0.0005 U	9.3	0.00066 J	0.012	0.00024 U	1.6	0.00032 J	8.6	0.6	0.0001 U	0.022	0.93	0.0025 U	0.00018 U	4.8	0.00021 J	0.00098 J	0.027 J
	2016	0.12 J	0.00084 J	0.0002 U	0.0088	0.0001 J	0.000059 J	6	0.0001 U	0.0018	0.00023 J	0.62 U	0.0001 U	6.2	0.1	0.0001 U	0.0054	0.85 J	0.0005 U	0.0005 U	8.3	0.0001 U	0.0001 U	0.0092 J
	2017	0.2	0.0064	0.001 U	0.052	0.00052 J	0.00035 J	7	0.0012 J	0.006	0.0011 J	0.65	0.00036 J	7.9	0.38	0.0001 U	0.03	0.92	0.0025 U	0.00071 J	6.4	0.0005 U	0.0025 U	0.045 J
	2018	0.087	0.00075 U	0.001 U	0.044	0.00053 J	0.0005 J	5.2	0.0009 J	0.0056	0.0012 J	0.085 J	0.0005 U	5.4	0.59	0.0001 UJ	0.029	0.9	0.0025 U	0.0005 U	8.6	0.0005 U	0.0025 U	0.045 J

Well	Year	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM, TOTAL	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/Lg/L
MW-59 (Filtered)	2013	0.066	0.00064 J	0.00061 U	0.053	0.00025 U	0.00027 U	9.3	0.0003 U	0.016	0.0013 J	0.84	0.00024 U	7.2	0.61	0.00015 J	0.028	1.1	0.0015 U	0.00018 U	5.9	0.00016 U	0.00049 U	0.049 J
	2014	0.1	0.001 J	0.001 U	0.038	0.00048 J	0.0005 U	8.9	0.00041 J	0.011	0.00074 J	2.1	0.0005 U	7.7	0.51	0.0001 U	0.02	0.88	0.0025 U	0.0005 U	5.4	0.0005 U	0.0005 U	0.024 J
	2015	0.04 J	0.0006 J	0.001 U	0.043	0.00032 J	0.0005 U	9.4	0.00089 J	0.012	0.00027 J	1.7	0.0005 U	8.7	0.62	0.0001 U	0.022	0.68	0.0025 U	0.0005 U	4.8	0.0005 U	0.0005 U	0.028 J
	2016	0.13 J	0.00075 U	0.001 U	0.046	0.00056 J	0.00032 J	6.4	0.0005 U	0.0097	0.0015 J	0.62 U	0.0005 U	6.2	0.54	0.0001 U	0.028	1 J	0.0025 U	0.0005 U	7.5	0.0005 U	0.0005 U	0.054
	2017	0.056	0.00075 U	0.001 U	0.052	0.00034 J	0.0005 U	7.2	0.00068 J	0.0047	0.00088 J	0.066 J	0.0005 U	7.5	0.33	0.0001 U	0.028	0.87	0.0025 U	0.0005 U	5.7	0.0005 U	0.0025 U	0.037 J
	2018	0.072	0.00075 U	0.001 U	0.046	0.00045 J	0.0005 J	5.8	0.0014 J	0.0053	0.0017 J	0.07 J	0.0005 U	6.1	0.55	0.0001 U	0.031	0.92	0.0025 U	0.0005 U	7.5	0.0005 U	0.0025 U	0.045 J
MW-81	2013	0.0097 J	0.00052 U	0.00061 U	0.098		0.00027 U	30	0.00076 J	0.00025 J	0.00069 J	0.17 J	0.0003 J	6	0.014	0.0001 J	0.0017 J	1.1	0.0015 U	0.00018 U	4.8	0.00022 J	0.00049 U	0.011 J
MW-81 (Filtered)	2013	0.0029 J	0.00052 U	0.00061 U	0.085	0.00025 U	0.00027 U	28	0.00032 J	0.00012 U	0.00054 J	0.048 U	0.00024 U	5.3	0.011	0.00009 J	0.0016 J	0.99	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.019 J
PZ-01	2015	0.022 J	0.001 U	0.001 U	0.11	0.0005 U	0.0005 U	24	0.00032 J	0.0004 J	0.0005 U	0.17 J	0.0005 U	7.7	0.12	0.0001 U	0.0013 J	0.52	0.0025 U	0.0005 U	7.1	0.0005 U	0.0005 U	0.0025 U
	2016	0.017 J	0.00075 U	0.001 U	0.091	0.0025 U	0.0005 U	20	0.0025 U	0.0025 U	0.004 J	0.62 U	0.0005 U	6.8	0.0001 U	0.0072 J	0.0001 U	0.0022 J	0.63 J	0.0025 U	0.0005 U	5	0.0005 U	0.0025 U	0.0054 J
	2017	0.01 U	0.00075 U	0.001 U	0.11	0.0005 U	0.0005 U	22	0.00044 J	0.0005 U	0.0015 U	0.3	0.0005 U	7.3	0.015	0.0001 U	0.0016 J	0.64	0.0025 U	0.0005 U	6.5	0.0005 U	0.0025 U	0.0046 J
	2018	0.018 J	0.00075 U	0.001 U	0.11	0.0005 U	0.0005 U	23	0.0005 U	0.0005 U	0.003 U	0.27	0.0005 U	7.3	0.036	0.0001 U	0.0018 J	0.71	0.0025 U	0.0005 U	7.6	0.00018 J	0.0025 U	0.021 J
PZ-01 (Filtered)	2015	0.0033 J	0.00059 J	0.001 U	0.11	0.0005 U	0.0005 U	24	0.0014 J	0.00034 J	0.0005 U	0.073 J	0.0005 U	7.5	0.12	0.0001 U	0.0011 J	0.52	0.0025 U	0.0005 U	6.7	0.0005 U	0.0005 U	0.0025 U
	2016	0.069 J	0.00075 U	0.001 U	0.092	0.0005 U	0.0005 U	20	0.0005 U	0.0005 U	0.0092	0.62 U	0.0005 U	6.5	0.0039 J	0.0001 U	0.0014 J	0.64 J	0.0025 U	0.0005 U	5.1	0.0005 U	0.0005 U	0.014 J
	2017	0.005 U	0.00075 U	0.001 U	0.11	0.0005 U	0.0005 U	21	0.0005 U	0.0005 U	0.0015 U	0.19 J	0.0005 U	6.5	0.021	0.0001 U	0.0016 J	0.66	0.0025 U	0.0005 U	5.8	0.0005 U	0.0025 U	0.005 U
	2018	0.005 J	0.0032	0.001 U	0.11	0.0005 U	0.0005 U	20	0.00046 J	0.00032 J	0.0015 U	0.2 J	0.0005 U	6.7	0.028	0.0001 UJ	0.0011 J	0.59	0.0025 U	0.0005 U	6.9	0.0005 U	0.0025 U	0.011 J
PZ-08	2017	5.3	0.00075 U	0.00092 J	0.12	0.0004 J	0.0005 U	4.5	0.0089 J	0.0017 J	0.0062	5.9	0.0049	2.4	0.1	0.0001 U	0.011	2.2	0.0025 U	0.0005 U	4.1	0.0005 U	0.011	0.041 J
PZ-08 (Filtered)	2017	0.029 J	0.00091 J	0.001 U	0.05	0.00025 J	0.0005 U	3.8	0.00063 J	0.0004 J	0.00062 J	0.19 J	0.0005 U	1.9	0.056	0.0001 U	0.0047 J	0.73	0.0025 U	0.0005 U	4.3	0.0005 U	0.0025 U	0.02 J
PZ-09	2013	0.038 J	0.00052 U	0.00061 U	0.19		0.00027 U	13	0.0013 J	0.0005 J	0.00097 J	0.1 J	0.0004 J	7.2	0.017	0.00008 J	0.021	1.3	0.0015 U	0.00018 U	4.5	0.00032 J	0.00049 U	0.01 J
	2014	0.53	0.001 U	0.001 U	0.25	0.00083 J	0.0005 U	15	0.004 J	0.0012 J	0.0015 J	1.5	0.0017	9	0.036	0.0001 U	0.026	1.2	0.0033 J	0.0005 U	6	0.0005 U	0.00074 J	0.017 J
	2015	0.027 J	0.001 U	0.001 U	0.16	0.0005 U	0.0005 U	9.5	0.0012 J	0.00028 J	0.0005 U	0.12 U	0.0005 U	5.7	0.013	0.0001 U	0.015	0.79	0.0025 U	0.0005 U	6.3	0.0005 U	0.0005 U	0.0018 U
	2016	0.035 J	0.00075 U	0.001 U	0.13	0.0005 U	0.0005 U	8.1	0.00086 J	0.00024 J	0.0006 J	0.62 U	0.0005 U	5.7	0.012	0.0001 U	0.015	1 J	0.0025 U	0.0005 U	7.2	0.0005 U	0.0005 U	0.012 J
	2017	0.82	0.00075 U	0.001 U	0.14	0.0005 U	0.0005 U	7.5	0.003 J	0.00064 J	0.0012 J	1.3	0.00068 J	5.3	0.018	0.0001 U	0.015	1.2	0.0025 U	0.0005 U	7.3	0.0005 U	0.0016 J	0.098
	2018	0.031 J	0.00075 U	0.001 U	0.12	0.0005 U	0.0005 U	6.8	0.0011 J	0.00016 J	0.003 U	0.084 J	0.00034 J	4.4	0.01	0.0001 U	0.012	1.1	0.0025 U	0.0005 U	6.4	0.0005 U	0.0025 U	0.039 J
PZ-09 (Filtered)	2013	0.028 J	0.00052 U	0.00061 U	0.17	0.00025 U	0.00027 U	12	0.00088 J	0.00028 J	0.00054 J	0.048 U	0.00024 U	6.4	0.014	0.000066 U	0.019	1.2	0.0015 U	0.00018 U	3.9	0.00016 U	0.00049 U	0.009 J
	2014	0.035 J	0.001 U	0.001 U	0.21	0.00027 J	0.0005 U	14	0.0013 J	0.00036 J	0.0017 J	0.12 U	0.0005 U	8.3	0.018	0.0001 U	0.025	1.1	0.0025 U	0.0005 U	5.7	0.0005 U	0.00076 J	0.011 J
	2015	0.026 J	0.00062 J	0.001 U	0.17	0.00033 J	0.0005 U	12	0.0021 J	0.00035 J	0.00034 J	0.059 J	0.0005 U	6.3	0.021	0.0001 U	0.017	0.81	0.0016 J	0.0005 U	7	0.0005 U	0.0005 U	0.0084 J
	2016	0.15 J	0.00075 U	0.001 U	0.13	0.0005 U	0.0005 U	8.4	0.00097 J	0.0002 J	0.0015 U	0.62 U	0.0005 U	5.5	0.011	0.0001 U	0.014	1 J	0.0025 U	0.0005 U	7	0.0005 U	0.0005 U	0.0082 J
	2017	0.02 J	0.00075 U	0.001 U	0.13	0.0005 U	0.0005 U	7.5	0.0014 J	0.00021 J	0.0015 U	0.06 J	0.0005 U	4.9	0.011	0.0001 U	0.014	1	0.0025 U	0.0005 U	6.6	0.0005 U	0.0025 U	0.0047 J
	2018	0.018 J	0.0011 J	0.001 U	0.12	0.0005 U	0.0005 U	6.2	0.0018 J	0.00025 J	0.0015 U	0.067 J	0.00028 J	3.9	0.0093	0.0001 UJ	0.011	0.89	0.0025 U	0.0005 U	5.9	0.0005 U	0.0025 U	0.054

Table 6. Comprehensive Radionuclide Sampling Results at SLDA

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
10L31	2013	0.109 J	0.168	0.066 U	-1.23 U	0.524 U	-0.059 U	-0.007 U	0.431
	2014	0.05 U	0.057 U	0.021 U	-0.637 U	0.026 U	-0.024 U	0 U	0.312 J
	2015	0.005 U	0.15 J	0.046 J	-1.28 U	0.054 U	-0.031 U	-0.041 U	0.362
	2016	0.093	0.093 U	-0.063 U	-9.35 U	0.513 J	-0.014 U	0 U	0.374
	2017	0.002 U	0.089 U	0.029 U	3.28 U	0.374 J	-0.005 U	-0.003 U	0.416
	2018	0.015 U	0.154 U	0.035 U	0.834 U	0.058 U	-0.009 U	0 U	0.399
10L31 (Filtered)	2013	0.099 J	0.159 J	0.006 U	-1.74 U	0.576 U	-0.065 U	-0.03 U	0.402
	2014	0.053 J	0.08 U	0.027 U	-0.29 U	0.005 U	0.009 U	0 U	0.31 J
	2015	0.03 U	0.089 J	-0.01 U	-0.739 U	-0.027 U	0.011 U	0 U	0.407
	2016	-0.034 U	0.07 U	-0.023 U	-6.5 U	0.372 U	-0.079 U	-0.001 U	0.392
	2017	0.037 U	0.141 U	0.06 U	4.73 U	0.346 J	-0.015 U	0 U	0.345 J
	2018	0.027 U	0.102 U	0.104 J	-0.055 U	0.106 U	0.025 U	0 U	0.424
MW-01	2004	0.834 U		0.683 U	13.5 U			0.379 J	
	2013	0.027 U	0.204 J	0.019 U	3.62 U	0.442 U	-0.04 U	-0.216 U	0.162 J
	2014	0.089 J	0.05 U	0.025 U	1.66 U	-0.151 U	-0.006 U	-0.027 U	0.065 J
	2015	0.026 U	0.203	0.056 U	0.78 U	-0.035 U	-0.009 U	-0.009 U	0.07 U
	2016	0 U	0.097 U	0.065 J	-4.3 U	0.618 J	0.027 U	-0.012 U	0.058 U
	2017	0.013 U	0.11 U	-0.009 U	4.25 U	0.419 J	-0.04 U	-0.004 U	0.075 J
	2018	0.036 U	0.155 J	0.026 U	2.98 J	0.152 J	-0.015 U	0 U	0.179 J
MW-01 (Filtered)	2013	0.066 U	0.186 J	0.022 U	8.18 J	0.422 U	-0.005 U	-0.022 U	0.163 J
	2014	-0.053 U	0.051 U	-0.032 U	1.8 U	0.014 U	-0.006 U	-0.026 U	0.067 J
	2015	-0.008 U	0.099 J	0.034 U	-3.62 U	-0.048 U	-0.004 U	0 U	0.076 U
	2016	0.01 U	0.095 U	0.002 U	-3.39 U	0.429 U	-0.071 U	0.021 J	0.068 J
	2017	0.072 J	0.112 U	0.023 U	2.83 U	0.344 J	-0.03 U	0 U	0.06 U
	2018	-0.008 U	0.332 J	0.109 J	-0.824 U	0.039 U	0.012 U	0.012 U	0.18 J
MW-02	2004	0.503 U		0.529 U	15.7 U			0.429 U	
	2004	R		0.326 U	11.9 U			0.298 J	
MW-02A	2004	1.46 J		R	11.2 U			0.471 J	
	2013	0.047 U	0.221 J	0.091 J	1.04 U	0.571 J	-0.125 U	-0.021 U	0.102 J
	2015	0.014 U	0.101 J	0.071 J	0.764 U	-0.025 U	0.056 J	-0.036 U	-0.004 U
	2016	0.025 U	0.08 U	0.065	1.14 U	0.275 U	0.013 U	0.022 U	0.067 U
	2017	0.047 U	0.127 U	0.013 U	-2.09 U	0.345 J	-0.05 U	0 U	0.072 U
	2018	0.023 U	0.046 U	0.05 J	3.8 J	0.057 U	-0.007 U	-0.005 U	0.118 U
MW-02A (Filtered)	2013	-0.048 U	0.049 U	0.038 J	-0.092 U	0.41 U	-0.153 U	-0.048 U	0.093 J
	2015	0.032 U	0.144 J	0.057 J	1.22 U	-0.088 U	0.061 J	0.01 U	0.02 U
	2016	-0.006 U	0.138 J	-0.043 U	-1.14 U	0.544 J	-0.121 U	0 U	0.062 U
	2017	0.181 J	0.233 U	0.015 U	2.89 U	0.404 J	0.018 U	-0.004 U	0.067 U
	2018	-0.01 U	0.285 J	0.028 J	2.25 U	0.114 U	-0.008 U	-0.004 U	0.129 U
MW-03	2013	0.042 U	0.164 J	0.01 U	-0.122 U	2.42 J	0.056 U	0.369 J	3.81
	2014	0.163 J	0.146 U	0 U	10.8 J	1.18	0.054 U	0.181 J	1.98
	2015	0.071 J	0 U	0.056 U	5.21 U	0.433	0.138	0.124	1.91
	2016	0.06 J	0.09 U	0.045 J	-0.282 U	0.604 J	0.014 U	0.076 J	1.18
	2018	0.013 U	0.175 J	0.027 J	1.22 U	0.064 U	0.034 J	0.053 J	0.986
MW-03 (Filtered)	2015	0.005 U	0.086 U	0.224	2.35 U	0.591	0.138	0.073	1.86
	2016	0.023 U	0.114 U	-0.065 U	3.02 U	0.437 J	-0.014 U	-0.006 U	1.29
MW-05	2004	1.19 J		0.191 U	12.2 U			0.592 J	
	2014	0.069 J	0.152 J	0.062 J	-0.781 U	-0.058 U	0.033 U	-0.041 U	0.127 U
	2015	0.018 U	0.196	0.041 J	3.51 U	-0.121 U	0.088 J	0.044 U	0.161 J
	2016	0.015 U	0.092 U	0.005 U	-4.8 U	0.53 J	-0.03 U	0.019 U	0.037 U
	2017	-0.005 U	0.084 U	0.028 U	3.41 U	0.565 J	-0.027 U	-0.004 U	0.101 J
	2018	0.072 J	0.161 U	0.022 U	0.111 U	0.034 U	-0.008 U	-0.007 U	0.132 J

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
MW-05 (Filtered)	2014	0.008 U	0 U	0.04 U	3.04 U	0.012 U	-0.016 U	0.019 U	0.105 U
	2015	0.012 U	0.057 U	0.029 J	1.1 U	-0.157 U	-0.025 U	0.013 J	0.153 J
	2016	-0.006 U	0.046 U	-0.013 U	-6.31 U	0.406 U	-0.126 U	-0.016 U	0.079 J
	2017	0.04 U	0.135 U	0.017 U	3.35 U	0.31 J	-0.029 U	0 U	0.112 J
	2018	0.038 U	0.305 U	0.116 J	0.995 U	0.155 J	0.043 J	-0.005 U	0.097 J
MW-06	2004	0.822 U		R	8.91 U			0.5 J	
MW-07	2004	0.86 U		0.395 U	11.4 U			0.236 J	
	2013	0.103 J	0.094 J	0.017 U	-4.6 U	0.374 U	-0.008 U	0 U	0.241 J
	2014	0.005 U	0.014 U	0.034 U	3.62 U	-0.021 U	-0.022 U	0 U	0.224 J
	2015	0.053 U	0.117 J	0.002 U	-0.802 U	0.156 J	-0.022 U	0 U	0.176 J
	2017	0.061 J	0.1 J	-0.013 U	-0.147 U	0.37 U	-0.003 U	0 U	0.192 J
	2018	0.043 U	0.23 J	0.053 U	-1.32 U	0.109 U	0.01 U	-0.006 U	0.252 J
MW-07 (Filtered)	2013	0.102 J	0.151 J	0.018 U	-2.3 U	0.819 J	-0.039 U	0 U	0.239 J
	2014	0.026 J	0.119 U	0.009 U	7.88 J	-0.012 U	-0.04 U	0 U	0.205 J
	2015	-0.02 U	0.104 J	0.051 U	2.89 U	0 U	0.037 U	0.012 U	0.18 J
	2017	0.001 U	0.097 J	-0.006 U	1.87 U	0.411 U	-0.007 U	-0.004 U	0.172 J
	2018	0.022 U	0.34 J	0.132 J	-0.897 U	0.085 U	0.008 U	0 U	0.245 J
MW-08	2004	0.667 U		0.125 U	11.6 U			0.557 J	
	2013	-0.028 U	0.184 J	-0.009 U	1.28 U	0.67 J	0.011 U	-0.007 U	0.103 J
	2014	-0.007 U	0.058 U	0.048 U	2.71 U	-0.177 U	-0.088 U	-0.07 U	0.058 J
	2015	0.07 J	0.103 J	0.007 U	-0.21 U	0.012 U	-0.016 U	-0.018 U	0.078 U
	2016	0.012 U	0.106 J	-0.011 U	1.24 U	0.384 J	-0.129 U	0 U	0.06 U
	2017	0.116 J	0.159 U	0.04 U	2.09 U	-0.01 U	0.017 U	0.041 J	0.077 J
	2018	0.006 U	0.227 J	0.096 U	1.16 U	0.153 J	0.02 U	-0.004 U	0.151 J
MW-08 (Filtered)	2013	-0.003 U	0.043 U	0.026 U	-1.74 U	0.15 U	-0.015 U	-0.008 U	0.107 J
	2014	0.003 U	0.068 U	0.059 U	3.81 U	-0.08 U	0.028 U	-0.062 U	0.06 J
	2015	-0.01 U	0.015 U	0.023 U	-0.495 U	0.063 U	-0.029 U	0 U	0.098 U
	2016	0.026 J	0.128 J	0.006 U	0.772 U	0.527 J	-0.011 U	0.018 U	0.08 U
	2017	0.071 J	0.053 U	0.004 U	3.05 U	0.387 J	0.008 U	0.02 J	0.081 J
	2018	0.035 U	0.366 J	0.054 U	-0.514 U	0.15 J	-0.008 U	-0.004 U	0.133 J
MW-09A	2004	0.716 U		0.0386 U	9.78 U			0.459 J	
	2013	0.109 U	0.051 U	-0.041 U	5.58 J	0.283 U	-0.027 U	0.037 J	0.154 J
	2014	0.017 U	0.01 U	0.079	0.413 U	-0.159 U	-0.177 U	-0.118 U	0.111 J
	2015	0 U	-0.041 U	0 U	-1.89 U	0.081 U	0.015 U	-0.01 U	0.145 J
	2016	0.081 J	0.128 J	0.013 U	-4.11 U	0.475 J	0.054 U	-0.007 U	0.129 J
	2017	0.002 U	0.111 U	0.012 U	2.85 U	0.385 J	-0.005 U	-0.003 U	0.43
	2018	0.01 U	0.465 J	0.053 U	1.23 U	0.222 J	0.034 J	0 U	0.21 J
MW-09A (Filtered)	2013	0.141 J	0.205 J	-0.028 U	2.99 U	0.505 U	-0.02 U	0 U	0.174 J
	2014	0.016 U	0.08 J	0.03 U	-0.108 U	-0.004 U	-0.009 U	0.012 U	0.116 J
	2015	0.061 J	0.108 J	0.049 J	-2.36 U	-0.042 U	-0.023 U	0 U	0.168 J
	2016	0.047 J	0.121 U	-0.094 U	-4.74 U	0.323 U	-0.011 U	-0.006 U	0.144 J
	2017	0.072 J	0.106 U	0.045 U	6.4 J	0.445 J	0.006 U	0 U	0.415
	2018	0.03 U	0.329 U	0.104 J	2.33 U	0.19 J	0.015 U	-0.004 U	0.231 J
MW-12D	2004	0.593 U		0.595 U	10.2 U			0.774 J	
MW-13	2004	0.612 U		0.715 U	11.7 U			0.328 J	
	2013	0.068 J	0.033 U	0.027 U	-0.274 U	0.252 U	-0.037 U	-0.019 U	0.137 J
	2014	0.013 U	0.08 U	-0.017 U	-2.35 U	-0.019 U	-0.028 U	0 U	0.123 U
	2015	0.021 U	0.167	0.071 J	4.29 U	0.147 J	0.026 U	-0.013 U	0.085 J
	2016	0.01 U	0.038 U	-0.039 U	0.492 U	0.591 J	-0.011 U	0 U	0.081 U
	2017	-0.002 U	0.213 J	0.013 U	2.62 U	0.333 J	-0.028 U	0 U	0.067 U
	2018	-0.024 U	0.323 U	0.143 J	-0.884 U	0.123 U	0.01 U	0.018 J	0.129 J
MW-13 (Filtered)	2013	0.02 U	0.156 J	0.053 U	-4.75 U	0.457 U	0.06 J	-0.005 U	0.156 J
	2014	-0.012 U	0.153 J	0.03 U	2.33 U	0.017 U	0.008 U	-0.014 U	0.111 U
	2015	0.064 J	0.031 U	0.029 J	3.08 U	-0.039 U	0.012 U	0.062 J	0.082 J
	2016	-0.007 U	0.034 U	0.024 U	3.43 U	0.327 U	-0.082 U	-0.001 U	0.089 U
	2017	0.026 U	0.135 U	0.037 U	5.1 U	0.273 J	-0.004 U	-0.004 U	0.07 U
	2018	0.028 U	0.541 J	0.183 J	1.6 U	0.043 U	-0.008 U	0 U	0.126 J

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
MW-14	2004	0.675 U		0.494 U	10.7 U			0.341 J	
	2013	0.057 U	0.1 J	0.1 U	-0.698 U	0.828 J	-0.027 U	0 U	0.098 J
	2014	0.034 J	-0.011 U	0.043 U	0.602 U	0.128 J	-0.017 U	-0.017 U	0.032 U
	2015	-0.099 U	0.388 J	0.053 U	0.847 U	4.15	0.051 U	0.051	1.06
	2016	-0.005 U	-0.012 U	-0.058 U	-0.654 U	0.635 J	0.038 J	-0.006 U	0.088 U
	2017	-0.012 U	0.234 J	0.046 U	0.232 U	0.411 U	0.018 J	-0.004 U	0.029 U
	2018	0.038 U	0.421 J	0.058 U	-0.58 U	0.123 U	0.041 J	0.011 U	0.124 J
MW-14 (Filtered)	2013	0.108 J	0.035 U	0.124 J	-3.51 U	0.886 J	-0.022 U	0 U	0.099 J
	2014	-0.031 U	0.103 U	0.056 J	2.05 U	-0.098 U	-0.072 U	-0.045 U	0.031 U
	2015	-0.031 U	0.081 J	0.052 U	-0.301 U	-0.018 U	0.034 U	-0.025 U	0.076 U
	2016	0.007 U	0.091 J	-0.024 U	-3.38 U	0.345 J	0.01 U	-0.006 U	0.069 U
	2017	0.096 J	0.122 J	0.054 U	-2.68 U	0.339 U	0.014 U	0.015 J	0.028 U
	2018	0.04 U	0.218 J	0.071 U	0.319 U	0.171 J	0.035 J	-0.005 U	0.123 J
MW-15	2004	0.776 U		0.107 U	12.7 U			0.487 J	
	2013	0.061 U	0.008 U	-0.017 U	4.42 J	0.283 U	0.08 J	-0.035 U	0.263 J
	2014	0.182 J	0.137 U	-0.107 UJ	-2.97 U	0.17	0.036 J	0 U	0.064 U
	2015	0.049 J	0.022 U	0.006 U	5.19 J	0.013 U	0.039 U	-0.065 U	0.053 U
	2016	0.02 U	0.045 U	0 U	-5.09 U	0.571 J	-0.078 U	-0.001 U	0.085 U
	2017	0.042 U	0.162 J	0.035 U	1.86 U	0.008 U	0.015 U	0.04 J	0.086 J
	2018	-0.003 U	0.117 U	0.068 U	-0.166 U	0.262 J	0.094 J	-0.005 U	0.245 J
MW-15 (Filtered)	2013	0.05 U	0.023 U	0 U	0.708 U	0.557 J	0.032 U	0.023 U	0.061 U
	2014	-0.055 U	-0.024 U	0 U	1.82 U	-0.045 U	-0.011 U	0 U	0.051 U
	2015	0.047 U	0.104	0.02 U	0.37 U	0.095 U	0.026 U	0 U	0.086 J
	2016	0.04 J	0.042 U	0.012 U	-3.35 U	0.628 J	0.002 U	-0.005 U	0.063 U
	2017	0.073 J	0.381 J	0.084 J	-0.204 U	0.267 U	-0.003 U	0 U	0.068 U
	2018	0.006 U	0.216 U	0.117 J	-1.26 U	0.142 J	-0.018 U	0 U	0.107 J
MW-16BC	2004	0.564 U		0.035 J	12 U			0.468 J	
MW-19	2004	R		R	R			0.459 J	
MW-20	2013	0.026 U	0.16 J	0.006 U	3.32 U	2.41 J	0.413	0.492	2.47
	2014	-0.017 U	0.029 U	0.011 J	-1.93 U	4.23	1.32	0.66	1.61
	2015	-0.014 U	0.116 J	0.012 U	0.741 U	1.62	0.334	0.193 J	2.35
MW-20 (Filtered)	2015	0.025 U	0.117 J	0.073 J	9.13 J	1.42	0.298	0.184	1.49
MW-22	2004	0.458 U		0.532 U	10.6 U			0.478 J	
	2013	0.106 J	0.152 J	0.093	-0.47 U	0.489 J	-0.055 U	0.003 U	0.282 J
	2014	0.007 U	0.034 U	0.051 J	1.98 U	0.226 J	0.067 J	0.084	0.292
	2015	0.015 U	0.171	0.043 U	-1.15 U	-0.051 U	-0.012 U	0 U	0.116 J
	2016	0.011 U	0.016 U	-0.041 U	0.272 U	0.467 J	0.093 J	0.06 J	0.265 J
	2017	0.046 U	0.037 U	0.054 U	1.1 U	0.364 J	0.029 U	0.018 J	0.459
	2018	0.014 U	0.121 U	0.067 U	-0.367 U	0.178 J	0.006 U	0.019 J	0.193 J
MW-22 (Filtered)	2013	0.026 U	0.075 U	0.031 U	0.184 U	0.643 J	-0.039 U	0 U	0.157 J
	2014	0.197	0.025 U	0.025 U	0.484 U	-0.037 U	-0.025 U	-0.007 U	0.059 J
	2015	0.044 U	-0.009 U	0.017 U	8.2 J	0.073 U	-0.035 U	0.012 U	0.095 J
	2016	0.059 J	0.123 J	0 U	-0.187 U	0.663 J	-0.144 U	0.01 U	0.034 U
	2017	-0.003 U	0.119 U	0.088 J	-1.33 U	0.348 J	-0.024 U	0 U	0.103 J
	2018	0.088 J	0.255 U	0.067 U	-0.837 U	0.138 J	0.017 J	-0.004 U	0.105 J
MW-23	2004	0.635 J		0.255 U	R			0.561 J	
MW-24	2004	0.632 U		0.496 U	10.6 U			0.555 J	
MW-25	2004	1.07 J		0.06 U	11.9 U			R	
MW-26	2004	0.732 U	0.815 U	0.537 U	13 U		0.345 U	0.455 J	
MW-29	2004	0.397 U	0.744 U	0.506 U	11.3 U		0.446 U	0.215 U	
MW-30A	2004	0.912 U		0.383 U	R			0.726 J	
MW-31	2004	0.558 U		0.323 U	12 U			0.502 J	
MW-32	2004	R		0.084 U	12.3 U			0.207 U	

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
MW-33	2004	0.488 U	0.619 U	0.448 U	11.8 U		0.323 U	0.323 J	
	2013	-0.012 U	-0.055 U	-0.016 U	1.79 U	0.817 J	-0.028 U	0.024 U	0.448
	2014	0.064 U	0.119 U	0.03 U	1.69 U	0.022 U	0.077 J	-0.009 U	0.213 J
	2015	0.053 U	0.103	0.007 U	-0.646 U	0.084 U	0.081 U	0.271	0.513 J
	2016	0.018 U	0.094 U	0.037 J	0.82 U	0.329 J	-0.025 U	0.022 J	0.663
	2017	0.017 U	0.077 U	0.041 U	1.27 U	0.33 U	-0.009 U	0 U	0.221 J
	2018	0.027 U	0.033 U	0.043 U	0.373 U	0.128 U	0.008 U	-0.004 U	0.383 J
MW-33 (Filtered)	2013	0.038 U	0.124 U	0.083 J	0.087 U	0.478 U	0.031 J	0 U	0.295 J
	2014	0.021 U	0.094 U	0.028 U	3.09 U	-0.011 U	-0.031 U	-0.008 U	0.2 J
	2015	0.023 U	-0.039 U	0.057 U	-0.468 U	0.06 U	-0.035 U	-0.012 U	0.259 J
	2016	0.003 U	0.073 U	0.035 J	3.3 U	0.326 J	-0.052 U	-0.005 U	0.28
	2017	0.013 U	0.152 J	0.092 J	-1.3 U	0.269 U	-0.048 U	0 U	0.159 J
	2018	0.062 J	0.144 U	0.053 U	-1.9 U	0.109 U	-0.009 U	-0.004 U	0.361 J
MW-35	2004	0.882 U		0.101 U	11 U			0.206 J	
MW-36	2004	0.59 U		R	R			0.368 J	
MW-38	2004	R		0.0625 U	12.1 U			0.509 J	
	2017	0.028 U	0.062 U	0.013 U	0.644 U	0.352 J	0.02 U	-0.004 U	0.171 J
MW-38 (Filtered)	2017	0.068 J	0.261 U	0.065 U	-2.7 U	0.301 U	-0.024 U	-0.004 U	0.134 J
MW-39	2004	0.482 U	0.814 U	0.467 U	13.9 U		0.527 J	0.175 U	
	2013	0.003 U	0.074 U	0.012 U	-3.83 U	0.366 U	0.004 U	0 U	0.408
	2014	0.02 U	0.069 U	0.026 U	2.28 U	0.039 U	-0.079 U	-0.049 U	0.143 J
	2015	-0.029 U	0.061 U	0.061	6.9 J	0.415	0.024 U	0.182	0.458
	2016	0.015 U	0.023 U	0.033 J	0 U	0.511 J	-0.248 U	0.011 U	0.504 J
	2017	0.034 U	0.058 U	-0.017 U	1.9 U	0.518 J	0.04 U	0 U	0.903
	2018	0.06 J	0.125 U	0.101 J	1.47 U	0.161 J	-0.007 U	0.02 J	0.173 J
MW-39 (Filtered)	2013	-0.02 U	0.235	0.051 U	-2.47 U	0.309 U	-0.041 U	0 U	0.46
	2014	0.002 U	0.037 U	0.009 U	-1.79 U	0.003 U	0.088 J	0.049 U	0.181 J
	2015	0.018 U	0 U	0.048 J	5.7 J	-0.092 U	0.011 U	-0.011 U	0.103 J
	2016	-0.006 U	0.096 J	-0.04 U	-3.5 U	0.542 J	-0.011 U	0.019 U	0.438 J
	2017	-0.014 U	0.051 U	-0.003 U	-2.15 U	0.372 U	0.022 J	-0.005 U	0.514 J
	2018	-0.015 U	0.08 U	0.079 J	0.61 U	0.142 J	0.014 U	0 U	0.202 J
MW-40	2004	0.681 U		0.185 U	10.3 U			0.245 J	
	2013	0.101 U	-0.016 U	0.107 J	1.18 U	0.791 J	-0.003 U	0.036 J	0.11 J
	2014	-0.005 U	0.023 U	0 U	6.82 J	0.094 J	0.021 U	0 U	0.042 U
	2015	0.056 U	0.057 U	0.023 U	-0.234 U	0.048 U	-0.007 U	0 U	0.096 J
	2016	0.034 U	0.099 U	0.006 U	-6.79 U	0.466 U	-0.061 U	-0.006 U	0.051 U
	2017	0.041 U	0.137 J	0.016 U	7.35 J	0.322 U	-0.027 U	0 U	0.08 J
MW-40 (Filtered)	2013	0.066 U	0.074 U	0.046 U	4.84 J	0.502 U	0.004 U	0 U	0.099 J
	2014	0.043 U	0.13 U	0.044 U	7.37 J	-0.085 U	-0.027 U	0 U	0.038 U
	2015	-0.034 U	-0.1 U	0.02 U	0.562 U	0.033 U	-0.074 U	0 U	0.111 J
	2016	0.048 J	0.155 J	-0.057 U	-8.26 U	0.453 U	-0.031 U	-0.006 U	0.044 U
	2017	0.045 J	0.187 J	0.011 U	-4.39 U	0.291 U	0.013 U	-0.004 U	0.052 U
MW-41	2004	0.646 U		0.376 U	11.3 U			0.481 J	
MW-43	2004	0.691 U		0.0715 U	10.7 U			0.228 J	
MW-44	2015	-0.042 U	0.183 J	0.043 J	6.32 U	0.027 U	0.039	0 U	0.375
	2016	0.094 J	0.009 U	0.031 J	4.16 U	0.369 J	-0.049 U	-0.005 U	1.06
	2017	0.161 J	0.15 J	0.003 U	2.93 U	0.434 U	-0.005 U	0.01 J	0.567 J
	2018	-0.011 U	0.121 U	0.016 U	0.164 U	0.649 J	0.32	0.453	17.7
MW-44 (Filtered)	2015	0.096 J	0.148 J	0.053 J	1.44 U	-0.129 U	0.014 U	-0.028 U	0.369
	2016	0.029 J	0.102 U	0.021 U	-9.23 U	0.465 U	-0.095 U	0 U	1.23
	2017	0.025 U	0.169 J	0.001 U	1.2 U	0.381 U	-0.032 U	-0.005 U	0.387 J
	2018	0.037 U	0.091 U	0.056 J	1.69 U	0.051 U	0.016 J	0.016 U	0.326 J
MW-45 (Filtered)	2015	0.008 U	0.149 J	0.054 J	1.4 U	0.03 U	0 U	0.015 U	5.91
MW-47	2017	0.007 U	0.088 U	0.05 U	2.29 U	0.531 J	0.084 J	0.058	1.05
	2018	0.073 J	0.035 U	0.07 U	-0.308 U	0.141 J	0.019 U	0.018 J	0.533 J
MW-47 (Filtered)	2017	0.021 U	0.093 U	0.027 U	4.58 U	0.379 J	-0.004 U	-0.004 U	0.249 J
	2018	0.046 U	0.092 U	0.036 U	-0.246 U	0.106 U	0.008 U	0.015 J	0.229 J

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
MW-50	2016	0.088	0.1 U	0.024 J	2.44 U	0.392 J	0.007 U	0 U	1.46
	2017	0.033 U	0.085 J	0.004 U	3.73 U	0.281 U	0.03 U	0.024 J	0.393 J
MW-50 (Filtered)	2016	0.051 J	0.031 U	0.003 U	1.31 U	0.352 J	-0.081 U	-0.001 U	0.811
	2017	0.057 U	0.133 J	0.041 J	2.57 U	0.75 J	-0.004 U	0 U	0.547 J
MW-51	2004	1.01 J		0.0843 U	10.7 U			0.335 J	
	2014	0.03 U	0.104 U	0.016 U	9.72 J	-0.055 U	-0.047 U	0.022 U	0.247 J
	2015	0.046 U	0.077 U	0.029 J	-5.33 U	-0.071 U	0.055 U	0.014 U	0.356
	2016	-0.007 U	0.056 U	0.019 U	0.205 U	0.091 U	-0.143 U	-0.015 U	0.231
	2017	0.022 U	0.177 U	0.03 U	0.881 U	-0.013 U	0.029 U	0.017 J	0.305 J
	2018	0.031 U	0.164 J	0.044 J	-0.504 U	0.463 J	0.012 U	0.093 J	9.48
MW-51 (Filtered)	2014	0.032 U	0.153 U	0.029 U	3.89 U	-0.051 U	-0.075 U	0 U	0.234 J
	2015	0.076	0.145 J	0.022 U	-0.83 U	-0.015 U	-0.015 U	-0.015 U	0.362
	2016	-0.034 U	0.001 U	0.012 U	2.71 U	0.49 J	-0.285 U	-0.012 U	0.239
	2017	0.036 U	0.297 J	0.101 J	-1.54 U	0.167 U	-0.003 U	0 U	0.294 J
MW-52	2004	0.901 U		0.2 U	11 U			0.487 J	
	2013	0.041 U	0.155 J	0.026 U	-0.098 U	0.437 U	-0.027 U	-0.007 U	0.233 J
	2014	0.088 J	0.028 U	0.033 U	2.3 U	0.033 U	-0.011 U	0.027 J	0.216 J
	2015	0.075 J	0.115	-0.042 U	3.45 U	-0.069 U	-0.027 U	0.04 J	0.506 J
	2018	0.042 U	0.092 U	0.059 J	2.84 J	0.008 U	-0.007 U	0 U	0.47 J
MW-52 (Filtered)	2013	0.088 J	0.136 J	0.035 U	-2.56 U	0.314 U	-0.015 U	-0.007 U	0.258 J
	2014	0.189 J	0.085 U	-0.003 U	4.09 U	-0.066 U	-0.072 U	0.007 U	0.191 J
	2015	0.077 J	-0.018 U	0.065 U	-6.87 U	0.176 J	0.073 U	0.012 U	0.426 J
	2018	-0.014 U	0.171 J	0.021 U	3.37 J	0.07 U	-0.008 U	-0.004 U	0.41 J
MW-53	2014	-0.031 U	0.152	-0.012 U	-0.76 U	0.178 J	-0.039 U	0.052 J	7.24
	2015	0.043 J	0.174 J	0.084 J	3.13 U	0.081 U	0.087 J	0 U	3.58
	2016	-0.015 U	0.033 U	0.031 U	5.43 U	0.338 J	0.001 U	-0.006 U	3.29
	2017	-0.041 U	0.079 U	0.007 U	0 U	0.372 J	-0.026 U	-0.004 U	2.84
	2018	0.038 U	0.039 U	0.091 J	0.524 U	1.11 J	0.692	0.647	4.71
MW-53 (Filtered)	2014	0.041 U	0.084 J	0.017 U	0 U	0.047 U	-0.024 U	0 U	6.63
	2015	0.09 J	0.174	0.02 U	-2.62 U	-0.112 U	0.015 U	0.092 J	3.99
	2016	0.021 U	0.003 U	-0.051 U	3.18 U	0.351 J	-0.117 U	0 U	3.37
	2017	0.042 U	0.099 U	0.035 U	-1.24 U	0.368 J	-0.014 U	0 U	2.42
	2018	0.083 J	0.226 J	0.015 U	2.4 U	0.433 J	0.145 J	0.184	5.79
MW-56	2004	0.742 U		0.418 U	R			0.411 J	
MW-58	2004	0.498 J	0.634 DL	0.193 U	13.8 DL		0.352 U	0.2 J	
MW-59	2004	0.485 U		0.351 U	10.4 U			0.391 J	
	2013	0.097 U	0.26 J	0.097	4.07 U	0.714 J	-0.004 U	-0.02 U	0.199 J
	2014	-0.012 U	0.091 U	0.038 U	6.26 J	-0.003 U	-0.046 U	0 U	0.176 J
	2015	0.045 U	0.086 J	0.058	4.73 U	-0.051 U	-0.037 U	0 U	0.168 J
	2016	-0.013 U	0.044 U	-0.05 U	2.59 U	0.256 U	-0.005 U	-0.006 U	0.044 U
	2017	0.064 J	0.055 U	0.001 U	-1.46 U	0.398 U	-0.003 U	-0.004 U	0.108 J
	2018	0.038 U	0.138 U	0.043 U	-2.32 U	0.141 J	-0.007 U	0 U	0.159 J
MW-59 (Filtered)	2013	0.037 U	0.17 J	0.069 J	2.63 U	0.46 U	0.067 U	-0.028 U	0.191 J
	2014	0.03 U	0.018 U	0.007 U	4.57 J	-0.034 U	-0.023 U	-0.006 U	0.057 J
	2015	0.028 U	0.071 U	0.041 J	0.193 U	-0.081 U	-0.039 U	0.013 U	0.164 J
	2016	0.012 U	0.089 U	-0.031 U	2.96 U	0.388 J	-0.005 U	-0.006 U	0.042 U
	2017	-0.025 U	0.144 J	0.045 U	-2.07 U	0.312 U	0.028 U	0.018 J	0.089 J
	2018	-0.01 U	0.211 J	0.111 J	-1.14 U	0.083 U	-0.008 U	-0.004 U	0.151 J
MW-64	2004	0.61 U		0.22 U	11.1 U			R	
MW-69	2004	R		0.39 U	11.5 U			0.552 J	
MW-81	2013	0.182 J	0.13 U	0.036 J	-4.34 U	0.053 U	-0.043 U	-0.115 U	0.645
MW-81 (Filtered)	2013	0.072 J	0.014 U	0.041 J	-2.73 U	0.554 J	-0.054 U	-0.017 U	0.67
NWS-01A-02	2004	0.362 U		0.123 U	12.7 U			0.215 J	
NWS-01A-03	2004	0.745 U		0.14 U	12.4 U			0.462 J	
NWS-01A-04	2004	0.826 J		0.11 U	11.7 U			0.161 U	
NWS-03-03	2004	0.623 U		0.0745 U	10.8 U			0.313 J	
NWS-05-04	2004	0.763 U		R	12.4 U			0.483 J	

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
PZ-01	2015	0.046 J	0.181	0.052 J	-0.699 U	0.027 U	-0.053 U	-0.026 U	0.326 J
	2016	0.102 J	0.118 U	-0.043 U	-0.359 U	0.353 J	-0.046 U	0.023 U	0.112 J
	2017	0.054 J	0.226 J	0.046 U	4.39 J	0.334 U	-0.014 U	0.02 J	0.081 J
	2018	0.042 U	0.122 U	0.016 U	6.15 J	-0.033 U	-0.007 U	0 U	0.058 U
PZ-01 (Filtered)	2015	-0.036 U	0.016 U	0.049 J	3.28 U	-0.052 U	0 U	0.013 J	0.291 J
	2016	0.017 U	0.062 U	-0.083 U	-2.91 U	0.108 U	-0.037 U	0.017 U	0.098 J
	2017	0.012 U	0.046 U	0.042 U	2.88 U	-0.005 U	0.035 U	0.016 J	0.077 J
	2018	-0.014 U	0.147 J	0.038 J	7.75	-0.001 U	-0.008 U	0.017 U	3.25
PZ-08	2017	0.027 U	0.024 U	0.051 U	1.56 U	0.343 J	0.036 U	0.08	0.497
PZ-08 (Filtered)	2017	0.109 J	-0.005 U	0.102 J	5.78 U	0.37 J	0.014 U	0.016 U	0.184 J
PZ-09	2013	0.104 U	0.123 U	0.088 J	2.9 U	0.54 J	-0.015 U	-0.006 U	0.126 J
	2014	0.178 J	0.144 U	0.082 U	5.46 U	0.014 U	0.026 U	0.025 J	0.167 J
	2015	0.025 U	0.167 J	0.047 U	1.6 U	0.041 U	0.006 U	0 U	0.099 U
	2016	0.017 U	0.003 U	0.053 J	-10.9 U	0.542 J	-0.074 U	-0.001 U	0.036 U
	2017	-0.015 U	0.041 U	0.019 U	1.68 U	0.246 U	0.02 J	-0.004 U	0.06 U
	2018	0.042 U	0.288 U	0.073 U	2.73 U	0.255 J	-0.006 U	-0.006 U	0.128 J
PZ-09 (Filtered)	2013	0.017 U	0.135 U	0.063 J	0.974 U	0.515 U	0 U	0 U	0.127 J
	2014	0.166	0.053 U	0.004 U	3.03 U	0.034 U	-0.005 U	-0.007 U	0.035 U
	2015	0.014 U	0.07 J	0.056 U	1.16 U	-0.012 U	0.022 U	-0.01 U	0.087 U
	2016	0.039 J	0.175 J	-0.012 U	-3.51 U	0.517 J	-0.024 U	-0.005 U	0.032 U
	2017	-0.005 U	0.069 U	0.062 U	1.74 U	0.331 U	-0.023 U	-0.004 U	0.052 U
	2018	-0.017 U	0.134 U	0.071 U	-0.587 U	0.073 U	-0.008 U	0 U	0.121 J

Table 7. Groundwater Sampling Summary of Detections (2003-2018)

Metal	Number of Samples	Number of Detections	Minimum	Maximum	Average	USEPA or PADEP Primary or Secondary Drinking Water Standard (1)	SLDA-specific Upgradient Average
	n	n	UG/L	UG/L	UG/L	UG/L	UG/L
ALUMINUM	238	206	1.4	55000	1828.66	200.0	NC
ANTIMONY	238	56	0.2	6.4	1.15	6.0	NC
ARSENIC	238	57	0.62	120	8.64	10.0	NC
BARIUM	238	238	3.5	1600	216.31	2000.0	NC
BERYLLIUM	218	53	0.1	33	3.89	4.0	NC
CADMIUM	238	20	0.059	8.2	1.01	5.0	NC
CALCIUM	238	238	3400	430000	48383.51	NA	NC
CHROMIUM, TOTAL	238	196	0.31	250	7.03	100.0	NC
COBALT	238	192	0.12	180	7.56	NA	NC
COPPER	238	185	0.23	150	7.87	1000.0	NC
IRON	238	201	52	310000	9299.97	300.0	NC
LEAD	238	69	0.26	39	2.17	15.0	NC
MAGNESIUM	238	238	590	100000	13958.28	NA	NC
MANGANESE	238	233	0.28	4500	269.60	50.0	NC
MERCURY	238	37	0.047	0.15	0.09	2.0	NC
NICKEL	238	235	0.22	680	23.26	100.0	NC
POTASSIUM	238	236	500	80000	3318.87	NA	NC
SELENIUM	238	55	1.5	14	3.04	50.0	NC
SILVER	238	29	0.18	1.2	0.48	100.0	NC
SODIUM	238	237	1100	240000	18098.94	NA	NC
THALLIUM	238	34	0.16	1.7	0.38	2.0	NC
VANADIUM	238	51	0.49	27	2.50	NA	NC
ZINC	238	189	1.8	2400	65.99	5000.0	NC
TOTAL URANIUM	243	202	0.036	17.7	0.63	30	0.9
Radionuclide	n	n	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
AMERICIUM-241	361	68	0.026	0.197	0.09	15	ND
PLUTONIUM-238	263	111	0.056	0.585	0.17	15	ND
PLUTONIUM-239/240	347	61	0.011	0.224	0.07	300 (2)	ND
PLUTONIUM-241	349	22	2.84	10.8	6.25	15	ND
THORIUM-228	243	108	0.094	4.23	0.53	15	ND
THORIUM-230	257	30	0.016	1.32	0.19	15	0.74
THORIUM-232	347	48	0.01	10.7	0.52	15	0.39

NOTES:
(1) - USEPA Maximum Contaminant Levels (MCLs), Secondary MCLs, or Pennsylvania DEP MCLs
(2) - USEPA, Directive #9283.1-14, Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192.
(3) - Based on 40 CFR 9, 141, 142, Federal Register, 7 Dec. 2000, Assumes a U234:U238 ratio of 1.6:1.
NA - No Standard Available
Average exceeds water quality standard.
NC - Not Calculated for non-FUSRAP consituents of concern
ND - Not Detected

FIGURES

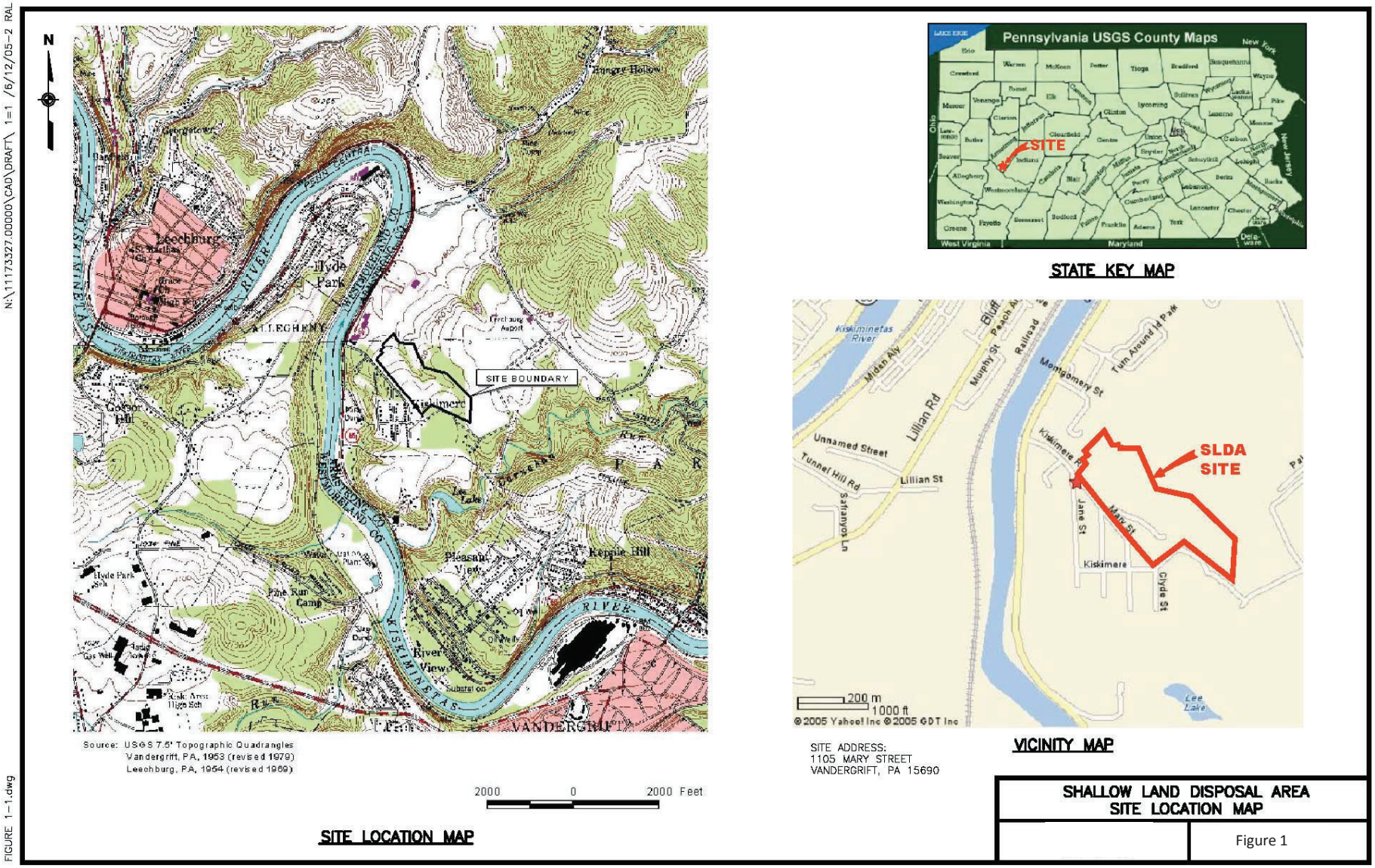

Figure 1. Shallow Land Disposal Area (SLDA) Site Location

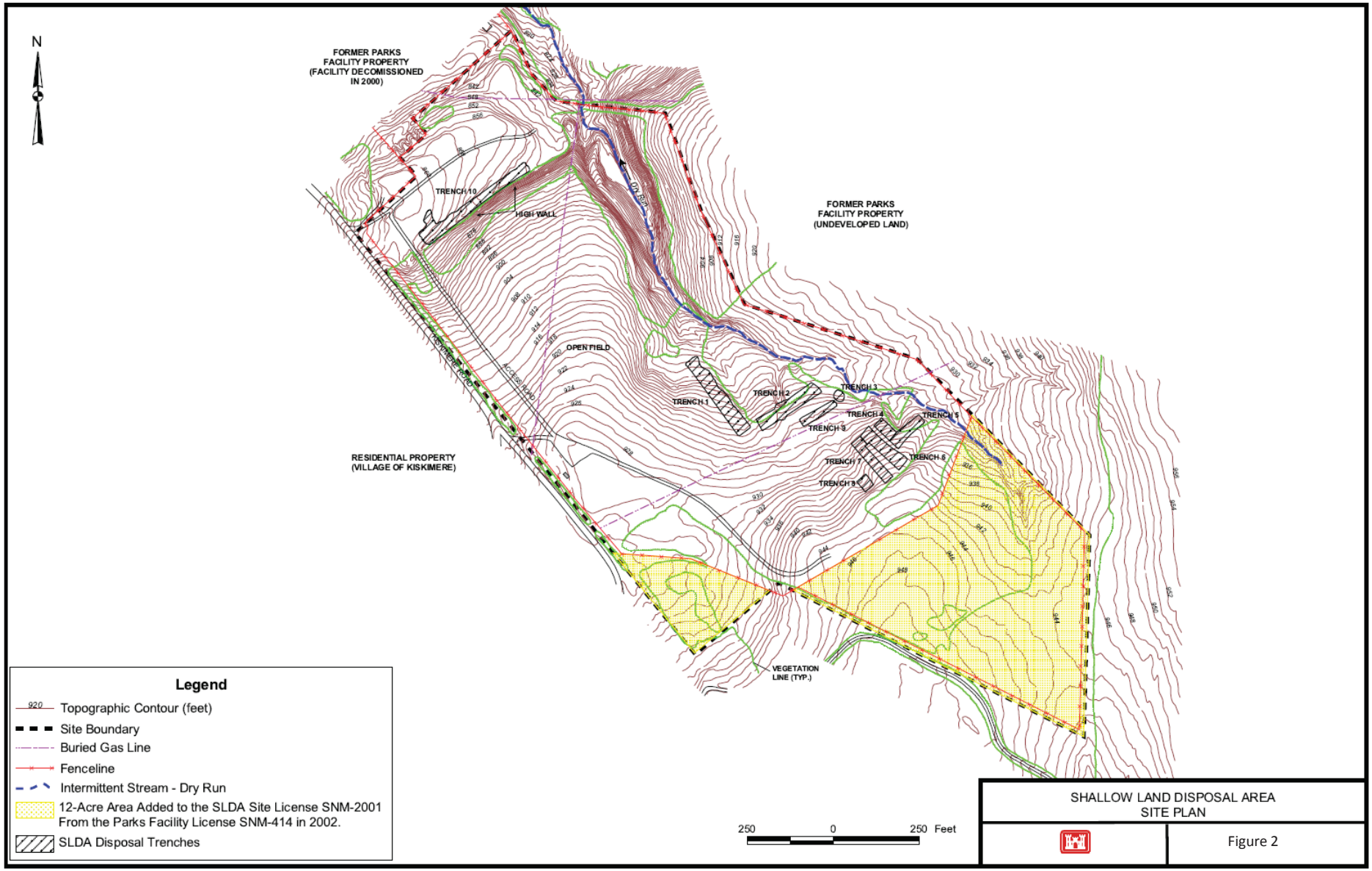

Figure 2. Shallow Land Disposal Area Site Plan

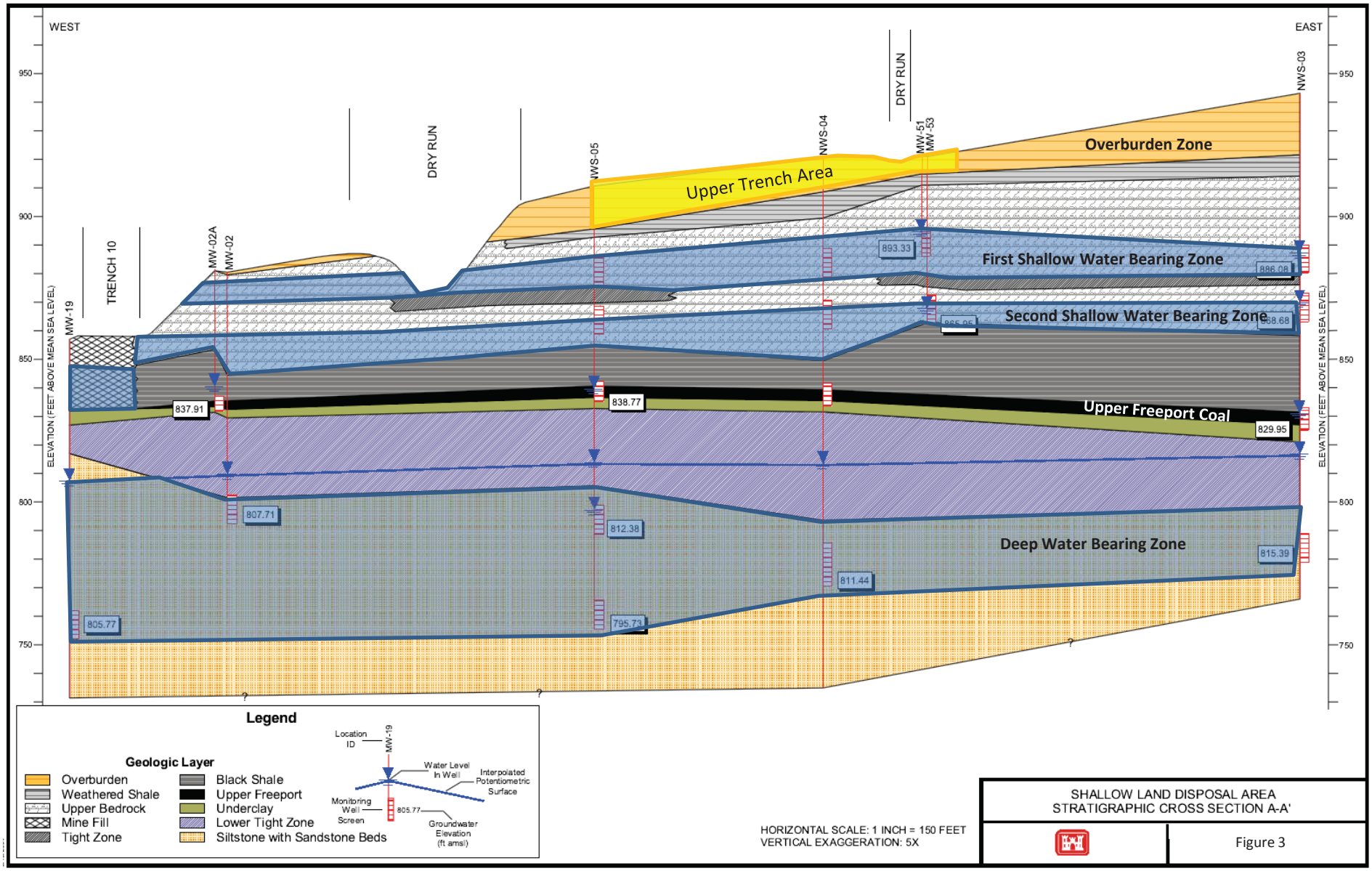

Figure 3. Northwest to Southeast Geologic Cross Section Through SLDA

Legend

- Monitoring Well
- Piezometer
- Temporary Piezometer
- Groundwater Elevation Contour (ft amsl)
- Groundwater Flow Direction
- Trench
- Fenceline
- Site Boundary

0 110 220 440 Feet

US Army Corps of Engineers. Buffalo District

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GROUNDWATER ELEVATION CONTOUR MAP
OVERBURDEN - JULY 2018

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 4

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Legend

- Monitoring Well
- Piezometer
- Temporary Piezometer
- Groundwater Elevation Contour (ft amsl)
- Groundwater Flow Direction
- Trench
- Fenceline
- Site Boundary

0 110 220 440 Feet

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BUFFALO, NY

GROUNDWATER ELEVATION CONTOUR MAP
FIRST SHALLOW BEDROCK ZONE - JULY 2018

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 5

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Legend

- Monitoring Well
- Piezometer
- Temporary Piezometer
- Groundwater Elevation Contour (ft amsl)
- Groundwater Flow Direction
- Trench
- Fenceline
- Site Boundary

0 110 220 440 Feet

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GROUNDWATER ELEVATION CONTOUR MAP
SECOND SHALLOW BEDROCK ZONE - JULY 2018

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 6

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Legend

- Monitoring Well
- Piezometer
- Temporary Piezometer
- Groundwater Elevation Contour (ft amsl)
- Groundwater Flow Direction
- Trench
- Fenceline
- Site Boundary

0 110 220 440 Feet

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GROUNDWATER ELEVATION CONTOUR MAP
UPPER FREEPORT COAL ZONE - JULY 2018

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 7

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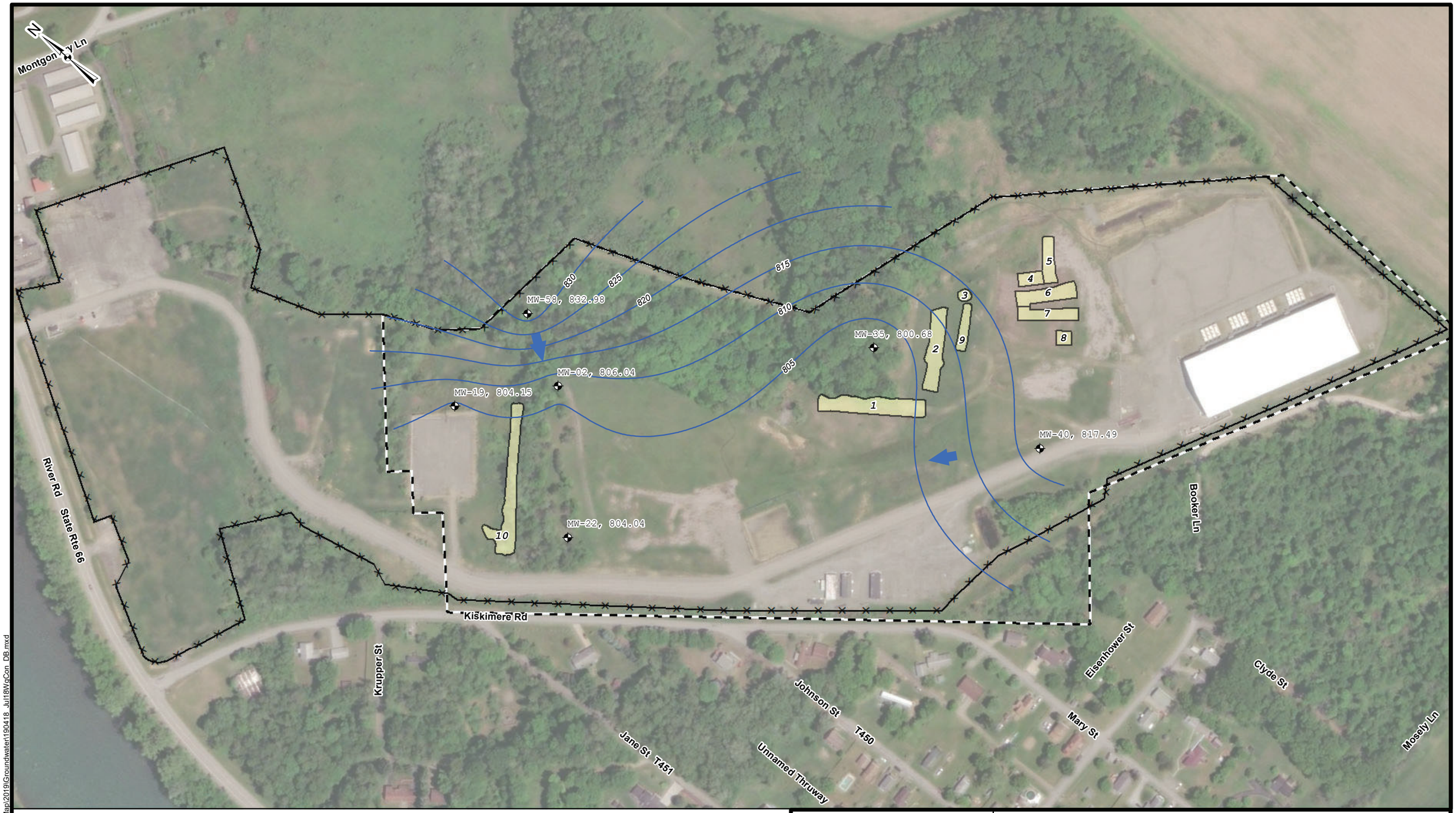

Legend

- Monitoring Well
- Piezometer
- Temporary Piezometer
- Groundwater Elevation Contour (ft amsl)
- Groundwater Flow Direction
- Trench
- Fenceline
- Site Boundary

0 110 220 440 Feet

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GROUNDWATER ELEVATION CONTOUR MAP
DEEP BEDROCK ZONE - JULY 2018

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 8

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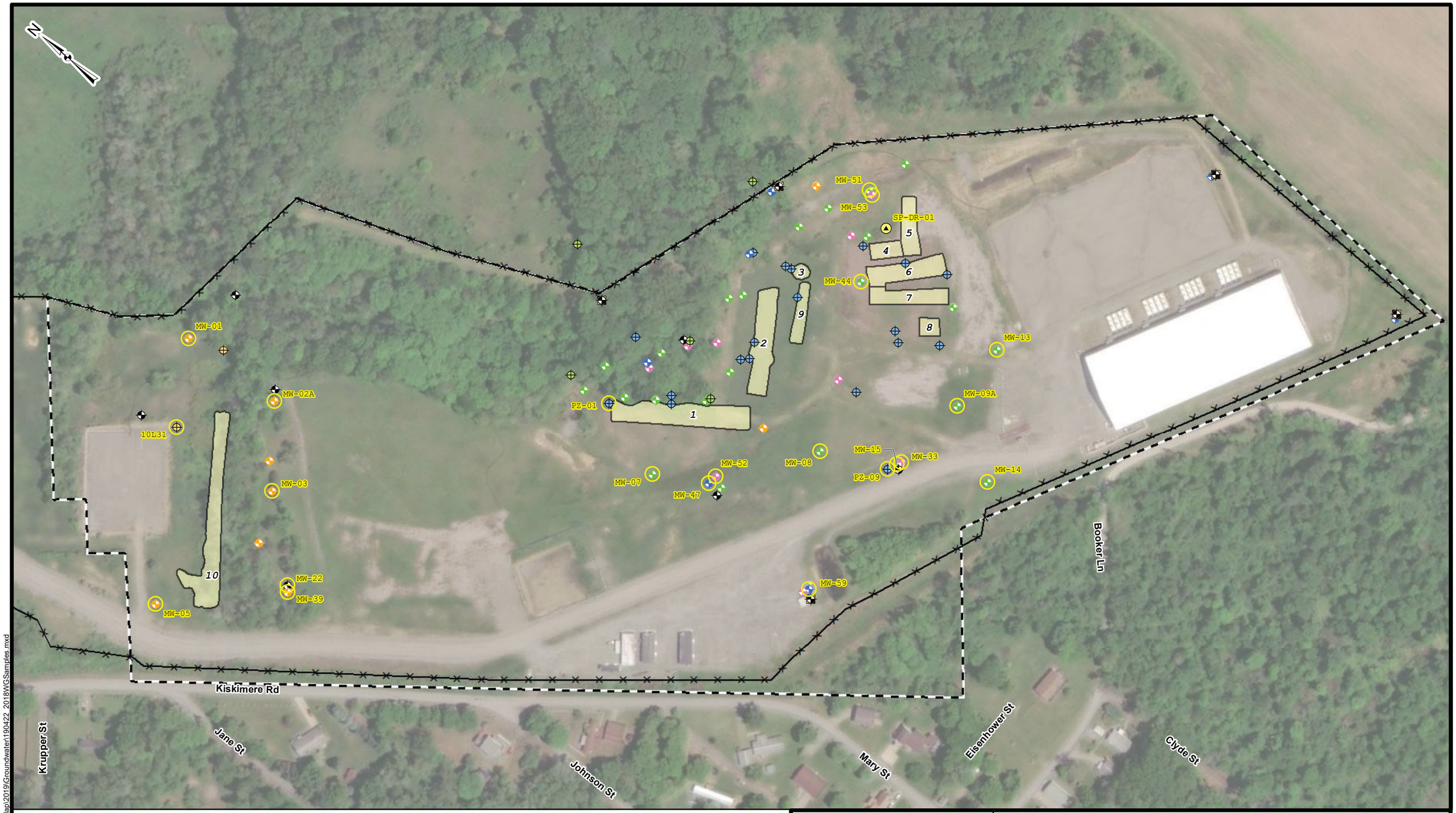

Legend

- Monitoring Well/Piezometer (Sampled 2018)
- Surface Water Location (Sampled 2018)
- Monitoring Well (Overburden)
- Monitoring Well (First Shallow Bedrock)
- Monitoring Well (Second Shallow Bedrock)
- Monitoring Well (Upper Freeport Zone)
- Monitoring Well (Deep Bedrock)
- Nested Monitoring Well
- Piezometer (Overburden)
- Piezometer (First Shallow Bedrock)
- Piezometer (Upper Freeport Zone)
- Trench
- Fenceline
- Boundary

0 85 170 340 Feet

US Army Corps of Engineers
Buffalo District

U.S. ARMY ENGINEER DISTRICT
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GROUNDWATER SAMPLING LOCATIONS (JULY - AUGUST 2018)

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SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 9

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