



GROUNDWATER AND SURFACE WATER MONITORING DATA RELEASE 2022 SAMPLING EVENT SHALLOW LAND DISPOSAL AREA FUSRAP SITE

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

October 2023

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. Results of the 2022 groundwater and surface water monitoring program are consistent with past USACE findings and indicate no FUSRAP-related radionuclides exceed drinking water standards.

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 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 five groundwater-bearing zones:

- Overburden Soil - averages 20 feet in thickness of native silty soil over weathered bedrock zones (below),
- 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:

- North to northwesterly in the soil layer (Figure 4),
- North to northeasterly in the first shallow bedrock zone (Figure 5),
- Both northeasterly and southwesterly in the second shallow bedrock zone (Figure 6) due to a flow divide under the site,
- Southeasterly in the Freeport coal zone (Figure 7), and
- Southwesterly to northwesterly 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 and east (Figure 7). These flow observations contrast from previous sampling events which groundwater in the Upper Freeport Coal Zone drained predominantly to the south.

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 evaluation of the following FUSRAP-related 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:

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

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

Sampling Scope

Annual groundwater and surface water monitoring for 2022 at the SLDA was conducted between September 28 and October 24, 2022. Twenty-one (21) groundwater locations were sampled and generally lie between the 10 trenches and the neighboring residences (Figure 9). Two (2) surface-water locations were sampled to verify the protection of human health and the environment (Figures 9 and 10). 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), as amended (USACE 2015).

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 US EPA guidance (Puls and Barcelona 1996) and the Department of Defense (DoD) (DoD 2013) were utilized for the groundwater and surface water sampling. Prior to sampling, groundwater 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-47 did not yield enough water to collect filtered and unfiltered metal samples. 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

Figures 9 and 10 highlight the on-site groundwater wells and on-site and off-site surface water locations that were sampled in 2022; Tables 5 and 6 list the unfiltered (total) and filtered (dissolved phase) analytical results for all groundwater and surface water sampling events for comparison. Tables 7 and 8 present a summary of all groundwater (2003-2022) and surface water (2004-2022) sampling results, comparative drinking water standards, and up-gradient groundwater values for radionuclides derived during the USACE RI. The 2022 analytical results are consistent with past sampling and select wells and surface water locations exhibit unique values for some analytes relative to the overall dataset; these are discussed below.

Metals Data:

The site-wide ranges of the 2022 data generally fall within the historical site ranges. The following metals in groundwater and/or surface water exceeded their respective water quality standards in 2022 (Table 5):

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

The site-wide average values for aluminum, iron, and manganese in groundwater, along with aluminum, iron, manganese, and thallium in surface water, exceed the primary or secondary drinking water standards (Tables 7 and 8) due to natural conditions, such as the naturally low-oxygen or reducing conditions in the coal mine and deep groundwater zones below the coal mine.

In 2022, arsenic in MW-22 (deep zone) exceeded the MCL; this reflects previous values seen in this well (Table 5). The reducing conditions in these groundwater zones commonly solubilize such metals from natural minerals, which are persistent in the historic data ranges. The site-wide average for arsenic falls below the respective MCL (Table 7). Also in 2022, aluminum, beryllium, iron, manganese, and nickel exceeded their respective MCLs at MW-39 (upper freeport coal zone) (Table 5) due to the naturally low-oxygen or reducing conditions in the coal mine, as mentioned above. The MCLs for iron and manganese were also exceeded in surface water, which is consistent with historical data ranges (Table 5).

Radionuclides:

The ranges of radionuclide results for 2022 groundwater and surface water sampling event are generally consistent with past sampling data. No radionuclides exceed the drinking water standards, as listed in Tables 6, 7, and 8. Tables 7 and 8 show the 2003-2022 data generally reflect the natural background ranges or are well below the drinking water standards.

However, as indicated in the 2019 sampling report, well MW-45 exhibited an increased result that is derived from the highly turbid (cloudy) samples obtained from that well in 2019. 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). This well was not sampled in 2020, 2021, or 2022 as it was dry or there wasn't enough water to collect for sampling. USACE will attempt to sample MW-45 in 2023 for both unfiltered and filtered radionuclides to verify whether the observed result is a turbidity artifact or reflects changes in groundwater conditions.

Conclusions

The 2022 USACE sampling shows that radionuclides are present in site groundwater and on-site and off-site surface water at concentrations indicative of background and well below US EPA 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 US EPA MCLs or dose-based drinking water standards.

References

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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 Plutonium-238 Plutonium-239/240 Americium-241	Filtered and Unfiltered	Alpha Spectrometry
Plutonium-241	Filtered and Unfiltered	Liquid Scintillation

Table 2: SLDA Groundwater and Surface Water Monitoring Summary

Well/Location	Northing and Easting [NAD 1983 State Plane PA South Coordinates [US Survey Feet]]	Zone	Up (U) or Down (D) Gradient from or Within (W) Disposal Areas	Monitoring Activity				Notes	Analysis				
				Water Level	Vapor Monitoring	Unfiltered and Filtered GW Samples	Unfiltered and Filtered Field Duplicate Samples		TAL Metals and Mercury [Filtered and Unfiltered]	Rad (Total U, Iso-Th, Iso-Pu, Am-241, Pu-241) [Filtered and Unfiltered]	Rad (Iso-U, Iso-Th, Iso-Pu, Am-241, Pu-241, Tc-99, Np-237, Co-60, Cs-137, Gross Alpha/Beta) [Filtered and Unfiltered]	VOCs [Unfiltered]	sVOCs [Unfiltered]
01U17	474920.75	1460132.9	OB	D	X			Static Water Levels					
03U05	474911.3	1460475.84	OB	D	X			Static Water Levels					
06U05	474752.61	1460622.86	OB	D	X			Static Water Levels					
08U04	474752.61	1460622.86	OB	D	-			Blocked at 4.0					
10L31	475611.15	1459495.75	UF	U	X	X		Trench Containment Verification (Note 1)	X	X			
10L32	475637.54	1459665.53	UF	U	X			Static Water Levels					
MW-01	475701.63	1459639.30	UF	U	X	Ø		Backup Well (Note 4)	Ø	Ø			
MW-02	475514.39	1459671.58	DB	U	X			Static Water Levels					
MW-02A	475500.91	1459653.22	UF	D	X	X		Trench Containment Verification (Note 1)	X	X			
MW-03	475394.45	1459519.68	UF	D	X			Static Water Levels					
MW-05	475426.21	1459213.58	UF	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-07	474862.82	1460008.03	1S	U/cross gradient	X	X	X	Trench Containment Verification (Note 1)	X	X			
MW-08	474646.43	1460245.79	1S	U	X	X	X	Trench Containment Verification (Note 1)	X	X			
MW-09A	474502.63	1460478.56	1S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-11D	474996.87	1460158.33	2S	D	X			Static Water Levels					
MW-11S	475006.61	1460164.38	OB	D	X			Static Water Levels					
MW-13	474513.42	1460608.55	1S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-14	474365.98	1460405.15	1S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-15	474519.64	1460320.18	1S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-17	474967.5	1460237.46	2S	D	X			Static Water Levels					
MW-19	475677.35	1459470.99	DB	U	X			Static Water Levels					
MW-20	475435.23	1459560.73	UF	D	X			Static Water Levels					
MW-21	475350.60	1459428.07	UF	D	X			Static Water Levels					
MW-22	475257.29	1459401.92	DB	D	X	X		Trench Containment Verification (Note 1)	X	X			
MW-25	474997.03	1460085.62	1S	D	X			Static Water Levels					
MW-26	474874.01	1460250.94	1S	D	X			Static Water Levels					
MW-27	474839.93	1460615.22	1S	D	X			Static Water Levels					
MW-29	474997.15	1460195.22	1S	D	X			Static Water Levels					
MW-32	474745.92	1460072.69	1S	U	X			Static Water Levels					
MW-33	474515.36	1460328.97	2S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-34A	474743.01	1460055.63	DB	D	X			Static Water Levels					
MW-35	474981.1	1460241.46	DB	U	X			Static Water Levels					
MW-37	474864.49	1460596.71	2S	D	X			Static Water Levels					
MW-38	474628.85	1460617.36	1S	U	X			Static Water Levels					
MW-39	475248.58	1459391.74	UF	D	X	X	X	Trench Containment Verification (Note 1)	X	X			
MW-40	474510.49	1460314.48	DB	D	X	X		Trench Containment Verification (Note 1)	X	X			
MW-41	474948.6	1460120.09	1S	D	X			Static Water Levels					
MW-42	474874.08	1460180.2	1S	D	X			Static Water Levels					
MW-43	474929.41	1460278.27	2S	D	X			Static Water Levels					
MW-44	474794.04	1460541.96	1S	D	X	Ø	Ø	Backup Well/Field Duplicate (Note 4)	Ø	Ø			
MW-45	474707.54	1460371.90	2S	U	X			Static Water Levels					
MW-46	474757.33	1460209.91	UF	D	X			Static Water Levels					
MW-47	474769.62	1460063.55	OB	U	X	X		Trench Containment Verification (Note 1)		X			
MW-50	475062.59	1460107.73	1S	D	X			Static Water Levels					
MW-51	474892.83	1460685.09	1S	D	X	Ø		Backup Well (Note 4)	Ø	Ø			
MW-52	474767.91	1460081.72	2S	U	X	X		Trench Containment Verification (Note 1)	X	X			
MW-53	474883.38	1460681.58	2S	D	X			Static Water Levels					
MW-58	475686.53	1459760	DB	U	X			Static Water Levels					
MW-59	474494.87	1460031.85	OB	U	X	Ø		Backup Well (Note 4)	Ø	Ø			
MW-61	474501.10	1460020.48	2S	U	X			Static Water Levels					
MW-62	474975.92	1460626.67	UF	D	X			Static Water Levels					
MW-64	473972.91	1461139.17	OB	U	X			Static Water Levels					
MW-69	474413.33	1461122.42	OB	U	X			Static Water Levels					
MW-74	475034.11	1460563.7	OB	U	X			Static Water Levels					
MW-80	474965.82	1460356.34	1S	D	X			Static Water Levels					
MW-81	475064.61	1460046.84	1S	D	X			Static Water Levels					
MW-82	474951.18	1460546.39	1S	D	X			Static Water Levels					
MW-83	474990.32	1460446.17	OB	D	X			Static Water Levels					
MW-84	474932.04	1460608.34	1S	D	X			Static Water Levels					
MW-86	474872.88	1460766.95	1S	D	X			Static Water Levels					
PZ-01	475012.32	1460057.73	OB	D	X	Ø		Backup Well (Note 4)	Ø	Ø			Note 4
PZ-02	474931.25	1460146.14	OB	D	X			Static Water Levels					
PZ-03A	474874.5	1460282.09	OB	D	-			Unable to Locate					
PZ-05	474834.66	1460595.88	OB	D	X			Static Water Levels					
PZ-06A	474678.01	1460656.96	OB	D	X			Static Water Levels					
PZ-07	474602.29	1460545.24	OB	U	X			Static Water Levels					
PZ-08	474666.96	1460375.71	OB	U	X			Static Water Levels					
PZ-09	474527.33	1460302.34	OB	U	X	X		Trench Containment Verification (Note 1)	X	X			
TPZ-01	475102.5	1460052.79	1S	U	-			Not Measured - Off-site Location					
TPZ-02	475102.5	1460052.79	1S	U	-			Not Measured - Off-site Location					
TPZ-03	475102.5	1460052.79	1S	D	X			Static Water Levels					
TPZ-04	474971.08	1460247.79	1S	D	X			Static Water Levels					
TPZ-05	474869.71	1460188.39	1S	D	X			Static Water Levels					
TPZ-06	475054.27	1460186.93	OB	D	-			Bent - potentially unusable 1" PVC					
TPZ-07	475054.27	1460186.93	OB	D	-			Bent - potentially unusable 1" PVC					
SE-CR-06	471158.49	1459647.99	WS	-	-	X		Off-Site Surface Water (Notes 1 and 2)	X	X			
SP-DR-01	475721.74	1459728.73	WS	-	-	X		On-Site Surface Water (Notes 1 and 3)	X	X			

Notes:
ft AMSL feet above mean sea level
OB Overburden
1S First Shallow Bedrock Zone
2S Second Shallow Bedrock Zone
UF Upper Freeport Coal
DB Deep Bedrock Zone
WS Surface Water
Ø Replacement for Dry or Non-producing Trench Containment Verification Well

Note 1: The Contractor is required to collect static groundwater levels, in addition to unfiltered and filtered groundwater and surface water samples for the following analysis. If there is insufficient groundwater yield for the collection of all analytes, the collection (in order of priority) is unfiltered rad, unfiltered metals, filtered rad, and filtered metals.											
Analyte						Sample Collection					
Target Analyte List (TAL) Metals						Note 1					
Total Uranium						Note 1					
Plutonium-238, 239/240 (isotopic)						Note 1					
Thorium-228, 229, 230, 232 (isotopic)						Note 1					
Americium-241						Note 1					
Uranium-232, 233, 234, 235, 236, 238						Note 1					
Plutonium-241						Note 1					

Note 2: SE-CR-06 is an off-site surface water sample collected near the intersection of Carnahan Run and River Road [State Route 66]. Carnahan Run outlet to Kiski River.
Note 3: SP-DR-01-20 is an on-site groundwater seep near Trenches 4 and 5. This location is approximate. The sample shall be collected from the nearest groundwater seep in this vicinity (see Figure 1).
Note 4: Sampling of Backup Wells will only be required if monitoring well network (MWN) wells are dry or non-producing. MW-44 is the primary backup well/field duplicate sample location.

Table 3. 2022 SLDA Groundwater Levels

Well ID	Date	Depth to Water	Depth to Bottom from TOC	New Remarks
01U17	29-Sep-22	12.03	12.7	
03U05	28-Sep-22	DRY	10.5	
06U05	28-Sep-22	DRY	14	
08U04	28-Sep-22	N/A	14	Blocked at 4.0
10L31	29-Sep-22	22.67	10	
10L32	29-Sep-22	10.7	10	
MW-01	28-Sep-22	7.68	21	
MW-02	28-Sep-22	79	89	
MW-02A	28-Sep-22	47.1	50	
MW-03	28-Sep-22	52.47	52.5	
MW-05	29-Sep-22	26.05	26	
MW-07	03-Oct-22	32.98	33	
MW-08	28-Sep-22	12.2	34	
MW-09A	28-Sep-22	19.48	41	
MW-11D	29-Sep-22	DRY	42	
MW-11S	29-Sep-22	DRY	13	
MW-13	28-Sep-22	22.72	41	
MW-14	28-Sep-22	14.01	32	
MW-15	28-Sep-22	11.71	30	
MW-17	03-Oct-22	42.42	79	
MW-19	28-Sep-22	58.31	125.5	
MW-20	28-Sep-22	DRY	52.5	
MW-21	28-Sep-22	DRY	47.5	
MW-22	28-Sep-22	90.3	111	
MW-25	29-Sep-22	18.05	35	
MW-26	29-Sep-22	29.87	36	
MW-27	28-Sep-22	33.65	35	
MW-29	29-Sep-22	18.35	36	
MW-32	29-Sep-22	26.48	63	
MW-33	28-Sep-22	56.21	82	
MW-34A	29-Sep-22	100.62	190	
MW-35	29-Sep-22	112.94	170	
MW-37	28-Sep-22	69.1	75	
MW-38	28-Sep-22	39.95	77.5	
MW-39	28-Sep-22	54.45	60.5	
MW-40	28-Sep-22	124.28	191.5	
MW-41	03-Oct-22	20.86	40	
MW-42	03-Oct-22	26.6	50	
MW-43	29-Sep-22	41.29	55	
MW-44	28-Sep-22	40.8	60	
MW-45	28-Sep-22	66.28	80	
MW-46	29-Sep-22	DRY	93	
MW-47	29-Sep-22	15.35	17.8	Damaged about 18" down by frost
MW-50	29-Sep-22	36.1	35.1	
MW-51	28-Sep-22	31.73	36	
MW-52	29-Sep-22	36.74	44.5	
MW-53	28-Sep-22	55	71	Damaged well, pumped well gravel

Well ID	Date	Depth to Water	Depth to Bottom from TOC	New Remarks
MW-58	29-Sep-22	7.14	81.2	
MW-59	29-Sep-22	6.41	14	
MW-61	29-Sep-22	67.37	65.5	
MW-62	29-Sep-22	89.1	88	
MW-64	29-Sep-22	14.58	20	
MW-69	29-Sep-22	15.47	20	
MW-74	29-Sep-22	13.98	14	
MW-80	03-Oct-22	27.63	36.5	
MW-81	29-Sep-22	8.63	13	
MW-82	03-Oct-22	28.67	35.5	
MW-83	29-Sep-22	48.64	69	
MW-84	28-Sep-22	34.24	36.5	
MW-86	29-Sep-22	38.2	36	
PZ-01	29-Sep-22	14.05	18	
PZ-02	29-Sep-22	18.85	18	
PZ-03A	29-Sep-22	N/A	18	Unable to Locate
PZ-05	28-Sep-22	19.25	19	
PZ-06A	28-Sep-22	7.45	20	
PZ-07	28-Sep-22	7.41	20	
PZ-08	29-Sep-22	8.03	18	
PZ-09	28-Sep-22	8.26	18	
TPZ-01	--	N/A	11.5	Not Measured - Off-site Location
TPZ-02	--	N/A	11.5	Not Measured - Off-site Location
TPZ-03	29-Sep-22	9.44	11.5	
TPZ-04	03-Oct-22	19.6	26	
TPZ-05	03-Oct-22	20.25	31	
TPZ-06	03-Oct-22	N/A	5.5	Bent - potentially unusable 1" PVC
TPZ-07	03-Oct-22	N/A	5.5	Bent - potentially unusable 1" PVC

Table 4. Groundwater and Surface Water Sampling Field Data (2022)

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	11-Oct-22	60.1	6.57	-53.5	0.391	0.74	3.62	70	Sample Time: 1030
MW-01	20-Oct-22	54.9	6.21	131	0.248	2.37	0.65	100	Sample Time: 1504
MW-02A	6-Oct-22	53.4	6.33	137.9	0.187	3.7	2.49	42	Sample Time: 1050
MW-05	11-Oct-22	52.0	5.98	146.5	0.244	2.94	5.66	75	Sample Time: 0951
MW-07	17-Oct-22	50.0	6.56	165.5	0.213	3.0	11.01	50	Sample Time: 1123. Duplicate Sample Time: 1343
MW-08	11-Oct-22	59.4	7.31	-63.2	0.178	3.63	0.58	75	Sample Time: 1323. Duplicate Sample Time: 1446
MW-09A	12-Oct-22	59.0	6.78	-99.6	0.23	5.06	0.61	70	Sample Time: 1050
MW-13	11-Oct-22	61.9	7.35	-153.6	0.22	0.96	0.51	70	Sample Time: 1510
MW-14	12-Oct-22	61.7	6.19	-79.5	0.254	6.26	0.45	70	Sample Time: 1510
MW-15	12-Oct-22	58.1	5.86	66.7	0.128	28.49	0.42	75	Sample Time: 1153
MW-22	6-Oct-22	55.2	6.79	94.8	0.841	1.3	0.95	50	Sample Time: 1035
MW-33	17-Oct-22	54.0	6.89	-93.5	0.372	1.5	1.92	70	Sample Time: 1123
MW-39	6-Oct-22	59.9	3.59	334.1	0.734	1.5	0.68	50	Sample Time: 1202
MW-40	18-Oct-22	54.3	8.54	-223.6	0.808	1.1	0.46	200	Sample Time: 1315
MW-44	18-Oct-22	49.3	7.26	-58.2	0.266	2.8	1.62	75	Sample Time: 1212. Duplicate Sample Time: 1337.
MW-45	24-Oct-22	64.4	7.22	-185.8	1.38	9.52	3.1	25	Well pumped dry; unable to collect samples.
MW-47	17-Oct-22	57.4	4.47	43.6	0.154	94.3	3.21	70	Well pumped dry on 17 Oct. Sample Time: 0915 on 18 Oct. No metals sample collected due to low yield.
MW-50	24-Oct-22	60.8	7.52	165	0.894	1.61	9.15	--	Well pumped dry; unable to collect samples.
MW-51	24-Oct-22	50.9	6.93	-67.9	0.241	2.3	0.60	100	Sample Time: 1043
MW-52	24-Oct-22	56.7	6.9	-38.6	0.291	3.12	3.39	100	Sample Time: 1534. Duplicate Sample Time: 1648.
MW-59	18-Oct-22	58.6	4.89	279.8	0.119	2.21	1.61	100	Sample Time: 1220
PZ-01	20-Oct-22	58.8	6.01	200.3	0.217	1.46	2.59	100	Sample Time: 1400
PZ-09	12-Oct-22	57.7	4.59	244.2	0.096	2.07	2.23	100	Sample Time: 1011
SP-DR-01	3-Oct-22	54.5	7.16	24.8	0.162	12.53	7.87	--	Surface Water Sample Time: 1322
SE-CR-06	3-Oct-22	50.5	8.23	94.6	0.258	2.81	11.22	--	Surface Water Sample Time: 1227
Maximum		64.4	8.5	334	1.4	94.3	11.2	200.0	
Minimum		49.3	3.6	-224	0.1	0.7	0.4	25.0	
Average		56.5	6.5	40	0.4	7.9	3.1	79.0	
Geometric Mean		56.4	6.4	-	0.3	3.2	1.8	73.0	

NOTES:

Temperature (F) - Degrees Fahrenheit

Specific Conductance (mS/cm) - millisiemens per centimeter

ORP (mV) - Oxidation Reduction Potential in millivolts

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	
10L31	2013	0.01 J	0.00052 U	0.00061 U	0.039		0.00027 U	79	0.0013 J	0.00036 J	0.00027 U	0.29	0.00024 U	42	0.046	0.000086 J	0.0042 J	3.1	0.00015 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	0.0061 J	0.0005 U	0.0005 U	0.15 J	0.0005 U	29	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	0.0075 U	0.0005 U	0.078	0.0005 U	0.0002 U	54	0.00073 J	0.00016 J	0.00073 J	0.62 U	0.00015 J	32	0.0015 J	0.00039 J	0.00016 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	0.0005 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	0.0029	0.0001 U	0.0029 J	2.3	0.0025 U	0.0005 U	1.2	0.0005 U	0.0005 U	0.011 J	
	2019	0.03 U	0.00074 U	0.001 U	0.15	0.0003 U	0.00037 U	54.8	0.0011 J	0.00019 U	0.00019 U	0.33	0.00074 U	12.1	0.0091	0.00016 U	0.0019 U	2.1	0.0019 U	0.00074 U	3.9	0.0003 U	0.00074 U	0.0065 J	
	2020	0.03 U		0.00074 U	0.001 U	0.1	0.0003 U	0.00037 U	49.4	0.00074 U	0.00019 U	0.00019 U	0.15	0.00074 U	26.6	0.0006	0.00016 U	0.00019 U	2.4	0.0021 J	0.00074 U	5.5	0.0003 U	0.00074 U	0.0019 U
	2021	0.041 U	0.01 U	0.0093 U	0.12	0.0014 U	0.00073 U	47.3	0.002 U	0.002 U	0.0036 U	0.18	0.0022 U	26.2	0.004 J	0.00017 J	0.0073 U	2.4	0.0073 U	0.0014 U	1.2	0.0073 U	0.002 U	0.0073 U	
	2022	0.03 U	0.00074 U	0.0003 U	0.13	0.0003 U	0.00037 U	52.4	0.0021 J	0.00019 U	0.00019 U	0.044 J	0.00074 U	28.1	0.008	0.00016 U	0.0022 J	2.5	0.0019 U	0.00074 U	1.5	0.0003 U	0.00074 U	0.0026 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	0.00016 U	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	0.00015 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 U	0.0035 J	
	2015	0.0027 J	0.00062 J	0.0005 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 U	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	0.00075 U	0.0005 U	52	0.00071 J	0.00013 J	0.00013 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	0.0005 U	0.005 U	
	2018	0.0054 J	0.00075 U	0.001 U	0.11	0.0005 U	0.00075 U	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	0.0005 U	0.009 J	
	2019	0.03 U	0.00074 U	0.0017 J	0.42	0.00037 U	0.00037 U	36.2	0.0018 J	0.0003 J	0.00019 U	11.4	0.00074 U	6.7	0.4	0.00003 U	0.00019 U	0.00074 U	3.7	0.00037 U	0.00074 U	3.7	0.00037 U	0.00074 U	0.0092
	2020	0.03 U	0.00074 U	0.0011 U	0.096	0.00037 U	0.00037 U	49.4	0.00074 U	0.00019 U	0.00019 U	0.12	0.00074 U	27.5	0.0048 J	0.00003 U	0.00019 U	2.4	0.0028 J	0.00074 U	5.4	0.00037 U	0.00074 U	0.0022 J	
	2021	0.033 U	0.0066 U	0.0026 U	0.12	0.0013 U	0.00066 U	53.4	0.0016 U	0.0016 U	0.0033 U	0.25	0.002 U	27.2	0.0092	0.00003 U	0.0066 U	2.7	0.0066 U	0.0013 U	1.2	0.0066 U	0.0013 U	0.0093 U	
	2022	0.03 U	0.00074 U	0.0003 U	0.14	0.00037 U	0.00037 U	58.1	0.0013 J	0.00019 U	0.00019 U	0.019 J	0.00074 U	29.9	0.00037 U	0.00003 U	0.0019 U	2.5	0.0019 U	0.00074 U	1.6	0.00037 U	0.00074 U	0.002 J	
MW-01	2013	0.012 J	0.00052 U	0.00061 U	0.048	0.00037 U	0.00027 U	46	0.00029 J	0.00022 J	0.0008 J	0.19 J	0.0003 J	23	0.014	0.000091 J	0.0024 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	0.0001 U	0.046	0.0005 U	0.0005 U	37	0.00056 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	0.0005 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	0.0005 U	0.011 J	
	2019	0.03 U	0.00074 U	0.001 U	0.032	0.0003 U	0.00037 U	20.1	0.00074 U	0.00019 U	0.00019 U	0.26	0.00074 U	3.1	0.55	0.00016 U	0.0019 U	1	0.0019 U	0.00074 U	1.3	0.0003 U	0.00074 U	0.0028 J	
	2020	0.03 U	0.00074 U	0.001 U	0.064	0.0003 U	0.00037 U	36.9	0.00074 U	0.00019 U	0.00019 U	0.067	0.00074 U	20.6	0.042	0.00016 U	0.0019 U	1.9	0.0019 U						

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/L
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	0.00062 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	0.00051	0.00001 U	0.0013 J	1.5	0.0005 U	0.0005 U	2.9	0.00066 J	0.0005 U	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	0.0005 U	0.005 U
	2018	0.005 U	0.00075 U	0.001 U	0.34	0.0005 U	0.0005 U	36	0.0005 U	0.0011 J	0.0009 U	0.38	0.0005 U	8.1	0.17	0.0001 U	0.0016 J	1.7	0.0025 U	0.0005 U	3.2	0.0005 U	0.0005 U	0.005 U
	2019	0.03 U	0.00074 U	0.0011 U	0.26	0.00037 U	0.00037 U	20.8	0.0011 J	0.0022 J	0.0019 U	3.7	0.00074 U	5.9	1.7	0.00003 U	0.0025 J	1.1	0.0019 U	0.00074 U	5.3	0.00037 U	0.00074 U	0.005 J
	2020	0.03 U	0.00086 J	0.0011 U	0.3	0.00037 U	0.00037 U	35.2	0.00037 U	0.00037 U	0.0019 U	0.37	0.00074 U	8.4	0.14	0.00003 U	0.0019 U	1.6	0.0019 U	0.00074 U	2.4	0.00037 U	0.00074 U	0.002 J
	2021	0.033 U	0.0066 U	0.0026 U	0.34	0.0013 U	0.00066 U	37.6	0.0016 U	0.0016 U	0.0033 U	0.48	0.002 U	7.9	0.15	0.00003 U	0.0066 U	1.7	0.0066 U	0.0013 U	2.4	0.0066 U	0.0016 U	0.0066 U
	2022	0.03 U	0.00074 U	0.0011 U	0.39	0.00037 U	0.00037 U	43.3	0.00074 U	0.0019 U	0.0019 U	0.38	0.00074 U	8.9	0.14	0.00003 U	0.0019 U	1.7	0.0019 U	0.00074 U	2.6	0.00037 U	0.00074 U	0.0019 U
MW-09A	2013	0.044 J	0.00052 U	0.0043	0.46	0.00052 U	0.00027 U	30	0.005 J	0.00044 J	0.013	0.51	0.00031 J	6	0.0013	0.000083 J	0.0033 J	6.5	0.0033 J	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	0.0021	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	0.0012 U	0.0005 U	27	0.0016 U	0.0005 U	0.0041 J	0.18 J	0.0006 J	6.1	0.0069	0.0001 U	0.002 J	11	0.0025 U	0.0004 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	0.0033 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
	2019	0.03 U	0.00074 U	0.001 U	0.024	0.0003 U	0.00037 U	42.6	0.0019 J	0.0019 U	0.0019 U	0.091	0.00074 U	28.6	0.018	0.00016 U	0.0028 J	2.3	0.0019 U	0.00074 U	10.5	0.0003 U	0.00074 U	0.0046 J
	2020	0.03 U	0.00074 U	0.001 U	0.73	0.0003 U	0.00037 U	31.2	0.00076 J	0.0019 U	0.0019 U	1.6	0.00074 U	7.6	0.57	0.00016 U	0.001	5.8	0.0019 U	0.00074 U	7.2	0.0003 U	0.00074 U	0.0019 U
	2021	0.036 U	0.01 U	0.0093 U	0.67	0.0014 U	0.00073 U	29.3	0.002 U	0.002 U	0.0036 U	0.5	0.0022 U	6.8	0.19	0.00016 U	0.0093 J	3	0.0073 U	0.0014 U	6.5	0.0073 U	0.002 U	0.008 J
	2022	0.03 U	0.00074 U	0.001 U	0.7	0.0003 U	0.00037 U	32.3	0.00074 U	0.0019 U	0.0019 U	0.85	0.00074 U	7.5	0.27	0.00016 U	0.0076 J	2.9	0.0019 U	0.00074 U	6.3	0.0003 U	0.00074 U	0.0024 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	0.00084	0.0001 U	0.0019 J	11	0.0025 U	0.0005 U	10	0.0005 U	0.0005 U	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	0.00075 U	0.015 J	0.001 U	0.43	0.0005 U	0.0005 U	24	0.0005 U	0.00016 J	0.071	0.62 U	0.00016 U	5.7	0.00019 U	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	0.0013 U	0.00018 J	0.0005 U	0.23	0.0005 U	5.6	0.0015 J	0.0001 U	0.0035 J	10	0.0025 U	0.0005 U	13	0.0005 U	0.0025 U	0.005 U
	2018	0.005 U	0.00074 U	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
	2019	0.03 U	0.00074 U	0.0011 U	0.47	0.00037 U	0.00037 U	31.6	0.0014 U	0.0019 U	0.0019 U	0.4	0.00074 U	7.3	0.04	0.00003 U	0.0019 U	1.1	0.0019 U	0.00074 U	2.4	0.00037 U	0.00074 U	0.0028 J
	2020	0.03 U	0.00074 U	0.0011 U	0.69	0.00037 U	0.00037 U																	

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/L
MW-33	2013	0.15	0.00052 U	0.0018	0.81	0.00077 U	36	0.0018 J	0.00057 J	0.0022 J	1	0.00098 J	6.8	0.00098 J	0.08	0.0001 J	0.0015 U	0.00018 U	72	0.00025 J	0.0006 J	0.019 J		
	2014	0.038 J	0.001 U	0.0004	0.64	0.0005 U	48	0.0021 J	0.00018 U	0.0013 J	0.0025 U	0.71	0.00029 J	9.5	0.00089 J	0.0001 U	0.0002 J	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	34	0.015	0.0064	0.012	0.086	0.23	0.0001 U	8.3	0.017	0.0002 U	0.00034 J	60	0.0005 U	0.00034 J	0.0097	0.041 J		
	2016	6.3	0.00075 U	0.0028	0.92	0.0025 U	27	0.033 J	0.0045 J	0.016 J	0.048	7.4	0.027 J	8.3	0.037	0.0002 U	0.0005 U	68	0.0005 U	0.0005 U	0.011 J	0.035 J		
	2017	0.27	0.0021 J	0.001 U	0.26	0.0005 U	52	0.0047 J	0.00038 J	0.00015 J	0.76	0.00046 J	11	0.048	0.0001 U	0.00043 J	2.3	0.0025 U	0.0005 U	21	0.0005 U	0.00025 U	0.017 J	
	2018	0.63 J	0.00075 U	0.001 U	0.59	0.0005 U	45	0.0036 J	0.00061 J	0.0016 U	0.89	0.00048 J	9.6	0.0021	0.0001 U	0.0029 J	2.4	0.00025 U	0.0005 U	36	0.0005 U	0.00025 U	0.0094 J	
	2019	0.03 U	0.00074 U	0.001 U	0.38	0.0003 U	107	0.00078 J	0.00019 U	0.00019 U	1	0.00074 U	18.5	0.28	0.00016 U	0.00019 U	2.4	0.00019 U	0.00074 U	4.3	0.0003 U	0.00074 U	0.017	
	2020	0.03 U	0.00074 U	0.001 U	0.32	0.0003 U	49.5	0.00074 U	0.00019 U	0.00019 U	0.046 J	0.00074 U	11.3	0.0021	0.00016 U	0.00019 U	2.4	0.00019 U	0.00074 U	31.6	0.0003 U	0.00074 U	0.015	
	2021	0.036 U	0.01 U	0.0003 U	0.19	0.0004 U	63.3	0.0014 U	0.0002 U	0.0002 U	0.036 U	0.00073 U	13.1	0.0022 U	0.00016 U	0.00028 U	2.4	0.00016 U	0.00073 U	7.5	0.0073 U	0.00073 U	0.017 U	
	2022	0.03 U	0.00074 U	0.001 U	0.16	0.0003 U	64.9	0.00074 U	0.00037 U	0.00019 U	0.0019 U	0.019 U	14.2	0.0028 J	0.00016 U	0.00019 U	2.5	0.00019 U	0.00074 U	8.5	0.0003 U	0.00074 U	0.0025 J	
MW-33 (Filtered)	2013	0.0031 J	0.00061 U	0.00061 U	0.67	0.00025 U	45	0.00048 J	0.00013 J	0.00078 J	0.32	0.00074 U	8.1	0.00081 J	0.00022 J	0.0001 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	46	0.0011 J	0.00016 J	0.00066 J	0.35	0.0005 U	8.8	0.0001 U	0.00018 J	0.0001 U	2.4	0.00025 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	40	0.002 J	0.00013 J	0.0005 U	0.27	0.0005 U	8	0.0001 U	0.00014 J	0.0001 U	2.4	0.00025 U	0.0005 U	47	0.0005 U	0.00062 U	0.0025 U	
	2016	0.054 J	0.00068 J	0.0016	0.76	0.0005 U	29	0.0005 U	0.0005 U	0.0047 J	0.32 J	0.0005 U	6	0.052	0.0001 U	0.00034 J	2.3 J	0.00025 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	52	0.0011 J	0.0002 J	0.00015 U	0.49	0.0005 U	0.0002 J	0.0001 U	0.00034 J	0.0001 U	2.2	0.00025 U	0.0005 U	18	0.0005 U	0.00025 U	0.0084 J	
	2018	0.052	0.00075 U	0.001 U	0.61	0.0005 U	43	0.0022 J	0.00032 J	0.012	0.48	0.00088 J	9.1	0.06	0.0001 U	0.00049 J		0.00025 U	0.0005 U	42	0.0005 U	0.00025 U	0.026 J	
	2019	0.03 U	0.00074 U	0.0011 U	0.33	0.00037 U	53	0.00074 U	0.00019 U	0.00019 U	0.12	0.00074 U	10.5	0.019	0.00003 U	0.00019 U	2.2	0.00019 U	0.00074 U	19.6	0.00037 U	0.00074 U	0.0055 J	
	2020	0.03 U	0.00074 U	0.0011 U	0.32	0.00037 U	49.1	0.00074 U	0.00037 U	0.00019 U	0.0019 U	0.0019 U	0.02 J	0.00074 U	11.7	0.012	0.00003 U	0.00019 U	32.3	0.00037 U	0.00074 U	0.015		
	2021	0.033 U	0.0066 U	0.0026 U	0.19	0.0013 U	66.6	0.0016 U	0.0006 U	0.0006 U	0.02 U	0.002 U	13.6	0.002 U	0.00016 U	0.0006 U	0.006 U	2.7	0.006 U	0.006 U	7.6	0.006 U	0.006 U	0.006 U
	2022	0.03 U	0.00074 U	0.0011 U	0.17	0.00037 U	67.8	0.00074 U	0.00037 U	0.00019 U	0.0019 U	0.0019 U	14.6	0.0019 U	0.00003 U	0.00019 U	0.00037 U	2.5	0.00019 U	0.00074 U	10.2	0.00037 U	0.00074 U	0.0019 U
MW-38	2017	0.11 J	0.001 J	0.0015	0.43	0.00035 J	45	0.00073 J	0.0002 U	0.00091 J	1.3	0.00048 J	10	0.05	0.00048 J	0.0001 U	0.00024 J	1.9	0.00025 U	0.00038 J	5.8	0.0005 U	0.00025 U	0.008 J
	2017	0.0022 J	0.00075 U	0.0012 J	0.4	0.0005 U	44	0.00038 J	0.0005 U	0.0005 U	1.1	0.0005 U	9.3	0.047	0.0001 U	0.00019 J	1.8	0.00025 U	0.0005 U	4.9	0.0005 U	0.00025 U	0.005 U	
MW-39	2013	5.4	0.00052 U	0.00061 U	0.03	0.00022 U	50	0.002 J	0.0036	0.014	22	0.0011	20	0.23	0.00088 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	0.036	0.00021	0.0005 U	37	0.0013 J	0.0005 U	0.00054	12	0.018	0.00027 J	0.12	0.00016 U	0.0005 U	2.6	0.0005 U	0.0005 U	14	0.0005 U	0.0005 U	0.096	
	2015	2.9	0.002 J	0.009 J	0.082	0.0009 J	22	0.0052 J	0.0084	0.0057	15	0.0052	8.6	0.022	0.0001 U	0.0005 U	2.2	2.0005 U	0.0005 U	7.1	0.0019 J	0.0005 U	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	0.0001 U	0.14	3.2	0.0025 U	0.00026 J	9.7	0.00018 J	0.00025 U	0.32	
	2017	16	0.00075 U	0.0037	0.033	0.00075	45	0.0076 J	0.00034 J	0.042	0.022	51	0.0024	19	0.0001 U	0.23	0.0001 U	0.00025 U	8.1	0.00018 J	0.00027 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	0.00025 U	0.079
	2020	6																						

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/L
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	0.10	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	0.00083 J	0.0038 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	0.00025 U	0.013 J
	2018	18	0.00066 J	0.00082	0.74	0.00094 J	0.00043 J	110	0.13	0.016	0.016	30	0.022	36	0.89	0.0001 U	0.086	24	0.0099	0.0005 U	55	0.0005 U	0.0027	0.091
MW-53 (Filtered)	2014	0.15	0.0012 J	0.0012	0.12	0.0005 U	0.0005 U	12	0.0097 J	0.001 J	0.017 J	10	0.00045 J	0.012	0.0005 U	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	0.0001 U	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	0.00017 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	13 J	0.18	0.0001 U	0.0067 J	13 J	0.0028 J	0.0005 U	91	0.0005 U	0.0005 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 U	0.018	19	0.0087	0.0005 U	53	0.0005 U	0.0073	0.044 J
MW-59	2013	0.2	0.00058 J	0.00061 U	0.056	0.00058 J	0.00038 J	9	0.00098 J	0.0019 J	0.0019 J	1.2	0.00052 J	8	0.73	0.0001 J	0.0015 U	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	0.0025	3.8	0.0005 U	9.4	0.57	0.0001 U	0.0033	0.94	0.002	0.0005 U	6.1	0.0005 U	0.0005 U	0.056 J
	2015	0.77	0.001 U	0.001 U	0.047	0.0003 J	0.0005 U	9.3	0.0056 J	0.012	0.0032 J	1.6	0.00032 J	8.6	0.6	0.0001 U	0.0022	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	0.0008	0.00023 J	0.62 U	0.0001 U	0.1	0.0001 U	0.03	0.0001 U	0.0054	0.85 J	0.0005 U	8.3	0.0001 U	0.0001 U	0.0092 J
	2017	0.2	0.0064	0.00052 J	0.052	0.00052 J	0.00035 J	7	0.006	0.0011 J	0.0011 J	0.65	0.00036 J	0.0001 U	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
MW-59 (Filtered)	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	0.0001 U	0.59	0.0001 U	0.029	0.9	0.0025 U	0.0005 U	8.6	0.0005 U	0.0025 U	0.045 J
	2019	0.03 U	0.00074 U	0.001 U	0.065	0.0003 U	0.00037 U	33.3	0.00074 U	0.0019 U	0.0019 U	0.036 J	0.00074 U	18.5	0.0019 U	0.00016 U	0.0019 U	1.9	0.0019 U	0.00074 U	3.6	0.0003 U	0.00074 U	0.0034 J
	2020	0.052 J	0.00074 U	0.001 U	0.047	0.0003 U	0.00037 U	6.5	0.00074 U	0.0012	0.0019 U	1.5	0.00074 U	7.5	0.4	0.00016 U	0.0028	1.2	0.0019 U	0.00074 U	6.7	0.0003 U	0.00074 U	0.0035
	2021	0.82	0.01 U	0.0093 U	0.052	0.0014 U	0.00073 U	5	0.002 U	0.0077	0.0088 J	4.4	0.0022 U	5.2	0.34	0.00016 U	0.0022	1.2	0.0073 U	0.0014 U	8.2	0.0073 U	0.002 U	0.035
	2022	0.072 J	0.00074 U	0.001 U	0.048	0.00049 J	0.00037 U	5.5	0.00074 U	0.01	0.0045 J	0.31	0.00074 U	6.1	0.53	0.00016 U	0.0025	0.82	0.0019 U	0.00074 U	6.6	0.0003 U	0.00074 U	0.0037
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	0.0013 J	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	0.0038	0.0048 J	0.0005 U	0.00048 J	8.9	0.00041 J	0.011	0.00074 J	2.1	0.0005 U	7.7	0.0001 U	0.025 U	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	0.022	0.0001 U	0.03	0.92	0.0025 U	0.00071 J	6.4	0.0005 U	0.0025 U	0.045 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	1.1	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	0.87	0.57	0.0001 U	0.028	0.87	0.0025 U	0.0005 U	5.7	0.0005 U	0.0025 U	0.037 J
MW-81	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
	2019	0.03 U	0.00074 U	0.0011 U	0.37	0.00037 U	0.00037 U	38.9	0.00084 J	0.0019 U	0.0019 U	1.1	0.00074 U	9.3	0.35	0.00003 U	0.0019 U	1.6	0.0019 U	0.00074 U	3.2	0.00037 U	0.00074 U	0.0068
	2020	0.037 J	0.00074 U	0.0011 U	0.045	0.00037 U	0.00037 U	6.6	0.00074 U	0.0011	0.00019 U	1.7	0.00074 U	7.4	0.39	0.00003 U	0.0029	1	0.00019 U	0.00074 U	5.9	0.00037 U	0.00074 U	0.0068
	2021	0.033 U	0.0066 U	0.0033 J	0.047	0.0013 U	0.0009 J	5.8	0.0016 U	0.0077	0.0053 J	0.14	0.0021 U	6	0.33	0.00003 U	0.003	1	0.0066 U	0.0013 U	6.5	0.007 J	0.0016 U	0.037 J
	2022	0.064 J	0.00074 U	0.0011 U	0.05																			

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) (Note 1)
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
	2019	-0.011 U	0.012 U	0.007 U	4.8 U	0.021 U	0.026 U	-0.003 U	0.3
	2020	0.077 U	0.069 U	0.03 J	10.6 U	0.108 U	0.104 U	0.051 U	0.189 J
	2021	0.0229 U	0.012 U	0.029 U	5.5 U	0.156 U	0.11 U	0.065 U	0.471 J
	2022	0.0748 U	0.119 U	0.137 U	11.1 U	0.506 U	0.502 U	0.365 U	1 U
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
	2019	-0.021 U	0.023 U	0.006 U	-2.4 U	0.043 U	0.045 U	0.016 U	0.304
	2020	0.078 U	0.082 U	0.031 J	10.8 U	0.101 U	0.109 U	0.039 U	0.188 J
	2021	0.025 U	0.029 U	0.037 U	4.5 U	0.163 U	0.115 U	0.047 U	0.437 J
	2022	0.556 UJ	0.125 U	0.131 U	13.3 U	0.751 U	0.394 U	0.393 U	1 U
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
	2019	-0.017 U	0.032 U	0.021 U	2 U	-0.099 U	-0.01 U	0 U	0.021 U
	2020	0.076 U	0.066 U	0.054 U	10.2 U	0.145 U	0.108 U	0.035 U	0.03 U
	2021	0.0293 U	0.026 U	0.036 U	6.6 U	0.159 U	0.111 U	0.066 U	0.042 J
	2022	0.252 U	0.291 U	0.325 U	20.3 U	0.872 U	0.458 U	0.296 U	1 U
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
	2019	-0.015 U	-0.021 U	0.001 U	-0.3 U	-0.033 U	0.004 U	0.01 U	0.023 U
	2020	0.076 U	0.035 J	0.026 J	9.6 U	0.146 U	0.119 U	0.032 U	0.032 U
	2021	0.032 U	0.025 U	0.021 U	5.3 U	0.145 U	0.108 U	0.042 U	0.042 J
	2022	0.269 U	0.279 U	0.23 U	19 U	0.762 U	0.558 U	0.238 U	1 U
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
	2019	-0.021 U	0.003 U	0.034 U	2.8 U	0.035 U	-0.008 U	0.005 U	0.078 J
	2020	0.074 U	0.066 U	0.075 U	10.4 U	0.088 U	0.101 U	0.025 U	-0.01 U
	2021	0.055 U	0.049 U	0.022	12.1 U	0.152 U	0.119 U	0.059 U	
	2022	0.133 U	0.127 U	0.135 U	13 U	0.42 U	0.527 U	0.291 U	1 U

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.02 U	0.011 U	0.002 U	2.4 U	-0.005 U	0.042 U	0.013 U	0.033 U
	2020	0.099 U	0.068 J	0.056 U	10.4 U	0.153 U	0.107 U	0.045 U	0.02 U
	2021	0.037 U	0.032 U	0.048 U	7.2 U	0.109 U	0.107 U	0.021	
	2022	0.132 U	0.0947 U	0.104 U	14.2 U	0.44 U	0.42 U	0.345 U	1 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
	2019	-0.027 U	0 U	0.02 U	10.6 U	0.015 U	0.027 U	0.005 U	0.153 J
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	-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
	2019	-0.011 U	0.031 U	0.011 U	-2.3 U	-0.037 U	0.073 U	0 U	0.102 J
	2020	0.083 U	0.038 J	0.026 U	10.4 U	0.168 U	0.117 U	0.032 U	0.082 J
	2021	0.024 U	0.013 U	0.013 U	8.5 U	0.107 U	0.108 U	0.027 U	0.15 J
	2022	0.0995 U	0.376 U	0.353 U	32.7 U	0.454 U	0.807 U	0.513 U	1 U
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
	2019	-0.008 U	0.042	0.003 U	-0.5 U	-0.078 U	0.053 U	0.016	0.06 J
	2021	0.027 U	0.01 U	0.024 U	6.4 U	0.134 U	0.108 U	0.034 U	0.109 J
	2022	0.126 U	0.15 U	0.156 U	15.2 U	0.393 U	0.455 U	0.294 U	1 U
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
	2019	-0.007 U	0.014 U	-0.012 U	11.2	0.071 U	0.034 U	0.007 U	0.107 J
	2020	0.086 U	0.025 U	0.052 U	10.2 U	0.095 U	0.102 U	0.031 U	0.097 J
	2021	0.031 U	0.009	0.02 U	5.6 U	0.144 U	0.113 J	0.042 U	0.15 J
	2022	0.225 U	0.13 U	0.176 U	12.8 U	0.629 U	0.451 U	0.308 U	1 U
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
	2019	-0.005 U	-0.013 U	0.008 U	4.7 U	0.012 U	0.03 U	-0.012 U	0.077 J
	2020	0.076 U	0.054 U	0.065 U	10.1 U	0.11 U	0.104 U	0.038 U	0.107 J
	2021	0.03 U	0.026 U	0.033 U	5.9 U	0.129 U	0.11 U	0.041 U	0.152 J
	2022	0.258 U	0.195 U	0.239 U	13.4 U	0.488 U	0.302 U	0.348 U	1 U

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.016 U	-0.012 U	0.003 U	3.4 U	0.031 U	0.005 U	0.003 U	0.038 J
	2020	0.073 U	0.046	0.053 U	10.6 U	0.107 U	0.103 U	0.01 J	0.011 U
	2021	0.023 U	0.029 U	0.042 U	5.7 U	0.127 U	0.105 U	0.01 U	0.036 U
	2022	0.123 U	0.123 U	0.0787 U	11.1 U	0.452 U	0.447 U	0.325 U	1 U
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
	2019	-0.023 U	0.034 U	0.007 U	3.6 U	0 U	0.019 U	0.006 U	0.075 J
	2020	0.081 U	0.024 U	0.026 J	10.1 U	0.135 U	0.104 U	0.025 U	0.007 U
	2021	0.028 U	0.026 U	0.026 U	4.9 U	0.126 U	0.107 U	0.028 U	0.041 J
	2022	0.137 U	0.094 U	0.0642 U	11.5 U	0.825 U	0.433 U	0.432 U	1 U
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	-0.111 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
	2019	-0.018 U	0.027 U	0.013 U	9.2 U	0.199	0.023 U	-0.003 U	0.188 J
	2020	0.08 U	0.039 J	0.029 J	10.5 U	0.051 U	0.108 U	0.05 U	0.082 J
	2021	0.022 U	0.032 U	0.032 U	6.2 U	0.103 U	0.103 U	0.026 U	0.195 J
	2022	0.189 U	0.0913 U	0.128 U	11.8 U	0.803 U	0.714 U	0.486 U	1 U
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
	2019	-0.013 U	0.017 U	0.021 U	2.4 U	0 U	0.085	0.027 U	0.14 J
	2020	0.079 U	0.038 J	0.025 U	10.1 U	0.109 U	0.106 U	0.025 U	0.031 U
	2021	0.0224 U	0.045 U	0.039 U	6 U	0.111 U	0.108 U	0.035 U	0.235 J
	2022	0.126 U	0.185 U	0.143 U	11.6 U	0.696 U	0.756 U	0.558 U	1 U
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
	2019	-0.011 U	0.007 U	0.033 J	3.6 U	-0.034 U	0.096 U	0.008 U	0.033 U
	2020	0.078 U	0.024 U	0.051 U	9.7 U	0.104 U	0.109 U	0.029 U	-0.012 U
	2021	0.0217 U	0.03 U	0.038 U	6.4 U	0.135 U	0.108 U	0.034 U	0.214 J
	2022	0.215 U	0.184 U	0.145 U	15.7 U	0.689 U	0.625 U	0.492 U	1 U

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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	0.082 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
	2019	0.013 U	0 U	0 U	-1.9 U	0.02 U	0.07 U	-0.002 U	0.028 U
	2020	0.085 U	0.056 U	0.068 U	10.4 U	0.098 U	0.105 U	0.033 U	-0.02 U
	2021	0.024 U	0.027 U	0.021	5.7 U	0.131 U	0.104 U	0.034 U	0.252 J
	2022	0.144 U	0.102 U	0.169 U	14.2 U	0.705 U	0.493 U	0.491 U	1 U
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
	2019	-0.023 U	0.037 U	0.003 U	-1.5 U	-0.017 U	0.036 U	0.014 U	0.184 J
	2020	0.075 U	0.067 U	0.067 U	11 U	0.109 U	0.107 U	0.037 U	-0.028 U
	2021	0.024 U	0.059 U	0.037 U	7.4 U	0.121	0.105 U	0.026 U	0.175 J
	2022	0.128 U	0.092 U	0.092 U	12.1 U	0.774 U	0.647 U	0.68 U	1 U
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
	2019	-0.03 U	-0.012 U	0.011 U	7.6 U	0.059 U	-0.034 U	0.004 U	0.163 J
	2020	0.079 U	0.059 U	0.059 U	12 U	0.113 U	0.114 J	0.033 U	-0.011 U
	2021	0.0219 U	0.03 U	0.026 U	5.4 U	0.128 U	0.111 U	0.046 U	0.208 J
	2022	0.158 U	0.112 U	0.136 U	14.1 U	0.621 U	0.526 U	0.358 U	1 U
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
	2019	-0.007 U	0.032 U	0.001 U	11 U	-0.005 U	0.025 U	-0.021 U	0.025 U
	2020	0.073 U	0.052 U	0.052 U	10.5 U	0.111 U	0.1 U	0.043 U	0.037 J
	2021	0.0238 U	0.037 U	0.043 U	5.9 U	0.113 U	0.11 U	0.028 U	0.197 J
	2022	0.132 U	0.161 U	0.173 U	12.2 U	0.399 U	0.399 U	0.314 U	1 U
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
	2019	-0.018 U	0.028 U	0.017 U	9.8 U	0.025 U	-0.001 U	-0.012 U	0.069 J
	2020	0.074 U	0.052 U	0.052 U	10.5 U	0.122 U	0.113 U	0.046 U	0.074 J
	2021	0.026 U	0.037 U	0.055 U	5.8 U	0.131 U	0.112 U	0.047 U	0.158 UJ
	2022	0.18 U	0.198 U	0.198 U	30.2 U	0.601 U	0.599 U	0.469 U	1 U
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

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.02 U	-0.009 U	0.051 U	12.5	0.48	0.36	0.373	0.771
	2020	0.078 U	0.069 U	0.083 U	12.9 U	0.29	0.181	0.196	0.311
	2021	0.03 U	0.026 U	0.026 U	7.2 U	0.126 U	0.107 U	0.028 U	
	2022	0.581 UJ	0.138 U	0.192 U	16.2 U	0.548 U	0.559 U	0.469 U	1 U
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
	2019	-0.011 U	0.043 U	0.027 U	10.4 U	-0.016 U	0.012 U	0.021	0.114 J
	2020	0.073 U	0.026 U	0.026 U	10.6 U	0.115 U	0.107 U	0.046 U	-0.014 U
	2021	0.031 U	0.027 U	0.038 U	8.1 U	0.123 U	0.109 U	0.041 U	
	2022	0.301 U	0.126 U	0.0986 U	11.5 U	0.631 U	0.277 U	0.402 U	1 U
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	
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
	2019	-0.014 U	0.01 U	0.006 U	10.4	0 U	0.033 U	0.021	0.187 J
	2020	0.073 U	0.027 J	0.063 U	10.4 U	0.124 U	0.11 U	0.039 U	0.286
	2021	0.031 U	0.02 U	0.031 U	6.2 U	0.128 U	0.11 U	0.048 U	0.118 J
	2022	0.267 U	0.161 U	0.18 U	15.4 U	0.574 U	0.497 U	0.375 U	1 U
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
	2019	-0.014 U	0.021 U	0.012 U	11.6 U	0.008 U	0.034 U	0.017 U	0.172 J
	2020	0.077 U	0.067 U	0.076 U	10.3 U	0.11 U	0.101 U	0.039 U	0.339
	2021	0.029 U	0.025 U	0.008 U	5.9 U	0.156 U	0.11 U	0.066 U	0.089 J
	2022	0.273 U	0.179 U	0.148 U	14.9 U	0.496 U	0.386 U	0.409 U	1 U
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

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2020	0.074 U	0.08 U	0.027 U	10.6 U	0.214	0.11 J	0.081	0.451
	2021	0.029 U	0.017 UJ	0.052 UJ	13.6 UJ	0.173	0.108 U	0.115	0.775
	2022	0.207 U	0.0891 U	0.0982 U	12.1 U	0.602 U	0.494 U	0.373 U	1 U
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
	2020	0.079 U	0.074 U	0.06 U	11.5 U	0.125 U	0.104 U	0.031 U	0.191 J
	2021	0.028 U	0.011 U	0.04 U	8.9 U	0.119 U	0.105 U	0.035 U	0.201 J
	2022	0.0564 U	0.095 U	0.133 U	13.9 U	0.593 U	0.554 U	0.407 U	1 U
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
	2019	-0.01 U	-0.005 U	0.012 U	3.2 U	-0.008 U	0.092 U	0.015 U	0.071 J
	2020	0.077 U	0.03 U	0.064 U	11.8 U	0.131 U	0.113 U	0.027 U	-0.013 U
	2021	0.03 U	0.022 U	0.029	8.3 U	0.121 U	0.114 U	0.038 U	0.054 J
	2022	0.171 U	0.207 U	0.254 U	14.7 U	0.707 U	0.519 U	0.354 U	1 U
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
	2019	-0.014 U	0 U	0.017 U	1 U	0.055 U	0.031 U	0.011 U	0.042 J
	2020	0.071 U	0.052 U	0.063 U	9.7 U	0.108 U	0.109 U	0.027 U	-0.013 U
	2021	0.0272 U	0.006 U	0.017	5.5 U	0.129 U	0.124 U	0.035 U	
	2021								0.042 J
	2022	0.452 U	0.259 U	0.356 U	19.7 U	0.517 U	0.477 U	0.304 U	1 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
	2019	0.01 U	-0.005 U	0.01 U	12.4 U	0.63	0.4	0.419	1.7
	2020	0.073 U	0.048 J	0.026 U	10.4 U	0.106 U	0.101 U	0.105	1.57
	2021	0.0282 U	0.018 U	0.024 U	5.1 U	0.167	0.114 U	0.029 U	2.3
	2022	0.245 U	0.146 U	0.177 U	13.5 U	0.596 U	0.537 U	0.354 U	1 U
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
	2019	-0.009 U	0.004 U	-0.003 U	3.7 U	0.045 U	0.004 U	0.007 U	0.521
	2020	0.077 U	0.025 U	0.052 U	10.1 U	0.127 U	0.105 U	0.014 J	1.57
	2021	0.028 U	0.0054	0.0107	4.8 U	0.177 U	0.129 U	0.067 U	1.52
	2022	0.358 U	0.23 U	0.237 U	14.4 U	0.644 U	0.733 U	0.499 U	1 U
MW-45	2019	-0.016 U	0.01 U	0.038 U	4.1 U	1.37	1.1	0.8	9.36
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

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.017 U	0.026 U	0.036 U	-4.2 U	0.078	0.053 U	0.063	0.853
	2020	0.075 U	0.057 U	0.069 U	10.6 U	0.52	0.46	0.4	1.97
	2021	0.028 U	0.033 U	0.01 U	6.5 U	0.109 U	0.122	0.039	0.84 J
	2022	0.245 U	0.208 U	0.222 U	14.1 U	0.574 U	0.381 U	0.452 U	1 U
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
	2019	0.002 U	-0.009 U	0.124	5.3 U	0.008 U	0.02 U	-0.013 U	0.255 J
	2021	0.03 U	0.02 U	0.02 U	5 U	0.16	0.12 U	0.093	0.498
	2022	0.259 U	0.178 U	0.243 U	15.7 U	0.834 U	0.738 U	0.56 U	2.98
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 J	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
	2020	0.08 U	0.065 U	0.025 U	10 U	0.28	0.104 U	0.085	0.574
	2021	0.029 U	0.012	0.024 U	5.9 U	0.191	0.114 U	0.058	0.403
	2022	0.102 U	0.204 U	0.113 U	13.3 U	0.483 U	0.462 U	0.347 U	1 U
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
	2020	0.075 U	0.067 U	0.048 J	10.6 U	0.11 U	0.103 U	0.032 U	0.354
	2021	0.037 U	0.024 U	0.019 U	6.1 U	0.13 U	0.109 U	0.028 U	0.232 J
	2022	0.35 U	0.221 U	0.193 U	12.2 U	1.35 U	1.15 U	1.05 U	1 U
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
	2019	0.016 U	-0.004 U	0.003 U	9.5 U	0.125	0.067 U	0.051	0.458
	2020	0.074 U	0.079 U	0.027 U	10.5 U	0.119 U	0.101 U	0.027 J	0.093 J
	2021	0.029 U	0.007	0.016 U	5.1 U	0.141 U	0.118 U	0.047 U	0.325
	2022	0.446 U	0.189 U	0.239 U	13.5 U	0.814 U	0.769 U	0.568 U	1 U
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
	2019	-0.011 U	0.006 U	0.032 U	14.9	0.024 U	0.005 U	0.003 U	0.339 J
	2020	0.077 U	0.072 U	0.059 U	11.3 U	0.11 U	0.108 U	0.04 U	0.124 J
	2021								0.152 J
	2022	0.277 U	0.441 U	0.573 U	27.7 U	0.756 U	0.785 U	0.569 U	1 U
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
MW-56	2018	0.083 J	0.226 J	0.015 U	2.4 U	0.433 J	0.145 J	0.184	5.79
	2004	0.742 U		0.418 U	R			0.411 J	

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.023 U	-0.001 U	-0.008 U	4.5 U	0.023 U	0.016 U	0.003 U	0.027 U
	2020	0.087 U	0.049 U	0.049 U	12.9 U	0.122 U	0.103 U	0.026 U	0.05 J
	2021	0.027 U	0.007 U	0.007 U	5.2 U	0.149 U	0.123 U	0.046 U	0.026 U
	2022	0.215 U	0.191 U	0.233 U	15.3 U	1.24 U	1.05 U	0.774 U	1 U
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
	2019	-0.006 U	0.025 U	0.018 U	8.6 U	0.061 U	0.017 U	0.014 U	0.028 U
	2020	0.077 U	0.069 U	0.078 U	10.8 U	0.105 U	0.102 U	0.017 J	0.028 U
	2021	0.027 U	0.008	0.018 U	5.6 U	0.134 U	0.11 U	0.052 U	0.032 U
	2022	0.224 U	0.228 U	0.242 U	16.6 U	1.15 U	1.11 U	0.659 U	1 U
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	
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
	2019	-0.014 U	0 U	0 U	-0.2 U	0.047 U	-0.028 U	0.003 U	0.058 J
	2020	0.079 U	0.03 J	0.04 J	11.1 U	0.12 U	0.102 U	0.025 U	0.18 J
	2021	0.028 U	0.007 U	0.026 U	5.7 U	0.124 U	0.107 U	0.04 U	0.125 J
	2022	0.237 U	0.189 U	0.23 U	12.8 U	1.26 U	1.08 U	0.515 U	1 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
	2019	-0.002 U	0.029 U	-0.001 U	1.4 U	0.031 U	0.026 U	0.007 U	0.02 U
	2020	0.077 U	0.026 U	0.026 U	10.4 U	0.104 U	0.102 U	0.01 J	0.222 J
	2021	0.029 U	0.018 U	0.025	5.9 U	0.138 U	0.109 U	0.043 U	0.222 J
	2022	0.277 U	0.22 U	0.2 U	13.3 U	1.15 UJ	1.17 UJ	0.497 UJ	1 U
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
	2019	-0.023 U	0.032	0.011 U	2.9 U	-0.086 U	0.036 U	0.006 U	0.053 J
	2020	0.089 U	0.027 U	0.027 U	10.6 U	0.113 U	0.104 U	0.038 U	-0.009 U
	2021	0.029 U	0.008 U	0.014	5.3 U	0.137 U	0.118 U	0.047 U	0.094 J
	2022	0.222 U	0.18 U	0.241 U	30.5 U	0.597 U	0.624 U	0.426 U	1 U

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
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
	2019	-0.019 U	0.031 U	-0.013 U	-2.9 U	0.031 U	0.005 U	0 U	0.029 U
	2020	0.074 U	0.07 U	0.05 J	10.5 U	0.18 U	0.145 U	0.015 U	-0.025 U
	2021	0.028 U	0.024 U	0.035 U	6 U	0.122 U	0.1 U	0.032 U	0.084 J
	2022	0.169 U	0.075 U	0.0955 U	12.2 U	0.595 U	0.448 U	0.319 U	1 U
SP-CR-01	2004	0.163 U		0.632 U	10.6 U			0.39 J	
SP-CR-02	2004	0.169 U		0.631 U	9.33 U			0.606 J	
SP-DR-01	2004	0.728 U	0.38 U	0.38 U	13.9 U		0.945 J	0.501 J	
	2013	0.128 J	-0.003 U	0.114 J	-4.1 U	0.502 J	-0.06 U	0.091 J	1.63
	2014	0.003 U	0.073 U	0.1 J	14.7 J	0.163 U	-0.049 U	0.039 U	5.3
	2015	0.009 U	0.07 U	0.002 U	-6.35 U	0.105 U	0.011 U	0 U	0.275 J
	2016	0.077	0.04 U	0.018 U	4.56 U	0.301 U	-0.027 U	-0.013 U	0.744
	2017	0.048 U	0.093 J	0.003 U	0.475 U	0.649 J	0.137 J	-0.007 U	0.427 J
	2018	0.032 U	0.078 U	0.09	4.02 J	0.339 J	0.068 J	-0.007 U	11.6
	2019	-0.03 U	-0.008 U	0.038 U	11.1	0.084 U	0.125	0.037 U	0.059 J
	2020	0.079 U	0.061 U	0.061 U	12.3 U	0.104 U	0.108 U	0.042 U	0.188 J
	2021	0.021 U	0.026 U	0.042 U	5.6 U	0.132 U	0.112 U	0.049 U	0.258 J
	2022		0.157 U	0.19 U	13.3 U	0.638 U	0.75 U	0.596 U	1 U
	2014	0.09 J	0.073 U	0.049 U	8.03 J	0.181 J	0.002 U	-0.01 U	1.45
	2015	0.026 U	0.09 J	0.027 U	-2.48 U	0.198 J	0.039 J	0.006 U	0.161 J
SP-DR-01 (Filtered)	2016	-0.039 U	0.122 U	0.099	3.96 U	0.198 U	-0.07 U	0 U	0.134 J
	2017	0.043 U	0.105 J	-0.027 U	-4.16 U	0.608 J	0.03 J	-0.007 U	0.276 J
	2018	0.081 J	0.061 U	0.018 U	16.6	0.185 U	-0.009 U	0 U	3.39
	2019	0.007 U	0.021 U	0.047 U	11.2 U	0.01 U	0.005 U	0.005 U	0.054 J
	2020	0.08 U	0.026 U	0.067 U	11.1 U	0.105 U	0.105 U	0.032 U	0.006 U
	2021	0.023 U	0.034 U	0.025	5.4 U	0.128 U	0.109 U	0.019	0.222 J
	2022	0.124 U	0.236 U	0.191 U	16.4 U	0.769 U	0.549 U	0.466 U	1 U
SP-DR-03	2004	0.614 U		0.311 U	32.5 DL			0.53 J	
SP-DR-04	2004	0.814 U		0.45 U	18.7 DL			0.323 U	
SP-DR-05	2004	0.414 U	0.958 U	0.547 U	13.9 U		0.974 J	0.556 J	
SP-DR-05	2013	0.074 J	0.195 J	0.018 U	-0.298 U	0.682 J	-0.05 U	-0.208 U	0.149 J
SP-DR-05 (Filtered)	2013	-0.054 U	0.187 J	0.028 J	-0.503 U	0.406 U	-0.063 U	-0.021 U	0.13 J
WS/SE-CR-01	2004	0.386 U		0.211 U	9.92 U			0.166	
WS/SE-CR-02	2004	0.39 U		0.523 U	11.1 U			0.348 J	
WS/SE-CR-03	2004	0.395 U		0.214 U	9.74 U			0.166 J	
WS/SE-CR-04	2004	0.573 U		0.221 U	9.65 U			0.383 J	
WS/SE-CR-05	2004	0.491 U		0.415 U	10.5 U			0.306 J	
WS/SE-CR-06	2004	0.54 U		0.41 U	9.39 U			0.28 J	
	2015	0.065 J	0.019 U	-0.007 U	-5.46 U	-0.093 U	-0.013 U	0.051	0.144 J
	2016	0.012 U	0.118 U	0.028 U	-8.5 U	0.526 J	-0.004 U	-0.006 U	0.098 J
	2017	-0.014 U	0.128 U	0.036 U	6.79 J	0.348 J	0.023 J	0 U	0.132 J
	2019	-0.004 U	0.001 U	0.006 U	4.8 U	-0.009 U	0.042 U	0.003 U	0.055 J
	2020	0.073 U	0.052 U	0.064 U	10.9 U	0.116 U	0.103 U	0.039 U	0.041 J
	2021	0.023 U	0.013 U	0.013 U	6.3 U	0.128 U	0.109 U	0.041 U	0.243 J
	2022		0.243 U	0.27 U	15.4 U	0.427 U	0.501 U	0.343 U	1 U
WS/SE-CR-06 (Filtered)	2015	0.002 U	0.023 U	0.046 U	-0.173 U	-0.065 U	0.011 U	0.011 J	0.06 U
	2016	0.058 J	0.149 J	0 U	-2.38 U	0.437 U	-0.011 U	0 U	0.098 J
	2017	0.071 J	0.082 U	0.092 J	6.64 J	0.406 J	-0.027 U	0 U	0.081 J
	2020	0.079 U	0.074 U	0.074 U	15 U	0.17 U	0.126 U	0.053 U	0.055 J
	2021	0.023 U	0.044 UJ	0.062 UJ	9.3 UJ	0.131 U	0.106 U	0.041 U	0.249 J
	2022	0.139 U	0.36 U	0.36 U	20.4 U	1.25 UJ	1.57 UJ	0.846 UJ	1 U

Well	Year	AMERICIUM-241	PLUTONIUM-238	PLUTONIUM-239/240	PLUTONIUM-241	THORIUM-228	THORIUM-230	THORIUM-232	TOTAL URANIUM (UG/L) (Note 1)
Units		pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L
WS/SE-DR-01	2004	0.764 J		0.451 U	13.2 J			0.409 J	
WS/SE-DR-02	2004	0.649 U		R	13.6 U			0.466 J	
WS/SE-DR-03	2004	0.35 U		0.401 U	13.7 U			0.516 J	
WS/SE-DR-04	2004	0.51 U		0.487 U	15.3 DL			0.419 J	
WS/SE-DR-05	2004	0.494 U		0.359 U	21.8 DL			0.183 U	
WS/SE-DR-06	2004	0.21 U		R	11 U			0.332 J	

Data Qualifiers:

U - No radionuclides were detected (non-detect)

J - The result was an estimated quantity

Table 7. Groundwater Sampling Summary of Detections (2003-2022)

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	473	296	1.4	55000	1807.93	200.0	NC
ANTIMONY	472	65	0.2	6.4	1.14	6.0	NC
ARSENIC	473	98	0.62	120	9.59	10.0	NC
BARIUM	473	472	3.5	1600	220.44	2000.0	NC
BERYLLIUM	453	82	0.1	33	3.91	4.0	NC
CADMIUM	473	56	0.059	8.2	1.00	5.0	NC
CALCIUM	473	472	3100	430000	46351.69	NA	NC
CHROMIUM, TOTAL	473	297	0.31	4400	21.28	100.0	NC
COBALT	473	271	0.12	180	8.10	NA	NC
COPPER	473	251	0.23	150	8.66	1000.0	NC
IRON	473	401	19	310000	8002.17	300.0	NC
LEAD	473	110	0.26	39	2.75	15.0	NC
MAGNESIUM	473	472	590	100000	13390.02	NA	NC
MANGANESE	473	457	0.28	4500	251.21	50.0	NC
MERCURY	473	43	0.047	0.37	0.11	2.0	NC
NICKEL	473	360	0.22	680	22.61	100.0	NC
POTASSIUM	473	469	500	80000	2934.12	NA	NC
SELENIUM	473	76	1.5	14	2.95	50.0	NC
SILVER	472	30	0.18	1.2	0.48	100.0	NC
SODIUM	473	471	1100	240000	17076.86	NA	NC
THALLIUM	473	40	0.16	7	0.71	2.0	NC
VANADIUM	473	70	0.49	27	3.10	NA	NC
ZINC	473	357	1.8	2400	52.64	5000.0	NC
TOTAL URANIUM	479	355	0.036	17.7	0.59	30	0.9
Radionuclide	n	n	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
AMERICIUM-241	601	75	0.026	0.197	0.09	15	ND
PLUTONIUM-238	503	149	0.0054	0.585	0.15	15	ND
PLUTONIUM-239/240	587	103	0.0107	0.224	0.06	300 (2)	ND
PLUTONIUM-241	589	32	2.84	14.9	7.00	15	ND
THORIUM-228	483	150	0.078	4.23	0.51	15	ND
THORIUM-230	497	56	0.016	1.32	0.21	15	0.74
THORIUM-232	587	88	0.01	10.7	0.40	15	0.39

NOTES:

(1) - US EPA Maximum Contaminant Levels (MCLs), Secondary MCLs, or Pennsylvania DEP MCLs

(2) - US EPA, Directive #9283.1-14, Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192.

NA - No Standard Available

Average exceeds water quality standard.

NC - Not Calculated for non-FUSRAP constituents of concern

ND - Not Detected

Table 8. Surface Water Sampling Summary of Detections (2004-2022)

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	35	31	3.3	11000	658.46	200.0	NC
ANTIMONY	35	11	0.38	2.8	1.24	6.0	NC
ARSENIC	35	14	0.88	7.1	3.28	10.0	NC
BARIUM	35	35	28	320	79.63	2000.0	NC
BERYLLIUM	32	8	0.38	2.7	1.12	4.0	NC
CADMIUM	35	6	0.36	3.3	1.43	5.0	NC
CALCIUM	35	35	3600	52000	23337.14	NA	NC
CHROMIUM, TOTAL	35	20	0.35	20	2.38	100.0	NC
COBALT	35	21	0.14	17	5.18	NA	NC
COPPER	35	19	0.68	12	4.21	1000.0	NC
IRON	35	34	40	20000	3384.74	300.0	NC
LEAD	35	14	0.26	20	4.82	15.0	NC
MAGNESIUM	35	35	710	24000	7397.43	NA	NC
MANGANESE	35	35	8	5500	1315.03	50.0	NC
MERCURY	35	6	0.073	0.17	0.12	2.0	NC
NICKEL	35	27	0.66	21	5.59	100.0	NC
POTASSIUM	35	35	920	6200	2057.43	NA	NC
SELENIUM	35	2	1.5	2.9	2.20	50.0	NC
SILVER	35	4	0.24	1	0.50	100.0	NC
SODIUM	35	35	1100	219000	15737.14	NA	NC
THALLIUM	35	8	0.22	7.2	2.07	2.0	NC
VANADIUM	35	11	0.8	17	3.82	NA	NC
ZINC	35	29	2.3	140	18.78	5000.0	NC
TOTAL URANIUM	35	29	0.041	11.6	1.00	30	0.9
Radionuclide	n	n	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L
AMERICIUM-241	77	9	0.058	0.262	0.10	15	ND
PLUTONIUM-238	39	8	0.09	0.195	0.13	15	ND
PLUTONIUM-239/240	75	8	0.025	0.114	0.07	300 (2)	ND
PLUTONIUM-241	75	7	4.02	16.6	9.70	15	ND
THORIUM-228	35	13	0.181	0.682	0.41	15	ND
THORIUM-230	39	10	0.023	0.993	0.36	15	0.74
THORIUM-232	75	4	0.011	0.091	0.04	15	0.39

NOTES:

(1) - US EPA Maximum Contaminant Levels (MCLs), Secondary MCLs, or Pennsylvania DEP MCLs

(2) - US EPA, Directive #9283.1-14, Use of Uranium Drinking Water Standards under 40 CFR 141 and 40 CFR 192.

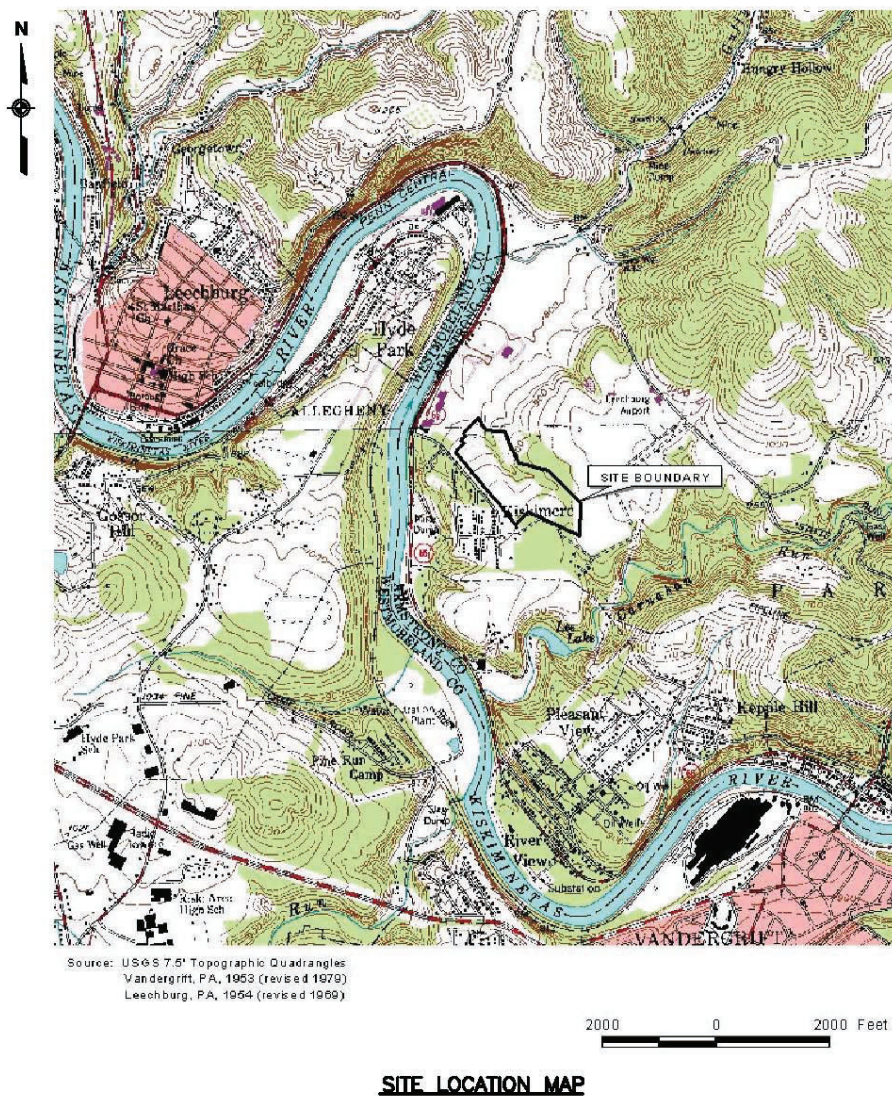
NA - No Standard Available

Average exceeds water quality standard.

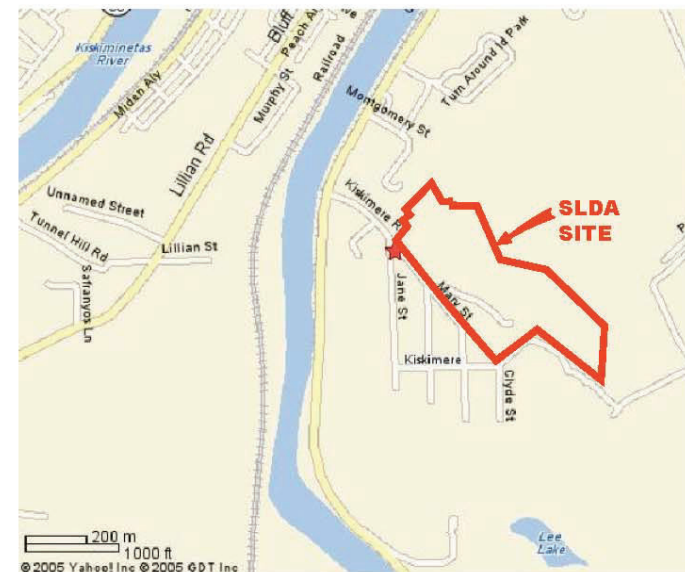
NC - Not Calculated for non-FUSRAP constituents of concern

ND - Not Detected

FIGURES



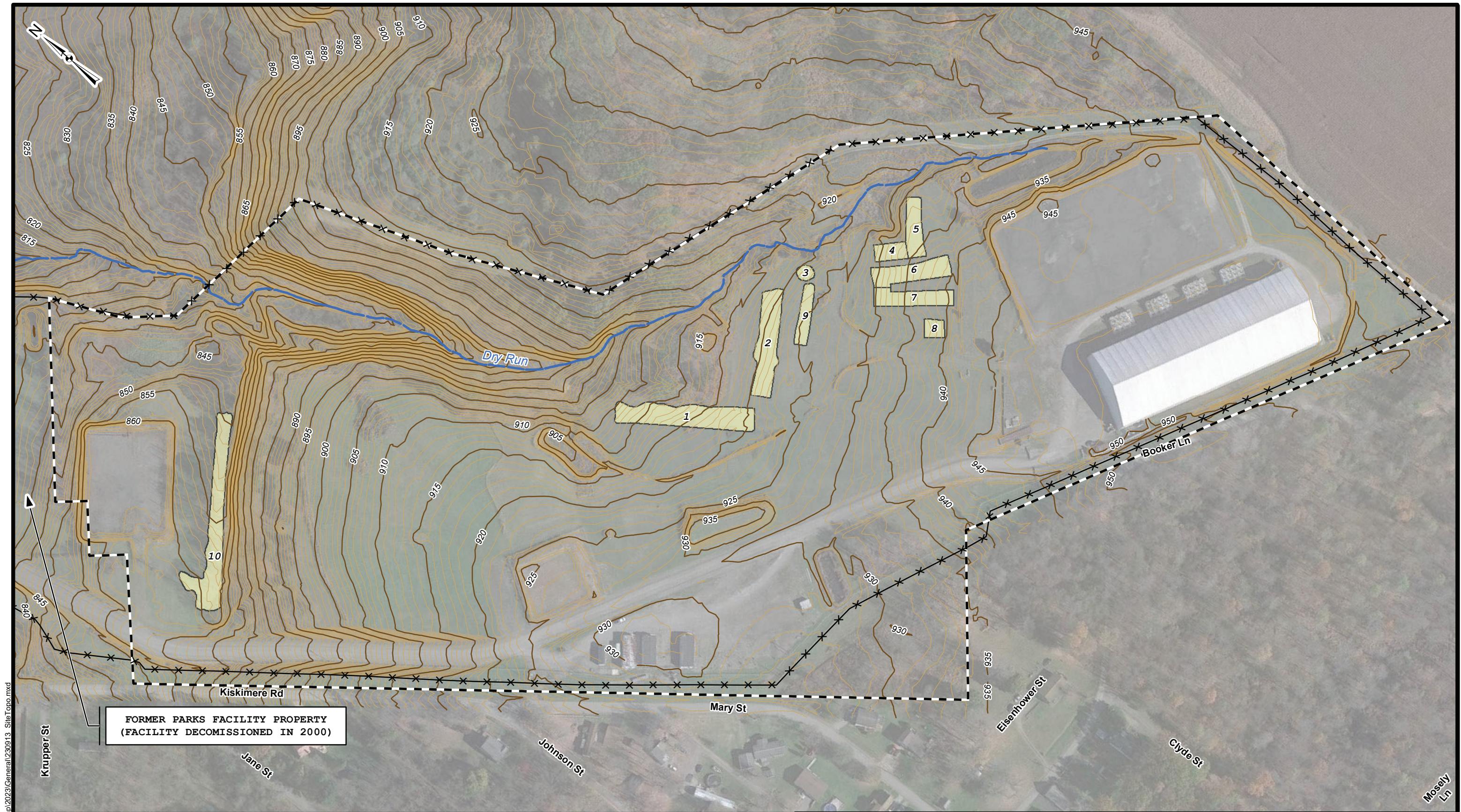
STATE KEY MAP



**SHALLOW LAND DISPOSAL AREA
SITE LOCATION MAP**

Figure 1

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



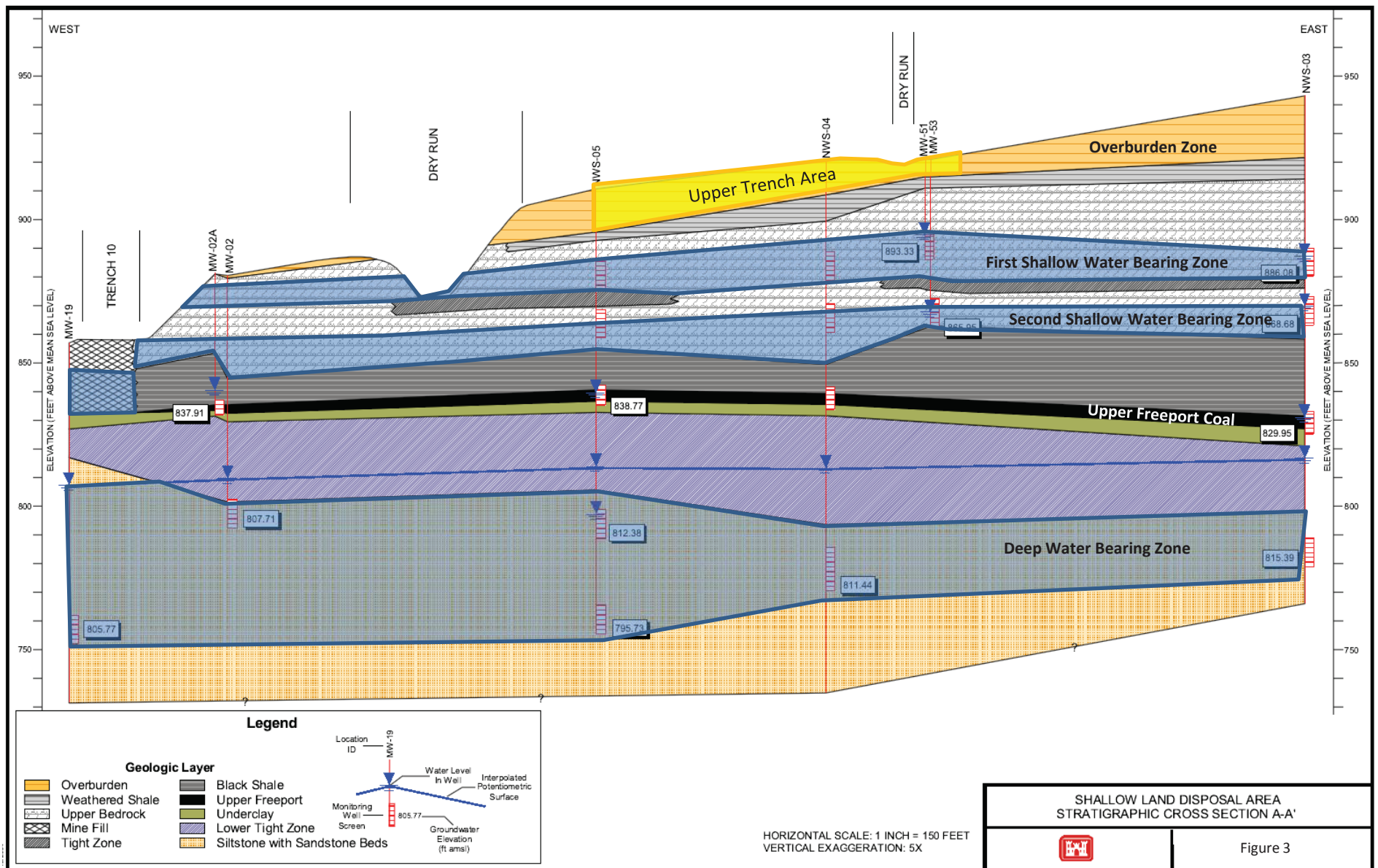


Figure 3. Northwest to Southeast Geologic Cross Section Through SLDA



Legend - Monitoring Well - Piezometer - Temporary Piezometer - Groundwater Elevation Contour (ft amsl) - Groundwater Flow Direction - Trench - Fenceline - Site Boundary		U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NY Document Name: 230317_Oct22WgCon_SS.mxd Drawn By: H5TDESPM Date Saved: 17 Mar 2023 Time Saved: 2:33:00 PM	GROUNDWATER ELEVATION CONTOUR MAP OVERBURDEN - OCTOBER 2022	
SHALLOW LAND DISPOSAL AREA PARKS TOWNSHIP, PENNSYLVANIA			FIGURE 4	

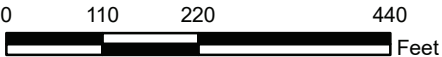


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- Legend**

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

Note: TPZ-05 was not used to generate the potentiometric surface due to possible anomalous readings.



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GROUNDWATER ELEVATION CONTOUR MAP
FIRST SHALLOW BEDROCK ZONE - OCTOBER 2022

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 5



Monitoring Well

Piezometer

Temporary Piezometer

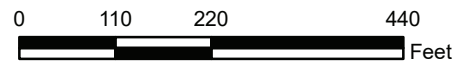
Groundwater Elevation Contour (ft amsl)

Groundwater Flow Direction

Trench

Fenceline

Site Boundary



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BUFFALO, NY

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GROUNDWATER ELEVATION CONTOUR MAP
SECOND SHALLOW BEDROCK ZONE - OCTOBER 2022

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	
--	--



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- Legend**
- 

Monitoring Well



Piezometer



Temporary Piezometer



Groundwater Elevation Contour (ft amsl)



Groundwater Flow Direction



Trench

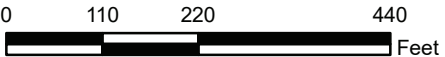


Fenceline



Site Boundary

Note: MW-34A was not used to generate the potentiometric surface due to possible anomalous readings.





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GROUNDWATER ELEVATION CONTOUR MAP
DEEP BEDROCK ZONE - OCTOBER 2022

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 8



Note: Surface water sample WS/SE-CR-06 was sampled off-site near the intersection of Carnahan Run and River Road (State Route 66), as shown on Figure 10.

Legend			 U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NY	GROUNDWATER SAMPLING LOCATIONS (OCTOBER 2022)	
Monitoring Well/Piezometer (Sampled 2022)	Monitoring Well (Upper Freeport Zone)	Piezometer (Upper Freeport Zone)			
Surface Water Location (Sampled 2022)	Monitoring Well (Deep Bedrock)	Historical Surface Water Sample	 0 85 170 340 Feet	SHALLOW LAND DISPOSAL AREA PARKS TOWNSHIP, PENNSYLVANIA	
Monitoring Well (Overburden)	Nested Monitoring Well	Trench			
Monitoring Well (First Shallow Bedrock)	Piezometer (Overburden)	Fenceline			
Monitoring Well (Second Shallow Bedrock)	Piezometer (First Shallow Bedrock)	Boundary			

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Legend

- Surface Water Location (Sampled 2022)
- Historical Surface Water Sample
- Fenceline
- Boundary

0 250 500 1,000 Feet

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NY Buffalo District	OFF-SITE SURFACE WATER SAMPLING LOCATIONS (OCTOBER 2022)	
Document Name: 230829_2022Offsite.mxd Drawn By: H5TDESPM Date Saved: 29 Aug 2023 Time Saved: 10:11:23 AM	SHALLOW LAND DISPOSAL AREA PARKS TOWNSHIP, PENNSYLVANIA	FIGURE 10