GROUNDWATER AND SURFACE WATER MONITORING DATA RELEASE 2015 SAMPLING EVENT SHALLOW LAND DISPOSAL AREA FUSRAP SITE

U.S. Army Corps of Engineers
Pittsburgh District

Building Strong®

December 2016

Formerly Utilized Sites Remedial Action Program (FUSRAP)

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

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

Site Description

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

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

- First Shallow Bedrock - averages 13 feet in thickness between elevation 881 and 894 feet,
- Second Shallow Bedrock - averages 14-feet in thickness between elevation 856 and 870 feet,

- Upper Freeport Coal – averages 4 feet in thickness between elevations 832 and 836 feet and was subjected to room and pillar mining (now exhibits open-channel flow), and
- Deep Bedrock Zone - averages about 36 feet in thickness between elevations 757 and 793 feet.

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

Groundwater surrounding the upper trench area flows dominantly to the north in the soil layer (Figure 4), to the north-northeast in both the first and second shallow bedrock zones (Figures 5 and 6), to the south in the Freeport Coal (Figure 7), and to the west in the deep bedrock zone (Figure 8). Groundwater surrounding Trench 10 appears to enter the Upper Freeport Coal seam, which drains in a westerly to southerly direction (Figure 7).

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 a subset of the groundwater wells shown on Figure 9; the wells were sampled for the following radionuclides:

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

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

From April to December 2011 (during the initial remedial action), groundwater was sampled monthly at 14 locations to determine if the site excavation activities were affecting groundwater (Figure 10). This program sampled for 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.

This sampling produced results 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:

- Identify the locations to be sampled (Figure 11)
- Identify the frequency of sampling (i.e., annual sampling)
- Specify analytical parameters for collected samples (Table 1)

This sampling program has been developed in consultation with the U.S. Environmental Protection Agency (USEPA); the USEPA also samples groundwater at the SLDA and presents the findings under separate cover (see: www.EPA.gov).

Sampling Scope

Annual groundwater monitoring for 2015 at the SLDA was conducted from July 14th to 16th, 2015. Twenty-two (22) groundwater locations were sampled and generally lie between the 10 trenches and the neighboring residences (Figure 12). Two (2) surface-water locations were also sampled to verify the protection of human health and the environment. Two (2) wells planned for sampling did not yield water (pumped dry and did not recharge); three (3) wells had minimal groundwater yield, so were only sampled for either total (unfiltered) or dissolved (filtered) constituents depending on water clarity. Consequently, five (5) wells were substituted to ensure completeness of the program. Table 1 lists the constituents analyzed and Table 2 lists the planned locations, long 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 is focused on site contaminants specifically listed in the record of decision (ROD) (USACE 2007).

Static water levels from all site wells were recorded synchronously to the nearest 0.01 foot to determine whether adequate volumes were available for sampling and to confirm groundwater flow directions. These measurements

are listed in Table 3; wells omitted from this list were either decommissioned during remedial action or previously damaged (unreliable). Figures 4 through 8 graphically present the groundwater elevation data and inferred flow directions for the five water bearing zones underlying the SLDA.

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

Both unfiltered (total fraction) and field-filtered (dissolved fraction) groundwater samples were obtained where well yield allowed; specifically, MW-45 only yielded enough groundwater to collect a filtered sample set. 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 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

Tables 5 and 6 list the unfiltered (total) and filtered (dissolved phase) analytical results for the 2015 monitoring event; Figure 9 highlights the wells that were sampled in 2015. Filtered data have a "-F" after the location name in the table. Table 7 presents a summary of all groundwater sampling results (2003-2015), comparative drinking water standards, and up-gradient values for radionuclides derived during the USACE RI. The 2015 analytical results are consistent with past sampling and select wells exhibit unique values for some analytes relative to the overall dataset; these are discussed below.

<u>Metals Data:</u>
The site-wide ranges of the 2015 data fall within the historical site ranges. The following metals exceeded their respective water quality standards in 2015:

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

The site-wide average values for aluminum, arsenic, iron, and manganese exceed the primary or secondary drinking water standards (Table 7) due to the naturally low-oxygen or reducing conditions in the coal mine and deep

groundwater zones below the coal mine. This reducing condition commonly solubilizes those four metals from natural minerals and is apparent in the historic data ranges. The site-wide average for beryllium also exceeds the primary drinking water standard; in 2015, wells MW-03 and MW-20 near Trench 10 (coal mine wells) and MW-14 (first shallow water-bearing zone) south of the upper trenches show exceedances. However, MW-14 only showed an exceedance in the unfiltered sample, whereas the field filtered sample did not exhibit detectable beryllium; this well is sampled annually and will be monitored in future events. The singular chromium exceedance in well MW-05 (coal mine) appears only in the total-fraction sample, not in the filtered sample. Nickel was exceeded in wells MW-03 and MW-20, both coal-mine wells.

Radionuclides:

The site-wide ranges of the 2015 data fall within the historical site ranges. No radionuclides exceed the drinking water standards, as listed in Table 7. Where calculated, the 2015 data generally reflect natural background ranges or are well below the drinking water standards.

Conclusions

The 2015 USACE sampling show that radionucides are present in site groundwater at concentrations indicative of background and well below USEPA MCLs or dose-based drinking water standards. Sampling results for metals show select constituents are above drinking water standards, primarily in the coal mine and deeper water-bearing zones. Other exceptions for metals vary throughout the hydrogeologic zones at the site and do not indicate a contiguously contaminated zone. These results are consistent with past USACE findings that also showed no FUSRAP-related radionuclides exceed the USEPA MCLs or dose-based drinking water standards. The USACE plans to perform annual groundwater sampling again during the spring of 2016.

References

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

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

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

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

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

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

U.S. ARMY CORPS OF ENGINEERS – PITTSBURGH DISTRICT
2200 WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE, PITTSBURGH, P.A. 15222-4186
Phone: 412-395-7500
Email: celrp-pa@usace.army.mil
Website: http://www.lrp.usace.army.mil/Missions/Planning,ProgramsProjectManagement/HotProjects/ShallowLandDisposalArea.aspx

Table 1. Site Monitoring Program and Analytical Methods

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

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

Well/Location	Top of Casing Elevation (ft AMSL)	Zone	Up (U) or Down (D) Gradient from Disposal Areas	Monitoring Activity			Rationale
				Water Level	Unfiltered GW	Filtered GW	
02U11	925.99	OB	D	X			Water Levels
02U13	923.45	OB	D	X			Water Levels
03U05	924.1	OB	D	X			Water Levels
05U07	935.1	OB	U	X			Water Levels
06U05	941.26	OB	D	X			Water Levels
08U04	938.94	OB	D	X			Water Levels
08U05	940.93	OB	D	X			Water Levels
09U07	927.69	OB	D	X			Water Levels
10L31	859.84	UF	U	X	X	X	Trench Containment Verification
10L32	848.69	UF	U	X			Water Levels
MW-01	845.79	UF	U	X	◊	◊	Water Levels
MW-02	884.22	DB	U	X			Water Levels
MW-02A	885.43	UF	D	X	X	X	Trench Containment Verification
MW-03	890.5	UF	D	X	X	X	Trench Containment Verification
MW-04	NA	UF	D	X			Water Levels
MW-05	865.49	UF	U	X	X	X	Trench Containment Verification
MW-07	921.52	1S	U/cross gradient	X	X	X	Trench Containment Verification
MW-08	931.77	1S	U	X	X	X	Trench Containment Verification
MW-09A	945.45	1S	U	X	X	X	Trench Containment Verification
MW-11D	909.8	2S	D	X			Water Levels
MW-11S	909.27	OB	D	X			Water Levels
MW-12D	919.31	1S	D	X			Water Levels
MW-13	948.68	1S	U	X	X	X	Trench Containment Verification
MW-14	947.33	1S	U	X	X	X	Trench Containment Verification
MW-15	940.31	1S	U	X	X	X	Trench Containment Verification
MW-17	913.71	2S	D	X			Water Levels
MW-19	861.45	DB	U	X			Water Levels
MW-20	889.87	UF	D	X	X	NS	Trench Containment Verification
MW-21	888.32	UF	D	X	NS	NS	Trench Containment Verification
MW-22	893.41	DB	D	X	X	X	Trench Containment Verification
MW-25	910.07	1S	D	X			Water Levels
MW-26	919.56	1S	D	X			Water Levels
MW-27	929.99	1S	D	X			Water Levels
MW-29	912.53	1S	D	X			Water Levels
MW-32	925.89	1S	U	X			Trench Containment Verification
MW-33	940.76	2S	U	X	X	X	Trench Containment Verification
MW-34A	926.84	DB	D	X			Trench Containment Verification
MW-35	913.68	DB	U	X			Water Levels
MW-37	926.58	2S	D	X			Water Levels
MW-39	891.99	UF	D	X	X	X	Trench Containment Verification
MW-40	939.63	DB	D	X	X	X	Trench Containment Verification
MW-41	912.86	1S	D	X			Water Levels
MW-42	916.5	1S	D	X			Water Levels
MW-43	916.32	2S	D	X			Water Levels
MW-44	930.98	1S	D	X	◊	◊	Water Levels
MW-45	929.9	2S	U	X	NS	X	Trench Containment Verification
MW-46	924.18	UF	D	X			Trench Containment Verification
MW-47	925.18	OB	U	X			Trench Containment Verification
MW-50	902.02	1S	D	X			Water Levels
MW-51	925.43	1S	D	X	◊	◊	Water Levels
MW-52	924.73	2S	U	X	X	X	Trench Containment Verification
MW-53	925.34	2S	D	X	X	NS	Water Levels
MW-58	838.93	DB	U	X			Water Levels
MW-59	932.45	OB	U	X	◊	◊	Water Levels
MW-61	932.49	2S	U	X	NS	NS	Trench Containment Verification
MW-62	926.22	UF	D	X			Water Levels
MW-64	946.5	OB	U	X			Water Levels
MW-69	947.43	OB	U	X			Water Levels
MW-74	925.3	OB	U	X			Water Levels
MW-80	916.07	1S	D	X			Water Levels
MW-81	898.22	1S	D	X			Water Levels
MW-82	921.22	1S	D	X			Water Levels
MW-83	916.03	OB	D	X			Water Levels
MW-84	923.36	1S	D	X			Water Levels
MW-86	928.02	1S	D	X			Water Levels
NWS-01A	931.57	Varies	Varies	--			FLUTe Well – Not Measured
NWS-02	946.35	Varies	Varies	--			FLUTe Well – Not Measured
NWS-03	946.87	Varies	Varies	--			FLUTe Well – Not Measured
NWS-04	925.25	Varies	Varies	--			FLUTe Well – Not Measured
NWS-05	914.28	Varies	Varies	--			FLUTe Well – Not Measured
PZ-01	907.53	OB	D	X	◊	◊	Water Levels
PZ-02	913.49	OB	D	X			Water Levels
PZ-03A	920.72	OB	D	X			Water Levels
PZ-04	920.85	OB	D	X			Water Levels
PZ-05	929.78	OB	D	X			Water Levels
PZ-06A	943.23	OB	D	X			Water Levels
PZ-07	942.67	OB	U	X			Water Levels
PZ-08	933.31	OB	U	X			Water Levels
PZ-09	938.49	OB	U	X	X	X	Trench Containment Verification
TPZ-01	924.3	1S	U	X			Water Levels
TPZ-02	926.38	1S	U	X			Water Levels
TPZ-03	895.5	1S	D	X			Water Levels
TPZ-04	914.09	1S	D	X			Water Levels
TPZ-05	916.51	1S	D	X			Water Levels
TPZ-06	907.77	OB	D	X			Water Levels
TPZ-07	917.35	OB	D	X			Water Levels
TPZ-08	924.45	OB	D	X			Water Levels

Notes:

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

Table 3. 2015 SLDA Groundwater Level Record Sheet

Well ID	Date	Depth to Water	Depth to Bottom from TOC	New Remarks
01U17	7/13/2015	--	16.18	Not Measured
03U05	7/13/2015	--	11.41	Not Measured
06U05	7/13/2015	--	17.33	Not Measured
10L31	7/13/2015	22.21	25.00	
10L32	7/13/2015	10.60	12.20	
MW-01	7/13/2015	6.30	20.00	
MW-02	7/13/2015	76.30	92.00	
MW-02A	7/13/2015	46.85	51.30	
MW-03	7/13/2015	52.50	53.20	
MW-05	7/13/2015	25.15	27.33	
MW-07	7/13/2015	31.05	35.44	
MW-08	7/13/2015	11.19	35.88	
MW-09A	7/13/2015	18.67	37.21	
MW-11D	7/13/2015	40.20	42.90	Dry
MW-11S	7/13/2015	7.50	11.90	
MW-13	7/13/2015	21.51	38.65	
MW-14	7/13/2015	11.99	32.20	
MW-15	7/13/2015	10.25	31.23	
MW-17	7/13/2015	--	53.91	Not Measured
MW-19	7/13/2015	55.60	109.20	
MW-20	7/13/2015	51.75	55.00	
MW-21	7/13/2015	50.50	50.50	Dry
MW-22	7/13/2015	87.60	113.70	
MW-25	7/13/2015	--	38.65	Not Measured
MW-26	7/13/2015	27.90	28.22	
MW-27	7/13/2015	--	38.61	Not Measured
MW-29	7/13/2015	15.65	39.16	
MW-32	7/13/2015	26.20	26.15	Soft sediment at bottom
MW-33	7/13/2015	56.09	83.75	
MW-34A	7/13/2015	103.00	100.60	Dry
MW-35	7/13/2015	113.40	167.70	
MW-37	7/13/2015	Dry	69.20	Possibly Collapsed Riser
MW-38	7/13/2015	--	63.30	Dry
MW-39	7/13/2015	55.15	58.35	
MW-40	7/13/2015	121.59	191.80	
MW-41	7/13/2015	--	36.70	Not Measured
MW-42	7/13/2015	--	41.70	Not Measured
MW-43	7/13/2015	41.50	46.81	
MW-44	7/13/2015	37.80	54.65	
MW-45	7/13/2015	65.91	67.25	
MW-46	7/13/2015	26.03	39.47	
MW-47	7/13/2015	16.00	20.95	
MW-50	7/13/2015	7.75	37.57	
MW-51	7/13/2015	29.66	36.24	
MW-52	7/13/2015	34.60	44.29	
MW-53	7/13/2015	53.31	62.11	
MW-58	7/13/2015	5.55	36.75	Possibly Clog at 36.75 ft
MW-59	7/13/2015	4.95	14.14	
MW-61	7/13/2015	67.53	68.00	Dry
MW-62	7/13/2015	--	90.70	Not Measured
MW-64	7/13/2015	12.69	21.95	
MW-69	7/13/2015	13.80	22.54	
MW-74	7/13/2015	14.38	15.24	
MW-80	7/13/2015	25.70	39.42	
MW-81	7/13/2015	5.95	15.10	
MW-82	7/13/2015	25.30	38.31	
MW-83	7/13/2015	48.65	74.30	
MW-84	7/13/2015	31.11	39.56	
MW-86	7/13/2015	36.83	38.09	
PZ-01	7/13/2015	3.25	18.60	
PZ-02	7/13/2015	--	19.80	Not Measured
PZ-05	7/13/2015	19.67	19.74	
PZ-06A	7/13/2015	--	17.31	Not Measured
PZ-07	7/13/2015	4.24	19.80	
PZ-08	7/13/2015	6.42	19.88	
PZ-09	7/13/2015	6.17	19.28	
TPZ-02	7/13/2015	89.03	--	Total Depth Not Measured
TPZ-03	7/13/2015	11.35	13.90	
TPZ-04	7/13/2015	14.05	27.66	
TPZ-05	7/13/2015	--	32.26	Not Measured
TPZ-06	7/13/2015	--	7.55	Not Measured
TWSP 01-01	7/13/2015	--	13.03	Not Measured
TWSP 01-02	7/13/2015	--	13.05	Not Measured
TWSP 01-03	7/13/2015	--	13.09	Not Measured
TWSP 01-04	7/13/2015	--	13.05	Not Measured
TWSP 01-05	7/13/2015	--	12.55	Not Measured
TWSP 01-07	7/13/2015	--	13.12	Not Measured
TWSP 01-08	7/13/2015	--	13.03	Not Measured
TWSP 01-09	7/13/2015	--	12.60	Not Measured
TWSP 01-10	7/13/2015	--	10.65	Not Measured
TWSP 03-01	7/13/2015	--	11.38	Not Measured
TWSP 04-01	7/13/2015	--	3.20	Not Measured
TWSP 04-02	7/13/2015	--	18.58	Not Measured
TWSP 05-01	7/13/2015	--	15.80	Not Measured
TWSP 05-02	7/13/2015	--	10.40	Not Measured
TWSP 05-03	7/13/2015	--	14.17	Not Measured
TWSP 05-04	7/13/2015	--	13.89	Not Measured
TWSP 05-05	7/13/2015	--	17.12	Not Measured
TWSP 06-01	7/13/2015	--	14.85	Not Measured
TWSP 06-02	7/13/2015	--	16.50	Not Measured
TWSP 06-03	7/13/2015	--	18.15	Not Measured
TWSP 06-04	7/13/2015	--	18.55	Not Measured
TWSP 07-01	7/13/2015	--	13.40	Not Measured
TWSP 07-02	7/13/2015	--	12.40	Not Measured
TWSP 07-03	7/13/2015	--	19.68	Not Measured
TWSP 07-04	7/13/2015	--	16.30	Not Measured
TWSP 07-05	7/13/2015	--	--	Not Measured
TWSP 07-06	7/13/2015	--	17.10	Not Measured
TWSP 08-01	7/13/2015	--	--	Not Measured
TWSP 08-02	7/13/2015	--	17.30	Not Measured
TWSP 10-01	7/13/2015	--	17.93	Not Measured
TWSP 10-02	7/13/2015	--	16.73	Not Measured
TWSP 10-05	7/13/2015	--	20.45	Not Measured
TWSP 10-06	7/13/2015	--	21.13	Not Measured
TWSP 10-08	7/13/2015	--	--	Not Measured
TWSP 10-09	7/13/2015	--	15.44	Not Measured
TWSP 10-10	7/13/2015	--	19.60	Not Measured
TWSP 10-11	7/13/2015	--	20.38	Not Measured
TWSP 10-12	7/13/2015	--	21.69	Not Measured

Table 4. Groundwater Sampling Field Data

Well ID	Collect Date	Temperature (F)	Specific Conductance (mS/cm)	pH (standard unit)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Purge Rate (mL/min)	Comments
10L31	14-Jul-15	58.6	0.551	6.57	188	5.34	0.0	275	Neglible drawdown (<0.2 foot)
MW-01	14-Jul-15	65.0	0.245	6.15	299	1.69	0.0	120	No Drawdown
MW-02A	14-Jul-15	59.0	0.241	6.07	204	5.74	2.0	310	Neglible drawdown (<0.2 foot)
MW-03	14-Jul-15	60.8	2.280	2.79	450	15.41	30.1	--	Pumped dry, multi-day composite
MW-05	14-Jul-15	69.6	0.406	6.31	194	3.51	42.8	105	Neglible drawdown (<0.2 foot)
MW-07	15-Jul-15	56.8	0.390	6.83	163	1.15	0.0	350	Neglible drawdown (<0.2 foot)
MW-08	14-Jul-15	72.1	0.246	7.27	-35	0.56	14.6	120	0.8 foot of drawdown
MW-09A	14-Jul-15	59.2	0.285	7.25	194	2.73	0.0	230	1.5 feet of drawdown
MW-13	14-Jul-15	78.1	0.194	7.50	-15	0.58	34.5	130	Neglible drawdown (<0.2 foot)
MW-14	14-Jul-15	69.1	0.224	6.39	8	0.77	123.0	120	Neglible drawdown (<0.2 foot)
MW-15	14-Jul-15	69.0	0.151	5.96	134	0.68	89.0	120	1.8 feet of drawdown
MW-20	14-Jul-15	63.5	2.900	2.83	454	7.43	450.0	270	Pumped dry, multi-day composite
MW-22	14-Jul-15	60.2	1.310	6.40	-56	0.55	0.3	405	No Drawdown
MW-33	15-Jul-15	60.2	0.404	7.64	-32	6.05	97.9	550	4.0 feet of drawdown
MW-39	14-Jul-15	59.4	0.558	4.90	173	6.73	6.8	500	Neglible drawdown (<0.2 foot)
MW-44	16-Jul-15	55.1	0.297	6.38	94	1.73	0.0	950	1.1 feet of drawdown
MW-45	15-Jul-15	--	--	--	--	--	--	--	Minimal water, multi-day composite
MW-51	15-Jul-15	56.0	0.425	6.75	12	7.74	0.2	800	0.2 foot of drawdown
MW-52	15-Jul-15	64.0	0.462	6.88	-52	2.82	42.9	400	Neglible drawdown (<0.2 foot)
MW-53	15-Jul-15	66.1	0.952	7.11	135	5.12	103.0	240	Pumped dry, multi-day composite
MW-59	15-Jul-15	63.0	0.168	5.17	157	1.54	4.7	310	5.7 feet of drawdown
PZ-01	14-Jul-15	56.4	0.233	6.01	209	1.31	0.0	340	0.5 feet of drawdown
PZ-09	14-Jul-15	74.2	0.160	4.66	427	1.90	15.0	100	0.5 feet of drawdown
SP-DR-01	15-Jul-15	72.5	0.197	6.27	-41	8.13	138.0	--	Groundwater seep near Trench 4-5
WS-CR-06	15-Jul-15	65.8	0.134	5.99	276	9.40	105.0	--	Carnahan Run Outlet at Kiski River

Maximum	78.1	2.900	7.64	454	15.41	450	950
Minimum	55.1	0.134	2.79	-56	0.55	0	100
Average	63.9	0.559	6.09	148	4.11	54	321
Geometric Mean	63.6	0.370	5.92	--	2.65	--	258

NOTES:

Temperature (F) - Degrees Fahrenheit

Specific Conductance (mS/cm) - millisiemens per centimeter

ORP (mV) - Oxidation Reduction Potential in milliivolts

Turbidity (NTU) - Nephelometric Turbidity Units

Purge Rate (mL/min) - milliliters per minute

Table 5. Comprehensive Metals Sampling Results at SLDA

Well	Year	ALUMINUM	ANTIMONY	ARSENIC	BARIUM	BERYLLIUM	CADMIUM	CALCIUM	CHROMIUM, TOTAL	COBALT	COPPER	IRON	LEAD	MAGNESIUM	MANGANESE	MERCURY	NICKEL	POTASSIUM	SELENIUM	SILVER	SODIUM	THALLIUM	VANADIUM	ZINC
Units		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/Lg/L
10L31	2013	0.01 J	0.00052 U	0.00061 U	0.039		0.00027 U	79	0.0013 J	0.00036 J	0.0008 J	0.29	0.00024 U	42	0.046	0.000086 J	0.0042 J	3.1	0.0015 U	0.00018 U	9	0.00016 U	0.00054 J	0.016 J
	2014	0.0038 J	0.001 U	0.001 U	0.043	0.0005 U	0.0005 U	67	0.0028 J	0.0005 U	0.00035 J	0.26	0.0005 U	36	0.013	0.0001 U	0.002 J	2.7	0.003 J	0.0005 U	6.8	0.0005 U	0.0005 U	0.0031 J
	2015	0.0084 J	0.001 U	0.001 U	0.06	0.0005 U	0.0005 U	54	0.00061 J	0.0005 U	0.0005 U	0.15 J	0.0005 U	27	0.0057	0.0001 U	0.0013 J	2.8	0.0025 U	0.0005 U	5.1	0.0005 U	0.0005 U	0.0018 U
10L31 (Filtered)	2013	0.0099 J	0.00052 U	0.00061 U	0.03	0.00025 U	0.00027 U	65	0.0016 J	0.00018 J	0.00088 J	0.098 J	0.00024 U	32	0.037	0.00012 J	0.0037 J	2.5	0.0017 J	0.00028 J	7	0.00016 U	0.00049 U	0.013 J
	2014	0.0025 U	0.001 U	0.001 U	0.038	0.00034 J	0.0005 U	65	0.0018 J	0.00022 J	0.0015 J	0.47	0.0005 U	33	0.013	0.0001 U	0.0017 J	2.6	0.0025 U	0.0005 U	6.2	0.0005 U	0.00094 J	0.0035 J
	2015	0.0027 J	0.00062 J	0.001 U	0.054	0.0005 U	0.0005 U	54	0.002 J	0.00026 J	0.0005 U	0.16 J	0.0005 U	29	0.00093 J	0.0001 U	0.0014 J	2.8	0.0016 J	0.0005 U	5.5	0.0005 U	0.00054 J	0.0027 J
MW-01	2013	0.012 J	0.00052 U	0.00061 U	0.048		0.00027 U	46	0.00092 J	0.00022 J	0.0008 J	0.19 J	0.0003 J	23	0.014	0.000091 J	0.0034 J	1.8	0.0022 J	0.00018 U	4.8	0.0002 J	0.00049 U	0.0067 J
	2014	0.0043 U	0.00076 J	0.001 U	0.046	0.0005 U	0.0005 U	37	0.00066 J	0.0005 U	0.00046 U	0.12 U	0.0005 U	19	0.0015 J	0.0001 U	0.0014 J	1.5	0.0019 J	0.0005 U	3.2	0.0005 U	0.0005 U	0.0061 J
	2015	0.027 J	0.001 U	0.0032	0.07	0.0005 U	0.0005 U	26	0.0005 U	0.00013 J	0.00024 U	4.2	0.0005 U	13	0.011	0.0001 U	0.001 J	1.5	0.0025 U	0.0005 U	2.1	0.0005 U	0.0005 U	0.0018 U
MW-01 (Filtered)	2013	0.0017 J	0.00052 U	0.00061 U	0.043	0.00025 U	0.00027 U	44	0.00031 J	0.00012 U	0.0004 J	0.048 U	0.00024 U	21	0.00086 J	0.000085 J	0.0032 J	1.7	0.0018 J	0.00018 U	4.5	0.00016 U	0.00049 U	0.0027 J
	2014	0.0025 U	0.001 U	0.001 U	0.047	0.0005 U	0.0005 U	33	0.00078 J	0.0005 U	0.0003 J	0.12 U	0.0005 U	17	0.00061 J	0.0001 U	0.0012 J	1.3	0.0024 J	0.0005 U	3	0.0005 U	0.00068 J	0.0022 J
	2015	0.0044 J	0.001 U	0.001 U	0.054	0.0005 U	0.0005 U	26	0.0012 J	0.00057 J	0.0005 U	0.31	0.0005 U	13	0.012	0.0001 U	0.00098 J	1.7	0.0022 J	0.0005 U	2.4	0.0005 U	0.0005 U	0.0027 J
MW-02A	2013	0.041 J	0.0011 J	0.00061 U	0.035		0.00027 U	58	0.0017 J	0.0033 J	0.0027 J	0.38	0.00046 J	15	0.21	0.000087 J	0.021	3.6	0.0015 U	0.00018 U	4.9	0.00036 J	0.00049 U	0.023 J
	2015	0.073	0.001 U	0.001 U	0.034	0.0005 U	0.0005 U	27	0.0012 J	0.00089 J	0.00024 U	0.27	0.0005 U	11	0.053	0.0001 U	0.0047 J	1.7	0.0025 U	0.0005 U	1.9	0.0005 U	0.0005 U	0.0018 U
MW-02A (Filtered)	2013	0.0094 J	0.00052 U	0.00061 U	0.03	0.00025 U	0.00027 U	59	0.00075 J	0.003	0.0028 J	0.46	0.00024 U	14	0.25	0.000064 U	0.033	3.4	0.0023 J	0.00018 U	4.6	0.00016 U	0.00049 U	0.025 J
	2015	0.01 J	0.001 U	0.001 U	0.035	0.0005 U	0.0005 U	27	0.0011 J	0.00094 J	0.0005 U	0.091 J	0.0005 U	11	0.049	0.0001 U	0.0053 J	1.7	0.0025 U	0.0005 U	1.5	0.0005 U	0.0005 U	0.012 J
MW-03	2014	55	0.00055 J	0.011	0.025 J	0.033	0.0044	200	0.051	0.18	0.15	99	0.0014	69	2	0.0001 U	0.68	1.6	0.0025 U	0.0005 U	7.1	0.0006 J	0.0005 U	2.2
	2015	31	0.002 J	0.005	0.0063 J	0.025	0.0013	170	0.035 J	0.14	0.074 J	69	0.0023	38	1.5	0.0001 U	0.49	2.5 U	0.0016 J	0.00018 U	2.7 J	0.00064 J	0.01 U	0.94
MW-03 (Filtered)	2015	49	0.001 U	0.0016	0.0035 J	0.028	0.0014	190	0.032	0.14	0.064	75	0.0021	64	1.7	0.0001 U	0.48	1.3	0.0025 U	0.0005 U	5.3	0.00044 J	0.00052 J	1.1
MW-05	2014	0.035 J	0.001 U	0.001 U	0.038	0.0005 J	0.0005 U	45	0.25	0.008	0.0028 J	1.3	0.0005 U	25	0.6	0.0001 U	0.34	2.2	0.0025 U	0.0005 U	17	0.0005 U	0.0005 U	0.0086 J
	2015	0.075	0.001 J	0.001 U	0.028	0.0005 U	0.0005 U	39	0.21	0.00065 J	0.0022 J	1.1	0.0005 U	20	0.012	0.0001 U	0.051	2.1	0.0025 U	0.0005 U	2.3	0.0005 U	0.0005 U	0.0018 U
MW-05 (Filtered)	2014	0.018 J	0.001 U	0.001 U	0.027	0.0005 U	0.0005 U	44	0.0062 J	0.0043	0.002 J	0.095 J	0.0005 U	23	0.95	0.0001 U	0.16	2.1	0.0021 J	0.0005 U	17	0.0005 U	0.00064 J	0.011 J
	2015	0.63	0.001 U	0.001 U	0.028	0.00046 J	0.0005 U	43	0.01	0.0035	0.0016 J	1.5	0.0005 U	22	0.035	0.0001 U	0.045	2.2	0.0019 J	0.0005 U	2.5	0.0005 U	0.00057 J	0.023 J
MW-07	2013	0.015 J	0.0014 J	0.00061 U	0.2		0.00027 U	70	0.002 J	0.00049 J	0.0031 J	0.16 J	0.00038 J	13	0.46 J	0.000047 J	0.0062 J	2.5	0.0015 U	0.00086 J	5.2 J	0.00025 J	0.00049 U	0.023 J
	2014	0.024 J	0.001 U	0.001 U	0.24	0.00034 J	0.0005 U	59	0.0037 J	0.0003 J	0.007	0.15 J	0.00036 J	11	0.89	0.0001 U	0.006 J	3.2	0.0023 J	0.0005 U	4.9	0.0005 U	0.0005 U	0.0059 J
	2015	0.0078 J	0.001 U	0.001 U	0.17	0.0005 U	0.0005 U	57	0.00084 J	0.00015 J	0.0006 J	0.15 J	0.00026 J	9.9	0.25	0.0001 U	0.0022 J	2.1	0.0025 U	0.0005 U	3.3	0.0005 U	0.0005 U	0.0018 U
MW-07 (Filtered)	2013	0.0095 J	0.0012 J	0.00061 U	0.16	0.00025 U	0.00027 U	58	0.0015 J	0.00027 J	0.002 J	0.048 U	0.00024 U	9.9	0.39	0.00012 J	0.0049 J	2.1	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.015 J
	2014	0.0025 U	0.001 U	0.001 U	0.21	0.0005 U	0.0005 U	57	0.00078 J	0.00024 J	0.00098 J	0.12 U	0.0005 U	10	0.81	0.0001 U	0.0032 J	2.1	0.0025 U	0.00034 J	4.6	0.0005 U	0.0005 U	0.0023 J
	2015	0.0023 J	0.001 U	0.001 U	0.18	0.0005 U	0.0005 U	59	0.002 J	0.00018 J	0.0005 U	0.16 J	0.0005 U	11	0.25	0.0001 U	0.0025 J	2.1	0.0025 U	0.0005 U	3.9	0.0005 U	0.00055 J	0.061
MW-08	2013	0.005 J	0.00052 U	0.0014 J	0.35 J		0.0012	43	0.0025 J	0.0015 J	0.0019 J	0.47	0.0014	8.5	0.1	0.000095 J	0.0027 J	1.7	0.002 J	0.00018 U	3.8 J	0.0009 J	0.0018 J	0.014 J
	2014	0.0028 J	0.001 U	0.001 U	0.35	0.0005 U	0.0005 U	40	0.0036 J	0.00012 J	0.0005 U	0.42	0.0005 U	8.5	0.12	0.0001 U	0.003 J	1.5	0.0025 U	0.0005 U	3.1	0.0005 U	0.0005 U	0.0019 J
	2015	0.0014 U	0.001 U	0.00064 J	0.34	0.0005 U	0.0005 U	39	0.0004 J	0.0005 U	0.00024 U	0.59	0.0005 U	7.7	0.29	0.0001 U	0.0013 J	1	0.0025 U	0.0005 U	2.8	0.0005 U	0.0005 U	0.0025 U
MW-08 (Filtered)	2013	0.0016 J	0.00052 U	0.00061 U	0.33	0.00025 U	0.00027 U	44	0.0003 U	0.00012 U	0.00032 J	0.28	0.00024 U	8.3	0.052	0.000062 U	0.0013 J	1.7	0.0015 U	0.00018 U	3.3	0.00016 U	0.00049 U	0.013 J
	2014	0.0025 U	0.001 U	0.001 U	0.33	0.0005 U	0.0005 U	38	0.00066 J	0.0005 U	0.00049 J	0.11 J	0.0005 U	7.7	0.051	0.0001 U	0.0023 J	1.5	0.0025 U	0.0005 U	2.9	0.0005 U	0.00062 J	0.0018 J
	2015	0.0025 U	0.001 U	0.001 U	0.34	0.0005 U	0.0005 U	39	0.00092 J	0.0005 U	0.0005 U	0.28	0.0005 U	8	0.19	0.0001 U	0.0014 J	1.6	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0025 U
MW-09A	2013	0.044 J	0.00052 U	0.0043	0.46		0.00027 U	30	0.005 J	0.00044 J	0.013	0.51	0.00031 J	6	0.032	0.000083 J	0.0033 J	6.5	0.0015 U	0.00018 U	8.5	0.00016 U	0.00049 U	0.026 J
	2014	0.0032 J	0.001 U	0.001 U	0.43	0.0005 U	0.0005 U	26	0.0045 J	0.0005 U	0.00029 J	0.22	0.0005 U	5.4	0.021	0.0001 U	0.0014 J	11	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0019 J
	2015	0.0025 U	0.00052 U	0.001 U	0.44	0.0005 U	0.0005 U	26	0.0042 J	0.0005 U	0.0005 U	0.072 J	0.0005 U	5	0.0017 J	0.0001 U	0.00094 J	9.6	0.0025 U	0.0005 U	10	0.00019 J	0.0005 U	0.0025 U
MW-09A (Filtered)	2013	0.059	0.00052 U	0.00061 U	0.41	0.00025 U	0.00027 U	27	0.0036 J	0.00029 J	0.001 J	0.18 J	0.00024 U	5.4	0.0039 J	0.00011 J	0.0025 J	6	0.0015 U	0.00079 J	7.7	0.00016 U	0.00049 U	0.016 J
	2014	0.0025 U	0.001 U	0.001 U	0.4	0.0005 U	0.0005 U	25	0.0024 J	0.0005 U	0.00025 J	0.12 U	0.0005 U	5.3	0.0084	0.0001 U	0.0019 J	11	0.0025 U	0.0005 U	10	0.0005 U	0.0005 J	0.004 J
	2015	0.0045 J	0.001 U	0.001 U	0.47	0.0005 U	0.0005 U	29	0.0055 J	0.00023 J	0.0005 U	0.092 J	0.0005 U	5.6	0.0005 J	0.0001 U	0.0018 J	10	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0023 J
MW-13	2013	0.01 J	0.00052 U	0.00062 J	0.49		0.00027 U	40	0.0024 J	0.00032 J	0.0012 J	1.1	0.00051 J	8	0.066	0.000076 J	0.0019 J	1.5	0.0015 U	0.00018 U	3.3	0.00024 J	0.00049 U	0.012 J
	2014	0.0017 J	0.001 U	0.001 U	0.47	0.0005 U	0.0005 U	33	0.00038 J	0.0005 U	0.0005 U	0.64	0.0005 U	6.8	0.056	0.0001 U	0.00079 J	1.2	0.0026 J	0.0005 U	2.7	0.0005 U	0.0005 U	0.0025 U
	2015	0.05	0.001 U	0.001 U	0.43	0.0005 U	0.0005 U	33	0.00062 J	0.00023 J	0.0005 U	0.79	0.0005 U	6	0.039	0.0001 U	0.0011 J	0.93	0.0025 U	0.0005 U	2	0.0005 U	0.0005 U	0.0018 U
MW-13 (Filtered)	2013	0.0092 J	0.0015 J	0.00061 U	0.43	0.00025 U	0.00027 U	35	0.00072 J	0.00012 J	0.00086 J	0.68	0.00024 U	6.6	0.052	0.000085 J	0.0016 J	1.2	0.0015 U	0.0012 J	2.5	0.00016 U	0.00049 U	0.014 J
	2014	0.0039 J	0.001 U	0.001 U	0.45	0.0005 U	0.0005 U	33	0.00034 J	0.0005 U	0.0005 U	0.59	0.00048 J	6.5	0.054	0.0001 U	0.00095 J	1.2	0.0025 U	0.0005 U	3.2	0.0005 U	0.00054 J	0.0025 U
	2015	0.026 J	0.001 U	0.001 U	0.44	0.0005 U	0.0005 U	33	0.00084 J	0.00036 J	0.0005 U	0.7	0.0005 U	6.2	0.045	0.0001 U	0.001 J	0.78	0.0025 U	0.0005 U	2.1	0.0005 U	0.0005 U	0.0047 J
MW-14	2013	0.006 J	0.00052 U	0.0019	0.36		0.00027 U	34	0.00061 J	0.0038 J	0.0027 J	10	0.00038 J	6	0.41	0.000086 J	0.005 J	0.96	0.0015 U	0.00018 U	3.7	0.00017 J	0.00049 U	0.018 J
	2014	0.0027 J	0.001 U	0.0014 J	0.36	0.00046 J	0.0005 U	29	0.0005 U	0.0042 J	0.0005 U	7.7	0.0005 U	5	0.43	0.0001 U	0.0063 J	0.78	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0055 J
	2015	0.13	0.0039 J	0.12	1.6	0.0044	0.0005 U	35	0.0035 J	0.0046 J	0.001 U	190	0.00081 J	3.6	0.48	0.0001 U	0.0071 J	0.55 J	0.0025 U	0.00052 J	1.7	0.0005 U	0.001 U	0.05 J
MW-14 (Filtered)	2013	0.0092 J	0.00081 J	0.00061 U	0.3	0.00025 U	0.00027 U	28	0.00076 J	0.003	0.00076 J	7.5	0.00024 U	4.9	0.33	0.00011 J	0.0043 J	0.77	0.0015 U	0.00082 J	3	0.00016 U	0.00049 U	0.017 J
	2014	0.0025 U	0.001 U	0.001 U	0.33	0.0005 U	0.0005 U	28	0.0005 U	0.0039	0.0003 J	6.5	0.0005 U	4.7	0.4	0.0001 U	0.0046 J	0.79	0.0025 U	0.0005 U	3	0.0005 U	0.0005 U	0.0051 J
	2015	0.0025 U	0.001 U	0.001 J	0.39	0.0005 U	0.0005 U	31	0.00063 J	0.0031	0.0005 U	7.1	0.0005 U	5.2	0.38	0.0001 U	0.0037 J	0.51	0.0025 U	0.0005 U	2.9	0.0005 U	0.0005 U	0.0024 J
MW-15	2013	0.033 J	0.00052 U	0.00061 U	0.21		0.00027 U	17	0.00059 J	0.0007 J	0.00064 J	17	0.00027 J	4.5	0.23	0.000091 J	0.00097 J	1	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.016 J
	2014	0.007 J	0.001 U	0.001 U	0.2	0.00034 J	0.0005 U	16	0.0005 U	0.00064 J	0.00029 J	4.7	0.0005 U	4	0.28	0.0001 U	0.0013 J	0.93	0.0025 U	0.0005 U	4.1	0.0005 U	0.0005 U	0.0055 J
	2015	0.0058 J	0.001 U	0.00063 J	0.25	0.0005 U	0.0005 U	17	0.0005 U	0.0015 J	0.0005 U	6.2	0.0005 U	4.1	1.4	0.0001 U	0.0022 J	0.71	0.0025 U	0.0005 U	4	0.00018 J	0.0005 U	0.0025 U
MW-15 (Filtered)	2013	0.011 J	0.00052 U	0.00061 U	0.19	0.00025 U	0.00027 U	18	0.00078 J	0.00026 J	0.00086 J	0.14 J	0.00024 U	4.4	0.14	0.000093 J	0.0017 J	1.1	0.0015 U	0.0005 J	3.8	0.00016 U	0.00049 U	0.012 J
	2014	0.0025 U	0.001 U	0.001 U	0.2	0.0005 U	0.0005 U	18	0.0005 U	0.00029 J	0.0005 U	0.088 J	0.0005 U	4.2	0.16	0.0001 U	0.00096 J	0.97	0.0025 U	0.0005 U	4.1	0.0005 U	0.00049 J	0.002 J
	2015	0.0025 U	0.0006 J	0.001 U	0.26	0.0005 U	0.0005 U	18	0.0007 J	0.0014 J	0.0005 U	0.43	0.0005 U	4.5	1.4	0.0001 U	0.0024 J	0.72	0.0025 U	0.0005 U	4.5	0.0005 U	0.0005 U	0.0031 J
MW-20	2015	27	0.00062 J	0.021	0.051	0.014	0.001	430	0.024 J	0.16	0.061	64	0.011	100	4.5	0.0001 U	0.37	4.8 J	0.0028 J	0.00097 J	5.7	0.0014 J	0.005 U	0.65
MW-20 (Filtered)	2015	17	0.001 U	0.0012 J	0.011 J	0.014	0.00097 J	400	0.015	0.13	0.05	52	0.0047	87	4.5	0.0001 U	0.29	4.5	0.004 J	0.0005 U	6.6	0.00086 J	0.00055 J	0.63
MW-22	2013	0.044 J	0.0014 J	0.02	0.022 J		0.00027 U	210	0.0011 J	0.00072 J	0.0008 J	37	0.00036 J	44	0.59	0.000089 J	0.0075 J	5.1	0.0015 U	0.00018 U	12	0.00018 J	0.00049 U	0.012 J
	2014	0.075	0.00056 J	0.014	0.027	0.0005 U	0.0005 U	170	0.0024 J	0.00052 J	0.0031 J	28	0.00042 J	38	0.54	0.0001 U	0.0057 J	4.3	0.0024 J	0.0005 U	10	0.0005 U	0.0005 U	0.006 J
	2015	0.0055 J	0.001 U	0.015	0.023 J	0.0005 U	0.0005 U	180	0.0005 U	0.00019 J	0.0005 U	27	0.0005 U	35	0.5	0.0001 U	0.0032 J	4.6	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0018 U
MW-22 (Filtered)	2013	0.0027 J	0.00052 U	0.018	0.018 J	0.00025 U	0.00027 U	190	0.0003 U	0.00034 J	0.0004 J	35	0.00024 U	38	0.55	0.000073 J	0.0065 J	4.5	0.002 J	0.0003 J	10	0.00016 U	0.00049 U	0.013 J
	2014	0.0026 J	0.001 U	0.015	0.023 J	0.00029 J	0.0005 U	170	0.0006 J	0.0005 J	0.0061	30	0.0005 U	37	0.55	0.0001 U	0.0042 J	4.3	0.0025 U	0.0005 U	10	0.0005 U	0.0005 U	0.003 J
	2015	0.0025 U	0.001 U	0.019	0.023 J	0.0005 U	0.0005 U	180	0.00078 J	0.00025 J	0.0005 U	31	0.0005 U	37	0.56	0.0001 U	0.0042 J	4.6	0.0025 U	0.0005 U	11	0.0005 U	0.0005 U	0.0025 U
MW-33	2013	0.15	0.00052 U	0.0018	0.81		0.00027 U	36	0.0018 J	0.00057 J	0.0022 J	1	0.00098 J	6.8	0.08	0.0001 J	0.003 J	2.4	0.0015 U	0.00018 U	72	0.00025 J	0.0006 J	0.019 J
	2014	0.038 J	0.001 U	0.001 U	0.64	0.0005 U	0.0005 U	48	0.0014 J	0.00018 J	0.0013 J	0.71	0.00029 J	9.5	0.069	0.0001 U	0.0022 J	2.5	0.0025 U	0.0005 U	38	0.0005 U	0.0005 U	0.0043 J
	2015	6.5	0.00082 J	0.0034	0.85	0.0005 U	0.00029 J	34	0.015	0.0064	0.012	12	0.0086	8.3	0.23	0.0001 U	0.017	3.5	0.0025 U	0.00034 J	60	0.0005 U	0.0097	0.041 J
MW-33 (Filtered)	2013	0.0031 J	0.00052 U	0.00061 U	0.67	0.00025 U	0.00027 U	45	0.00048 J	0.00013 J	0.00078 J	0.32	0.00024 U	8.1	0.067	0.000081 J	0.0022 J	2.4	0.0015 U	0.00018 U	44	0.00016 U	0.00049 U	0.011 J
	2014	0.0037 J	0.001 U	0.001 U	0.61	0.0004 J	0.0005 U	46	0.0011 J	0.00016 J	0.00066 J	0.35	0.0005 U	8.8	0.054	0.0001 U	0.0018 J	2.4	0.0025 U	0.0005 U	34	0.0005 U	0.0005 U	0.0019 J
	2015	0.016 J	0.001 U	0.0012 J	0.5	0.0005 U	0.0005 U	40	0.002 J	0.00013 J	0.0005 U	0.27	0.0005 U	8	0.03	0.0001 U	0.0014 J	2.4	0.0025 U	0.0005 U	47	0.0005 U	0.00062 J	0.0025 U
MW-39	2013	5.4	0.00052 U	0.00061 U	0.03		0.00027 U	50	0.002 J	0.036	0.014	22	0.0011	20	0.23	0.000088 J	0.1	4.1	0.0022 J	0.00018 U	13	0.00024 J	0.00049 U	0.16
	2014	2.3	0.001 U	0.001 U	0.036	0.0021	0.0005 U	37	0.0013 J	0.018	0.0054	12	0.00027 J	17	0.12	0.0001 U	0.05	2.6	0.0016 U	0.0005 U	14	0.0005 U	0.0005 U	0.096
	2015	2.9	0.001 U	0.002	0.062	0.0009 J	0.0005 U	22	0.0039 J	0.0084	0.0057	15	0.0052	8.6	0.059	0.0001 U	0.022	2.2	0.0025 U	0.0005 U	7.1	0.0005 U	0.0019 J	0.054 J
MW-39 (Filtered)	2013	5.4	0.00052 U	0.00061 U	0.026	0.0044	0.00027 U	43	0.0012 J	0.031	0.014	14	0.00074 J	17	0.2	0.00012 J	0.086	3.5	0.0015 U	0.00022 J	12	0.00016 U	0.00049 U	0.17
	2014	2.4	0.001 U	0.001 U	0.034	0.0025	0.0005 U	39	0.00062 J	0.02	0.0085	11	0.00039 J	17	0.13	0.0001 U	0.055	2.5	0.0019 J	0.0005 U	14	0.0005 U	0.0005 U	0.11
	2015	0.87	0.001 U	0.00083 J	0.032	0.00094 J	0.0005 U	24	0.00079 J	0.008	0.00032 J	14	0.0005 U	9.1	0.062	0.0001 U	0.02	1.8	0.0017 J	0.0005 U	7.7	0.0005 U	0.0005 U	0.045 J
MW-40	2013	0.017 J	0.00052 U	0.00061 U	0.4		0.00027 U	5.6	0.0011 J	0.00012 U	0.0034 J	0.35	0.00024 U	1.1	0.0098	0.000069 J	0.00022 J	1.8	0.0015 U	0.00018 U	240	0.00016 U	0.00049 U	0.0018 U
	2014	0.0083 J	0.001 U	0.001 U	0.32	0.00042 J	0.0005 U	4.5	0.0052 J	0.0005 U	0.0026 J	0.087 J	0.0005 U	0.8	0.0093	0.0001 U	0.007 J	1.3	0.003 J	0.0005 U	210	0.0005 U	0.0005 U	0.0018 J
	2015	0.063	0.001 U	0.001 U	0.32	0.0005 U	0.0005 U	4.7	0.0008 J	0.00038 J	0.00086 J	0.19 J	0.0005 U	0.64	0.016	0.0001 U	0.00082 J	1.2	0.0025 U	0.00042 J	190	0.0005 U	0.0005 U	0.0025 U
MW-40 (Filtered)	2013	0.014 J	0.00052 U	0.00061 U	0.34	0.00025 U	0.00027 U	4.8	0.0004 J	0.00012 U	0.0029 J	0.052 J	0.00024 U	0.88	0.0082	0.000084 J	0.00058 J	1.5	0.0015 U	0.00037 J	230	0.00016 U	0.00049 U	0.0021 J
	2014	0.0047 J	0.001 U	0.001 U	0.31	0.00026 J	0.0005 U	4.4	0.0027 J	0.0005 U	0.0019 J	0.12 U	0.0005 U	0.75	0.0084	0.0001 U	0.0032 J	1.3	0.0025 U	0.0005 U	160	0.0005 U	0.0013 J	0.0025 U
	2015	0.048 J	0.001 U	0.001 U	0.32	0.0005 U	0.0005 U	4.8	0.0031 J	0.0012 J	0.0007 J	0.14 J	0.0005 U	0.59	0.017	0.0001 U	0.00072 J	1.3	0.0025 U	0.0005 U	190	0.0005 U	0.0008 J	0.0027 J
MW-44	2015	0.21	0.001 U	0.0013 J	0.036	0.0005 U	0.0005 U	37	0.00052 J	0.0012 J	0.0013 J	0.39	0.00032 J	3.4	0.98	0.0001 U	0.0018 J	3	0.0025 U	0.0005 U	2.3	0.0005 U	0.0008 J	0.0031 J
MW-44 (Filtered)	2015	0.0025 U	0.00056 J	0.001 U	0.1	0.0005 U	0.0005 U	32	0.0017 J	0.0005 U	0.0005 U	0.12 J	0.0005 U	7.1	0.018	0.0001 U	0.00069 J	1.6	0.0025 U	0.0005 U	4.7	0.0005 U	0.0005 U	0.0029 J
MW-45 (Filtered)	2015	0.0069 J	0.0015 J	0.001 U	0.47	0.0005 U	0.0005 U	91	0.0025 J	0.0012 J	0.0029 J	0.68	0.0005 U	22	0.11	0.0001 U	0.0091 J	9.3	0.0042 J	0.0005 U	120	0.0005 U	0.00072 J	0.0046 J
MW-51	2014	0.087	0.001 U	0.001 U	0.29	0.00044 J	0.0005 U	57	0.0013 J	0.00053 J	0.0032 J	1.1	0.00059 J	12	0.13	0.0001 U	0.0028 J	2.2	0.0019 J	0.0005 U	7.8	0.00018 J	0.00078 J	0.0076 J
	2015	0.0057 J	0.00052 U	0.001 U	0.24	0.0005 U	0.0005 U	60	0.0017 J	0.0005 U	0.0005 U	0.28	0.0005 U	12	0.062	0.0001 U	0.0014 J	2.6	0.0025 U	0.00054 J	7.9	0.0005 U	0.0005 U	0.0018 U
MW-51 (Filtered)	2014	0.0016 J	0.0012 J	0.001 U	0.27	0.00036 J	0.0005 U	54	0.00082 J	0.00034 J	0.00048 J	0.28	0.0005 U	11	0.11	0.0001 U	0.002 J	2.2	0.0025 U	0.00055 J	7.5	0.0002 J	0.00074 J	0.0025 U
	2015	0.0099 J	0.001 U	0.001 U	0.25	0.0005 U	0.0005 U	60	0.0025 J	0.00017 J	0.0005 U	0.28	0.0005 U	14	0.066	0.0001 U	0.0018 J	2.6	0.0025 U	0.0005 U	8.9	0.0005 U	0.0007 J	0.0025 U
MW-52	2013	0.028 J	0.00052 U	0.00061 U	0.3		0.00027 U	94	0.0039 J	0.00052 J	0.003 J	1.4	0.00036 J	15	0.25	0.000077 J	0.0067 J	2.2	0.0015 U	0.00018 U	3.9	0.00016 U	0.00049 U	0.0035 J
	2014	0.016 J	0.001 U	0.001 U	0.26	0.0005 U	0.0005 U	86	0.00074 J	0.00029 J	0.00041 J	1.1	0.0005 U	14	0.23	0.0001 U	0.0027 J	2	0.0025 U	0.0005 U	3.4	0.0005 U	0.0005 U	0.0087 J
	2015	0.08 J	0.001 U	0.0012 J	0.26	0.00051 J	0.00059 J	77	0.0041 J	0.00087 J	0.00062 J	1.1	0.00061 J	12	0.2	0.0001 U	0.0025 J	2	0.0025 U	0.0005 U	3	0.00054 J	0.00099 J	0.0018 U
MW-52 (Filtered)	2013	0.011 J	0.00052 U	0.00061 U	0.24	0.00025 U	0.00027 U	84	0.0023 J	0.0011 J	0.0015 J	0.95	0.00024 U	13	0.18	0.00012 J	0.0053 J	2.1	0.0017 J	0.00056 J	3.3	0.00016 U	0.00049 U	0.004 J
	2014	0.0025 U	0.001 U	0.001 U	0.25	0.0005 U	0.0005 U	84	0.002 J	0.00031 J	0.0005 U	0.95	0.0005 U	13	0.22	0.0001 U	0.0022 J	2	0.0025 U	0.0005 U	3.4	0.0005 U	0.00085 J	0.0025 U
	2015	0.0025 U	0.001 J	0.001 U	0.28	0.0005 U	0.0005 U	86	0.0031 J	0.00031 J	0.0005 U	1.1	0.0005 U	13	0.23	0.0001 U	0.0021 J	2.2	0.0025 U	0.0005 U	3.4	0.0005 U	0.00077 J	0.0025 U
MW-53	2014	0.27	0.001 U	0.0032	0.17	0.0005 U	0.0005 U	27	0.0047 J	0.0012 J	0.0059	0.99	0.0012	10	0.037	0.0001 U	0.011	51	0.0025 U	0.0005 U	110	0.0005 U	0.0015 J	0.025 J
	2015	0.21 J	0.0011 J	0.00083 J	0.45	0.0005 U	0.0005 U	83	0.003 J	0.00092 J	0.0038 J	0.7	0.00049 J	28	0.072	0.0001 U	0.0058 J	26	0.014	0.00018 U	80	0.0003 J	0.0011 J	0.023 J
MW-53 (Filtered)	2014	0.15	0.0012 J	0.0042	0.12	0.0005 U	0.0005 U	12	0.0097 J	0.001 J	0.014	0.17 J	0.00045 J	10	0.012	0.0001 U	0.014	80	0.0025 U	0.00021 J	120	0.0005 U	0.0055	0.0077 J
	2015	0.0025 U	0.001 J	0.001 U	0.46	0.0005 U	0.0005 U	95	0.005 J	0.0011 J	0.0015 J	0.24	0.0005 U	29	0.056	0.0001 U	0.0052 J	30	0.012	0.0005 U	86	0.0005 U	0.0014 J	0.021 J
MW-59	2013	0.2	0.00058 J	0.00061 U	0.056		0.00038 J	9	0.00098 J	0.018	0.0019 J	1.2	0.00052 J	8	0.73	0.0001 J	0.032	1.2	0.0015 U	0.00018 U	7.1	0.0002 J	0.00049 U	0.044 J
	2014	0.91	0.001 U	0.001 U	0.039	0.00064 J	0.0005 U	12	0.0012 J	0.014	0.0035 J	3.8	0.0005 U	9.4	0.57	0.0001 U	0.033	0.94	0.002 J	0.0005 U	6.1	0.0005 U	0.0005 U	0.056
	2015	0.77	0.001 U	0.001 U	0.047	0.0003 J	0.0005 U	9.3	0.00066 J	0.012	0.00024 U	1.6	0.00032 J	8.6	0.6	0.0001 U	0.022	0.93	0.0025 U	0.00018 U	4.8	0.00021 J	0.00098 J	0.027 J
MW-59 (Filtered)	2013	0.066	0.00064 J	0.00061 U	0.053	0.00025 U	0.00027 U	9.3	0.0003 U	0.016	0.0013 J	0.84	0.00024 U	7.2	0.61	0.00015 J	0.028	1.1	0.0015 U	0.00018 U	5.9	0.00016 U	0.00049 U	0.049 J
	2014	0.1	0.001 J	0.001 U	0.038	0.00048 J	0.0005 U	8.9	0.00041 J	0.011	0.00074 J	2.1	0.0005 U	7.7	0.51	0.0001 U	0.02	0.88	0.0025 U	0.0005 U	5.4	0.0005 U	0.0005 U	0.024 J
	2015	0.04 J	0.0006 J	0.001 U	0.043	0.00032 J	0.0005 U	9.4	0.00089 J	0.012	0.00027 J	1.7	0.0005 U	8.7	0.62	0.0001 U	0.022	0.68	0.0025 U	0.0005 U	4.8	0.0005 U	0.0005 U	0.028 J
MW-81	2013	0.0097 J	0.00052 U	0.00061 U	0.098		0.00027 U	30	0.00076 J	0.00025 J	0.00069 J	0.17 J	0.0003 J	6	0.014	0.0001 J	0.0017 J	1.1	0.0015 U	0.00018 U	4.8	0.00022 J	0.00049 U	0.011 J
MW-81 (Filtered)	2013	0.0029 J	0.00052 U	0.00061 U	0.085	0.00025 U	0.00027 U	28	0.00032 J	0.00012 U	0.00054 J	0.048 U	0.00024 U	5.3	0.011	0.00009 J	0.0016 J	0.99	0.0015 U	0.00018 U	4	0.00016 U	0.00049 U	0.019 J
PZ-01	2015	0.022 J	0.001 U	0.001 U	0.11	0.0005 U	0.0005 U	24	0.00032 J	0.0004 J	0.0005 U	0.17 J	0.0005 U	7.7	0.12	0.0001 U	0.0013 J	0.52	0.0025 U	0.0005 U	7.1	0.0005 U	0.0005 U	0.0025 U
PZ-01 (Filtered)	2015	0.0033 J	0.00059 J	0.001 U	0.11	0.0005 U	0.0005 U	24	0.0014 J	0.00034 J	0.0005 U	0.073 J	0.0005 U	7.5	0.12	0.0001 U	0.0011 J	0.52	0.0025 U	0.0005 U	6.7	0.0005 U	0.0005 U	0.0025 U
PZ-09	2013	0.038 J	0.00052 U	0.00061 U	0.19		0.00027 U	13	0.0013 J	0.0005 J	0.00097 J	0.1 J	0.0004 J	7.2	0.017	0.00008 J	0.021	1.3	0.0015 U	0.00018 U	4.5	0.00032 J	0.00049 U	0.01 J
	2014	0.53	0.001 U	0.001 U	0.25	0.00083 J	0.0005 U	15	0.004 J	0.0012 J	0.0015 J	1.5	0.0017	9	0.036	0.0001 U	0.026	1.2	0.0033 J	0.0005 U	6	0.0005 U	0.00074 J	0.017 J
	2015	0.027 J	0.001 U	0.001 U	0.16	0.0005 U	0.0005 U	9.5	0.0012 J	0.00028 J	0.0005 U	0.12 U	0.0005 U	5.7	0.013	0.0001 U	0.015	0.79	0.0025 U	0.0005 U	6.3	0.0005 U	0.0005 U	0.0018 U
PZ-09 (Filtered)	2013	0.028 J	0.00052 U	0.00061 U	0.17	0.00025 U	0.00027 U	12	0.00088 J	0.00028 J	0.00054 J	0.048 U	0.00024 U	6.4	0.014	0.000066 U	0.019	1.2	0.0015 U	0.00018 U	3.9	0.00016 U	0.00049 U	0.009 J
	2014	0.035 J	0.001 U	0.001 U	0.21	0.00027 J	0.0005 U	14	0.0013 J	0.00036 J	0.0017 J	0.12 U	0.0005 U	8.3	0.018	0.0001 U	0.025	1.1	0.0025 U	0.0005 U	5.7	0.0005 U	0.00076 J	0.011 J
	2015	0.026 J	0.00062 J	0.001 U	0.17	0.00033 J	0.0005 U	12	0.0021 J	0.00035 J	0.00034 J	0.059 J	0.0005 U	6.3	0.021	0.0001 U	0.017	0.81	0.0016 J	0.0005 U	7	0.0005 U	0.0005 U	0.0084 J

Metals Table Definitions:
J - Estimated value below minimum Level of Detectability (LOD)
U - Undetectable below Achieved Detection Limit
R - Rejected data
µg/L - micrograms per liter
Value exceeds water quality standard (see Table 7).

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	URANIUM-234	URANIUM-235	URANIUM-238	TOTAL URANIUM (UG/L)
Units		pCi/L	pCi/L	pCi/L	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	1.39	0.035 U	0.185	0.431
	2014	0.05 U	0.057 U	0.021 U	-0.637 U	0.026 U	-0.024 U	0 U	1.23	0.092 J	0.091 J	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	1.8	0.077 J	0.024 U	0.362
10L31 (Filtered)	2013	0.099 J	0.159 J	0.006 U	-1.74 U	0.576 U	-0.065 U	-0.03 U	1.22	0.134 J	0.003 U	0.402
	2014	0.053 J	0.08 U	0.027 U	-0.29 U	0.005 U	0.009 U	0 U	0.907	0 U	0.096 J	0.31 J
	2015	0.03 U	0.089 J	-0.01 U	-0.739 U	-0.027 U	0.011 U	0 U	2.24	0.17	0.126 J	0.407
MW-01	2004	0.834 U		0.683 U	13.5 U			0.379 J	0.379 U	0.204 U	0.282 U	
	2013	0.027 U	0.204 J	0.019 U	3.62 U	0.442 U	-0.04 U	-0.216 U	-0.044 U	-0.059 U	-0.082 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	0.045 U	0 U	-0.028 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	0.071 U	0.021 U	0.043 U	0.07 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	0.075 U	0.013 U	0.029 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	0.131 J	-0.023 U	0.001 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	0.066 U	0.019 U	0.052	0.076 U
MW-02	2004	0.503 U		0.529 U	15.7 U			0.429 U	0.348 U	0.535 U	0.458 U	
	2004	R		0.326 U	11.9 U			0.298 J	0.653 U	0.383 U	0.503 U	
MW-02A	2004	1.46 J		R	11.2 U			0.471 J	0.589 U	0.591 U	0.196 U	
	2013	0.047 U	0.221 J	0.091 J	1.04 U	0.571 J	-0.125 U	-0.021 U	0.019 U	-0.02 U	0.018 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	0.056 J	0.079 J	0.025 U	-0.004 U
MW-02A (Filtered)	2013	-0.048 U	0.049 U	0.038 J	-0.092 U	0.41 U	-0.153 U	-0.048 U	-0.148 U	0.026 U	-0.103 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	0.049 J	0.021 U	0.058 J	0.02 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	2.91	0.089 J	2.12	3.81
	2014	0.163 J	0.146 U	0 U	10.8 J	1.18	0.054 U	0.181 J	1.15	0.036 U	0.773	1.98
	2015	0.071 J	0 U	0.056 U	5.21 U	0.433	0.138	0.124	1.11	0.022 U	0.656	1.91
MW-03 (Filtered)	2015	0.005 U	0.086 U	0.224	2.35 U	0.591	0.138	0.073	0.876	0.104	0.757	1.86
MW-05	2004	1.19 J		0.191 U	12.2 U			0.592 J	0.231 U	0.314 U	0.289 U	
	2014	0.069 J	0.152 J	0.062 J	-0.781 U	-0.058 U	0.033 U	-0.041 U	0.06 J	-0.017 U	0.047 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	0.185 J	0.022 U	0.13 J	0.161 J
MW-05 (Filtered)	2014	0.008 U	0 U	0.04 U	3.04 U	0.012 U	-0.016 U	0.019 U	-0.005 U	0.03 U	0.054 J	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	0.045 U	-0.009 U	0.04 U	0.153 J
MW-06	2004	0.822 U		R	8.91 U			0.5 J	0.308 U	0.267 U	0.175 U	
MW-07	2004	0.86 U		0.395 U	11.4 U			0.236 J	0.577 U	0.381 U	0.524 U	
	2013	0.103 J	0.094 J	0.017 U	-4.6 U	0.374 U	-0.008 U	0 U	0.416	-0.001 U	0.099 J	0.241 J
	2014	0.005 U	0.014 U	0.034 U	3.62 U	-0.021 U	-0.022 U	0 U	0.244 J	0.054 U	-0.037 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	0.191 J	0.016 U	0.116	0.176 J
MW-07 (Filtered)	2013	0.102 J	0.151 J	0.018 U	-2.3 U	0.819 J	-0.039 U	0 U	0.202 J	0.029 U	0.095 J	0.239 J
	2014	0.026 J	0.119 U	0.009 U	7.88 J	-0.012 U	-0.04 U	0 U	0.208 J	-0.012 U	-0.007 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	0.311 J	0.068 J	0.073 J	0.18 J
MW-08	2004	0.667 U		0.125 U	11.6 U			0.557 J	0.287 J	0.339 J	0.287 J	
	2013	-0.028 U	0.184 J	-0.009 U	1.28 U	0.67 J	0.011 U	-0.007 U	-0.159 U	-0.021 U	-0.068 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	0.009 U	0.083 J	-0.038 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	0.06 U	0.022 U	-0.012 U	0.078 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	-0.003 U	-0.011 U	0.054 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	-0.163 U	-0.022 U	-0.135 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	-0.021 U	0.044 U	-0.026 U	0.098 U
MW-09A	2004	0.716 U		0.0386 U	9.78 U			0.459 J	0.644 U	0.378 U	0.496 U	
	2013	0.109 U	0.051 U	-0.041 U	5.58 J	0.283 U	-0.027 U	0.037 J	0.023 U	-0.022 U	-0.06 U	0.154 J
	2014	0.017 U	0.01 U	0.079	0.413 U	-0.159 U	-0.177 U	-0.118 U	-0.011 U	0.036 U	0.018 U	0.111 J
	2015	0 U	-0.041 U	0 U	-1.89 U	0.081 U	0.015 U	-0.01 U	0.135	0.016 U	0.105	0.145 J
MW-09A (Filtered)	2013	0.141 J	0.205 J	-0.028 U	2.99 U	0.505 U	-0.02 U	0 U	0.143 J	0.013 U	-0.007 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	0.034 U	-0.024 U	0.001 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	0.104 J	-0.01 U	-0.003 U	0.168 J
MW-12D	2004	0.593 U		0.595 U	10.2 U			0.774 J	0.664 U	0.297 U	0.349 U	
MW-13	2004	0.612 U		0.715 U	11.7 U			0.328 J	0.514 U	0.482 U	0.335 U	
	2013	0.068 J	0.033 U	0.027 U	-0.274 U	0.252 U	-0.037 U	-0.019 U	0.002 U	-0.014 U	0.001 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	0.106 J	0.022 U	0.034 J	0.123 U
	2015	0.021 U	0.167	0.071 J	4.29 U	0.147 J	0.026 U	-0.013 U	0.065 J	-0.006 U	0.048 U	0.085 J
MW-13 (Filtered)	2013	0.02 U	0.156 J	0.053 U	-4.75 U	0.457 U	0.06 J	-0.005 U	0.119 J	-0.024 U	0.085 J	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	0.024 U	0.022 U	0.017 U	0.111 U
	2015	0.064 J	0.031 U	0.029 J	3.08 U	-0.039 U	0.012 U	0.062 J	-0.043 U	0.022 U	-0.029 U	0.082 J
MW-14	2004	0.675 U		0.494 U	10.7 U			0.341 J	0.409 U	0.348 U	0.197 U	
	2013	0.057 U	0.1 J	0.1 U	-0.698 U	0.828 J	-0.027 U	0 U	0.02 U	0 U	0.018 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	-0.077 U	-0.022 U	0.034 U	0.032 U
	2015	-0.099 U	0.388 J	0.053 U	0.847 U	4.15	0.051 U	0.051	-0.131 U	-0.024 U	0.281 J	1.06
MW-14 (Filtered)	2013	0.108 J	0.035 U	0.124 J	-3.51 U	0.886 J	-0.022 U	0 U	0.094 J	-0.007 U	0.041 J	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	-0.006 U	0.001 U	0.077	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	0.05 U	-0.009 U	0.018 U	0.076 U
MW-15	2004	0.776 U		0.107 U	12.7 U			0.487 J	0.496 J	0.438 J	0.305 J	
	2013	0.061 U	0.008 U	-0.017 U	4.42 J	0.283 U	0.08 J	-0.035 U	0.078 J	-0.01 U	0.009 U	0.263 J
	2014	0.182 J	0.137 U	-0.107 UJ	-2.97 U	0.17	0.036 J	0 U	0.463	0.142 J	0.179 J	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	0.113 J	0.02 U	0.02 U	0.053 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	-0.03 U	0.031 U	0.15 J	0.061 U
	2014	-0.055 U	-0.024 U	0 U	1.82 U	-0.045 U	-0.011 U	0 U	0.007 U	-0.007 U	0.021 J	0.051 U
	2015	0.047 U	0.104	0.02 U	0.37 U	0.095 U	0.026 U	0 U	0.077 J	-0.007 U	0.007 U	0.086 J
MW-16BC	2004	0.564 U		0.035 J	12 U			0.468 J	0.525 U	0.491 U	0.342 U	
MW-19	2004	R		R	R			0.459 J	0.352 U	0.353 U	0.0899 U	
MW-20	2013	0.026 U	0.16 J	0.006 U	3.32 U	2.41 J	0.413	0.492	2.09	-0.011 U	0.838	2.47
	2014	-0.017 U	0.029 U	0.011 J	-1.93 U	4.23	1.32	0.66	1.8	0.07 J	1.06	1.61
	2015	-0.014 U	0.116 J	0.012 U	0.741 U	1.62	0.334	0.193 J	1.33	0.061 J	0.554	2.35
MW-20 (Filtered)	2015	0.025 U	0.117 J	0.073 J	9.13 J	1.42	0.298	0.184	1.11	0.052 J	0.587	1.49
MW-22	2004	0.458 U		0.532 U	10.6 U			0.478 J	0.479 J	0.423 J	0.295 J	
	2013	0.106 J	0.152 J	0.093	-0.47 U	0.489 J	-0.055 U	0.003 U	0.075 J	0 U	0.023 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	0.233	0.035 U	0.094 J	0.292
	2015	0.015 U	0.171	0.043 U	-1.15 U	-0.051 U	-0.012 U	0 U	0.026 U	0.026 J	-0.037 U	0.116 J
MW-22 (Filtered)	2013	0.026 U	0.075 U	0.031 U	0.184 U	0.643 J	-0.039 U	0 U	0.107 J	0.084 J	0.054 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	-0.036 U	0.025 U	0.009 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	0.019 U	-0.006 U	0.032 U	0.095 J
MW-23	2004	0.635 J		0.255 U	R			0.561 J	0.676	0.183 U	0.519	
MW-24	2004	0.632 U		0.496 U	10.6 U			0.555 J	0.459 J	R	0.558 J	
MW-25	2004	1.07 J		0.06 U	11.9 U			R	0.619 U	0.277 U	0.326 U	
MW-26	2004	0.732 U	0.815 U	0.537 U	13 U		0.345 U	0.455 J	0.681 J	0.495 J	0.238 J	
MW-29	2004	0.397 U	0.744 U	0.506 U	11.3 U		0.446 U	0.215 U	0.421 U	0.498 J	0.421 J	
MW-30A	2004	0.912 U		0.383 U	R			0.726 J	0.222 U	0.106 U	0.222 U	
MW-31	2004	0.558 U		0.323 U	12 U			0.502 J	0.393	0.479 U	0.422 U	
MW-32	2004	R		0.084 U	12.3 U			0.207 U	0.606 J	0.589 J	0.502 J	
MW-33	2004	0.488 U	0.619 U	0.448 U	11.8 U		0.323 U	0.323 J	0.963 J	0.565 J	0.741 J	
	2013	-0.012 U	-0.055 U	-0.016 U	1.79 U	0.817 J	-0.028 U	0.024 U	0.122 U	0 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	0.242	-0.008 U	0.108 J	0.213 J
	2015	0.053 U	0.103	0.007 U	-0.646 U	0.084 U	0.081 U	0.271	0.254 J	0.068	0.151	0.513 J
MW-33 (Filtered)	2013	0.038 U	0.124 U	0.083 J	0.087 U	0.478 U	0.031 J	0 U	0.186 J	-0.03 U	0.056 J	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	0.133 J	-0.015 U	0.06 J	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	0.095 J	-0.018 U	0.09 J	0.259 J
MW-35	2004	0.882 U		0.101 U	11 U			0.206 J	0.354 U	0.202 U	0.354 U	
MW-36	2004	0.59 U		R	R			0.368 J	0.746	0.324 U	0.239 U	
MW-38	2004	R		0.0625 U	12.1 U			0.509 J	0.518 U	0.52 U	0.172	
MW-39	2004	0.482 U	0.814 U	0.467 U	13.9 U		0.527 J	0.175 U	0.218 U	0.385 U	0.384 U	
	2013	0.003 U	0.074 U	0.012 U	-3.83 U	0.366 U	0.004 U	0 U	0.2	0.056 U	0.214	0.408
	2014	0.02 U	0.069 U	0.026 U	2.28 U	0.039 U	-0.079 U	-0.049 U	0.081 J	-0.01 U	0.057 J	0.143 J
	2015	-0.029 U	0.061 U	0.061	6.9 J	0.415	0.024 U	0.182	0.024 U	0.068 J	0.077 J	0.458
MW-39 (Filtered)	2013	-0.02 U	0.235	0.051 U	-2.47 U	0.309 U	-0.041 U	0 U	0.189 J	0.133 J	0.103 J	0.46
	2014	0.002 U	0.037 U	0.009 U	-1.79 U	0.003 U	0.088 J	0.049 U	0.071 U	-0.014 U	0.073 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	0.062 J	0 U	0.047 U	0.103 J
MW-40	2004	0.681 U		0.185 U	10.3 U			0.245 J	R	0.587 U	0.448 U	
	2013	0.101 U	-0.016 U	0.107 J	1.18 U	0.791 J	-0.003 U	0.036 J	-0.1 U	-0.132 U	0.005 U	0.11 J
	2014	-0.005 U	0.023 U	0 U	6.82 J	0.094 J	0.021 U	0 U	-0.033 U	-0.01 U	-0.006 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	0.052 U	-0.009 U	0.071 J	0.096 J
MW-40 (Filtered)	2013	0.066 U	0.074 U	0.046 U	4.84 J	0.502 U	0.004 U	0 U	0.069 U	-0.027 U	-0.019 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	-0.002 U	0.002 U	-0.049 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	0.063 J	-0.007 U	0.031 U	0.111 J
MW-41	2004	0.646 U		0.376 U	11.3 U			0.481 J	0.773	0.41 U	0.347 U	
MW-43	2004	0.691 U		0.0715 U	10.7 U			0.228 J	1.49	0.308 U	0.175 U	
MW-44	2015	-0.042 U	0.183 J	0.043 J	6.32 U	0.027 U	0.039	0 U	0.455	0.053 J	0.117 J	0.375
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	0.177 J	-0.009 U	0.083 J	0.369
MW-45 (Filtered)	2015	0.008 U	0.149 J	0.054 J	1.4 U	0.03 U	0 U	0.015 U	4.31	0.079 J	1.6	5.91
MW-51	2004	1.01 J		0.0843 U	10.7 U			0.335 J	0.349 U	0.297 J	0.296 J	
	2014	0.03 U	0.104 U	0.016 U	9.72 J	-0.055 U	-0.047 U	0.022 U	-0.114 U	-0.023 U	0.013 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	0.134 J	-0.017 U	0.064 J	0.356
MW-51 (Filtered)	2014	0.032 U	0.153 U	0.029 U	3.89 U	-0.051 U	-0.075 U	0 U	0.087 U	0.074 J	0.096 J	0.234 J
	2015	0.076	0.145 J	0.022 U	-0.83 U	-0.015 U	-0.015 U	-0.015 U	0.112 J	0.059 J	0.063 J	0.362
MW-52	2004	0.901 U		0.2 U	11 U			0.487 J	0.52 U	0.553 U	0.339 U	
	2013	0.041 U	0.155 J	0.026 U	-0.098 U	0.437 U	-0.027 U	-0.007 U	0.191	-0.004 U	0.124 J	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	0.154 J	0.084 J	0.033 U	0.216 J
	2015	0.075 J	0.115	-0.042 U	3.45 U	-0.069 U	-0.027 U	0.04 J	0.004 U	-0.031 U	0.115 J	0.506 J
MW-52 (Filtered)	2013	0.088 J	0.136 J	0.035 U	-2.56 U	0.314 U	-0.015 U	-0.007 U	0.205	0.058 U	0.039 J	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	0.151 J	0.05 J	0.116 J	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	0.024 U	0.053 J	0.06 J	0.426 J
MW-53	2014	-0.031 U	0.152	-0.012 U	-0.76 U	0.178 J	-0.039 U	0.052 J	3.1	0.064 U	1.92	7.24
	2015	0.043 J	0.174 J	0.084 J	3.13 U	0.081 U	0.087 J	0 U	2.36	0.22	1.3	3.58
MW-53 (Filtered)	2014	0.041 U	0.084 J	0.017 U	0 U	0.047 U	-0.024 U	0 U	2.81	0.126 J	2	6.63
	2015	0.09 J	0.174	0.02 U	-2.62 U	-0.112 U	0.015 U	0.092 J	1.94	0.095 J	1.12	3.99
MW-56	2004	0.742 U		0.418 U	R			0.411 J	0.194 U	0.237 U	0.194 U	
MW-58	2004	0.498 J	0.634 DL	0.193 U	13.8 DL		0.352 U	0.2 J	0.366 U	0.368 U	0.311 U	
MW-59	2004	0.485 U		0.351 U	10.4 U			0.391 J	0.659 U	0.576 U	0.465 U	
	2013	0.097 U	0.26 J	0.097	4.07 U	0.714 J	-0.004 U	-0.02 U	0.133 J	-0.018 U	0.023 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	-0.064 U	0.03 U	-0.029 U	0.176 J
	2015	0.045 U	0.086 J	0.058	4.73 U	-0.051 U	-0.037 U	0 U	0.07 J	-0.009 U	0.089 J	0.168 J
MW-59 (Filtered)	2013	0.037 U	0.17 J	0.069 J	2.63 U	0.46 U	0.067 U	-0.028 U	0.138 U	-0.019 U	0.068 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	-0.073 U	0 U	0.145 J	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	0.07 U	0.07 J	-0.002 U	0.164 J
MW-64	2004	0.61 U		0.22 U	11.1 U			R	0.329 U	0.435 U	0.187 U	
MW-69	2004	R		0.39 U	11.5 U			0.552 J	0.377 U	0.378 U	0.41 U	
MW-81	2013	0.182 J	0.13 U	0.036 J	-4.34 U	0.053 U	-0.043 U	-0.115 U	3.41	0.191 J	0.23 J	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	2.6	0.199	0.269 J	0.67
NWS-01A-02	2004	0.362 U		0.123 U	12.7 U			0.215 J	0.33 J	0.331 J	0.359 J	
NWS-01A-03	2004	0.745 U		0.14 U	12.4 U			0.462 J	0.287 U	0.378 U	0.163 U	
NWS-01A-04	2004	0.826 J		0.11 U	11.7 U			0.161 U	0.405 U	0.635 J	0.566 J	
NWS-03-03	2004	0.623 U		0.0745 U	10.8 U			0.313 J	0.323 U	0.421 J	0.392 J	
NWS-05-04	2004	0.763 U		R	12.4 U			0.483 J	0.487 U	0.461 U	0.353 U	
PZ-01	2015	0.046 J	0.181	0.052 J	-0.699 U	0.027 U	-0.053 U	-0.026 U	0.867	0.174 J	0.457	0.326 J
PZ-01 (Filtered)	2015	-0.036 U	0.016 U	0.049 J	3.28 U	-0.052 U	0 U	0.013 J	0.862	-0.009 U	0.019 U	0.291 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	0.05 U	0.064 J	-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	0.092 J	-0.01 U	0.025 U	0.167 J
	2015	0.025 U	0.167 J	0.047 U	1.6 U	0.041 U	0.006 U	0 U	0.09 U	0.02 U	0.02 U	0.099 U
PZ-09 (Filtered)	2013	0.017 U	0.135 U	0.063 J	0.974 U	0.515 U	0 U	0 U	-0.023 U	0.053 U	0.002 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	0.104 J	-0.02 U	0.057 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	-0.038 U	-0.009 U	0.069 J	0.087 U

Radiologic Table Definitions:
J - Estimated value below minimum Level of Detectability (LOD)
U - Undetectable below Achieved Detection Limit
R - Rejected data
pCi/L - picoCuries per liter

Table 7. Groundwater Sampling Summary of Detections (2003-2015)

Metal	Average	Minimum	Maximum	Number of Detections	USEPA or PADEP Primary or Secondary Drinking Water Standard (1)	SLDA-specific Upgradient Average
	ug/L	ug/L	ug/L	n	ug/L	ug/L
Aluminum	1783.6	1.6	55000	126	200.0	NC
Antimony	1.0	0.52	3.9	33	6.0	NC
Arsenic	24.6	0.62	210	43	10.0	NC
Barium	225.0	3.5	1600	145	2000.0	NC
Beryllium	4.2	0.26	33	41	4.0	NC
Cadmium	1.3	0.29	4.4	14	5.0	NC
Calcium	54066.9	3700	430000	145	NA	NC
Chromium	11.7	0.31	250	134	100.0	NC
Cobalt	15.6	0.12	220	119	NA	NC
Copper	14.2	0.25	220	104	1000.0	NC
Iron	8837.4	52	190000	130	300.0	NC
Lead	14.2	0.26	200	53	15.0	NC
Magnesium	14452.3	590	100000	145	NA	NC
Manganese	363.9	0.5	5500	145	50.0	NC
Mercury	0.3	0.047	1.1	46	2.0	NC
Nickel	33.5	0.22	680	145	100.0	NC
Potassium	3840.5	500	80000	144	NA	NC
Selenium	19.3	1.5	220	42	50.0	NC
Silver	25.1	0.18	440	28	100.0	NC
Sodium	22168.3	1500	240000	145	NA	NC
Thallium	0.4	0.16	1.4	27	2.0	NC
Vanadium	15.8	0.49	210	48	NA	NC
Zinc	97.4	1.8	2400	111	5000.0	NC
Total Uranium	0.60	0.06	7.24	114	30	0.9
Radionuclide	pCi/L	pCi/L	pCi/L	n	pCi/L	pCi/L
Americium-241	0.10	0.03	0.20	41	15	ND
Plutonium-238	0.15	0.07	0.39	59	15	ND
Plutonium-239/240	0.06	0.01	0.22	45	300 (2)	ND
Plutonium-241	6.82	4.40	10.80	17	15	ND
Thorium-228	0.89	0.09	4.23	35	15	ND
Thorium-230	0.26	0.03	1.32	23	15	0.74
Thorium-232	0.90	0.01	10.70	32	15	0.39
Uranium-234	0.95	0.05	7.75	104	16.4 (3)	0.6
Uranium-235	0.12	0.02	0.95	39	0.2 (3)	ND
Uranium-238	0.50	0.02	7.55	81	10 (3)	0.3

NOTES:

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

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

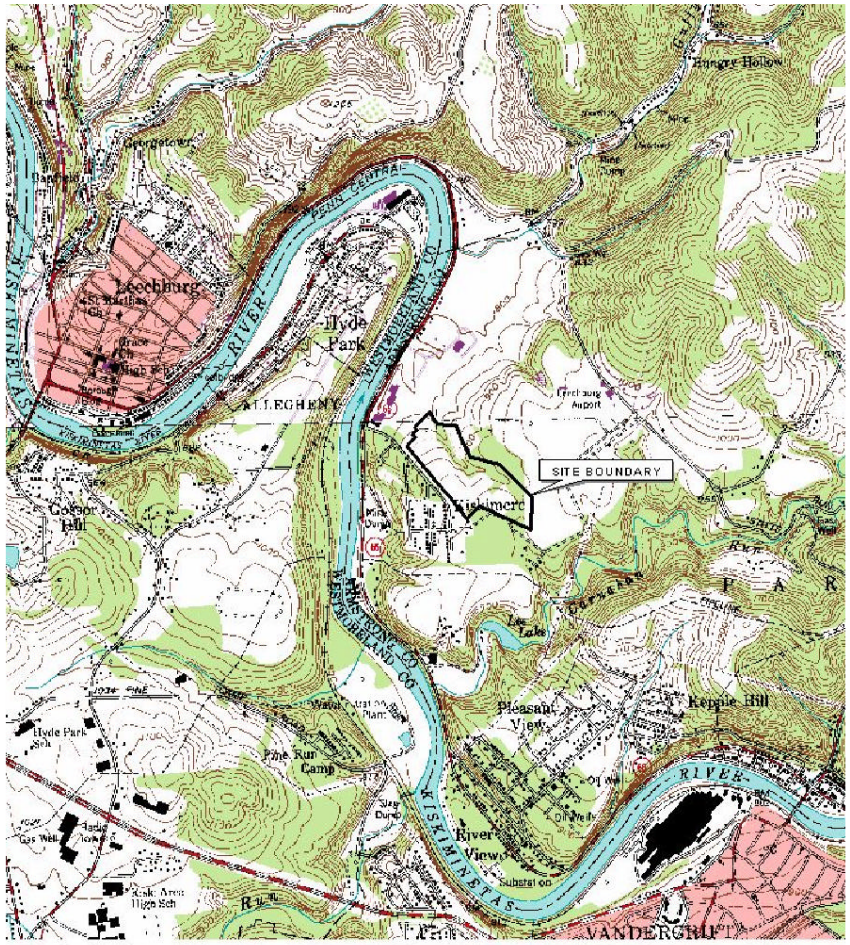
(3) - Based on 40 CFR 9, 141, 142, Federal Register, 7 Dec. 2000, Assumes a U234:U238 ratio of 1.6:1.

NA - No Standard Available

Average exceeds water quality standard.

NC - Not Calculated for non-FUSRAP consituents of concern

ND - Not Detected



Source: USGS 7.5' Topographic Quadrangles
Vandergrift, PA, 1953 (revised 1979)
Leechburg, PA, 1954 (revised 1969)

SITE LOCATION MAP

STATE KEY MAP

SITE ADDRESS:
1105 MARY STREET
VANDERGRIFT, PA 15690

VICINITY MAP

SHALLOW LAND DISPOSAL AREA
SITE LOCATION MAP

Figure 1

N:\11173327.00000\CAD\DRAFT\ 1=1 /6/12/05-2 RAL

FIGURE 1-1.dwg

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

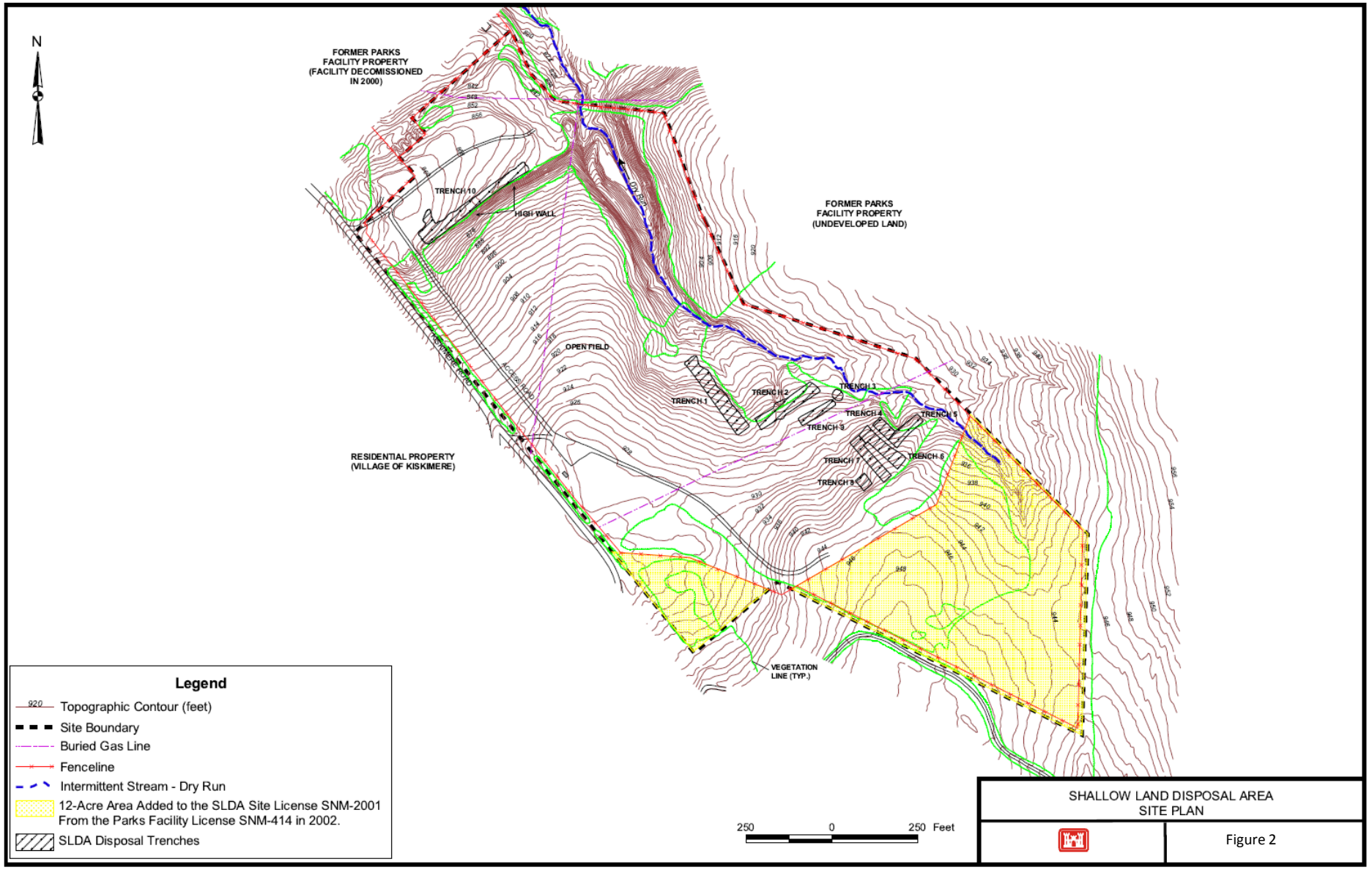


Figure 2. Shallow Land Disposal Area Site Plan

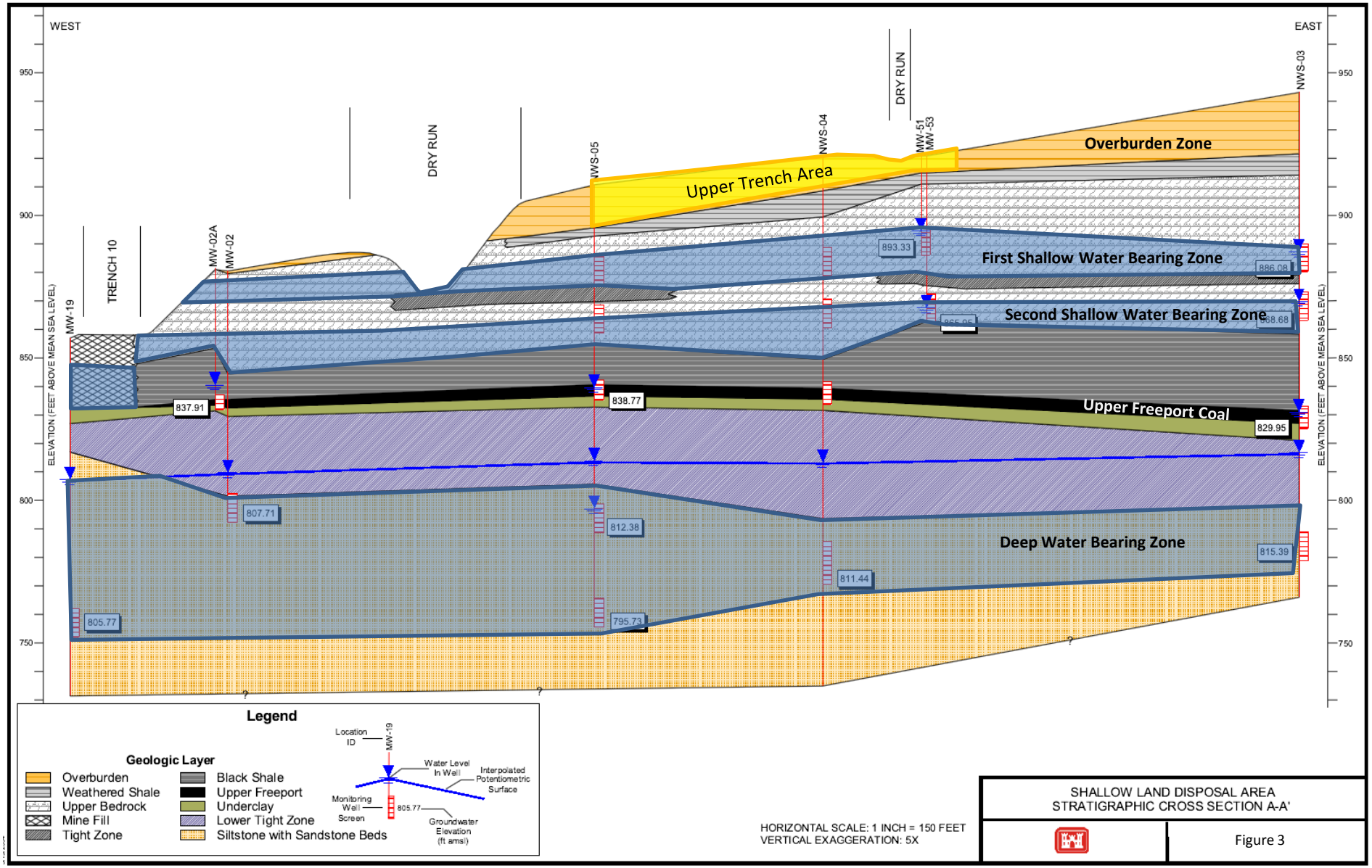


Figure 3. Northwest to Southeast Geologic Cross Section Through SLDA

Legend

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

0 110 220 440 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER ELEVATION CONTOUR MAP
OVERBURDEN - JULY 2015

Document Name: 161107_Jul15WgCon_SS.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 9:57:12 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 4

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_Jul15WgCon_SS.mxd

Legend

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

0 110 220 440 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER ELEVATION CONTOUR MAP
FIRST SHALLOW BEDROCK ZONE - JULY 2015

Document Name: 161107_Jul15WgCon_1S.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 10:11:51 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 5

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_Jul15WgCon_1S.mxd

Legend

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

0 110 220 440 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER ELEVATION CONTOUR MAP
SECOND SHALLOW BEDROCK ZONE - JULY 2015

Document Name: 161107_Jul15WgCon_2S.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 10:10:58 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 6

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_Jul15WgCon_2S.mxd

Legend

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

0 110 220 440 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

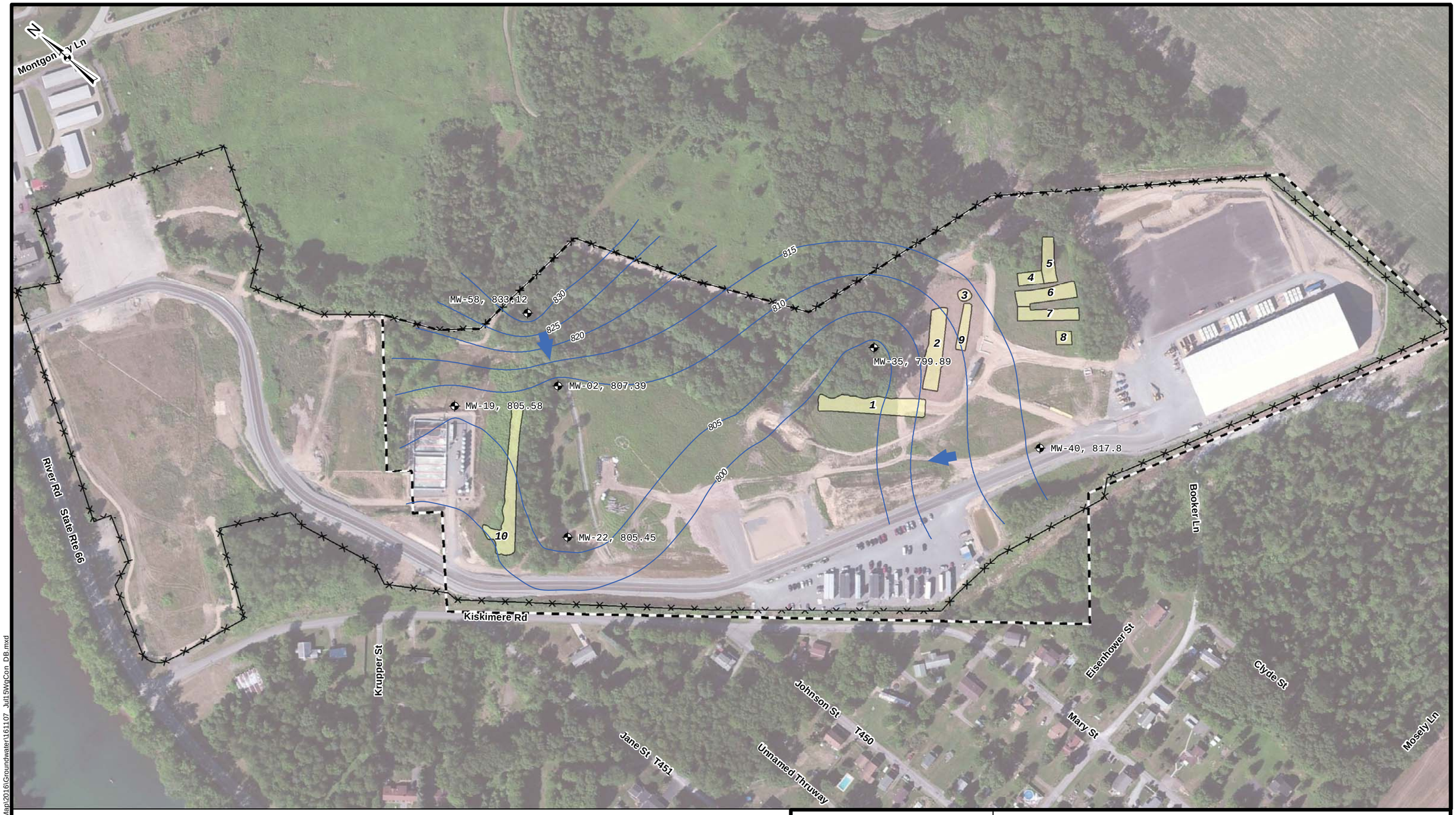
GROUNDWATER ELEVATION CONTOUR MAP
UPPER FREEPORT COAL ZONE - JULY 2015

Document Name: 161107_Jul15WgCon_UF.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 10:17:23 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 7

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_Jul15WgCon_UF.mxd



Legend

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

0 110 220 440 Feet

US Army Corps of Engineers Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

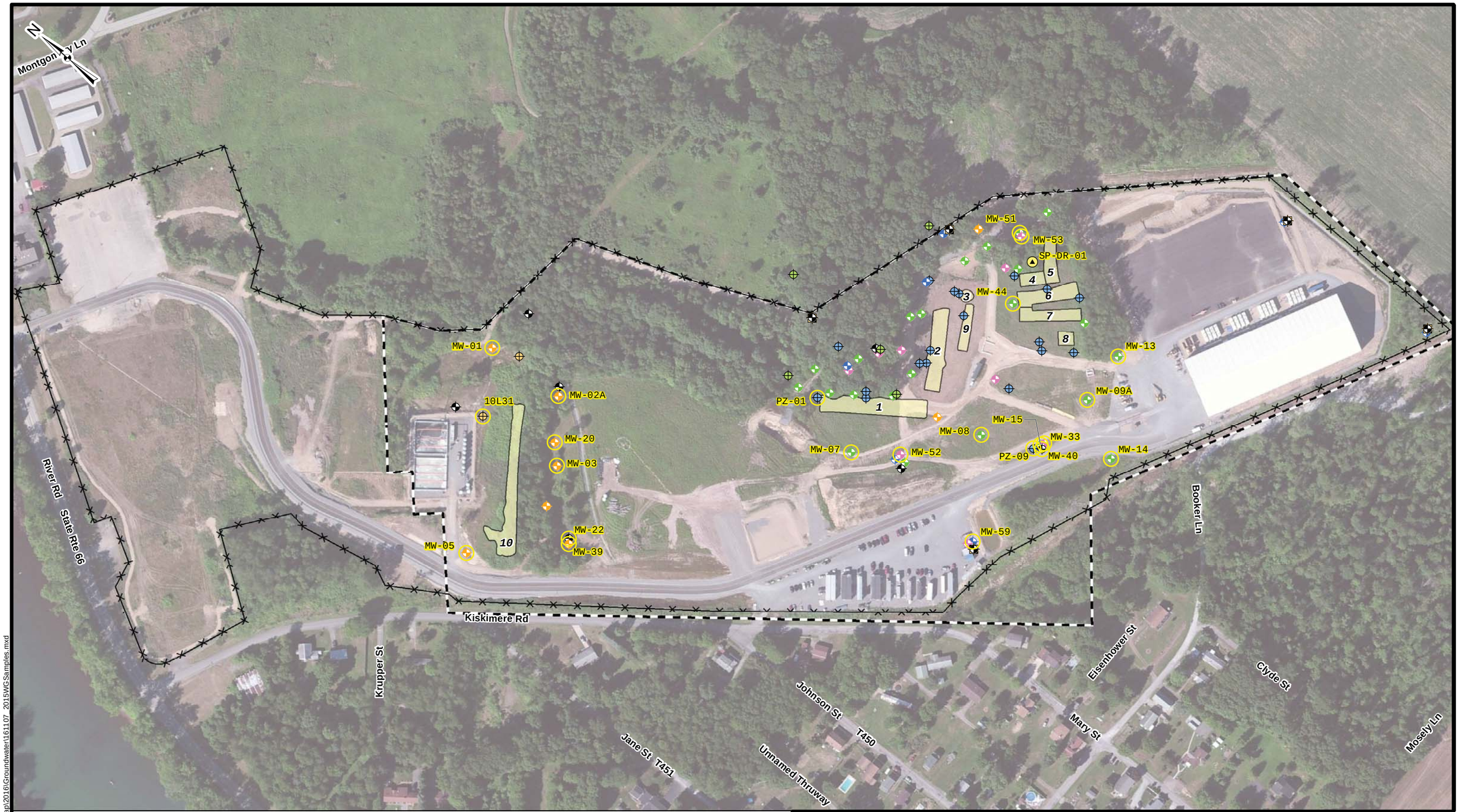
GROUNDWATER ELEVATION CONTOUR MAP
DEEP BEDROCK ZONE - JULY 2015

Document Name: 161107_Jul15WgCon_DB.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 10:27:06 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 8

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_Jul15WgCon_DB.mxd



Legend

- Monitoring Well/Piezometer (Sampled 2015)
- Surface Water Location (Sampled 2015)
- Monitoring Well (Overburden)
- Monitoring Well (First Shallow Bedrock)
- Monitoring Well (Second Shallow Bedrock)
- Monitoring Well (Upper Freeport Zone)
- Monitoring Well (Deep Bedrock)
- Nested Monitoring Well
- Piezometer (Overburden)
- Piezometer (First Shallow Bedrock)
- Piezometer (Upper Freeport Zone)
- Trench
- Fenceline
- Boundary

0 110 220 440 Feet

US Army Corps of Engineers, Buffalo District

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NY

GROUNDWATER SAMPLING LOCATIONS (JULY 2015)

Document Name: 161107_2015WGSamples.mxd
Drawn By: H5TDESPM
Date Saved: 07 Nov 2016
Time Saved: 11:00:42 AM

SHALLOW LAND DISPOSAL AREA
PARKS TOWNSHIP, PENNSYLVANIA

FIGURE 9

Document Path: K:\SLDA\GIS\ArcMap\2016\Groundwater\161107_2015WGSamples.mxd