Complaint Investigation
Objection to Proposed
Phase 1, 2, & 3 Bond Release

Keystone Industries, LLC
Doing Business as (DBA)
Keystone Development, LLC

SMA Permit No. S-3009-05
NPDES No. WV1019121

Louden District
Kanawha County, WV

Field visits performed on
June 10th, 2025
Report completed on;
September 09th, 2025

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Introduction/Location

Following an objection filed against Keystone West Virginia, LLC's (Keystone) application for Phase 1, 2, and 3 bond release under Permit No. S-3009-05 for the KD #1 Surface Mine (Increments 1, 2, 3, and 4), an investigation was conducted to address concerns that a water discharge may be associated with former mining activities associated with the subject permit. Keystone's KD No.1 Mine is located in Kanawha County, Louden township at Longitude 81º36'11.48" and Latitude 38º14'3.5". The seep referenced in this report exists at approximately the same location as a Notice of Violation (NOV) No.4 issued on 03/24/2009 and abated by stabilizing and revegetating the area. See Location maps below.

An Investigation of a seep located below Outlet 060/Sediment ditch No.21 was previously conducted (report date 02/12/2018) by Environmental Analyst Thomas Satterfield of the Logan WVDEP office. The focus of the investigation was to determine if water in sediment ditch 21 had connectivity to the seep. Through the use of STIFF and Piper diagrams, it was demonstrated that the seep below 060 was not due to Sediment ditch leakage.

A field visit was conducted on June 10th, 2025, at which time a water sample was collected from the Seep Below 060 as well as a sample taken from a small water pool located just below an exposed un-reclaimed auger hole in the Stockton seam (Auger No.1). Sample point Auger No.1 is located down-dip and Approx. 7,500 ft north-east of "Seep Below 060" and was a baseline groundwater site for the original SMA application, characterizing the effects of previous mining prior to issuing the S300905 permit. Auger No.1 was sampled for STIFF and Piper diagram analysis of a known Stockton seam discharge for comparison to the Seep Below 060. Samples were immediately packed in ice and delivered to Pace Analytical in Beaver WV.

Table: Sample Point Locations

Sample Point ID	Location Description	Approx. Latitude	Approx. Longitude	Approx. Elev.
Seep Below 060	Below Sediment Ditch 21	38º14'3.5"	81º36'11.5"	1270
Auger No.1	Approx. 7,500 ft north-east of Seep Below 060 on the Stockton seam bench.	38º15'14.3"	81º36'37.1"	1230

Table: Sample Point Cation/Anion Analysis

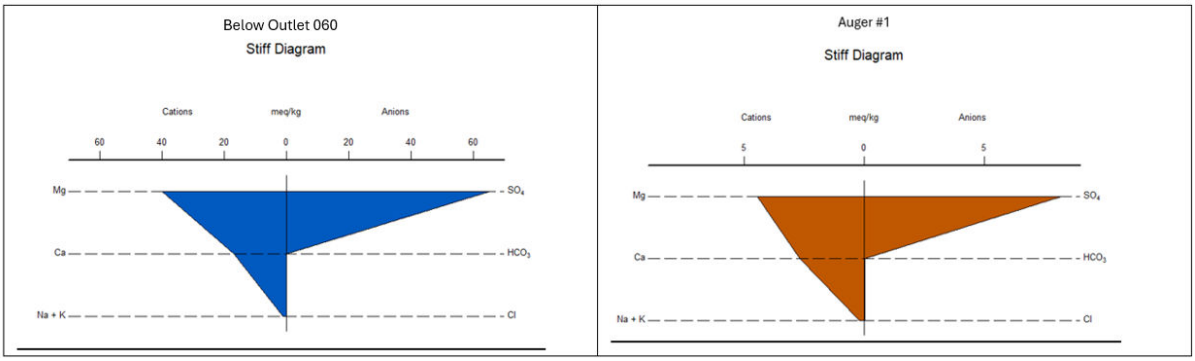
Sample Point ID	Date sampled	Calcium (mg/L)	Mg (mg/L)	Sodium (mg/L)	Potassium (mg/L)	Bicarbonate (mg/L)	Sul (mg/L)	Chloride (mg/L)
Seep Below 060	06/10/2025	338	487	15.4	20.4	ND	3140	ND
Auger No.1	06/10/2025	53.5	54	2.3	4.4	ND	393	0.91J

Table: Sample Point Analysis

Sample Point ID	pH	Mn (mg/L)	Fe (mg/L)	Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm
Seep Below 060	4.5	18.9	0.11	6.4	ND	7.5	4110	3950
Auger No.1	4.2	5.8	0.55	2.9	ND	ND	543	746

STIFF Diagrams

A STIFF diagram (Named after H.A. Stiff Jr., who introduced the method) is a polygonal shape created by plotting the concentrations of major cations and anions on horizontal axes, with cations on the left and anions on the right used for the interpretation of chemical water analysis by means of patterns. The STIFF Diagrams below show nearly identical ionic signatures for the two sample points indicating possible common water sources dominated by sulfates. Please note a dilution factor was applied to the sulfates by PACE labs, see the lab sheets for details.



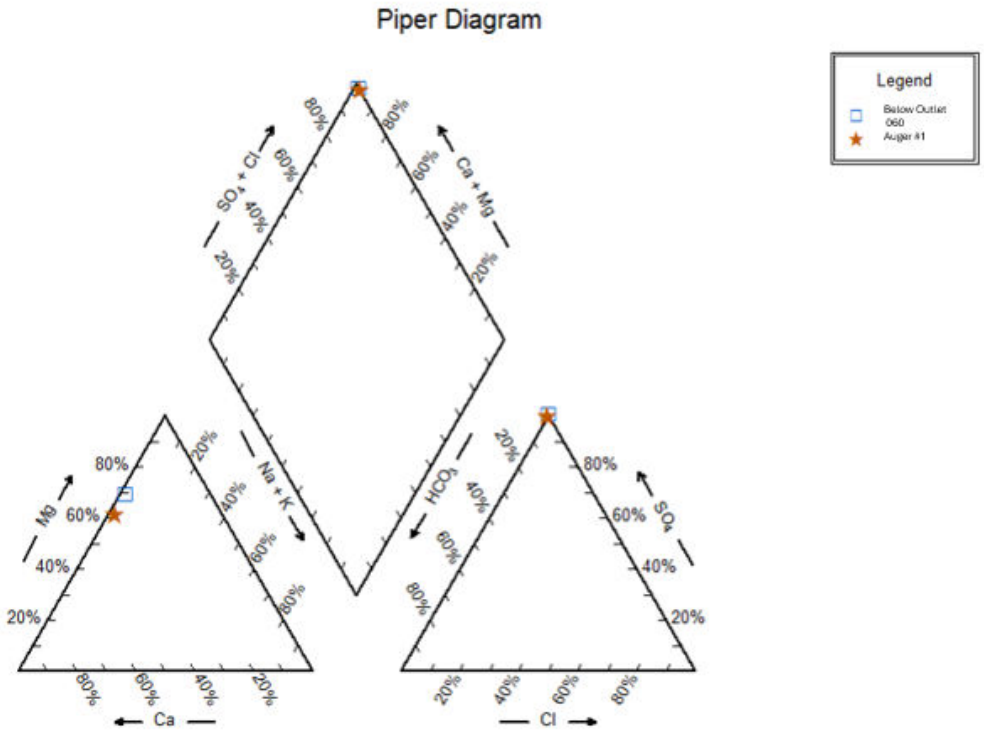
Piper Diagrams

A Piper diagram is a graphical representation widely used in hydrogeology and geochemistry to analyze and interpret the chemical composition of water samples, especially groundwater. It is particularly effective for visualizing the relative concentrations of major dissolved ions in water and identifying distinct water types or sources of mixing.

The diagram consists of three distinct fields: two triangular fields at the base and a central diamond-shaped field. The left triangle displays the proportions of major cations, specifically calcium (Ca^{2+}), magnesium (Mg^{2+}), and a combined category for sodium (Na^{+}) and potassium (K^{+}). The right triangle shows the relative concentrations of the main anions, typically bicarbonate (HCO_3^{-}) combined with carbonate (CO_3^{2-}), sulfate (SO_4^{2-}), and chloride (Cl^{-}). These two triangular plots are used to determine the position of a sample within each ionic group.

The results from the two triangular fields are then projected into the central diamond, which integrates the cation and anion compositions to reveal the overall water type or hydro-chemical facies. The location of a point within this diamond helps identify dominant ion characteristics, detect mixing of different water sources, and observe temporal or spatial changes in water chemistry. **The Piper Diagram below shows nearly identical hydro-chemical facies for the two points samples, indicating likely common water sources dominated by sulfates.**

Piper Diagram



Overburden Acid-Base Accounting

Section J-6: Probable Hydrologic Consequences, Attachment J-6.doc, section B of the original S-3009-05 states; *"Geochemical character of the affected strata is quantified and qualified by a geologic model, included in Attachment I-11. Information therein indicates that* ***the strata units located approximately 10 feet immediately above the Stockton coal beds exhibit the most potential to produce acid or iron-laden waters.*** *To prevent this material from affecting receiving surface waters the strata units as identified in Attachment I-11 will be segregated and encapsulated per the handling plan described in Attachment O-8."* Strata immediately below the Stockton is comprised of thin shales, the Coalburg Sandstone, with a basal thin coal rider identified approximately 40ft from the Stockton interval.

Three drillholes; RC-02-98, KD-03-01 & KD-01-04, were submitted with the original SMA application. See Location map for corehole locations. All three drillhole exhibited Net Deficiency in Neutralization Potential and elevated Pyritic Sulfur levels in the strata ranging from 7.55 ft to 11.3 ft above the Stockton Coal seam with thicknesses between 8.0 ft and 10.55 ft in thickness.

RC-02-98

	Drill hole No.	Sample ID No.	Elev at Top of Strata (ft)	Thickness (ft)	Material	Total Sul (%)	Pyritic sulfur (%)	Potential Acidity	Neutralization Potential	Net Excess or Deficient
10.55 ft	RC-02-98	32	202.05	3.95	Shale	1.3	1.3	40.63	24.61	-16.01
	RC-02-98	33	206	4	Shale	2.61	2.61	81.56	15.41	-66.15
	RC-02-98	34	210	0.85	Coal	3.75	3.75	117.19	0	-117.19
	RC-02-98	35	210.85	1.5	Shale	0.738	0.738	23.06	8.21	-14.85
	RC-02-98	36	212.35	0.25	Coal	2.29	2.29	71.56	3.47	-68.09
9.70 ft	RC-02-98	37	212.6	3.2	Shale	0.076		2.38	16.68	14.31
	RC-02-98	38	215.8	3.3	Shale	0.073	0.073	2.28	22.2	19.92
	RC-02-98	39	219.1	3.2	Shale	0.055		1.72	16.58	14.86
	RC-02-98	39A	222.3	4.3	**Coal (Stockton)**					
	RC-02-98	40	226.6	2.6	Fireclay	0.028		0.88	5.99	5.11

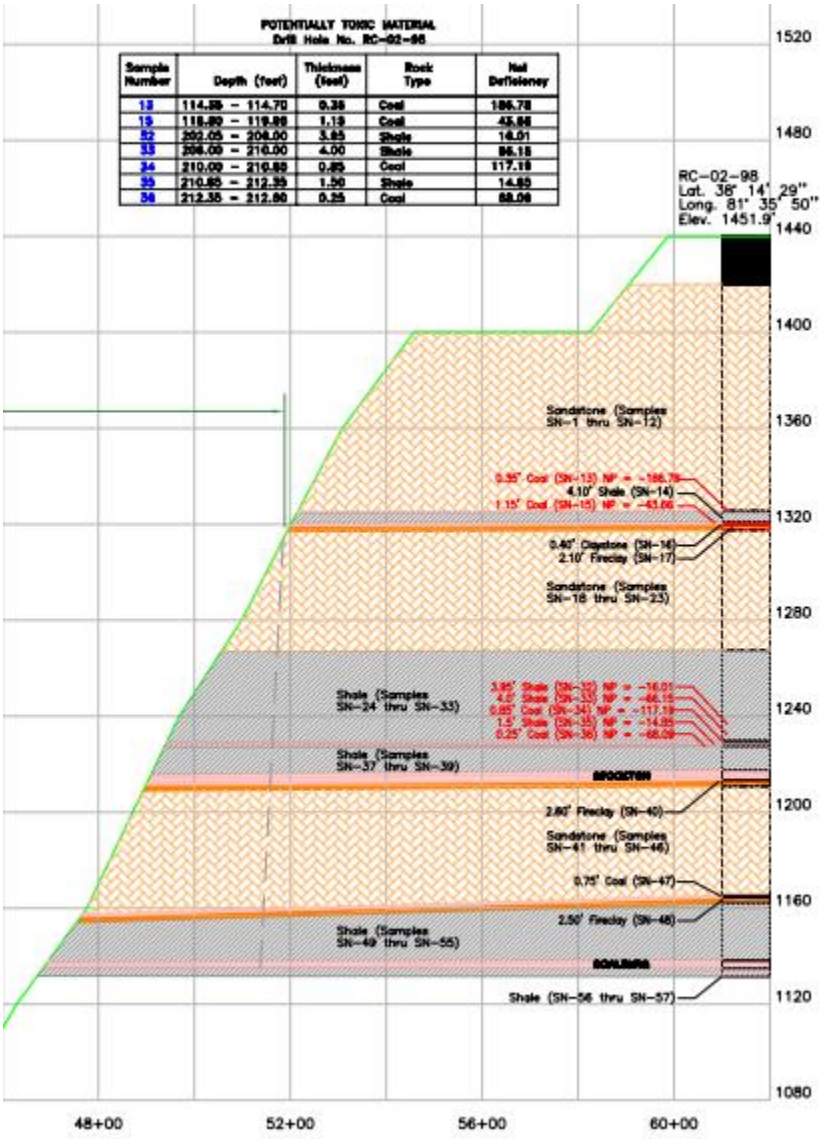
KD-03-01

	Drill hole No.	Sample ID No.	Elev at Top of Strata (ft)	Thickness (ft)	Material	Total Sul (%)	Pyritic sulfur (%)	Potential Acidity	Neutralization Potential	Net Excess or Deficient
8.70 ft	KD-03-01	45	1236.1	3.1	Shale		1.38	43.13	4.29	-38.84
	KD-03-01	46	1233	3	Shale		1.5	46.88	0.05	-46.83
	KD-03-01	47	1230	1.8	Shale		2.54	79.38	-1.36	-80.74
	KD-03-01	48	1228.2	0.8	Coal		7.37	230.31	-12.12	-242.432
11.3 ft	KD-03-01	49	1227.4	1.4	Shale	0.042		1.31	87.84	86.53
	KD-03-01	50	1226	2.7	Shale/Sandstone	0.272		8.5	21.82	13.32
	KD-03-01	51	1223.3	3.3	Shale	0.078		2.44	37.82	35.38
	KD-03-01	52	1220	3	Shale	0.066		2.06	39.83	37.77
	KD-03-01	53	1217	0.9	Shale	0.072		2.25	10.72	8.47
	KD-03-01	54	1216.1	2.5	Coal U. Stockton)					
	KD-03-01	55	1213.6	2.3	Shale	0.178		5.56	4.71	-0.85
	KD-03-01	56	1211.3	2.2	Coal L. Stockton)					
	KD-03-01	57	1209.1	0.5	Clay	0.013		0.41	4.31	3.9

KD-01-04

	Drill hole No.	Sample ID No.	Elev at Top of Strata (ft)	Thickness (ft)	Material	Total Sul (%)	Pyritic sulfur (%)	Potential Acidity	Neutralization Potential	Net Excess or Deficient
2.30 ft	KD-01-04	34	1281.3	0.65	Coal	0.04		26.25	-13.68	-39.93
	KD-01-04	35	1280.65	1.65	Shale		0.84	1.56	2.98	1.41
9.00 ft	KD-01-04	36	1279	3	Shale	0.05		8.75	9.78	1.03
	KD-01-04	37	1276	3	Shale		0.28	8.75	17.85	9.1
	KD-01-04	38	1273	3	Shale		0.28	16.25	12.65	-3.6
8.00 ft	KD-01-04	39	1270	3	Shale		0.52	20.94	5.15	-15.79
	KD-01-04	41	1264.65	1.05	Coal/Carb		2.62	94.06	-42.33	-136.39
	KD-01-04	42	1263.6	1.6	Shale		3.01	5	-1.13	-6.13
7.55 ft	KD-01-04	43	1262	3	Shale	0.05	0.16	1.56	14.23	12.66
	KD-01-04	44	1259	3	Shale	0.07		2.19	14.5	12.31
	KD-01-04	45	1256	1.4	Shale	0.08		2.5	7.65	5.15
	KD-01-04	46	1254.6	0.15	Carb.		0.05	1.56	3.23	1.67
	KD-01-04	46A	1254.45	2.7	Coal U Stockton		0.02	0.63	4.44	3.81
	KD-01-04	47	1251.75	2.2	Mudstone	0.03		0.94	5.05	4.11
	KD-01-04	48	1249.55	4.55	Sandstone	<0.01		0.31	9.15	8.84
	KD-01-04	49	1245	1.15	Sandstone	<0.01		0.31	74.5	74.19
	KD-01-04	50	1243.85	0.75	Shale	0.11		3.44	8.1	4.66
	KD-01-04	50A	1243.1	2.7	Coal L Stockton			1.88	5.43	3.55
	KD-01-04	51	1240.4	1.4	Shale	0.14		4.38	2.85	-1.53

RC-02-98 Geologic Cross-Section



Statement of Results

Based on the following;

1. The Overburden (OVB) analysis shows negative net Neutralization Potential and elevated % Pyritic Sulfur for strata located above the Stockton Coal Seam which was disturbed during the mining process.
2. The analytical results from the water sample taken Seep Below 060 shows elevated Sulfates of 3140 mg/L and acidic pH of 4.13, which can likely be attributed to the oxidation of Pyritic Sulfur.
3. Ferric Iron, a precipitant resulting from the oxidation of Pyritic Sulfur to Ferrous Iron to Ferric iron was observed at the seep discharge location.
4. Discharge Monitoring Reports reported 'no flow' out of Outlet 060. Standing water previously sampled in Sediment Ditch 21 exhibited a different chemical signature from the Seep Below 060 site.
5. The STIFF Diagrams show nearly identical ionic signatures for the two sample points (Seep Below 060 & Auger No.1) indicating a possible common water source or hydrogeologic setting.
6. The Piper Diagram shows nearly identical hydro-chemical facies for the two points samples, indicating likely common water sources or hydrogeologic settings.

The location of Seep Below 060 emanates approximately 40 feet below Sediment Ditch 21, in an area of downslope material from the S300905 permit previously reclaimed in order to abate NOV No. 4 (03/24/09), Based on the interpretation of available data, it is reasonably concluded that the seep observed at "Seep Below 060" is likely attributable to the activities of Keystone Industries, LLC, doing business as Keystone Development, LLC, under Permit No. S-3009-05, KD Mine No. 1. The seep most likely resulted from the exposure of toxic strata encountered during the mining of the Stockton coal seam comprising the material in the slide area and, by nature of infiltration of runoff, is entering the shallow groundwater regime through this disturbed material.

The previous investigations into this seep failed to establish a hydrologic connection between water collected in the sediment control structure, primarily stormwater induced runoff in contact with mine spoil, and this seep. As there is not a direct point source that can be attributed to this seepage and no discernable contiguous surface flow between permitted area and seepage location, an assessment of the impact of the seepage on the prevailing hydrologic balance was conducted and discussed below. As this seep originates subsurface below the location of the now breached and reclaimed sediment, and the mineral removal area has been regraded and revegetated, a direct source of this seep could not be determined.

Assessment of Hydrologic Balance

Introduction/Location

The purpose of this assessment is to evaluate the potential downstream impacts associated with the "Seep Below 060," which was the subject of the August 11, 2025, report titled *Complaint Investigation: Objection to Proposed Phase 1, 2, & 3 Bond Release*. That prior investigation addressed concerns that the seep discharge may be attributable to former mining activities conducted under the subject permit.

Keystone's KD No. 1 Mine is located in Louden Township, Kanawha County, at Longitude 81°36'11.48" and Latitude 38°14' 3.5". The Location Map is provided below.

A total of six (6) samples; ULC, DLC, DUTLC, DLFUTLC, URFUTLC and Seep Below 060 were collected on July 29th, 2025, and sampled for numerous analytical parameters for the purpose of assessing any downstream impacts that may have resulted from "Seep Below 060". Samples were collected by DEP Biologist Alyce Lee and field notes were recorded by DEP Engineer Frank Rose (See Attendee's list below). All samples were immediately packed in ice and delivered to WVDEP Fayetteville office, where they were refrigerated prior to collection by Pace Analytical the following day. A completed Chain Of Custody (COC) was provided to Pace Analytical with instructions for requested testing parameters. A copy of the COC and the final analytical report has been provided in the Addendum Section of this report.

Sample points DLFUTLC, URFUTLC, and Seep Below 060 were not designated as Surface Water Monitoring Points under SMA S-3009-05, nor were they assigned as instream sampling sites under the associated NPDES permits, WV1021877/WV1019121. No baseline information was available to review that represented hydrologic conditions prior to the mining activity in these stream segments. These locations were sampled solely for this investigation to better assess potential downstream impacts.

Seep Below 060 originates in an area of downslope material that resulted in Notice of Violation No.4 to the S300905 permit. As per the abatement measures of the notice of violation for this slip area, the area was reclaimed, revegetated, and identified on subsequent permitting maps. As this area was below the active mineral removal pit and its associated sediment control structure, no corresponding point-source NPDES outfall was established or associated with this area.

The emergence of this seep is approximately 40 feet downslope of the location of the previously established sediment control structure, Sediment Ditch 21 (SD-21). The associated NPDES outfall (Outlet 060) for the sediment had no associated flows per the submitted NPDES discharge monitoring reports. There are no discernable surface water connections from the permit area that can be directly attributed to the source of the seepage.

Additionally, two locations; Pooled Water in Ditch and Seepage Staining (See Location map) were documented in the field but were not sampled. A field conductivity of 256.8 uS/cm was recorded for *Pooled Water in Ditch*; however, *Seepage Staining* was not of sufficient depth to obtain a reliable conductivity measurement with the field probe. *Seepage Staining* was located at an elevation approximately 560' below the elevation of the Seep Below 060. There was no observational direct surface water connection from the seepage evident below the previously established Outlet 060 to this lower elevation, with the exception of the hydrologic connectivity in the stream channel itself.

Field Sampling Attendee's

The WVDEP was represented in the field on July 29th, 2025, by:

Frank Rose – Engineer, Division Of Mining And Reclamation (DMR).

Alice Lee – Environmental Resource Analyst, DMR.

Daniel Bays – Environmental Resource Specialist Supervisor, DMR

Brett Stutler – Environmental Resource Specialist 3, DMR

Colin Henkes – Geologist 3, DMR

Location Map

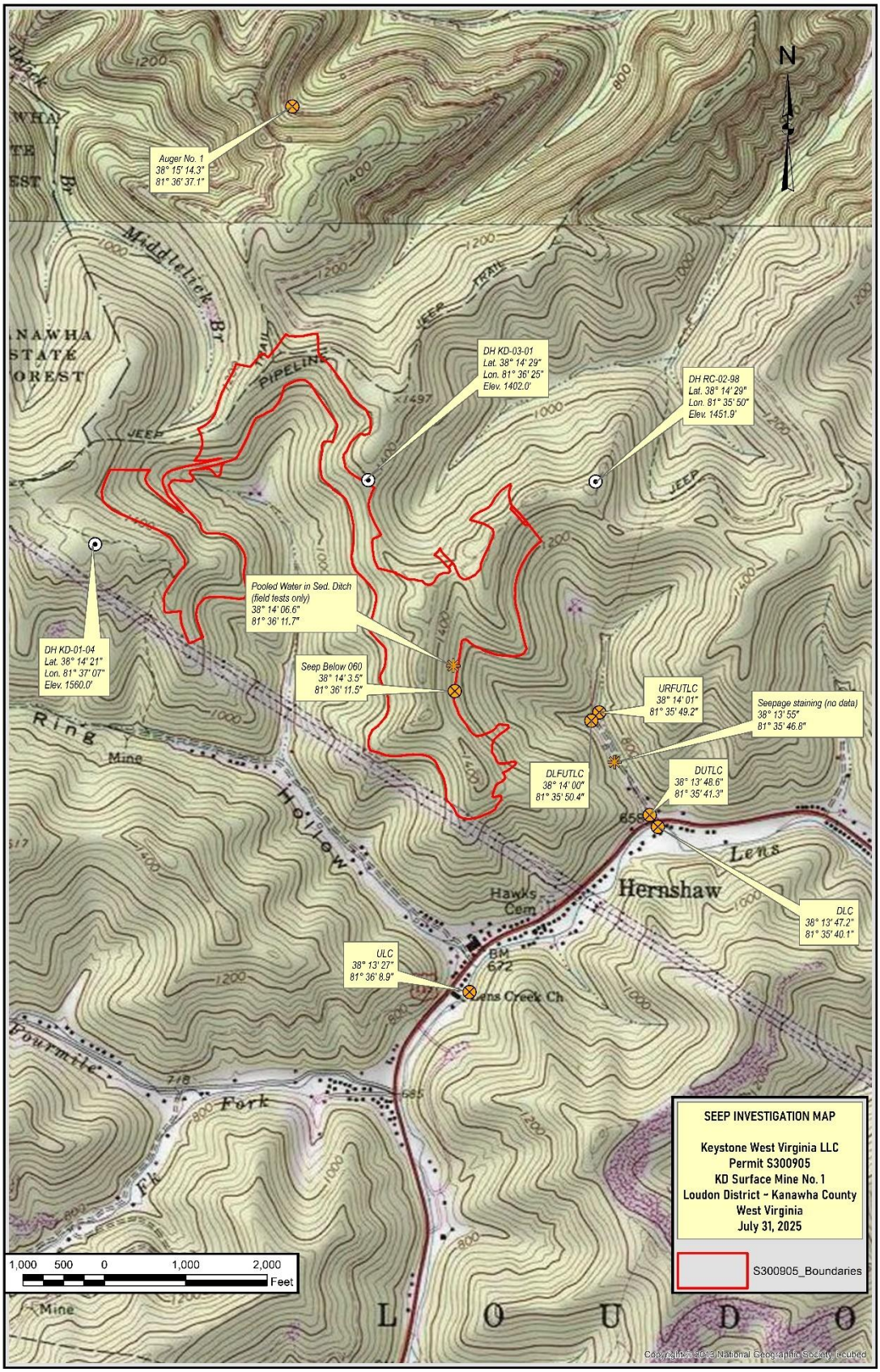


Table: Sample Point Locations

Sample Point ID	Location Description	Approx. Latitude	Approx. Longitude	Approx. Elev.
Seep Below 060	Discharging from the toe of Sediment Ditch 21	38°14'3.5"	81°36'11.5"	1270
Auger No.1	Approx. 7,500 ft north-east of "Seep Below 060" .	38°15'14.3"	81°36'37.1"	1230
ULC	Upstream Lens Creek	38°13'27"	81°36'8.9"	665
DLC	Downstream Lens Creek	38°13'47.2"	81°35'40.1"	650
DUTLC	Downstream Unnamed Trib of Lens Creek	38°13'48.6"	81°35'41.3"	660
DLFUTLC	Downstream Left Fork of Unnamed Trib of Lens Creek	38°14'00"	81°35'50.4"	730
URFUTLC	Upstream Right Fork Unnamed Trib of Lens Creek	38°14'01"	81°35'49.2"	720
Seepage Staining	Along Unnamed Trib of Lens Creek	38°13'55"	81°35'46.8"	710
Pool Water in Sediment Ditch	Sediment Ditch No .21	38°14'06.6"	81°36'11.7"	1280

Material Damage Limits

Discharge Limits for NPDES permit(s), WV1021877 & WV1019121 (See Addendum: NPDES Facts & Findings). The Discharge Limits listed below are assigned to the NPDES Outlets, and do not pertain to Surface Water Monitoring Points assigned by the Article 3 permit SMA S300905. These are presented in this report as reference information. Outlet 060 was characterized as an on-bench precipitation-induced outlet and accordingly did not exhibit flow in a review of the submitted discharge monitoring reports.

Table: NPDES Discharge Limits

Parameter	Avg. Monthly Limit	Max Daily Limit
Flow	Report Only	Report Only
Specific Conductance	Report Only	Report Only
pH	6.00 s.u.	9.00 s.u.
Total Suspended Solids	35 mg/L	70 mg/L
Settleable Solids	0.5 m1/L (instantaneous at all times)	0.5 m1/L (instantaneous at all times)
Iron (Fe)	1.42 mg/L	2.46 mg/L
Manganese (Mn)	2.00 mg/L	4.00 mg/L
Total Aluminum (T. Al)	3 mg/L	6.0 mg/L
Dissolved Aluminum (D. Al)	Report Only	Report Only

Parameter	Avg. Monthly Limit	Max Daily Limit
Sulfates (Sul)	Report Only	Report Only
Total Dissolved Solids (TDS)	Report Only	Report Only

Table: Recent Sample Point Analysis

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
Seep Below 060	06/10/2025	4.5	18.8	0.10	6.0	6.4	ND	7.5	4110	3950	3140
Seep Below 060	7/31/2025	4.2	22.4	2.0	7.5	6.9	ND	13	4020	4450	3210
ULC	7/31/2025	7.8	0.018	0.16	0.022	ND	106	4.5	416	688	225
DLC	7/31/2025	7.7	0.018	0.15	0.027	ND	94.2	5.5	394	659	211
DUTLC	7/31/2025	6.0	0.18	0.12	0.20	0.043	ND	5	989	1270	674
DLFUTLC	7/31/2025	4.5	3.6	0.039J	2.8	2.6	ND	6.5	2020	2380	1480
URFUTLC	7/31/2025	6.7	0.0061	0.077	0.052	ND	18.8	4.5	328	527	222

ND; Non-detectable

NA; Not available

Pace applied a dilution factor to several to several parameters – please not the DF noted on the lab sheets in the appendix.

Table: Sample Point Analysis Comparisons

Table: ULC

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
ULC	7/31/2025	7.8	0.018	0.16	0.02	ND	106	4.5	416	688	225
ULC Baseline Avg.	5/6/05-11/21/2005	7.4-8.1	0.095	0.44	0.02	0.3	132	9.5	586	750	238
ULC 13-month Monitoring Avg.	4/30/23-4/30/24	6.25-8.3	0.02	0.22	0.06	0.02	NA	NA	422	622	159

ND; Non-detectable

NA; Not available

The thirteen (13)-month monitoring point average of analytical results for sample point Upstream Lens Creek (ULC) indicates little change from the pre-mining baseline analysis. pH showed a slight decrease but remained consistent with the value measured for this report (7/31/2025). Total metals were generally stable, with slight decreases observed in manganese (Mn), iron (Fe), and dissolved aluminum (Al). Total aluminum (T.Al) remained relatively consistent with the baseline average and the 7/31/2025 sample. Total dissolved solids (TDS),

conductivity (Cond), and sulfate (Sul) exhibited slight decreases in the 13-month average and current analysis as compared to the baseline values.

Table: DLC

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
DLC	7/31/2025	7.7	0.018	0.15	0.027	ND	94.2	5.5	394	659	211
DLC Baseline Avg.	5/6/05-11/21/2005	7.7-8.4	0.05	0.24	0.21	0.02	118	5.5	534	674.6	214
DLC 13-month Monitoring Avg.	4/30/23-4/30/24	6.22-8.36	0.14	0.27	0.06	0.02	NA	NA	574	797	325

ND; Non-detectable

NA; Not available

The thirteen (13)-month average of analytical results for sample point Downstream Lens Creek (DLC) indicates little change from the pre-mining baseline analysis. pH remained near neutral for all three comparison periods. Total metals were generally stable, with only slight increases observed in manganese (Mn), iron (Fe), and total aluminum (T.Al) . Dissolved Aluminum (D.Al) decreased from 0.21 to 0.02 mg/L. Total dissolved solids (TDS) remained generally consistent. Conductivity (Cond), and sulfate (Sul) exhibited slight increases in the 13-month monitoring average as compared to the baseline values, however slight decreases were observed in the samples collected and analyzed for this report.

Table: DUTLC

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
DUTLC	7/31/2025	6.0	0.18	0.12	0.20	0.049	ND	5	989	1270	674
DUTLC Baseline Avg.	5/6/05-11/21/2005	6.6-7.4	0.05	1.07	0.03	0.21	28	4	96	118.6	22.1
DUTLC 13-month Monitoring Avg.	4/30/23-4/30/24	5.24-6.82	0.50	0.08	0.42	0.24	NA	NA	1383	1626	688

ND; Non-detectable

NA; Not available

The thirteen (13)-month average of analytical results for sample point Downstream Unnamed Tributary of Lens Creek (DUTLC) shows some changes since the pre-mining baseline analysis. The pH range decreased slightly. Manganese (Mn) increased from 0.05 to 0.50 mg/L, and total aluminum (T.Al) increased from 0.03 to 0.42 mg/L, while dissolved aluminum (Al) remained relatively unchanged. Iron (Fe) decreased substantially, from 1.07 to 0.08 mg/L. Conductivity (Cond). Total Dissolved Solids (TDS) and sulfates (Sul) all exhibited increases compared to baseline values which can likely be attributed to the influence of surface mining but have no associated water quality standard.

Additional Sample Point Analysis

Table: DLFUTLC

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
DLFUTLC	7/31/2025	4.5	3.6	0.039	2.8	2.6	ND	6.5	2020	2380	1480

ND; Non-detectable

A water sample was collected at the base of the left fork of the unnamed tributary of Lens Creek (See location map) prior to the confluence with the right fork of an unnamed tributary of Lens Creek. The sample was collected in order to assist in determining the possible downstream impact that may have resulted from the "Seep below 060". Sample point DLFUTLC was not a monitoring point for SMA S300905 and therefore does not have Baseline or Water Monitoring data. Results presented are only based on a single water sample analysis collected on 7/31/2025. As no baseline information on this fork existed in the permit, no comparison to the stream's condition prior to mining, nor the impacts or potential effects from the seep to the hydrologic balance at this point in the watershed.

The pH of 4.5 is considered acidic and this site exhibits elevated Manganese (Mn) and Total Aluminum (Al).

Total dissolved Solids (TDS), Conductance (Cond) and Sulfates (Sul) are all elevated and can likely be attributed to the influence of "Seep below 060". Neither of these parameters have associated water quality standards and are not germane to the release standards.

Table: URFUTLC

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
URFUTLC	7/31/2025	6.7	0.0061	0.077	0.052	ND	18.8	4.5	328	527	222

A water sample was collected at the base of the right fork of an unnamed tributary of Lens Creek (See location map) to be used as a comparison to the sample collected at the downstream left fork of unnamed tributary of Lens Creek (DLFUTLC). The Upstream Right Fork of unnamed tributary of Lens Creek (URFUTLC) was not a

monitoring point for SMA S300905 and therefore does not have Baseline or Water Monitoring data. Results presented are only based on a single water sample analysis collected on 7/31/2025. As no baseline information on this fork existed in the permit, no comparison to the stream's condition at this point in the watershed prior to and post-mining can be made.

The pH of 6.7 is within the acceptable pH range of 6-9 s.u. .

Total Manganese (T. Mn), Total Iron (T. Fe), and Total Aluminum (T. Al) are all considered to be of low levels with acceptable stream water quality standards.

Total dissolved Solids (TDS), Conductance (Cond) and Sulfates (Sul) are all considered as moderate levels. Neither of these parameters have associated water quality standards and are not germane to the release standards.

Table: Seep Below 060

Sample Point ID	Date sampled	pH	Total Mn (mg/L)	Total Fe (mg/L)	Total Al (mg/L)	Diss. Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfate (mg/L)
Seep Below 060	06/10/2025	4.5	18.8	0.10	6.0	6.4	ND	7.5	4110	3950	3140
Seep Below 060	7/31/2025	4.2	22.4	2.0	7.5	6.9	ND	13	4020	4450	3210

The analysis of *Seep Below 060* above exhibits characteristics of AMD with acidic pH (4.2-4.5), elevated metals and elevated total Dissolved Solids, Conductance and Sulfates.

The visible Ferric Iron, the low pH's and high Sulfates are all indicative of oxidation of pyritic sulfur. Elevated Pyritic Sulfur levels were indicated in the overburden analysis submitted in *Section I-11 Statement of Results Information in Permit No. S300905*.

Conclusion

Based on the review of current analytical results, Baseline Surface Water data and Surface Water Monitoring data, it can be concluded that the "Seep Below 060" has had negative influence on the pH, Manganese, Total Dissolved Solids, Conductance and Sulfates on the Left Fork of the Unnamed Tributary of Lens Creek.

The Downstream Unnamed Tributary of Lens Creek (DUTLC) does show a decrease in pH (5.92-6.92) and increase of Total Manganese (0.05-0.50) and Total Aluminum (0.03-0.42). Conductivity (118.6-1626 umhos/cm) and sulfates (22.1-688 mg/L) both exhibited increases compared to baseline values which can likely be attributed to the influence of surface mining.

Comparisons of the Upstream Lens Creek (ULC) to Downstream (DLC) water quality parameters are consistent and do not indicate Material Damage.

Colin Henkes
Digitally signed by Colin Henkes
Date: 2025.09.09 08:31:25 -04'00'

Colin Henkes
Geologist III
Division of Mining and Reclamation
Fayetteville, West Virginia
September 09th, 2025

Addendum
Photographs

ULC

DLC

DUTLC

DLFUTLC

URFUTLC

Seep Below 060

Seep Staining in Unnamed trib of Lens Creek

west virginia department of environmental protection

Division of Mining and Reclamation
116 Industrial Drive
Oak Hill, WV 25901 Ph: 465-1911 Fax: 465-5512

Joe Manchin III, Governor
Stephanie R. Timmermeyer, Cabinet Secretary
www.wvdep.org

MEMORANDUM

To: **Richard M. Roy, ERPM I**
From: **Michael F. Mertz III, Environmental Resource Specialist III**
Oak Hill Regional Office - Permitting/NPDES
Date: **07/26/06**
Subject: **NPDES Facts and Findings for**
Keystone Industries, LLC dba Keystone Development, LLC
"KD Surface Mine No. 1"
SMA S300905
WV1021877-NPD 01
Page 1 of 2

The following is a summary of the section(s) of the joint application for which I have primary review responsibility.

SECTON K (NPDES) e-Permit Application

Keystone Industries, LLC, dba Keystone Development, LLC 1375 Jackson Street, Suite 401, Ft. Myers, FL 33901 has submitted a request for a new WV/NPDES Permit (ePermit Application No. WV1021877-NPD 01). The operation will be a contour surface mine in the Coalburg, Upper Stockton and Lower Stockton seams and contour augering in the Stockton seams. The majority of the permit area will flow into an unnamed tributaries of/and Ring Hollow and unnamed tributaries of/and Lens Creek. A TMDL has been conducted for Ring Hollow and Lens Creek in the Upper Kanawha TMDL Report. According to the TMDL Report, Ring Hollow is impaired for Fecal Coliform and Lens Creek is impaired for Iron, CNA-Biological, Fecal Coliform and Sediment. At a minimum, Water Quality Criteria limits must be assigned to any parameter of concern that is impaired. A small portion of the permit area (4.95 acs) will discharge to the north side of the permit into Middlelick Branch of Kanawha Fork of Davis Creek of Kanawha River. No TMDL was developed for this receiving stream and there are no impaired parameters in this stream. Other small portions of the permit area (less than 5 acs) are cut-throughs to adjacent Tom L. Scholl permit S300499/WV1019121 where surface runoff will be intercepted by SD/DD3-2 of that permit which discharges at outlet 014 of WV1019121 thence into an unnamed tributary of Rush Creek of Rush Creek of the Kanawha River. Tom L. Scholl shall be the responsible party for this discharge and a Module 1R is included in the ePermit application to address this issue.
A Tier II antidegradation review has been conducted for thirteen outlets proposed under WV1021877. These were divided into three separate reviews taking into account three BWQ points that were assigned to this site.

NPDES Facts and Findings for
Keystone Industries, LLC dba Keystone Development, LLC
"KD Surface Mine No. 1"
SMA S300905
WV1021877-NPD 01
Page 2 of 2

BWQ 05050008000774-30 (old BWQ# 4-3996) (Instream Sta. UMLB-1A): Outlet(s): 007 (only) Receiving Stream: Middlelick Branch of Kanawha Fork of Davis Creek of Kanawha River. Final WQBELs for all parameters of concern came out higher than tech-based limits. Therefore, tech-based limits (effluent type F) was assigned to this outlet. Fe: 3/6; Mn: 2/4; T.Al: capped at 3/6;
Dis. Al: Report Only.
BWQ 05050006000413-19 (old BWQ# 4-4130)(Instream Sta. DRH): Outlet(s): 001, 002, 005, 006, 008, 009, 010, 011 Receiving Stream(s): unnamed tributaries of/and Ring Hollow of Lens Creek of Kanawha River. Final WQBELs for this set of outlets came out less than tech-based limits and WQC, except as noted. Therefore, antideg. limits (effluent type L) are assigned. Fe: 0.89/1.53; Mn: 2/4; T.Al: 0.27/0.46; Dis Al: Report Only.
BWQ 05050060008-16 (old BWQ# 4-4187) (Instream Sta. DLC-2): Outlet(s): 012, 013, 014, 015 Receiving stream(s):
Unnamed tributaries of/and Lens Creek of Kanawha River. Final WQBELs for this set of outlets are all higher than tech-based limits. However, Water Quality Criteria for Fe applies due to the "top-down approach" since Lens Creek is impaired for Fe. Water Quality Based Effluent Limits (effluent type L), except as noted is assigned to these outlets.
Fe: 1.42/2.46; Mn: 2/4; T.Al: capped at 3/6; Dis. Al: Report Only.
The Mn 5-Mile Rule has been applied to ALL outlets for this operation. There are no public surface water intakes on the receiving streams and Kanawha River itself below all discharge points, but more noteworthy is that all discharges enter Kanawha River near Marmet between MP 68 and MP 69. Per 46CSR1, Section 7.2.d.19.1 for the Kanawha River mainstem, Zone 1 (from MP 0 to MP 72) Water Use Category A (Water Supply, Public) does NOT apply. As such, Mn tech-based limits of 2/4 apply to all outlets.
Where tech-based limits for T. Al limits are capped at 3/6 is based on DEP policy for such effluent limit assignment.
There are four streams in the Upper Kanawha TMDL Report, including Lens Creek that TMDLs are required for Sediment due to sedimentation listed as a primary stressor. For new outlets discharging into Lens Creek watershed, a default average annual concentration of 120 mg/l of TSS is assigned. This conc. value has been assigned to all outlets, except outlet 007 which discharges into Davis Creek watershed.
No Selenium (Se) monitoring or limits are assigned to the draft permit for WV1021877. All PHC heavy metal analyses and representative discharges from adjacent permits indicate that Se concentrations are either below detectable limits or less than criteria limits of 5 ug/l.

Other Comments:
1) Draft permit was written on 05/23/2006. No comments or protests received. NPDES pending originals were sent to HQ for final approval on 07/20/06. Approval should be forthcoming soon.
2) No trout streams affected by this operation.
3) 404/401 applications are pending to address one stream crossing and one mine-through area of an intermittent stream segment approx. 300 linear feet. Company is seeking a NWP 21 from the USACE.

Water Analysis Spreadsheets

ULC

Table: Baseline Data

Sample Point ID	Date Sampled	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos/cm	Sulfates
ULC	5/6/2005	22195	7.9	0.08	0.1	<0.02	0.2	67	<4	310	468.4	116
ULC	5/19/2005	12451	8.1	0.06	0.22	<0.02	0.2	41	<4	420	658	184
ULC	6/8/2005	5225	7.8	0.07	0.2	0.05	0.26	86	<4	450	677	195
ULC	6/21/2005	2941	8	0.11	0.09	0.03	0.5	98	<4	630	650	24
ULC	7/13/2005	8218	7.9	0.09	0.19	<0.02	0.44	130	4	620	646	387
ULC	8/3/2005	4792	8	0.09	0.35	<0.02	0.12	270	4	600	697	311
ULC	8/25/2005	1814	7.7	0.2	0.35	<0.02	0.14	280	<4	630	740	283
ULC	9/13/2005	2707	7.8	0.06	2.33	<0.02	0.91	150	64	740	902	347
ULC	9/23/2005	1886	7.5	0.06	0.3	<0.02	0.24	120	<4	680	946	150
ULC	10/6/2005	1481	7.8	0.11	0.5	<0.02	0.36	120	10	740	966	300
ULC	10/19/2005	134	7.4	0.05	0.3	<0.02	0.06	120	<4	700	951	320
ULC	11/21/2005	3568	7.7	0.16	0.36	<0.02	0.19	98	<4	510	700	238

Min		**134**	**7.4**	**0.05**	**0.1**	**<0.02**	**0.12**	**41**	**<4**	**310**	**468.4**	**24**
Max		**22195**	**8.1**	**0.16**	**2.33**	**0.05**	**0.5**	**280**	**64**	**740**	**966**	**387**
Avg		**5618**		**0.095**	**0.44**	**0.02**	**0.3**	**132**	**9.5**	**586**	**750**	**238**

Table: Monitoring Data

Sample Point ID	Date	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al	Alkalinity (Total)	TSS	TDS (mg/L)	Conductance (umhos/cm	Sulfates (mg/L)
ULC	4/30/2023	5750	7.60	0.03	0.18	0.04	0.04	NA	NA	321.50	486.00	162.00
ULC	5/31/2023	3750	7.58	0.02	0.20	0.04	0.04	NA	NA	340.00	525.50	168.00
ULC	6/30/2023	1200	7.77	0.04	0.41	0.04	0.05	NA	NA	613.00	818.00	314.00
ULC	7/31/2023	2550	8.20	0.02	0.21	0.01	0.02	NA	NA	434.00	625.00	77.74
ULC	8/31/2023	2500	8.30	0.01	0.10	0.01	0.01	NA	NA	627.00	882.00	194.56
ULC	9/30/2023	2600	7.94	0.02	0.29	0.01	0.01	NA	NA	503.00	809.00	150.47
ULC	10/31/2023	875	7.43	0.01	0.08	0.01	0.01	NA	NA	878.00	981.00	273.85
ULC	11/30/2023	1600	7.40	0.01	0.05	0.01	0.01	NA	NA	707.00	1130.00	314.00
ULC	12/31/2023	2800	6.63	0.03	0.21	0.01	0.05	NA	NA	268.00	411.00	85.00
ULC	1/31/2024	3200	7.55	0.02	0.23	0.01	0.07	NA	NA	223.00	385.00	72.43
ULC	2/29/2024	3250	6.94	0.03	0.28	0.02	0.09	NA	NA	168.00	284.00	76.85
ULC	3/31/2024	3500	6.25	0.03	0.30	0.02	0.17	NA	NA	159.00	319.00	76.35
ULC	4/30/2024	2800	7.51	0.03	0.30	0.02	0.17	NA	NA	249.00	427.00	98.69
Min		**875**	**6.25**	**0.01**	**0.10**	**0.01**	**0.01**	NA	NA	**159.00**	**284.00**	**72.43**
Max		**5750**	**8.30**	**0.04**	**0.41**	**0.04**	**0.17**	NA	NA	**878.00**	**1130.00**	**314.00**
Avg		**2798**	**7.47**	**0.02**	**0.22**	**0.02**	**0.06**	NA	NA	**422.35**	**621.73**	**158.76**

DLC

Table: Baseline Data

Sample Point ID	Date Sampled	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al (mg/L)	Alkalinity (Total)	TSS (mg/L)	TDS (mg/L)	Conductance (umhos)/cm	Sulfates
DLC	5/6/2005	25840	7.8	0.03	0.04	<0.02	0.1	46	<4	260	406.2	94.6
DLC	5/19/2005	13048	8.4	0.05	0.15	<0.02	0.15	7	<4	360	561	170
DLC	6/8/2005	6046	7.9	0.03	0.19	0.11	0.29	80	<4	480	601	188
DLC	6/21/2005	3094	7.9	0.04	0.02	<0.02	<0.02	96	<4	570	610	234
DLC	7/13/2005	8579	8.2	0.02	<0.02	<0.02	0.5	120	<4	600	614	261
DLC	8/3/2005	5879	7.9	0.07	0.35	<0.02	0.02	280	<4	590	637	229
DLC	8/25/2005	2696	7.7	0.1	0.05	<0.02	0.16	280	<4	600	651	254

DLC	9/13/2005	2841	8.2	0.05	0.62	<0.02	0.12	140	<4	700	814	282
DLC	9/23/2005	1921	7.6	0.08	0.9	<0.02	0.73	130	10	610	855	236
DLC	10/6/2005	1661	7.9	0.1	0.2	<0.02	0.15	20	4	610	855	318
DLC	10/19/2005	193	7.7	0.01	0.21	<0.02	0.02	120	<4	620	861	283
DLC	11/21/2005	3694	7.7	0.04	0.17	<0.02	0.28	98	<4	410	630	16.9

Min		**193**	**7.7**	**0.01**	**<0.02**	**<0.02**	**<0.02**	**7**	**<4**	**260**	**406.2**	**16.9**
Max		**25840**	**8.4**	**0.1**	**0.9**	**0.11**	**0.73**	**280**	**10**	**700**	**861**	**318**
Avg		**6291**		**0.05**	**0.24**	**0.02**	**0.21**	**118**	**5.5**	**534**	**674.6**	**214**

Table: Monitoring Data

Sample Point ID	Date	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al	Alkalinity (Total)	TSS	TDS (mg/L)	Conductance (umhos/cm	Sulfates (mg/L)
DLC	4/30/2023	5999	7.5	0.47	1.16	0.04	0.04	NA	NA	346.50	539.00	185.00
DLC	5/31/2023	4250	7.37	0.04	0.17	0.04	0.04	NA	NA	405.00	607.00	202.50
DLC	6/30/2023	1500	7.9	0.03	0.10	0.04	0.04	NA	NA	600.00	814.00	317.00
DLC	7/31/2023	3550	8.12	0.03	0.19	0.01	0.03	NA	NA	447.00	593.00	122.00
DLC	8/31/2023	3500	8.36	0.02	0.10	0.01	0.01	NA	NA	619.00	843.00	350.00
DLC	9/30/2023	3603	8	0.03	0.24	0.02	0.01	NA	NA	604.00	923.00	136.00
DLC	10/31/2023	297	7.87	0.89	0.08	0.01	0.01	NA	NA	2419.00	2760.00	1491.00
DLC	11/30/2023	2100	7.5	0.02	0.03	0.02	0.03	NA	NA	756.00	1010.00	1010.00
DLC	12/31/2023	3900	6.75	0.05	0.26	0.02	0.08	NA	NA	301.00	539.00	90.00
DLC	1/31/2024	4300	6.37	0.05	0.25	0.02	0.08	NA	NA	287.00	561.00	102.00
DLC	2/29/2024	3500	7.18	0.05	0.33	0.02	0.11	NA	NA	212.00	351.00	13.10
DLC	3/31/2024	4300	6.22	0.05	0.30	0.02	0.18	NA	NA	162.00	356.00	87.40
DLC	4/30/2024	4500	7.41	0.05	0.27	0.02	0.14	NA	NA	302.00	471.00	117.00

Min		**1500**	**6.22**	**0.02**	**0.03**	**0.01**	**0.01**	**NA**	**NA**	**162.00**	**351.00**	**13.10**
Max		**5999**	**8.36**	**0.89**	**1.16**	**0.04**	**0.18**	**NA**	**NA**	**2419.00**	**2760.00**	**1491.00**
Avg		**3485**	**7.43**	**0.14**	**0.27**	**0.02**	**0.06**	**NA**	**NA**	**573.88**	**797.46**	**324.85**

DUTLC

Table: Baseline Data

Sample Point ID	Date	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al	Alkalinity (Total)	TSS	TDS (mg/L)	Conductance (umhos/cm	Sulfates (mg/L)
DUTLC	5/6/2005	285	7.3	0.05	3.13	<0.02	0.17	9	4	50	85.7	17.4
DUTLC	5/19/2005	232	7.4	0.02	3.06	<0.02	0.16	7	<4	60	96.1	15
DUTLC	6/8/2005	28	6.8	<0.01	0.05	0.09	0.16	20	<4	66	101	15
DUTLC	6/21/2005	8	6.7	<0.01	<0.02	<0.02	0.05	42	<4	150	160	31
DUTLC	7/13/2005	7	6.6	0.09	<0.02	<0.02	0.41	56	<4	110	119	36
DUTLC	8/3/2005	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUTLC	8/25/2005	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUTLC	9/13/2005	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUTLC	10/6/2005	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUTLC	10/19/2008	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DUTLC	11/21/2005	4.5	6.7	0.13	0.13	<0.02	0.29	34	<4	140	150	18

Min		**4.5**	**6.6**	**<0.01**	**<0.02**	**<0.02**	**0.05**	**7**	**<4**	**50**	**85.7**	**36**
Max		**285**	**7.4**	**0.13**	**3.06**	**0.09**	**0.41**	**56**	**4**	**150**	**160**	**36**
Avg		**51.3**		**0.05**	**1.07**	**0.03**	**0.21**	**28**	**4**	**96**	**118.6**	**22.1**

Table: Monitoring Data

DUTLC

Table: Baseline Data

Sample Point ID	Date	Flow GPM	pH	Total Mn (mg/L)	Total Fe (mg/L)	Dissolved Al (mg/L)	Total Al	Alkalinity (Total)	TSS	TDS (mg/L)	Conductance (umhos/cm	Sulfates (mg/L)
DUTLC	4/30/2023	225	5.24	0.71	0.05	0.18	0.47	NA	NA	963	1169	672
DUTLC	5/31/2023	63	5.48	0.84	0.05	0.31	0.54	NA	NA	1368	1605	987
DUTLC	6/30/2023	20	5.35	0.40	0.05	0.41	0.45	NA	NA	1838	2100	1378
DUTLC	7/31/2023	74	6.09	0.31	0.09	0.23	0.33	NA	NA	1416	1610	695
DUTLC	8/31/2023	67	6.4	0.15	0.07	0.13	0.19	NA	NA	1794	2120	1179
DUTLC	9/30/2023	107	5.72	0.48	0.16	0.25	0.39	NA	NA	2168	2300	606
DUTLC	10/31/2023	11	6.06	0.16	0.06	0.34	0.34	NA	NA	2385	2500	1362
DUTLC	11/30/2023	30	5.6	0.46	0.01	0.82	0.77	NA	NA	2681	2970	13
DUTLC	12/31/2023	75	6.31	0.89	0.07	0.19	0.46	NA	NA	1080	1450	573
DUTLC	1/31/2024	135	5.46	0.81	0.05	0.17	0.52	NA	NA	950	1230	547
DUTLC	2/29/2024	180	6.82	0.43	0.10	0.05	0.38	NA	NA	438	671	343
DUTLC	3/31/2024	95	NA	0.37	0.13	0.05	0.32	NA	NA	312	619	258
DUTLC	4/30/2024	250	6.55	0.45	0.15	0.03	0.30	NA	NA	584	791	336

Min		**11**	**5.24**	**0.15**	**0.01**	**0.03**	**0.19**	NA	NA	**312**	**619**	**13**
Max		**250**	**6.82**	**0.89**	**0.15**	**0.41**	**0.77**	NA	NA	**2681**	**2970**	**1378**
Avg		**102**		**0.50**	**0.08**	**0.24**	**0.42**	NA	NA	**1383**	**1626**	**688**

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: ULC **Lab ID: 30799492001** Collected: 07/31/25 09:26 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**0.022**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 15:58	7429-90-5	
Iron	**0.16**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 15:58	7439-89-6	
Manganese	**0.018**	mg/L	0.0050	0.0027	1	08/05/25 07:00	08/05/25 15:58	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	ND	mg/L	0.020	0.014	1	08/05/25 01:31	08/05/25 12:59	7429-90-5	
Barium, Dissolved	**0.049**	mg/L	0.0050	0.00089	1	08/05/25 01:31	08/05/25 12:59	7440-39-3	
Calcium, Dissolved	**55.7**	mg/L	0.50	0.090	1	08/05/25 01:31	08/05/25 12:59	7440-70-2	
Iron, Dissolved	ND	mg/L	0.050	0.030	1	08/05/25 01:31	08/05/25 12:59	7439-89-6	
Magnesium, Dissolved	**45.1**	mg/L	0.50	0.11	1	08/05/25 01:31	08/05/25 12:59	7439-95-4	
Manganese, Dissolved	**0.017**	mg/L	0.0050	0.0027	1	08/05/25 01:31	08/05/25 12:59	7439-96-5	
Potassium, Dissolved	**4.7**	mg/L	0.50	0.26	1	08/05/25 01:31	08/05/25 12:59	7440-09-7	
Silicon, Dissolved	**3.7**	mg/L	0.20	0.084	1	08/05/25 01:31	08/05/25 12:59	7440-21-3	N2
Sodium, Dissolved	**10.7**	mg/L	0.50	0.40	1	08/05/25 01:31	08/05/25 12:59	7440-23-5	
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	**0.0012**	mg/L	0.00050	0.00046	1	08/04/25 07:58	08/06/25 09:53	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	**1.2**	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:42	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	**106**	mg/L	20.0	5.0	1		08/04/25 15:59		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 15:59		
Alkalinity, Total as CaCO3	**106**	mg/L	20.0	5.0	1		08/04/25 15:59		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**688**	umhos/cm	10.0	10.0	1		08/12/25 10:04		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**416**	mg/L	10.0	5.0	1		08/04/25 20:17		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**4.5**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Sample Point ULC

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: ULC **Lab ID: 30799492001** Collected: 07/31/25 09:26 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	**6.2**	mg/L	1.0	0.40	1		08/05/25 21:03	16887-00-6	
Sulfate	**225**	mg/L	5.0	1.2	1		08/05/25 21:03	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.8**	Std. Units			1		08/04/25 15:59		H3,H6, N2

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DLC **Lab ID: 30799492002** Collected: 07/31/25 10:23 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**0.027**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 16:00	7429-90-5	
Iron	**0.15**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 16:00	7439-89-6	
Manganese	**0.018**	mg/L	0.0050	0.0027	1	08/05/25 07:00	08/05/25 16:00	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	ND	mg/L	0.020	0.014	1	08/14/25 22:46	08/15/25 21:28	7429-90-5	
Barium, Dissolved	**0.050**	mg/L	0.0050	0.00089	1	08/14/25 22:46	08/15/25 21:28	7440-39-3	
Calcium, Dissolved	**51.1**	mg/L	0.50	0.090	1	08/14/25 22:46	08/15/25 21:28	7440-70-2	
Iron, Dissolved	**0.035J**	mg/L	0.050	0.030	1	08/14/25 22:46	08/15/25 21:28	7439-89-6	
Magnesium, Dissolved	**40.7**	mg/L	0.50	0.11	1	08/14/25 22:46	08/15/25 21:28	7439-95-4	
Manganese, Dissolved	**0.016**	mg/L	0.0050	0.0027	1	08/14/25 22:46	08/15/25 21:28	7439-96-5	
Potassium, Dissolved	**4.5**	mg/L	0.50	0.26	1	08/14/25 22:46	08/15/25 21:28	7440-09-7	
Silicon, Dissolved	**4.1**	mg/L	0.20	0.084	1	08/14/25 22:46	08/15/25 21:28	7440-21-3	N2
Sodium, Dissolved	**10.2**	mg/L	0.50	0.40	1	08/14/25 22:46	08/15/25 21:28	7440-23-5	
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	**0.00098**	mg/L	0.00050	0.00046	1	08/05/25 06:41	08/06/25 10:18	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	**0.97**	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:46	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	**94.2**	mg/L	20.0	5.0	1		08/04/25 16:05		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:05		
Alkalinity, Total as CaCO3	**94.2**	mg/L	20.0	5.0	1		08/04/25 16:05		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**659**	umhos/cm	10.0	10.0	1		08/12/25 10:06		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**394**	mg/L	10.0	5.0	1		08/04/25 20:22		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**5.5**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DLC **Lab ID: 30799492002** Collected: 07/31/25 10:23 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	**6.1**	mg/L	1.0	0.40	1		08/05/25 21:23	16887-00-6	
Sulfate	**211**	mg/L	5.0	1.2	1		08/05/25 21:23	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**7.7**	Std. Units			1		08/04/25 16:05		H3,H6, N2

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DUTLC **Lab ID: 30799492003** Collected: 07/31/25 10:39 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**0.20**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 16:06	7429-90-5	
Iron	**0.12**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 16:06	7439-89-6	
Manganese	**0.18**	mg/L	0.0050	0.0027	1	08/05/25 07:00	08/05/25 16:06	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	**0.049**	mg/L	0.020	0.014	1	08/14/25 22:46	08/15/25 21:34	7429-90-5	
Barium, Dissolved	**0.037**	mg/L	0.0050	0.00089	1	08/14/25 22:46	08/15/25 21:34	7440-39-3	
Calcium, Dissolved	**87.3**	mg/L	0.50	0.090	1	08/14/25 22:46	08/15/25 21:34	7440-70-2	
Iron, Dissolved	ND	mg/L	0.050	0.030	1	08/14/25 22:46	08/15/25 21:34	7439-89-6	
Magnesium, Dissolved	**112**	mg/L	0.50	0.11	1	08/14/25 22:46	08/15/25 21:34	7439-95-4	
Manganese, Dissolved	**0.16**	mg/L	0.0050	0.0027	1	08/14/25 22:46	08/15/25 21:34	7439-96-5	
Potassium, Dissolved	**6.7**	mg/L	0.50	0.26	1	08/14/25 22:46	08/15/25 21:34	7440-09-7	
Silicon, Dissolved	**6.0**	mg/L	0.20	0.084	1	08/14/25 22:46	08/15/25 21:34	7440-21-3	N2
Sodium, Dissolved	**6.5**	mg/L	0.50	0.40	1	08/14/25 22:46	08/15/25 21:34	7440-23-5	
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	ND	mg/L	0.00050	0.00046	1	08/05/25 06:41	08/06/25 10:19	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	ND	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:48	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:07		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:07		
Alkalinity, Total as CaCO3	ND	mg/L	20.0	5.0	1		08/04/25 16:07		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**1270**	umhos/cm	10.0	10.0	1		08/12/25 10:10		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**989**	mg/L	10.0	5.0	1		08/04/25 20:22		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**5.0**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Date: 08/19/2025 11:32 AM

Sample Point DUTLC

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DUTLC **Lab ID: 30799492003** Collected: 07/31/25 10:39 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	ND	mg/L	5.0	2.0	5		08/05/25 21:42	16887-00-6	D3
Sulfate	**674**	mg/L	25.0	6.1	5		08/05/25 21:42	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**6.0**	Std. Units			1		08/04/25 16:07		H3,H6, N2

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DLFUTLC **Lab ID: 30799492004** Collected: 07/31/25 11:11 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**2.8**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 16:08	7429-90-5	
Iron	**0.039J**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 16:08	7439-89-6	
Manganese	**3.6**	mg/L	0.0050	0.0027	1	08/05/25 07:00	08/05/25 16:08	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	**2.6**	mg/L	0.020	0.014	1	08/14/25 22:46	08/15/25 21:37	7429-90-5	
Barium, Dissolved	**0.032**	mg/L	0.0050	0.00089	1	08/14/25 22:46	08/15/25 21:37	7440-39-3	
Calcium, Dissolved	**177**	mg/L	0.50	0.090	1	08/14/25 22:46	08/15/25 21:37	7440-70-2	
Iron, Dissolved	ND	mg/L	0.050	0.030	1	08/14/25 22:46	08/15/25 21:37	7439-89-6	
Magnesium, Dissolved	**243**	mg/L	0.50	0.11	1	08/14/25 22:46	08/15/25 21:37	7439-95-4	
Manganese, Dissolved	**3.5**	mg/L	0.0050	0.0027	1	08/14/25 22:46	08/15/25 21:37	7439-96-5	
Potassium, Dissolved	**11.8**	mg/L	0.50	0.26	1	08/14/25 22:46	08/15/25 21:37	7440-09-7	
Silicon, Dissolved	**8.1**	mg/L	0.20	0.084	1	08/14/25 22:46	08/15/25 21:37	7440-21-3	N2
Sodium, Dissolved	**9.2**	mg/L	0.50	0.40	1	08/14/25 22:46	08/15/25 21:37	7440-23-5	
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	ND	mg/L	0.00050	0.00046	1	08/05/25 06:41	08/06/25 10:24	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	ND	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:49	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:09		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:09		
Alkalinity, Total as CaCO3	ND	mg/L	20.0	5.0	1		08/04/25 16:09		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**2380**	umhos/cm	10.0	10.0	1		08/12/25 10:13		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**2020**	mg/L	20.0	10.0	1		08/04/25 20:22		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**6.5**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Sample Point DLFUTLC

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: DLFUTLC **Lab ID: 30799492004** Collected: 07/31/25 11:11 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	ND	mg/L	10.0	4.0	10		08/05/25 22:02	16887-00-6	D3
Sulfate	**1480**	mg/L	50.0	12.1	10		08/05/25 22:02	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**4.5**	Std. Units			1		08/07/25 15:14		H6,N2

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: URFUTLC **Lab ID: 30799492005** Collected: 07/31/25 11:32 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**0.052**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 16:11	7429-90-5	
Iron	**0.077**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 16:11	7439-89-6	
Manganese	**0.0061**	mg/L	0.0050	0.0027	1	08/05/25 07:00	08/05/25 16:11	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	ND	mg/L	0.020	0.014	1	08/14/25 22:46	08/15/25 21:39	7429-90-5	
Barium, Dissolved	**0.058**	mg/L	0.0050	0.00089	1	08/14/25 22:46	08/15/25 21:39	7440-39-3	
Calcium, Dissolved	**32.2**	mg/L	0.50	0.090	1	08/14/25 22:46	08/15/25 21:39	7440-70-2	
Iron, Dissolved	ND	mg/L	0.050	0.030	1	08/14/25 22:46	08/15/25 21:39	7439-89-6	
Magnesium, Dissolved	**36.2**	mg/L	0.50	0.11	1	08/14/25 22:46	08/15/25 21:39	7439-95-4	
Manganese, Dissolved	**0.0037J**	mg/L	0.0050	0.0027	1	08/14/25 22:46	08/15/25 21:39	7439-96-5	
Potassium, Dissolved	**3.9**	mg/L	0.50	0.26	1	08/14/25 22:46	08/15/25 21:39	7440-09-7	
Silicon, Dissolved	**4.7**	mg/L	0.20	0.084	1	08/14/25 22:46	08/15/25 21:39	7440-21-3	N2
Sodium, Dissolved	**3.8**	mg/L	0.50	0.40	1	08/14/25 22:46	08/15/25 21:39	7440-23-5	
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	ND	mg/L	0.00050	0.00046	1	08/05/25 06:41	08/06/25 10:25	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	ND	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:51	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	**18.8J**	mg/L	20.0	5.0	1		08/04/25 16:13		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/04/25 16:13		
Alkalinity, Total as CaCO3	**18.8J**	mg/L	20.0	5.0	1		08/04/25 16:13		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**527**	umhos/cm	10.0	10.0	1		08/12/25 10:14		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**328**	mg/L	10.0	5.0	1		08/04/25 20:22		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**4.5**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Sample Point URFUTLC

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: URFUTLC **Lab ID: 30799492005** Collected: 07/31/25 11:32 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	**0.90J**	mg/L	1.0	0.40	1		08/06/25 14:16	16887-00-6	
Sulfate	**222**	mg/L	5.0	1.2	1		08/06/25 14:16	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**6.7**	Std. Units			1		08/07/25 15:17		H6,N2

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

Project: KD #1
Pace Project No.: 30799492

Sample: BELOW 060 **Lab ID: 30799492006** Collected: 07/31/25 13:00 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 200.7 Metals Total	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum	**7.5**	mg/L	0.020	0.014	1	08/05/25 07:00	08/05/25 16:13	7429-90-5	
Iron	**2.0**	mg/L	0.050	0.030	1	08/05/25 07:00	08/05/25 16:13	7439-89-6	
Manganese	**22.4**	mg/L	0.050	0.027	10	08/05/25 07:00	08/06/25 20:44	7439-96-5	
BVR 200.7 Metals, Dissolved	Analytical Method: EPA 200.7 Preparation Method: EPA 200.2 Pace Analytical Services - Beaver								
Aluminum, Dissolved	**6.9**	mg/L	0.020	0.014	1	08/14/25 22:46	08/15/25 21:41	7429-90-5	
Barium, Dissolved	**0.011**	mg/L	0.0050	0.00089	1	08/14/25 22:46	08/15/25 21:41	7440-39-3	
Calcium, Dissolved	**344**	mg/L	0.50	0.090	1	08/14/25 22:46	08/15/25 21:41	7440-70-2	
Iron, Dissolved	**0.19**	mg/L	0.050	0.030	1	08/14/25 22:46	08/15/25 21:41	7439-89-6	
Magnesium, Dissolved	**533**	mg/L	5.0	1.1	10	08/14/25 22:46	08/18/25 13:07	7439-95-4	
Manganese, Dissolved	**22.5**	mg/L	0.050	0.027	10	08/14/25 22:46	08/18/25 13:07	7439-96-5	
Potassium, Dissolved	**20.6**	mg/L	0.50	0.26	1	08/14/25 22:46	08/15/25 21:41	7440-09-7	
Sodium, Dissolved	**16.2**	mg/L	0.50	0.40	1	08/14/25 22:46	08/15/25 21:41	7440-23-5	
Silicon, Dissolved	**9.3**	mg/L	0.20	0.084	1	08/14/25 22:46	08/15/25 21:41	7440-21-3	N2
BVR Se Hydride Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium	**0.00074**	mg/L	0.00050	0.00046	1	08/05/25 06:41	08/06/25 10:27	7782-49-2	
BVR Se Hydride Dissolved Water	Analytical Method: SM 3114B - 2020 Preparation Method: SM 3114B - 2020 Pace Analytical Services - Beaver								
Selenium, Dissolved	**0.76**	ug/L	0.50	0.46	1	08/05/25 06:42	08/06/25 10:52	7782-49-2	
BVR 2320B Alkalinity	Analytical Method: SM 2320B - 2021 Pace Analytical Services - Beaver								
Alkalinity,Bicarbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/05/25 11:54		
Alkalinity,Carbonate (CaCO3)	ND	mg/L	20.0	5.0	1		08/05/25 11:54		
Alkalinity, Total as CaCO3	ND	mg/L	20.0	5.0	1		08/05/25 11:54		
BVR 2510B Specific Conductance	Analytical Method: SM 2510B - 2021 Pace Analytical Services - Beaver								
Specific Conductance at 25°C	**4450**	umhos/cm	10.0	10.0	1		08/12/25 10:15		
BVR 2540C Total Dissol. Solids	Analytical Method: SM 2540C - 2020 Pace Analytical Services - Beaver								
Total Dissolved Solids	**4020**	mg/L	25.0	12.5	1		08/04/25 20:23		
BVR 2540D Total Suspend Solids	Analytical Method: SM 2540D - 2020 Pace Analytical Services - Beaver								
Total Suspended Solids	**13.0**	mg/L	2.5	1.0	1		08/04/25 09:52		

REPORT OF LABORATORY ANALYSIS

Sample Point "Seep Below 060"

Pace Analytical Services, LLC
225 Industrial Park RD
Beaver, WV 25813
(800)999-0105

ANALYTICAL RESULTS

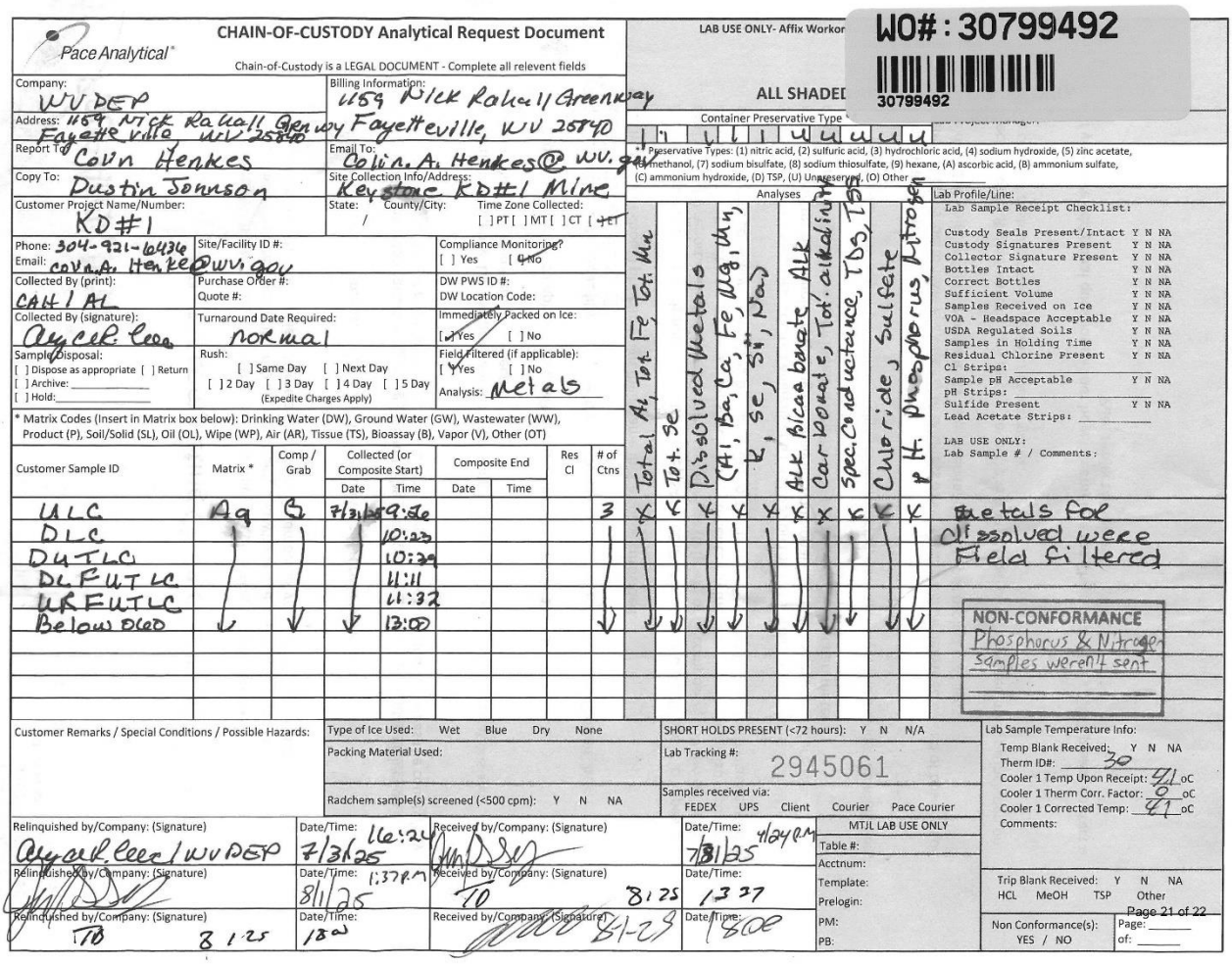
Project: KD #1
Pace Project No.: 30799492

Sample: BELOW 060 **Lab ID: 30799492006** Collected: 07/31/25 13:00 Received: 08/01/25 18:00 Matrix: Water

Comments: • No sulfuric container received.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
BVR 300.0 IC Anions	Analytical Method: EPA 300.0, Rev 2.1 Pace Analytical Services - Beaver								
Chloride	ND	mg/L	10.0	4.0	10		08/06/25 14:36	16887-00-6	D3
Sulfate	**3210**	mg/L	50.0	12.1	10		08/06/25 14:36	14808-79-8	
BVR 4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B - 2021 Pace Analytical Services - Beaver								
pH at 25 Degrees C	**4.2**	Std. Units			1		08/05/25 14:04		H6,N2

Chain of Custody (COC)



CHAIN-OF-CUSTODY Analytical Request Document

Pace Analytical

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevent fields

LAB USE ONLY- Affix Workor

WO# : 30799492

30799492

ALL SHADE

Company: WV DEP

Billing Information: 1159 Nick Rahall Greenway Fayetteville, WV 25840

Address: 1159 Nick Rahall Greenway Fayetteville WV 25840

Report To: Colin Henkes

Email To: Colin.A.Henkes@wv.gov

Copy To: Dustin Johnson

Site Collection Info/Address: Keystone KD#1 Mine

Customer Project Name/Number: KD#1

State: / County/City: Time Zone Collected: [ ]PT [ ]MT [ ]CT [ ]ET

Phone: 304-921-6436

Email: colin.a.henkes@wv.gov

Site/Facility ID #:

Compliance Monitoring? [ ] Yes [ ] No

Collected By (print): CAH / AL

Purchase Order #:

Quote #:

DW PWS ID #:

DW Location Code:

Collected By (signature):

Turnaround Date Required: normal

Immediately Packed on Ice: [ ] Yes [ ] No

Sample Disposal: [ ] Dispose as appropriate [ ] Return [ ] Archive: [ ] Hold:

Rush: [ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [ ] Yes [ ] No

Analysis: Metals

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Container Preservative Type ** 1 1 1 4 4 4 4 4

Analyses: Total Al, Tot. Fe, Tot. Mn | Tot. Se | Dissolved Metals (Al, Ba, Ca, Fe, Mg, Mn, K, Se, Si, Na) | Alk Bicarbonate Alk Carbonate, Tot. alkalinity | Spec. Conductance, TDS, TSS | Chloride, Sulfate | P H. phosphorus, Nitrogen

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start) Date	Time	Composite End Date	Time	Res Cl	# of Ctns
ULC	Aq	G	7/31/25	9:56				3
DLC				10:23				
DUTLC				10:39				
DLFUTLC				11:11				
URFUTLC				11:32				
Below DLCD				13:00				

Metals for dissolved were field filtered

NON-CONFORMANCE
Phosphorus & Nitrogen samples weren't sent

Lab Profile/Line:

Lab Sample Receipt Checklist:

Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:			
Sample pH Acceptable	Y	N	NA
pH Strips:			
Sulfide Present	Y	N	NA
Lead Acetate Strips:			

LAB USE ONLY:
Lab Sample # / Comments:

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:

Radchem sample(s) screened (<500 cpm): Y N NA

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #: 2945061

Samples received via: FEDEX UPS Client Courier Pace Courier

Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#: 30
Cooler 1 Temp Upon Receipt: 4.1 oC
Cooler 1 Therm Corr. Factor: 0 oC
Cooler 1 Corrected Temp: 4.1 oC
Comments:

Relinquished by/Company: (Signature)	Date/Time:	Received by/Company: (Signature)	Date/Time:
Alycia R. Lee / WV DEP	7/31/25 16:24		7/31/25 1624PM
	8/1/25 1337PM	TO	8/1/25 1337
TO 8/1/25	1800		8/1/25 1800

MTJL LAB USE ONLY
Table #:
Acctnum:
Template:
Prelogin:
PM:
PB:

Trip Blank Received: Y N NA
HCL MeOH TSP Other

Non Conformance(s): YES / NO

Photographs

Seep Below 060

Auger No.1