

### Northwest Regional Office CLEAN WATER PROGRAM

Amendment,
Major

Facility Type
Major / Minor

Major

Major

#### NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER

Application No. PA0005011 A-2

APS ID 1015008

Authorization ID 1311674

	Applicant and	Facility Information	
Applicant Name	Keystone-Conemaugh Projects, LLC	Facility Name	Conemaugh Power Plant
Applicant Address	175 Cornell Road, Suite 1	Facility Address	1442 Power Plant Road, State Route 2008
	Blairsville, PA 15717	<u> </u>	New Florence, PA 15944-9154
Applicant Contact	John Shimshock	Facility Contact	John Shimshock
Applicant Phone	(724) 235-4500	Facility Phone	(724) 235-4500
Client ID	350861	Site ID	3349
SIC Code	_4911	Municipality	West Wheatfield Township
SIC Description	Trans. & Utilities - Electric Services	County	Indiana
Date Application Reco	eived April 10, 2020	EPA Waived?	No
Date Application Acce	epted April 22, 2020	If No, Reason	Major Facility

#### **Summary of Review**

The permittee submitted an amendment application to address Waste Load Allocations (WLAs) for total aluminum, total iron and total manganese which are in the current NPDES Permit due to inclusion in the Kiskiminetas-Conemaugh Watersheds TMDL. WLAs for these parameters are currently displayed in the permit as total yearly loading (lbs/year) at Outfalls 003, 004, 006, 007, 015, 016, 017, and 029.

The permittee proposes to achieve compliance with the NPDES Permit by aggregating each of the individual WLAs for process outfall (003, 004, 006, 007) and stormwater outfalls (015, 016, 017, 029) into one total WLA applicable to the Station for total aluminum, total iron, and total manganese.

There is currently one open violation for this permittee listed in EFACTS (11/09/2022). The violation is under the Storage Tank Program. The permittee should try to address this violation before final permit issuance.

#### **Public Participation**

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
Х		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	November 9, 2022
X		Vacant / Environmental Program Manager	Okay to Draft JCD 11/9/2022

Discharge, Receiving	g Waters and Water Supply Info	ormation	
Receiving Waters	Conemaugh River	Stream Code	43832
NHD Com ID	123721463	RMI	39.2
Drainage Area	725 mi <sup>2</sup>	Yield (cfs/mi²)	0.2069
Q <sub>7-10</sub> Flow (cfs)	150 (during the previous 25 year	ars) Q <sub>7-10</sub> Basis	USGS Stream Gage #03041500
Elevation (ft)	1,053	Slope (ft/ft)	0.001
Watershed No.	18-D	Chapter 93 Class.	WWF
Quad Name	New Florence	Quad Code	1513
Quau Name	New I lorence	Quad Code	1313
Assessment Status	s Impaired		
Cause(s) of Impairr	<del></del>		
Source(s) of Impair	· · · · · · · · · · · · · · · · · · ·	:	_
Cource(3) or impair	Ment Aoid Minte Brainage		tas-Conemaugh River
TMDL Status	_Final	Name Watershe	
Background/Ambie	nt Data	Data Source	
pH (SU)	_7.0	Default	
		BACKGROUND DATA CO	
Hardness (mg/L)		SUMMARY REPORT – 8/2 BACKGROUND DATA CO	
Total Aluminum (m	g/l) 0.24	SUMMARY REPORT – 8/2	
rotal / liammann (in	<u> </u>	BACKGROUND DATA CO	
Total Iron (mg/l)	0.89	SUMMARY REPORT - 8/2	
<b>-</b>	(1)	BACKGROUND DATA CO	
Total Manganese (	mg/l) <u>0.26</u>	SUMMARY REPORT – 8/2	022
N		D # 1 T	
	m Public Water Supply Intake	Buffalo Township Municipal	
<del>-</del>	Allegheny River	Flow at Intake (cfs)	2,390
PWS RMI	29.4	Distance from Outfall (m	i) <u>65 miles</u>

#### Changes Since Last Permit Issuance:

Other Comments: Coefficients of Variation (Stream CV) used in Toxics Modeling were also derived from the Background Data Collection Summary Report – 8/2022, which was conducted by the Permittee's consultant, and reviewed by the Department.

The Department conducted a biological survey the last week of May 2022 in the vicinity of the facility. According to the biologist, the stream is still impaired in stream segments surrounding the facility, but additional assimilative capacity is available based on background stream data provided by the permittee in August 2022 that would allow for aggregation of WLAs. The biological survey final report should be available near the end of November 2022 for reference.

#### **Compliance History**

#### DMR Data for Outfall 003 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD)												
Average Monthly	0.178	2.51	1.15	0.55	1.42	2.03	1.88	2.92	2.2	1.12	0.890	0.701
Flow (MGD)												
Daily Maximum	2.44	3.45	2.25	1.89	3.23	3.29	3.31	3.81	3.3	2.29	1.47	1.507
pH (S.U.)												
Daily Minimum	8.4	8.2	7.5	7.1	7.5	7.4	7.3	7.1	7.5	7.6	7.5	7.4
pH (S.U.)												
Daily Maximum	8.5	8.6	8.5	8.4	8.0	8.1	8.1	8.3	8.5	8.6	8.4	8.8
TRC (mg/L)												
Average Monthly	GG	< 0.02	< 0.02	< 0.04	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.3	< 0.2	< 0.02
TRC (mg/L)												
Daily Maximum	GG	< 0.02	< 0.02	0.08	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.7	0.4	< 0.02
Free Available												
Chlorine (mg/L)												
Average Monthly	GG	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.1	< 0.1	< 0.02
Free Available												
Chlorine (mg/L)	00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00
Daily Maximum	GG	< 0.02	< 0.02	0.04	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.2	0.2	< 0.02
Temperature (°F)	70.0	04.5	00.7	04.0	70.4	74.5	70.0	60	70.0	0.4	00	70
Daily Maximum	79.3	84.5	86.7	84.9	79.4	74.5	72.6	69	70.6	64	69	78
TSS (mg/L)	GG	< 2.7	3.3	< 2.2	< 2.0	. 4 4	< 2.4	< 2.0	< 4.5	< 4.1	. 5 5	< 6.6
Average Monthly	GG	< 2.1	3.3	< 2.2	< 2.0	< 4.1	< 2.4	< 2.0	< 4.5	< 4.1	< 5.5	< 0.0
TSS (mg/L) Daily Maximum	GG	4.5	4.5	2.5	2.0	10.5	4.0	2.0	12.0	7.5	15.0	12.0
Total Dissolved Solids	GG	4.5	4.5	2.5	2.0	10.5	4.0	2.0	12.0	7.5	15.0	12.0
(mg/L)												
Average Monthly	GG	1884	1758	953	977	776	801	619	938	1296	883	1020
Total Dissolved Solids	- 00	1004	1730	333	311	770	001	013	330	1230	000	1020
(mg/L)												
Daily Maximum	GG	2420	2050	1250	1090	994	1060	814	1100	1760	998	1390
Oil and Grease (mg/L)					.000			<u> </u>			333	
Average Monthly	GG	< 5.6	< 5.3	< 5.7	< 5.3	< 5.3	< 6.0	< 6.0	< 6.0	< 5.2	< 5.5	< 5.3
Oil and Grease (mg/L)												
Daily Maximum	GG	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Total Aluminum												
(lbs/mo)												
Total Monthly	GG	< 61	< 38	< 34	< 35	< 53	< 102	< 90	< 66	< 34	< 36	< 29

		1
< 852		
< 0.1	< 0.1	< 0.1
< 0.14		
0.2	< 0.1	0.2
< 89	< 25	< 181
< 3486		
< 0.4	< 0.1	< 0.8
< 0.61		
1.3	0.1	2.1
26	19	23
< 593		
0.1	0.1	0.1
< 0.09		
0.2	0.1	0.28
610	451	474
	-	
864	563	702
178	121	129
239	129	152
	< 0.4 < 0.61 1.3 26 < 593 0.1 < 0.09 0.2 610 864 178	< 0.1 < 0.1 < 0.14  0.2 < 0.1 < 89 < 25 < 3486 < 0.4 < 0.1 < 0.61  1.3

Bromide (mg/L)												
Average Monthly	GG	< 1.3	< 0.7	< 0.3	< 2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Bromide (mg/L)												
Daily Maximum	GG	< 2.0	< 2	< 0.4	< 2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform (mg/L)												
Average Monthly	GG	< 0.004	0.006	< 0.002	0.008	0.007	0.004	0.011	0.006	0.03	0.017	0.025
Chloroform (mg/L)												
Daily Maximum	GG	0.007	0.008	0.005	0.014	0.014	0.006	0.022	0.01	0.07	0.031	0.063

#### DMR Data for Outfall 004 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD)												
Average Monthly	0.874	1.01	1.10	0.97	2.04	1.60	1.17	1.36	1.5	0.58	0.78	0.64
Flow (MGD)												
Daily Maximum	1.53	2.15	2.63	2.49	3.23	2.61	2.19	3.09	2.7	1.92	1.71	1.61
pH (S.U.)												
Daily Minimum	7.1	7.1	7.1	7.3	7.7	7.2	7.2	7.0	7.4	7.3	7.0	6.7
pH (S.U.)												
Daily Maximum	8.5	8.5	8.7	8.5	8.6	8.5	8.0	8.0	8.3	8.1	8.5	8.7
TRC (mg/L)												
Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.03	< 0.02	< 0.02	< 0.03
TRC (mg/L)												
Daily Maximum	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.07	< 0.02	< 0.02	0.06
Free Available												
Chlorine (mg/L)												
Average Monthly	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.05
Free Available												
Chlorine (mg/L)												
Daily Maximum	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.12
Temperature (°F)												
Daily Maximum	80.1	87.4	88.5	77.5	74.8	70.7	66.6	59	56.8	56	65	73.4
TSS (mg/L)								40.0	44.0	40.0		
Average Monthly	< 4.4	5.9	5.1	6.1	9.4	9.9	9.0	12.3	11.9	10.2	< 7.9	< 3.4
TSS (mg/L)	40.0			40.0	400	400	40.0	4= 0	4= 0	40.0	40 =	
Daily Maximum	10.0	10.5	7.0	10.0	19.0	12.0	13.0	15.0	15.0	13.0	10.5	5.0
Total Dissolved Solids												
(mg/L)	0000	0070	2005	4000	4070	4000	4700	4047	4500	4000	4700	00.40
Average Monthly	2003	2072	2225	1980	1678	1803	1760	1617	1588	1800	1788	2043
Total Dissolved Solids												
(mg/L)	2190	2490	2220	2250	1940	2000	1000	1660	1700	2060	1070	2120
Daily Maximum	2180	2480	2320	2250	1840	2080	1990	1660	1780	2060	1970	2130
Oil and Grease (mg/L)	460	. 5.6		. 5 7	E 0		460	.60	.60	. 5.0		. 5.2
Average Monthly	< 6.0	< 5.6	< 5.5	< 5.7	5.8	< 5.5	< 6.0	< 6.0	< 6.0	< 5.3	< 5.5	< 5.3

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Oil and Grease (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Daily Maximum	< 6.0	6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Total Aluminum												
(lbs/mo)	73	66	45	64	104	106	124	125	132	39	. 50	< 24
Total Monthly Total Aluminum	73	00	45	64	104	106	124	125	132	39	< 50	< 24
(lbs/year)										. 704		
Total Annual Total Aluminum										< 704		
(mg/L)												
Average Monthly	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	< 0.2	< 0.1
Total Aluminum	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.5	< 0.2	< 0.1
(mg/L)										< 0.25		
Annual Average Total Aluminum										< 0.25		
(mg/L)												
Daily Maximum	0.4	0.5	0.2	0.2	0.3	0.3	0.3	0.7	0.4	0.3	0.2	0.2
Total Iron (lbs/mo)	0.4	0.5	0.2	0.2	0.3	0.3	0.3	0.7	0.4	0.5	0.2	0.2
Total Monthly	67	112	110	236	307	451	773	513	534	154	267	41
Total Iron (lbs/year)	01	112	110	230	307	401	773	313	334	134	201	41
Total Annual										1747		
Total Iron (mg/L)										1747		
Average Monthly	0.2	0.4	0.4	0.5	0.6	1.0	1.69	1.7	1.2	1.0	0.8	0.2
Total Iron (mg/L)	0.2	0.4	0.4	0.5	0.0	1.0	1.00	1.7	1.2	1.0	0.0	0.2
Annual Average										0.57		
Total Iron (mg/L)										0.07		
Daily Maximum	0.3	0.66	0.49	0.9	0.85	1.6	2.19	3.39	1.4	1.2	1.4	0.33
Total Manganese	0.0	0.00	0.10	0.0	0.00	1.0	2.10	0.00				0.00
(lbs/mo)												
Total Monthly	60	57	42	109	81	117	164	135	238	49	72	26
Total Manganese		<u> </u>			<u> </u>							
(lbs/year)												
Total Annual										1457		
Total Manganese												
(mg/L)												
Average Monthly	0.2	0.2	0.2	0.3	0.2	0.3	0.40	0.5	0.5	0.3	0.2	0.1
Total Manganese												
(mg/L)												
Annual Average										0.48		
Total Manganese												
(mg/L)												
Daily Maximum	0.3	0.35	0.29	0.3	0.28	0.34	0.45	0.84	0.7	0.4	0.5	0.17
Sulfate (mg/L)												
Average Monthly	1255	1314	1365	1200	1013	1160	1255	1076	1046	1144	1238	1313

Sulfate (mg/L) Daily Maximum	1350	1550	1760	1420	1200	1430	1400	1150	1110	1350	1410	1380
Chloride (mg/L)	7,000											
Average Monthly	116	137	127	110	102.2	128	139	150	134	134	126	136
Chloride (mg/L)												
Daily Maximum	123	181	139	120	122	147	148	160	154	152	140	144
Bromide (mg/L)												
Average Monthly	1.7	< 1.9	< 1.5	1.3	1.1	1.3	1.4	1.3	1.4	1.5	1.6	1.8
Bromide (mg/L)												
Daily Maximum	1.9	< 2	< 2.0	1.4	1.3	1.6	1.5	1.5	1.5	1.8	1.9	1.9
Chloroform (mg/L)												
Average Monthly	< 0.0005	< 0.0005	< 0.0009	0.001	0.002	0.0009	< 0.0008	0.0009	0.0008	< 0.0008	0.001	< 0.001
Chloroform (mg/L)												
Daily Maximum	0.0006	< 0.0005	< 0.002	0.001	0.002	0.001	0.001	0.0009	0.001	0.001	0.003	0.002

#### DMR Data for Outfall 006 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD)												
Average Monthly	0.011	0.013	0.014	0.015	0.012	0.014	0.016	0.010	0.01	0.01	0.0096	0.0096
Flow (MGD)												
Daily Maximum	0.016	0.013	0.025	0.027	0.015	0.015	0.020	0.012	0.01	0.02	0.0096	0.0096
pH (S.U.)												
Daily Minimum	7.2	6.6	6.6	6.4	6.8	6.5	6.6	6.5	6.5	6.7	6.5	6.8
pH (S.U.)												
Daily Maximum	8.6	8.9	8.2	8.1	8.6	8.3	8.2	8.2	8.4	8.1	8.9	8.8
DO (mg/L)												
Daily Minimum	6.9	6.9	6.5	5.7	5.5	6.4	7.1	6.6	6.1	6.5	5.5	5.8
TRC (mg/L)												
Average Monthly	< 0.02	< 0.1	< 0.02	< 0.02	< 0.02	< 0.05	< 0.02	< 0.02	< 0.03	0.2	0.5	< 0.3
TRC (mg/L)												
Daily Maximum	< 0.02	1.6	< 0.02	< 0.02	< 0.02	0.6	0.12	0.03	0.3	2.0	3.8	1.8
CBOD5 (mg/L)												
Average Monthly	< 21.0	< 2.3	3.1	< 20.9	< 6.0	4.3	6.0	8.7	4.3	< 3.5	3.1	< 2.5
CBOD5 (mg/L)												
Daily Maximum	< 40.0	2.6	3.3	< 36.7	< 6.0	4.61	8.9	9.4	4.9	5.0	3.7	3.0
TSS (mg/L)												
Average Monthly	14.0	15.5	12.5	< 5.5	< 5.0	< 5.0	< 5.0	14.5	13.0	18.5	< 5.0	< 5.5
TSS (mg/L)												
Daily Maximum	14.0	16.0	16.0	6.0	5.0	< 5.0	< 5.0	19.0	13.0	20.0	< 5.0	6.0
Fecal Coliform												
(No./100 ml)												
Average Monthly	2.0	16	< 1.0	194	< 1.0	< 1.5	< 6.5	< 1.0	712	57	< 3.0	3.5

Fecal Coliform												
(No./100 ml)												
Daily Maximum	3.0	26	< 1.0	387	< 1.0	2.0	12	1.0	1414	91	5	6.0
Total Nitrogen (mg/L)												
Daily Maximum	< 22.7	< 15.6	< 23	< 16.2	11.2	< 23	< 24.6	< 15.8	< 8.9	< 17.3	< 16.2	13.1
Total Phosphorus												
(mg/L)												
Daily Maximum	2.7	1.77	2.69	2.3	3.3	3.31	2.39	2.8	1.5	1.98	1.96	2.29
Total Aluminum												
(lbs/mo)												
Total Monthly	< 0.2	< 0.3	< 0.6	< 0.3	< 0.4	< 0.4	< 0.4	< 0.2	< 0.2	< 0.2	< 0.4	< 0.2
Total Aluminum												
(lbs/year)												
Total Annual										< 3.1		
Total Aluminum												
(mg/L)	. 0.4	.0.4	. 0.4	.0.4	.04	.0.4	.04	.04	. 0.4	.0.4	. 0. 0	.0.4
Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.2	< 0.1
Total Aluminum												
(mg/L)										.040		
Annual Average Total Aluminum										< 0.10		
(mg/L)												
(mg/L) Daily Maximum	< 0.1	< 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.2	< 0.1
Total Iron (lbs/mo)	< 0.1	<b>V</b> 0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	<b>\ 0.1</b>	< 0.1	< 0.1	0.2	< 0.1
Total Monthly	1	1	7	0.2	< 0.3	0.3	< 0.3	1	1	0.3	< 0.2	< 0.2
Total Iron (lbs/year)			•	0.2	\ 0.0	0.0	\ 0.0			0.0	\ U.Z	\ U.Z
Total Annual										< 4.38		
Total Iron (mg/L)										11.00		
Average Monthly	0.43	0.39	1.01	0.08	< 0.07	0.09	< 0.07	0.64	0.5	0.12	< 0.1	< 0.07
Total Iron (mg/L)												
Annual Average										< 0.12		
Total Iron (mg/L)												
Daily Maximum	0.47	0.46	1.13	0.1	0.09	0.09	0.08	0.75	0.7	0.15	0.1	0.09
Total Manganese												
(lbs/mo)												
Total Monthly	< 0.02	0.05	0.3	< 0.03	< 0.04	< 0.04	< 0.04	0.04	< 0.3	< 0.04	< 0.02	< 0.04
Total Manganese												
(lbs/year)												
Total Annual										< 0.36		
Total Manganese												
(mg/L)	_	_	_	_	_	_				_	_	_
Average Monthly	< 0.01	0.02	0.05	< 0.01	< 0.01	< 0.01	0.01	0.02	< 0.1	< 0.02	< 0.01	< 0.02
Total Manganese												
(mg/L)										0.04		
Annual Average										< 0.01		

Total Manganese												
(mg/L)												
Daily Maximum	0.01	0.02	0.07	< 0.01	0.01	0.01	< 0.01	0.03	0.2	0.02	< 0.01	0.02
Chloroform (mg/L)												
Average Monthly	0.05	0.04	0.075	0.014	0.019	0.033	0.023	0.04	0.007	0.004	0.016	0.006
Chloroform (mg/L)												
Daily Maximum	0.05	0.04	0.087	0.027	0.027	0.039	0.029	0.04	0.01	0.005	0.016	0.011

#### DMR Data for Outfall 007 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD)												
Average Monthly	0.072	0.18	0.11	0.077	0.154	0.18	0.20	0.21	0.18	0.12	0.08	0.08
Flow (MGD)												
Daily Maximum	0.213	0.24	0.22	0.197	0.211	0.23	0.25	0.30	0.24	0.21	0.25	0.23
pH (S.U.)												
Daily Minimum	6.8	6.9	6.9	6.9	6.8	6.6	7.1	6.6	6.8	7.1	7.2	7.0
pH (S.U.)												
Daily Maximum	8.6	7.5	7.8	7.8	8.1	8.7	7.6	7.6	7.5	7.7	7.7	7.7
Temperature (°F)												
Daily Maximum	80	85	82	80	73	68	67	68	65	64	66	75
TSS (mg/L)												
Average Monthly	27.2	12.5	10.8	9.7	16.8	20.1	37.7	19.6	11.8	14.0	11.0	12.0
TSS (mg/L)	00.5	47.5	47.0	47.0	00.5	07.0	44.0	00.5	40.0	40.5	440	45.0
Daily Maximum	39.5	17.5	17.0	17.0	22.5	27.0	44.0	23.5	19.0	19.5	14.0	15.0
Total Dissolved Solids												
(mg/L)	400000	04000.0	04400.0	22222	07075.0	04000.0	00040.0	04450.0	40005.0	20425.0	40700.0	40400.0
Average Monthly	18600.0	24920.0	21133.0	22000.0	27375.0	24000.0	22940.0	21150.0	16825.0	20425.0	16700.0	18133.0
Total Dissolved Solids												
(mg/L) Daily Maximum	26500.0	28600.0	24900.0	25200.0	29900.0	27600.0	24900.0	27000.0	20300.0	22200.0	19000.0	23300.0
Oil and Grease (mg/L)	26500.0	20000.0	24900.0	25200.0	29900.0	27600.0	24900.0	27000.0	20300.0	22200.0	19000.0	23300.0
Average Monthly	< 5.5	< 6.2	< 5.5	< 5.7	< 6.0	< 5.8	< 6.0	< 5.5	< 6.0	< 5.0	< 5.7	< 5.3
Oil and Grease (mg/L)	< 5.5	< 0.2	< 5.5	< 5.7	< 0.0	< 5.0	< 0.0	< 5.5	< 0.0	< 5.0	< 5.1	< 5.5
Daily Maximum	< 6.0	9.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 5.0	< 6.0	< 6.0
Nitrate-Nitrite (mg/L)	V 0.0	0.0	V 0.0	V 0.0	V 0.0	V 0.0	V 0.0	V 0.0	7 0.0	V 0.0	V 0.0	1 0.0
Average Monthly	< 0.85	< 2.35	< 1.25	< 4.2	< 2.2	4.3	< 1.25	< 1.43	2.2	< 2.6	1.63	< 4.7
Nitrate-Nitrite (mg/L)	1 0.00	12.00	11.20	, <u>–</u>	,		11.20	·		12.0		,
Daily Maximum	< 1.25	3.69	< 1.25	10.1	5.1	5.8	< 1.25	1.95	3.5	5.8	2.09	10.0
Total Aluminum				-	-							
(lbs/mo)												
Total Monthly	80	< 9	32	< 26	87	99	296	22	< 20	11	6	18

Total Aluminum												
(lbs/year)												
Total Annual										< 282		
Total Aluminum										\ 202		
(mg/L)												
Average Monthly	1.9	< 0.2	0.6	< 0.7	2.1	2.2	5.4	0.5	< 0.4	0.3	0.1	0.4
Total Aluminum	1.0	\ 0.Z	0.0	V 0.1	2.1	2.2	0.1	0.0	7 0.1	0.0	0.1	0.1
(mg/L)												
Annual Average										< 0.46		
Total Aluminum										V 0.10		
(mg/L)												
Daily Maximum	2.4	0.3	1.1	1.0	3.0	3.5	7.3	0.7	< 1.0	0.4	0.2	0.8
Total Arsenic (mg/L)	2.1	0.0	1.1	1.0	0.0	0.0	7.0	0.7	V 1.0	0.1	0.2	0.0
Average Monthly	< 0.002	0.001	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.003	0.001	< 0.001	< 0.001
Total Arsenic (mg/L)	1 0.002	0.001	1 0.002	1 0.001	1 0.001	1 0.001	1 0.001	0.002	1 0.000	0.001	10.001	10.001
Daily Maximum	0.002	0.002	0.002	0.001	0.002	0.001	0.001	0.003	< 0.01	0.002	0.002	0.002
Total Beryllium (mg/L)	0.002	0.002	0.002	0.001	0.002	0.001	0.001	0.000	7 0.01	0.002	0.002	0.002
Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.003	< 0.001	< 0.001	< 0.001
Total Beryllium (mg/L)	, 0.00	10.00	, 0.00	, 0.00	10.001	, 0.00	, 0.00	10.002	1 0.000	10.00	10.00	10.001
Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.010	< 0.001	< 0.001	< 0.001
Total Boron (mg/L)	, 0.00	10.001	, 0.00	, 0.00	10.001	, 0.00	, 0.00	10.000	10.0.0	10.00	10.00	10.001
Average Monthly	55.5	73.8	46.0	39.0	43.4	55.3	76.5	93.0	66.4	75.3	82.2	64.2
Total Boron (mg/L)	00.0			00.0		00.0		00.0		7 0.0	02.2	0.1.2
Daily Maximum	76.6	95.3	55.8	42.5	48.9	63.2	97.8	117.0	87.5	92.5	93.5	85.6
Total Copper (mg/L)												
Average Monthly	0.020	0.004	< 0.005	0.002	0.005	0.006	0.008	0.005	< 0.004	0.002	0.001	0.010
Total Copper (mg/L)												
Daily Maximum	0.034	0.012	0.011	0.003	0.014	0.014	0.01	0.005	< 0.01	0.002	0.002	0.027
Total Iron (lbs/mo)												
Total Monthly	< 2	< 3	< 3	< 2	< 3	5	6	< 2.0	< 9	< 3	4	< 5.0
Total Iron (lbs/year)												
Total Annual										< 177		
Total Iron (mg/L)												
Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.1	0.1	< 0.1	< 0.2	< 0.1	0.1	< 0.1
Total Iron (mg/L)												
Annual Average										< 0.29		
Total Iron (mg/L)												
Daily Maximum	0.06	< 0.05	< 0.05	0.09	0.08	0.27	0.12	0.05	< 0.5	0.1	0.14	0.017
Total Lead (mg/L)												
Average Monthly	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.002	< 0.003	< 0.001	< 0.001	< 0.001
Total Lead (mg/L)												
Daily Maximum	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.005	< 0.01	< 0.001	< 0.001	< 0.001
Total Manganese												
(lbs/mo)												
Total Monthly	4	4	6	4	5	8	7	8	4	6	5	2

Total Manganese												
(lbs/year)										00		
Total Annual Total Manganese										96		
(mg/L)												
Average Monthly	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.04
Total Manganese	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.01
(mg/L)												
Annual Average										0.16		
Total Manganese												
(mg/L)												
Daily Maximum	0.1	0.12	0.14	0.13	0.1	0.31	0.21	0.33	0.14	0.2	0.14	0.07
Total Mercury (mg/L)												<
Average Monthly	0.00008	0.00003	0.00003	0.00003	0.00002	0.00003	0.00004	0.00004	0.00001	0.00003	0.00002	0.00001
Total Mercury (mg/L)												
Daily Maximum	0.00012	0.00007	0.00004	0.00006	0.00002	0.00004	0.00004	0.00004	0.00001	0.00004	0.00002	0.00002
Total Selenium (mg/L)												
Average Monthly	0.10	0.10	0.052	0.10	0.073	0.100	0.10	0.100	0.087	0.240	0.08	0.18
Total Selenium (mg/L)												
Daily Maximum	0.119	0.189	0.069	0.074	0.075	0.247	0.099	0.169	0.104	0.356	0.09	0.281
Sulfate (mg/L)	4444	0000	4070	4007	0000	0500	0000	0000	0005	0740	07.47	0007
Average Monthly	1441	2322	1973	1997	2233	2563	3266	2860	3285	3713	3747	2827
Sulfate (mg/L)	1900	2550	2230	2300	2790	3170	3730	3230	3810	3760	4420	3500
Daily Maximum Chloride (mg/L)	1900	∠550	2230	2300	2790	3170	3730	3230	3810	3760	4420	3500
Average Monthly	9233	11420	8663	8730	11750	12925	11940	12225	9093	10013	8423	8347
Chloride (mg/L)	9233	11420	0003	6730	11730	12923	11940	12223	9093	10013	0423	0347
Daily Maximum	12300	12400	9890	11000	12700	13600	13000	13700	11100	10800	9720	10200
Bromide (mg/L)	12000	12400	3030	11000	12700	10000	10000	10700	11100	10000	3720	10200
Average Monthly	90.1	112	89.5	103.4	151	128	136	155	129	137	102	107
Bromide (mg/L)												
Daily Maximum	119	120	99.8	137	174	168	157	185	154	146	128	135
Chloroform (mg/L)												
Average Monthly	0.007	< 0.0006	0.0006	< 0.0007	0.001	0.0008	< 0.0007	0.0008	0.0007	< 0.0008	< 0.0005	< 0.002
Chloroform (mg/L)				_	_		_	_				
Daily Maximum	0.013	0.0009	0.0006	0.0008	0.002	0.001	0.0009	0.0009	0.0008	0.001	< 0.0005	0.005

#### DMR Data for Outfall 012 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Flow (MGD)												
Average Monthly	0.00086	0.0007	0.0005	0.0012	0.0008	0.001	0.00086	0.00086	0.002	0.002	0.0022	0.005
Flow (MGD)												
Daily Maximum	0.00086	0.0009	0.0009	0.0024	0.0009	0.002	0.00086	0.00086	0.005	0.005	0.0049	0.002

pH (S.U.)												
Daily Minimum	7.6	7.4	7.7	7.5	7.7	7.3	7.3	7.4	7.4	7.4	7.3	7.6
pH (S.U.)												
Daily Maximum	7.8	7.8	7.9	7.9	7.9	7.9	7.5	7.6	7.8	7.7	7.9	7.8
TRC (mg/L)												
Average Monthly	0.4	0.5	0.4	0.4	0.4	0.6	0.2	0.1	0.3	0.2	0.4	0.2
TRC (mg/L)												
Daily Maximum	0.7	0.8	0.5	1.4	0.5	1.2	0.44	0.1	0.5	0.3	0.7	0.3
CBOD5 (mg/L)												
Average Monthly	< 13.5	< 2.0	< 3.3	< 3.2	< 2.0	< 2.0	< 7.0	< 4.0	< 2.0	< 2.0	< 4.0	< 7.0
CBOD5 (mg/L)												
Daily Maximum	25.0	< 2.0	4.5	4.4	< 2.0	< 2.0	< 12.0	< 6.0	< 2.0	< 2.0	< 6.0	< 12.0
TSS (mg/L)												
Average Monthly	< 5.5	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
TSS (mg/L)												
Daily Maximum	6.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

#### DMR Data for Outfall 015 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Total Flow (M Gal)												
Daily Maximum				0.648						0.567		
pH (S.U.)												
Daily Maximum				6.8						7.2		
TSS (mg/L)												
Daily Maximum				467						19.0		
Oil and Grease (mg/L)												
Daily Maximum				< 6.0						< 5.0		
Total Aluminum												
(lbs/year)												
Total Annual										42.5		
Total Aluminum												
(mg/L)												
Annual Average										0.4		
Total Aluminum												
(mg/L)												
Daily Maximum				6.9						0.7		
Total Iron (lbs/year)												
Total Annual										73.85		
Total Iron (mg/L)												
Annual Average										0.70		
Total Iron (mg/L)												
Daily Maximum				16.8						0.98		

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Total Manganese (lbs/year)						
Total Annual					41.97	
Total Manganese (mg/L) Annual Average					0.40	
Total Manganese (mg/L) Daily Maximum		3.95			0.32	

#### DMR Data for Outfall 016 (from October 1, 2021 to September 30, 2022)

Parameter	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
Total Flow (M Gal)												
Daily Maximum				0.036						0.032		
pH (S.U.)												
Daily Maximum				7.2						7.0		
TSS (mg/L)												
Daily Maximum				17.5						16.0		
Oil and Grease (mg/L)												
Daily Maximum				< 5						< 5.0		
Total Aluminum												
(lbs/year)												
Total Annual										1.66		
Total Aluminum												
(mg/L)												
Annual Average										0.18		
Total Aluminum												
(mg/L)												
Daily Maximum				0.6						< 0.1		
Total Iron (lbs/year)												
Total Annual										36.6		
Total Iron (mg/L)												
Annual Average										3.9		
Total Iron (mg/L)												
Daily Maximum				2.1						0.58		
Total Manganese												
(lbs/year)												
Total Annual										15.35		
Total Manganese												
(mg/L)										4.0		
Annual Average										1.6		

Total Manganese					
(mg/L)					
Daily Maximum	1.3			0.32	

#### DMR Data for Outfall 017 (from October 1, 2021 to September 30, 2022)

Total Flow (M Gal) Daily Maximum  pH (S.U.) Daily Maximum  TSS (mg/L) Daily Maximum  Oil and Grease (mg/L) Daily Maximum  Total Aluminum (lbs/year) Total Annual		0.021 7.1 197 < 5.0			0.019 7.1 < 2.0	
Daily Maximum pH (S.U.) Daily Maximum TSS (mg/L) Daily Maximum Oil and Grease (mg/L) Daily Maximum Total Aluminum (lbs/year)		7.1 197			7.1	
Daily Maximum TSS (mg/L) Daily Maximum Oil and Grease (mg/L) Daily Maximum Total Aluminum (lbs/year)		197				
Daily Maximum TSS (mg/L) Daily Maximum Oil and Grease (mg/L) Daily Maximum Total Aluminum (lbs/year)		197				
Daily Maximum Oil and Grease (mg/L) Daily Maximum Total Aluminum (lbs/year)					< 2.0	
Daily Maximum Oil and Grease (mg/L) Daily Maximum Total Aluminum (lbs/year)					< 2.0	
Daily Maximum  Total Aluminum (lbs/year)		< 5.0				
Total Aluminum (lbs/year)		< 5.0				
(lbs/year)					< 5.0	
Total Annual						
					< 16.5	
Total Aluminum						
(mg/L)						
Annual Average					< 2.0	
Total Aluminum						
(mg/L)						
Daily Maximum		1.1			< 0.1	
Total Iron (lbs/year)						
Total Annual					10.89	
Total Iron (mg/L)						
Annual Average					1.3	
Total Iron (mg/L)		0.50			0.44	
Daily Maximum		0.52			0.11	
Total Manganese						
(lbs/year)					18.69	
Total Annual					18.69	
Total Manganese (mg/L)						
Annual Average					2.3	
Total Manganese					2.0	
(mg/L)						
Daily Maximum		0.68			0.05	

### DMR Data for Outfall 029 (from October 1, 2021 to September 30, 2022)

Parameter SEP-22 AUG-22 JUL-22	JUN-22 MAY-22	APR-22 MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21
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Total Flow (M Gal)		
Daily Maximum	0.034	0.03
pH (S.U.)		
Daily Maximum	7.3	7.2
TSS (mg/L)		
Daily Maximum	24.5	5.0
Oil and Grease (mg/L)		
Daily Maximum	< 5.0	< 5.0
Total Aluminum		
(lbs/year)		
Total Annual		0.43
Total Aluminum		
(mg/L)		
Annual Average		0.2
Total Aluminum		
(mg/L)		
Daily Maximum	1.2	< 0.1
Total Iron (lbs/year)		
Total Annual		0.72
Total Iron (mg/L)		
Annual Average		0.33
Total Iron (mg/L)		
Daily Maximum	2.1	0.2
Total Manganese		
(lbs/year)		
Total Annual		0.34
Total Manganese		
(mg/L)		
Annual Average		0.16
Total Manganese		
(mg/L)	4.07	
Daily Maximum	1.07	0.14

	Development of Effluent Limitations
Monitoring	
Point No. 001	Design Flow (MGD)
Wastewater Description:	Outfalls 003 004 006 007 015 016 017 and 029

The Kiskiminetas-Conemaugh River Watersheds TMDL currently assigns the following WLAs to these 0utfalls in the current NPDES Permit:

	TMDL Loading Allocations											
sws	SWS Outfall Aluminum Iron Manganese											
4060	003	8,454	16,908	11,272								
4060	004	1,028	56	1,371								
4060	006	11	23	15								
4060	016	94	187	125								
4060	029*	94	187	125	lbs/year							
4058	007	800	1,599	1,066								
4058	015	93	187	125								
4058	017	93	187	125								
	Cumulative WLA	10,667	21,334	14,224								

In earlier discussions with USEPA about this proposal, there was concern about localized impairment if additional loading was assigned to any one of the existing outfalls due to localized water quality. The permittee agreed to do background stream sampling to determine the background stream quality prior to the facility (See attached study entitled "Conemaugh River Surface Water – Background Data Collection Summary Report (August 2022). The findings of this report were used for input into the Department's toxics modeling (stream concentrations and stream CVs for aluminum, iron, and manganese, and stream hardness, as well as to be used by Department Biologist to be used in a final report for a stream survey that was conducted also in May of 2022.

Toxics modeling was conducted using the Department's Toxics Management Spreadsheet (TMS) under two scenarios resulting in four modeling runs (attached). Outfall 003, Outfall 004, and Outfall 007 were modeled separately to determine maximum allowable loading limits and concentration limits at their current design flows. A separate modeling run was done using the cumulative design flows from all three of these outfalls to determine allowable loading limits if theoretically there was just one discharge point. Please note that Outfall 006 was not modeled as it is solely a small treated sewage discharge which is not expected to have high concentrations of pollutants of concern, nor were the stormwater outfalls (015, 016, 017, and 029) which would only discharge in storm events when theoretically, stream flows would be much higher than low flow conditions that modeling is conducted under and instream concentrations of these pollutants would be expected to be less. Below is a summary of the TMS results:

		Avg Monthly (lbs/day)	Daily Max (lbs/day)	Avg Monthly (mg/l)	Daily Max (mg/l)	lbs/yr (based on average monthly loading * 365)	
Combi	l ned (003,004,						
Al		46	71.8	1.22	1.9	16,790	
Fe		559	872	14.8	23.1	204,035	
Mn		476	742	12.6	19.6	173,740	
Outfall	003						
Al		39.3	61.3	1.6	2.5	14,344	

Fe		538	840	22.2	34.7	196,370	
Mn		458	714	18.9	29.5	167,170	
Outfall	004						
Al		32.6	50.9	3	4.6	11,899	
Fe		518	809	47.8	74.6	189,070	
Mn		441	687	40.6	63.3	160,965	
Outfall	007						
Al		28.6	44.6	11.4	17.7	10,439	
Fe		512	799	204	319	186,880	
Mn		432	674	172	269	157,680	

As can be seen by the TMS results summary, if all the process discharges were discharged through one outfall pipe in theory, the assimilative capacity of the receiving stream can handle additional loadings of all WLA pollutants, especially total iron and total manganese, beyond the aggregated WLAs for all outfalls facility-wide without exceeding instream water quality criteria. This scenario is just for demonstration though, as no changes are being planned to plant operations.

The results of TMS modeling at Outfalls 003, 004, and 007 using their respective current design flows shows slight less allowance of additional loadings for all pollutants, with just total aluminum at Outfall 007 being slightly below the aggregated facility wide WLA of 10,667 mg/l. By observation, the smaller calculated loadings at individual outfalls can be attributed to their respective design flows, with the lesser design flows not allowing for as high a pollutant loading and at the same time allowing for a higher concentration to be discharged.

It is not expected that localized impairments would occur as a result of aggregating assigned WLAs for the Outfalls due to no operational changes being planned at the site. So, while some outfalls may discharge more than their originally assigned WLA for a pollutant or pollutants, the facility would need additional allocation at their respective outfalls, so no localized impairment should occur based on toxic modeling. No additional safeguards such as concentration limits are being recommended with the proposed aggregation of WLAs.

Monitoring Point 001 will be established in the proposed permit amendment for reporting of aggregated WLAs as lbs/year. No other changes to the permit are being proposed as part of this permit amendment.

#### **Anti-Backsliding**

The Department does not consider this action to be backsliding because WLAs are not being removed from the facility, just aggregated as facility wide WLAs. In the event this action is considered backsliding because a larger WLA could be discharged at an individual outfall, anti-backsliding provisions are being met under CWA section 303(d)(4)(A) because the effluent limitation(s) are based on a TMDL and attainment of water quality standards will be met, as demonstrated from toxics modeling.

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Monitoring Point 001, Effective Period: Permit Effective Date through Permit Expiration Date.

		Effluent Limitations							
Parameter	Mass Units	Mass Units (lbs/day) (1)		Concentrat	Minimum (2)	Required			
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum	Measurement Frequency	Sample Type	
Total Aluminum (lbs/year)		10,667							
Special Effluent Gross	XXX	Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation	
Total Iron (lbs/year)		21,334							
Special Effluent Gross	XXX	Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation	
Total Manganese (lbs/year)		14,224							
Special Effluent Gross	XXX	Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation	

Compliance Sampling Location: Monitoring Point 001

Other Comments: The loading limits for total aluminum, total iron, and total manganese on At Monitoring Point 001 on Page 2 of this permit are aggregate, facility-wide limits applicable to the combination of total discharges for total aluminum, total iron, and total manganese from Outfalls 003, 004, 006, 007, 015, 016, 017, and 029.

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

#### Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	(lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum <sup>(2)</sup>	Required
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	1.0	XXX	1/week	Grab
Free Available Chlorine	XXX	XXX	XXX	0.2	0.5	XXX	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	XXX	1/day	I-S
TSS	XXX	XXX	XXX	30.0	100.0	XXX	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15.0	20.0	XXX	1/week	Grab
Sulfate	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Bromide	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloroform	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Aluminum (lbs/mo)	XXX	Report Total Mo	XXX	1.1	2.2	XXX	1/week	Grab
Total Iron (lbs/mo)	XXX	Report Total Mo	XXX	1.7	3.4	XXX	1/week	Grab

#### Outfall 003, Continued (from Permit Effective Date through Permit Expiration Date)

		Monitoring Requirements						
Parameter	Mass Units (lbs/day) (1)			Concentrat	Minimum <sup>(2)</sup>	Required		
raiametei	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
		Report						
Total Manganese (lbs/mo)	XXX	Total Mo	XXX	1.6	3.2	XXX	1/week	Grab
		Report		Report				
Total Aluminum (lbs/year)	XXX	Total Annual	XXX	Anni Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Iron (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation
·		Report		Report				
Total Manganese (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

#### Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	(lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum <sup>(2)</sup>	Required
raiametei	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	1.0	XXX	1/week	Grab
Free Available Chlorine	XXX	XXX	XXX	0.2	0.5	XXX	1/week	Grab
Temperature (°F)	XXX	XXX	XXX	XXX	110	XXX	1/day	I-S
TSS	XXX	XXX	XXX	30.0	100.0	XXX	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Oil and Grease	XXX	XXX	XXX	15.0	20.0	XXX	1/week	Grab
Sulfate	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Bromide	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Chloroform	XXX	XXX	XXX	Report	Report	XXX	1/week	Grab
Total Aluminum (lbs/mo)	XXX	Report Total Mo	XXX	Report	Report	XXX	1/week	Grab
Total Iron (lbs/mo)	XXX	Report Total Mo	XXX	1.7	3.4	XXX	1/week	Grab
Total Manganese (lbs/mo)	XXX	Report Total Mo	XXX	1.6	3.2	XXX	1/week	Grab

#### Outfall 004, Continued (from Permit Effective Date through Permit Expiration Date)

		Monitoring Requirements						
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentrat	Minimum <sup>(2)</sup>	Required		
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
		Report		Report				
Total Aluminum (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Iron (lbs/year)	XXX	Total Annual	XXX	Anni Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Manganese (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

#### Outfall 006, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Unit	s (lbs/day) <sup>(1)</sup>		Concentrat		Minimum <sup>(2)</sup>	Required	
r ai ainetei	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	Daily when Discharging	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.5	1.6	XXX	Daily when Discharging	Grab
CBOD5	xxx	XXX	XXX	25.0	50.0	XXX	2/month	Grab
TSS	XXX	XXX	XXX	30.0	60.0	XXX	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000	10000	XXX	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200	1000	XXX	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Chloroform	XXX	XXX	XXX	Report	Report	XXX	2/month	Grab
Total Aluminum (lbs/mo)	XXX	Report Total Mo	XXX	Report	Report	XXX	2/month	Grab
Total Iron (lbs/mo)	XXX	Report Total Mo	XXX	Report	Report	XXX	2/month	Grab
Total Manganese (lbs/mo)	XXX	Report Total Mo	XXX	Report	Report	XXX	2/month	Grab
Total Aluminum (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation

#### Outfall 006, Continued (from Permit Effective Date through Permit Expiration Date)

		Monitoring Requirements						
Parameter	Mass Units (lbs/day) (1)			Concentrat	Minimum <sup>(2)</sup>	Required		
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
		Report		Report				
Total Iron (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Manganese (lbs/year)	XXX	Total Annual	XXX	Anni Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

#### Outfall 007, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	(lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum <sup>(2)</sup>	Required
Faranietei	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
Flow (MGD)	Кероп	Dally Max	6.0	^^^	^^^	^^^	Continuous	Recolued
pH (S.U.)	xxx	XXX	Daily Min	XXX	9.0	XXX	Continuous	Recorded
Temperature (°F)	xxx	XXX	XXX	XXX	110	XXX	1/day	I-S
TSS	xxx	XXX	XXX	30.0	100.0	XXX	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	40000.0	80000.0	100000	1/week	24-Hr Composite
Oil and Grease	XXX	XXX	XXX	15.0	20.0	XXX	1/week	Grab
Nitrate-Nitrite	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Arsenic	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Total Beryllium	XXX	XXX	XXX	0.008	0.016	0.02	1/week	24-Hr Composite
Total Boron	XXX	XXX	XXX	100.0	200.0	250	1/week	24-Hr Composite
								24-Hr
Total Copper	XXX	XXX	XXX	0.045	0.09	0.113	1/week	Composite
Total Lead	XXX	XXX	XXX	0.1	0.2	0.25	1/week	24-Hr Composite
Total Mercury	xxx	XXX	XXX	0.003	0.006	0.008	1/week	24-Hr Composite
Total Selenium	XXX	XXX	XXX	0.25	0.5	0.63	1/week	24-Hr Composite

Outfall 007, Continued (from Permit Effective Date through Permit Expiration Date)

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentra	tions (mg/L)		Minimum (2)	Required
Parameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
								24-Hr
Sulfate	XXX	XXX	XXX	Report	Report	XXX	1/week	Composite
								24-Hr
Chloride	XXX	XXX	XXX	Report	Report	XXX	1/week	Composite
								24-Hr
Bromide	XXX	XXX	XXX	Report	Report	XXX	1/week	Composite
								24-Hr
Chloroform	XXX	XXX	XXX	Report	Report	XXX	1/week	Composite
		Report						24-Hr
Total Aluminum (lbs/mo)	XXX	Total Mo	XXX	Report	Report	XXX	1/week	Composite
		Report						24-Hr
Total Iron (lbs/mo)	XXX	Total Mo	XXX	1.7	3.4	XXX	1/week	Composite
		Report						24-Hr
Total Manganese (lbs/mo)	XXX	Total Mo	XXX	1.6	3.2	XXX	1/week	Composite
		Report		Report				
Total Aluminum (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Iron (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation
		Report		Report				
Total Manganese (lbs/year)	XXX	Total Annual	XXX	Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 012, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	(lbs/day) <sup>(1)</sup>		Concentrat	ions (mg/L)		Minimum (2)	Required
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Calculation
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	2/month	Grab
TRC	XXX	XXX	XXX	1.4	3.3	XXX	2/month	Grab
CBOD5	XXX	XXX	XXX	25.0	50.0	XXX	2/month	Grab
TSS	XXX	XXX	XXX	30.0	60.0	XXX	2/month	Grab

Compliance Sampling Location: Internal Monitoring Point 112

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 015, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations.			Monitoring Re	quirements
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum (2)	Required
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Flow (M Gal)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/6 months	Estimate
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Iron (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Manganese (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 016, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentrat	ions (mg/L)		Minimum (2)	Required
Parameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Flow (M Gal)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/6 months	Calculation
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Iron (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Manganese (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

#### Outfall 017, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations			Monitoring Re	quirements
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum (2)	Required
Farameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Flow (M Gal)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/6 months	Calculation
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Iron (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Manganese (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 029, Effective Period: Permit Effective Date through Permit Expiration Date.

			Effluent L	imitations.			Monitoring Re	quirements
Parameter	Mass Units	s (lbs/day) <sup>(1)</sup>		Concentrat	tions (mg/L)		Minimum (2)	Required
Parameter	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Measurement Frequency	Sample Type
Total Flow (M Gal)	XXX	Report Daily Max	XXX	XXX	XXX	XXX	1/6 months	Calculation
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Manganese	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Iron (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation
Total Manganese (lbs/year)	XXX	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Calculation



Toxics Management Spreadsheet Version 1.3, March 2021

### **Discharge Information**

Facility: Conemaugh Generating Station

NPDES Permit No.: PA0005011

Outfall No.: 003

Evaluation Type: Major Sewage / Industrial Waste

Wastewater Description: IW/SEW/SW

			Discharge	Characterist	tics			
Design Flow	esign Flow	-U (CU)*	F	Partial Mix Fa	Complete Mix	Complete Mix Times (min)		
(MGD)*	Hardness (mg/l)*	pH (SU)*	AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
4.52	300	7				4-		

					0 if lef	t blank	0.5 if le	eft blank	0	if left blan	k	1 if left	t blank
	Discharge Pollutant	Units	Ма	x Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	
	Total Dissolved Solids (PWS)	mg/L								)			
7	Chloride (PWS)	mg/L		ĺ									
Ιā	Bromide	mg/L											
Group	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L		i i									
	Total Aluminum	μg/L		1000000		240			0.21				
	Total Antimony	μg/L											
	Total Arsenic	μg/L					7						
	Total Barium	μg/L											
	Total Beryllium	μg/L		Ĭ		1							
	Total Boron	μg/L											
	Total Cadmium	μg/L											
	Total Chromium (III)	μg/L											
	Hexavalent Chromium	μg/L											
1	Total Cobalt	µg/L											
	Total Copper	μg/L											
2	Free Cyanide	μg/L											
μŽ	Total Cyanide	μg/L		Ĵ									
Group	Dissolved Iron	μg/L						/ ·					
-	Total Iron	µg/L		1000000		890			0.13				
1	Total Lead	µg/L											
	Total Manganese	µg/L		1000000		260			0.19				
	Total Mercury	μg/L											
	Total Nickel	μg/L											
	Total Phenois (Phenolics) (PWS)	μg/L											
1	Total Selenium	μg/L					<u>L</u>						
1	Total Silver	µg/L											
	Total Thallium	μg/L											
1	Total Zinc	μg/L											
	Total Molybdenum	μg/L											
	Acrolein	μg/L	<										
	Acrylamide	μg/L	<										
	Acrylonitrile	µg/L	<										
1	Benzene	μg/L	<										
1	Bromoform	μg/L	<										
L	Carbon Tetrachloride	μg/L	<										

9	Chlorobenzene	µg/L						
	Chlorodibromomethane	µg/L	<					
3	Chloroethane	µg/L	<					
	2-Chloroethyl Vinyl Ether	µg/L	<					
	Chloroform	µg/L	<					
	Dichlorobromomethane	µg/L	<					
	1,1-Dichloroethane	µg/L	<				-	
_ 8			<					
3	1,2-Dichloroethane	μg/L	_					
-	1,1-Dichloroethylene	µg/L	<					
5	1,2-Dichloropropane	μg/L	<					
	1,3-Dichloropropylene	μg/L	<					
8	1,4-Dioxane	µg/L	<					
9	Ethylbenzene	μg/L	<					
	Methyl Bromide	μg/L	<					
	Methyl Chloride	μg/L	<					
	Methylene Chloride	μg/L	<					
	1,1,2,2-Tetrachloroethane	μg/L	<					
3	Tetrachloroethylene	μg/L	<					
	Toluene	µg/L	<					
3	1,2-trans-Dichloroethylene	µg/L	<					
3	1,1,1-Trichloroethane	µg/L	<					
- 8	1.1.2-Trichloroethane	µg/L	<					
- 0	Trichloroethylene	µg/L	<					
	Vinyl Chloride		<					
-	and the second s	μg/L	<					
	2-Chlorophenol	μg/L	-					
3	2,4-Dichlorophenol	μg/L	<					
9	2,4-Dimethylphenol	μg/L	<					
200	4,6-Dinitro-o-Cresol	μg/L	<					
р 4	2,4-Dinitrophenol	μg/L	<					
Group	2-Nitrophenol	μg/L	<					
້	4-Nitrophenol	μg/L	<					
	p-Chloro-m-Cresol	μg/L	<					
	Pentachlorophenol	μg/L	<					
	Phenol	μg/L	<					
	2,4,6-Trichlorophenol	μg/L	<					
	Acenaphthene	μg/L	<					
3	Acenaphthylene	µg/L	<					
	Anthracene	µg/L	<					
1	Benzidine	µg/L	<					
3	Benzo(a)Anthracene	µg/L	<					
3	Benzo(a)Pyrene	µg/L	<					
3	3.4-Benzofluoranthene		<					
1		μg/L	<					
3	Benzo(ghi)Perylene	μg/L	-					
3	Benzo(k)Fluoranthene	μg/L	<					
	Bis(2-Chloroethoxy)Methane	μg/L	<					
- 8	Bis(2-Chloroethyl)Ether	μg/L	<					
	Bis(2-Chloroisopropyl)Ether	μg/L	<					
	Bis(2-Ethylhexyl)Phthalate	μg/L	<					
3	4-Bromophenyl Phenyl Ether	μg/L	<					
	Butyl Benzyl Phthalate	μg/L	<					
	2-Chloronaphthalene	μg/L	<					
	4-Chlorophenyl Phenyl Ether	μg/L	<					
9	Chrysene	μg/L	<					
	Dibenzo(a,h)Anthrancene	µg/L	<					
1100	1,2-Dichlorobenzene	µg/L	<					
	1,3-Dichlorobenzene	µg/L	<					
	1,4-Dichlorobenzene	µg/L	<					
	1, 1 Didition obotization	µg/L	<					
р 5	3.3-Dichlorobenzidine		(7)					
onb 2	3,3-Dichlorobenzidine		$\rightarrow$					COLUMN TO SECURE A SE
roup	Diethyl Phthalate	μg/L	<					
Group	Diethyl Phthalate Dimethyl Phthalate	μg/L μg/L	< <					
Group	Diethyl Phthalate	μg/L	<					

- 1	Di-n-Octyl Phthalate	µg/L	<						
-	1,2-Diphenylhydrazine	μg/L	<						
- 1-	Fluoranthene	µg/L	<						
- 1-	Fluorene	µg/L	<						
- 1-	Hexachlorobenzene	µg/L	<						
- 1-	Hexachlorobutadiene	µg/L	<						
- 1-			<						
-	Hexachlorocyclopentadiene	μg/L	-				<u> </u>		
- 1-	Hexachloroethane	μg/L	<						
-	Indeno(1,2,3-cd)Pyrene	μg/L	<						
-	Isophorone	μg/L	<						
- 1	Naphthalene	μg/L	<						
- 1	Nitrobenzene	μg/L	<						
1	n-Nitrosodimethylamine	μg/L	<						
I	n-Nitrosodi-n-Propylamine	μg/L	<						
ſ	n-Nitrosodiphenylamine	µg/L	<						
-	Phenanthrene	µg/L	<						
- 1	Pyrene	µg/L	<						
	1,2,4-Trichlorobenzene	µg/L	<						
-	Aldrin	µg/L	<						
- 1-	alpha-BHC	µg/L	<						
- 14	beta-BHC		<						
-	Carried Color Colo	μg/L	_						
- 14	gamma-BHC	μg/L	<						
- 1-	delta BHC	μg/L	<						
- 1-	Chlordane	μg/L	<						
-	4,4-DDT	μg/L	<						
- 1	4,4-DDE	μg/L	<						
Γ	4,4-DDD	μg/L	<						
Γ	Dieldrin	μg/L	<						
ı	alpha-Endosulfan	µg/L	<						
- 1-	beta-Endosulfan	μg/L	<						
ı	Endosulfan Sulfate	µg/L	<						
	Endrin	µg/L	<						
ŀ	Endrin Aldehyde	µg/L	<						
- 1		µg/L	<						
- 1	Heptachlor English		<				_		
-	Heptachlor Epoxide	μg/L	-						
- 1-	PCB-1016	μg/L	<						
	PCB-1221	μg/L	<						
-	PCB-1232	μg/L	<						
-	PCB-1242	μg/L	<						
ı	PCB-1248	μg/L	<						
1	PCB-1254	μg/L	<						
ſ	PCB-1260	μg/L	<						
ı	PCBs, Total	μg/L	<						
	Toxaphene	μg/L	<						
	2,3,7,8-TCDD	ng/L	<						
_	Gross Alpha	pCi/L							
1	Total Beta	pCi/L	<						
			<						
	Radium 226/228	pCi/L	_						
ŀ	Total Strontium	μg/L	<						
ŀ	Total Uranium	μg/L	<						
1	Osmotic Pressure	mOs/kg							
1									
ſ									
1									
t									
ŀ		1							
ŀ							- 6		
		1							1
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Toxics Management Spreadsheet Version 1.3, March 2021

#### Stream / Surface Water Information

Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003

Receiving Surface \	Water Name:	Conemau	gh River				No. Rea	aches to Mo	del:	1		tewide Criteri			
Location	Stream Co	de* RN	Eleva (ft)		A (mi²)*	Slope (ft/ft)	1 7 7 7 7 7 7	Withdrawal MGD)	Apply Criter		SEE 1918 SP	SANCO Crite			
Point of Discharge	043832	6			738.1	0.001			Ye	5					
End of Reach 1	043832	C	74	6	11200			1	Ye	5					
2 <sub>7-10</sub> Location	RMI	LFY	Flo	w (cfs)	- W	//D   Width	Depth	Velocit	rraver Time	Tribu	tary	Strea	m	Analys	sis
TE (15 20 20 20 1)	10000000	(cfs/mi <sup>2</sup> )*	Stream	Tribut		itio (ft)	(ft)	y (fps)	(days)	Hardness	рH	Hardness*	рН*	Hardness	рH
Point of Discharge	65	0.2069										243	7		
End of Reach 1		0.2069			COUNTY OF						un reserverence				

**☑** THH



Toxics Management Spreadsheet Version 1.3, March 2021

#### Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003 **Model Results** RETURN TO INPUTS SAVE AS PDF PRINT All O Inputs O Results O Limits nstruction Results ☑ Hydrodynamics Q 7-10 PWS Withdrawal Net Stream Stream Discharge Analysis Velocity Complete Mix Time RMI Slope (ft/ft) Depth (ft) Width (ft) W/D Ratio Time Flow (cfs) (cfs) Flow (cfs) Flow (cfs) (fps) (min) 0.001 204.116 1393.671 152.71 152.71 6.992 1.12 182.3 5.684 65 0.699 1.547 2390.00 2388 453 0 Q, Stream PWS Withdrawal Net Stream Discharge Analysis Complete Mix Time Velocity RMI Slope (ft/ft) Depth (ft) Width (ft) W/D Ratio Time Flow (cfs) (cfs) Flow (cfs) Flow (cfs) (fps) 2.686 602.14 602.14 6.992 0.001 2.018 204.116 101.152 1.479 615.604 65 1.547 6663.595 6662.05 ✓ Wasteload Allocations ☑ AFC CCT (min): 15 PMF: 0.104 Analysis Hardness (mg/l): 260.45 Analysis pH: 7.00 Trib Conc WQC WQ Obj Fate Stream WLA (µg/L) Pollutants Conc Comments CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 240 0.21 ٥ 1,906 890 0.13 0 N/A N/A N/A Total Iron Total Manganese 260 0.19 N/A ☑ CFC CCT (min): 720 PMF: 0.719 Analysis Hardness (mg/l): 246.41 Analysis pH: 7.00 WQ Obj WOC Stream Trib Conc Fate Pollutants Conc WLA (µg/L Comments CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 240 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 1,500 1,500 14,822 WQC = 30 day average; PMF = 1 Total Manganese 260 0.19 N/A N/A N/A

Analysis Hardness (mg/l):

N/A

Analysis pH:

N/A PWS PMF:

CCT (min): 720 THH PMF: 0.719

Pollutants	Conc	Stream CV	Trib Conc (μg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	240	0.21		0	N/A	N/A	N/A	
Total Iron	890	0.13		0	N/A	N/A	N/A	
Total Manganese	260	0.19		0	1,000	1,000	12,616	

 ✓ CRL
 CCT (min):
 ######
 PMF:
 1
 Analysis Hardness (mg/l):
 N/A
 Analysis pH:
 N/A

Pollutants	Conc	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Aluminum	240	0.21	700000000000000000000000000000000000000	0	N/A	N/A	N/A	
Total Iron	890	0.13		0	N/A	N/A	N/A	
Total Manganese	260	0.19		0	N/A	N/A	N/A	

✓ Recommended WQBELs & Monitoring Requirements

No. Samples/Month: 4

	Mass	Limits		Concentra	tion Limits				
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	46.0	71.8	1,221	1,906	3,053	μg/L	1,221	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	559	872	14,822	23,125	37,056	μg/L	14,822	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	476	742	12,616	19,683	31,541	µg/L	12,616	THH	Discharge Conc ≥ 50% WQBEL (RP)

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
	81 IO 91	4	a de la companya de
		-	9

Model Results 10/17/2022 Page 6



## **Discharge Information**

Instructions Dis-	charge Stream		
Facility: Cone	maugh Generating Station	NPDES Permit No.: PA0005011	Outfall No.: 003
Evaluation Type	Major Sewage / Industrial Waste	Wastewater Description: IW/SEW/SW	

			Discharge	Characterist	tics			
Design Flow	Handara for a first	-U (CU)*	F	Partial Mix Fa	Complete Mix Times (min			
(MGD)*	Hardness (mg/l)*	pH (SU)*	AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
2.9	1870	7						

					0 if lef	blank	0.5 if le	eft blank	0	if left blan	k	1 if left	t blank
	Discharge Pollutant	Units	Ma	x Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	
	Total Dissolved Solids (PWS)	mg/L								)			
7	Chloride (PWS)	mg/L											
Ιā	Bromide	mg/L											
Group	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L					į.						
	Total Aluminum	μg/L		1000000		240	Į.		0.21				
	Total Antimony	μg/L											
	Total Arsenic	μg/L					7						
	Total Barium	μg/L											
	Total Beryllium	μg/L		Ĭ.									
	Total Boron	μg/L											
	Total Cadmium	μg/L											
	Total Chromium (III)	μg/L											
	Hexavalent Chromium	μg/L											
1	Total Cobalt	µg/L											
	Total Copper	μg/L											
2	Free Cyanide	μg/L											
μŽ	Total Cyanide	μg/L		1									
Group	Dissolved Iron	μg/L						/ ·					
-	Total Iron	µg/L		1000000		890			0.13				
1	Total Lead	µg/L											
	Total Manganese	µg/L		1000000		260			0.19				
	Total Mercury	μg/L											
	Total Nickel	μg/L											
	Total Phenols (Phenolics) (PWS)	μg/L											
1	Total Selenium	μg/L					1						
1	Total Silver	µg/L											
	Total Thallium	μg/L											
1	Total Zinc	μg/L											
	Total Molybdenum	μg/L											
	Acrolein	μg/L	<										
	Acrylamide	μg/L	<										
	Acrylonitrile	μg/L	<										
1	Benzene	μg/L	<										
1	Bromoform	μg/L	<										
L	Carbon Tetrachloride	μg/L	<										

	Chlorobenzene	uall						
		μg/L						
	Chlorodibromomethane	μg/L	<			<u> </u>		
	Chloroethane	μg/L	<					
	2-Chloroethyl Vinyl Ether	μg/L	<					
	Chloroform	μg/L	<					
	Dichlorobromomethane	μg/L	<					
	1,1-Dichloroethane	μg/L	<					
3	1,2-Dichloroethane	μg/L	<					
Group	1,1-Dichloroethylene	µg/L	<					
ĕ	1,2-Dichloropropane	µg/L	<					
Ö	1,3-Dichloropropylene	µg/L	<					
	1,4-Dioxane	µg/L	<					
	Ethylbenzene	µg/L	<	-				
	Methyl Bromide	µg/L	<					
	Methyl Chloride	µg/L	<		-	<b>-</b>		
	Methylene Chloride	μg/L	<					
	1,1,2,2-Tetrachloroethane	μg/L	<		_			
	Tetrachloroethylene	μg/L	<					
	Toluene	μg/L	<					
	1,2-trans-Dichloroethylene	μg/L	<					
	1,1,1-Trichloroethane	µg/L	<					
	1,1,2-Trichloroethane	μg/L	<					
	Trichloroethylene	μg/L	<					
	Vinyl Chloride	μg/L	<					
	2-Chlorophenol	μg/L	<					
	2,4-Dichlorophenol	µg/L	<					
	2,4-Dimethylphenol	μg/L	<	9				
	4.6-Dinitro-o-Cresol	μg/L	<					
4	2,4-Dinitrophenol	µg/L	<					
Group	2-Nitrophenol	µg/L	<					
2	4-Nitrophenol	µg/L	<					
O	p-Chloro-m-Cresol	_						
	• Company of the Comp	μg/L	<					
	Pentachlorophenol	μg/L	<					
	Phenol	μg/L	<					
	2,4,6-Trichlorophenol	μg/L	<					
	Acenaphthene	μg/L	<					
	Acenaphthylene	μg/L	<					
	Anthracene	μg/L	<					
	Benzidine	μg/L	<					
	Benzo(a)Anthracene	μg/L	<					
	Benzo(a)Pyrene	μg/L	<					
	3,4-Benzofluoranthene	μg/L	<					
	Benzo(ghi)Perylene	μg/L	<					
	Benzo(k)Fluoranthene	μg/L	<					
	Bis(2-Chloroethoxy)Methane	μg/L	<					
	Bis(2-Chloroethyl)Ether	µg/L	<					
	Bis(2-Chloroisopropyl)Ether	µg/L	<					
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	-				
			<					
	4-Bromophenyl Phenyl Ether	μg/L	_					
	Butyl Benzyl Phthalate	μg/L	<					
	2-Chloronaphthalene	μg/L	<					
	4-Chlorophenyl Phenyl Ether	μg/L	<					
	Chrysene	μg/L	<					
	Dibenzo(a,h)Anthrancene	µg/L	<					
	1,2-Dichlorobenzene	μg/L	<					
	1,3-Dichlorobenzene	μg/L	<					
2	1,4-Dichlorobenzene	μg/L	<					
9	3,3-Dichlorobenzidine	μg/L	<					
Group	Diethyl Phthalate	µg/L	<	9				
O	Dimethyl Phthalate	μg/L	<		4			
	Di-n-Butyl Phthalate	μg/L	<					
			_	 22			 _	ECO E-E-E-E-E-E-E-E-E-E-E-E-E-E-E-E-E-E-E-
	2,4-Dinitrotoluene	μg/L	<					

	Di-n-Octyl Phthalate	µg/L	<						
	1,2-Diphenylhydrazine	µg/L	<					,	
	Fluoranthene	µg/L	<						
	Fluorene	µg/L	<						
1	Hexachlorobenzene	µg/L	<						
1	Hexachlorobutadiene	µg/L	<						
1	Hexachlorocyclopentadiene	µg/L	<						
	Hexachloroethane	µg/L	<						
- 1			<						
	Indeno(1,2,3-cd)Pyrene	μg/L							
1	Isophorone	μg/L	<						
- 1	Naphthalene	μg/L	<						
- 1	Nitrobenzene	μg/L	<						
- 1	n-Nitrosodimethylamine	μg/L	<						
- 1	n-Nitrosodi-n-Propylamine	μg/L	<						
	n-Nitrosodiphenylamine	µg/L	<						
	Phenanthrene	μg/L	<						
	Pyrene	μg/L	<						
	1,2,4-Trichlorobenzene	μg/L	<						
7	Aldrin	μg/L	<						
-	alpha-BHC	μg/L	<						
	beta-BHC	µg/L	<						
- 1	gamma-BHC	µg/L	<						
- 1	delta BHC	µg/L	<						
	Chlordane	µg/L	<						
1	4.4-DDT	µg/L	<						
- 1	4,4-DDE	µg/L	<						
- 1	4.4-DDD	µg/L	<						
- 1	Dieldrin		<						
	A00000 C 1917 A 1000 C	µg/L	_						
- 1	alpha-Endosulfan	µg/L	<						
200	beta-Endosulfan	μg/L	<						
	Endosulfan Sulfate	μg/L	<						
	Endrin	μg/L	<						
)	Endrin Aldehyde	μg/L	<						
J	Heptachlor	μg/L	<						
	Heptachlor Epoxide	µg/L	<						
	PCB-1016	μg/L	<						
	PCB-1221	μg/L	<						
	PCB-1232	μg/L	<						
	PCB-1242	μg/L	<						
	PCB-1248	μg/L	<						
	PCB-1254	μg/L	<						
1	PCB-1260	μg/L	<						
1	PCBs, Total	µg/L	<						
	Toxaphene	µg/L	<						
	2,3,7,8-TCDD	ng/L	<						
_	Gross Alpha	pCi/L							
1	Total Beta	pCi/L	<						
	Radium 226/228	pCi/L	<						
	Total Strontium	µg/L	<						
5			_						
	Total Uranium	µg/L	<						
-	Osmotic Pressure	mOs/kg							
		4							
1									
						*			
- 1									



#### Stream / Surface Water Information

Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003

Receiving Surface V	/ater Name:	Conemaug	h River				No. Re	aches to Mo	odel:	1		tewide Criter			
Location	Stream Code	e* RM	Eleva	DA /	mi²)*	Slope (ft/ft)	100000	Withdrawal MGD)	Apply Crite		SEC. 1933.59	eat Lakes Crit SANCO Crite			
Point of Discharge	043832	65	105	3 73	38	0.001			Υe	s					
End of Reach 1	043832	0	746	3 112	200				Υe	es					
Q <sub>7-10</sub>	RMI	LFY	Flov	v (cfs)	_ W			Velocit	Time	Tribi	ıtary	Strea	m	Analys	sis
								or (frame)	111110	I I	Ha	Hardness*	pH*	Hardness	pH
Location	1355000	(cfs/mi <sup>2</sup> )*	Stream	Tributary	Ra	tio (ft)	(ft)	y (fps)	(daye)	Hardnes			b	Haraness	М
TESTS (1988)	65	(cfs/mi <sup>2</sup> )* 0.2069	Stream			tio (ft)	(11)	y (ips)	(daye)			243	7	Haraness	Pi
TESTS (1988)	1355000		Stream 2390			tio (ft)	(π)	y (ips)	(dave)	The state of the s			7	Tidianess	рі
Point of Discharge End of Reach 1	65	0.2069				tio (tt)	(11)	y (ips)	(dave)			243	7	Paraness	Ы
Point of Discharge End of Reach 1	65	0.2069	2390						Traver			243	7	Analys	
Point of Discharge End of Reach 1	65	0.2069 0.2069 LFY	2390		w.	/D Width	Depth	Velocit	Traver Time		itary	243 100	7		
Point of Discharge End of Reach 1	65 0	0.2069 0.2069	2390 Flov	v (cfs)	W. Ra	/D Width	Depth		Traver	Tribi	itary s pH	243 100 Strea	7 7 m	Analys	sis



#### Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003 **Model Results** RETURN TO INPUTS SAVE AS PDF PRINT Results All O Inputs O Results O Limits nstruction Hydrodynamics ☑ Wasteload Allocations ☑ AFC CCT (min): 15 PMF: 0.103 604.7 Analysis Hardness (mg/l): Analysis pH: 7.00 WQC WQ Obj Trib Conc Stream Fate Pollutants Conc WLA (µg/L Comments Coef CV (µg/L) 750 (µg/L) 240 Total Aluminum 0.21 0 2,534 890 0.13 Total Iron N/A N/A N/A Total Manganese 260 0.19 0 N/A N/A N/A ☑ CFC CCT (min): 720 PMF: 0.712 Analysis Hardness (mg/l): 307.47 Analysis pH: 7.00 Stream Trib Conc Fate WQC WQ Obj Pollutants WLA (µg/L) Comments Conc CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 1,500 1,500 22,261 WQC = 30 day average; PMF = 1 Total Manganese 260 0.19 0 N/A N/A N/A ☑ THH CCT (min): 720 PMF: 0.712 N/A Analysis pH: N/A Analysis Hardness (mg/l): Trib Conc WQC WQ Obj Stream Fate WLA (µg/L) Pollutants Comments Conc CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 240 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 N/A N/A N/A Total Manganese 260 0.19 0 1.000 1.000 18.935 ☑ CRL CCT (min): ###### N/A N/A PMF: 1 Analysis Hardness (mg/l): Analysis pH: Trib Conc WQC WQ Obj Stream Fate WLA (µg/L) Pollutants Conc Comments

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(µg/L)

N/A

(µg/L)

N/A

CV

0.21

240

Total Aluminum

(µg/L)

Coef

# NPDES Permit Fact Sheet Conemaugh Power Plant

ſ	Total Iron	890	0.13	//////////////////////////////////////	0	N/A	N/A	N/A	
ा	Total Manganese	260	0.19		0	N/A	N/A	N/A	

#### ☑ Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

4

	Mass	Limits		Concentration Limits					
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	39.3	61.3	1,624	2,534	4,061	µg/L	1,624	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	538	840	22,261	34,731	55,654	μg/L	22,261	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	458	714	18,935	29,541	47,336	μg/L	18,935	THH	Discharge Conc ≥ 50% WQBEL (RP)

#### ☑ Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments

Model Results 10/17/2022 Page 6



## **Discharge Information**

Instructions Dis	charge Stream		
Facility: Cone	maugh Generating Station	NPDES Permit No.: PA0005011	Outfall No.: 003
Evaluation Type:	Major Sewage / Industrial Waste	Wastewater Description: IW/SEW/SW	

100	See	,	Discharge	Characterist	tics		540	
Design Flow	Handres a for a fixt	-U (CU)*	F	artial Mix Fa	s)	Complete Mix Times (min)		
(MGD)*	Hardness (mg/l)*	pH (SU)*	AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
1.3	100	7						

					0 if lef	blank	0.5 if le	eft blank	0	if left blan	k	1 if left	t blank
	Discharge Pollutant	Units	Ma	x Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	
	Total Dissolved Solids (PWS)	mg/L								)			
7	Chloride (PWS)	mg/L											
Ιā	Bromide	mg/L											
Group	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L					į.						
	Total Aluminum	μg/L		1000000		240	Į.		0.21				
	Total Antimony	μg/L											
	Total Arsenic	μg/L					7						
	Total Barium	μg/L											
	Total Beryllium	μg/L		Ĭ.									
	Total Boron	μg/L											
	Total Cadmium	μg/L											
	Total Chromium (III)	μg/L											
	Hexavalent Chromium	μg/L											
1	Total Cobalt	µg/L											
	Total Copper	μg/L											
2	Free Cyanide	μg/L											
μŽ	Total Cyanide	μg/L		1									
Group	Dissolved Iron	μg/L						/ ·					
-	Total Iron	µg/L		1000000		890			0.13				
1	Total Lead	µg/L											
	Total Manganese	µg/L		1000000		260			0.19				
	Total Mercury	μg/L											
	Total Nickel	μg/L											
	Total Phenols (Phenolics) (PWS)	μg/L											
1	Total Selenium	μg/L					2						
1	Total Silver	µg/L											
	Total Thallium	μg/L											
L	Total Zinc	μg/L											
	Total Molybdenum	μg/L											
	Acrolein	μg/L	<										
	Acrylamide	μg/L	<										
	Acrylonitrile	μg/L	<										
1	Benzene	μg/L	<										
1	Bromoform	μg/L	<										
L	Carbon Tetrachloride	μg/L	<										

60 5		_		r e				_		**************
9	Chlorobenzene	µg/L								
١.	Chlorodibromomethane	μg/L	<						1	
	Chloroethane	μg/L	<							
	2-Chloroethyl Vinyl Ether	µg/L	<							
	Chloroform	μg/L	<							
	Dichlorobromomethane	µg/L	<							
	1,1-Dichloroethane	µg/L	<	-						
8	1,2-Dichloroethane	µg/L	<							
	1,1-Dichloroethylene	µg/L	<							
Group	1,2-Dichloropropane	µg/L	<							
G	1,3-Dichloropropylene	µg/L	<							
	1.4-Dioxane									
	Ch. A. Martine Philosophia (Ch. A. Martine)	µg/L	<							
1	Ethylbenzene	μg/L	<							
	Methyl Bromide	µg/L	<							
	Methyl Chloride	μg/L	<							
	Methylene Chloride	μg/L	<							
	1,1,2,2-Tetrachloroethane	μg/L	<							
	Tetrachloroethylene	μg/L	<							
	Toluene	μg/L	<							
	1,2-trans-Dichloroethylene	μg/L	<							
	1,1,1-Trichloroethane	µg/L	<							
	1,1,2-Trichloroethane	µg/L	<							
	Trichloroethylene	µg/L	<							
	Vinyl Chloride	µg/L	<							
. 10	2-Chlorophenol	µg/L	<							
-	2,4-Dichlorophenol	µg/L	<					-		
3	2,4-Dimethylphenol		<							
		µg/L	-							
4	4,6-Dinitro-o-Cresol	μg/L	<							
	2,4-Dinitrophenol	μg/L	<					-		
Group	2-Nitrophenol	μg/L	<		100000000000000000000000000000000000000					
9	4-Nitrophenol	μg/L	<							
	p-Chloro-m-Cresol	μg/L	<							
	Pentachlorophenol	μg/L	<							
	Phenol	μg/L	<							
10 1	2,4,6-Trichlorophenol	μg/L	<							
	Acenaphthene	μg/L	<							
	Acenaphthylene	µg/L	<							
	Anthracene	μg/L	<							
	Benzidine	μg/L	<							
	Benzo(a)Anthracene	µg/L	<							
	Benzo(a)Pyrene	µg/L	<							
1	3,4-Benzofluoranthene	µg/L	<							
1	Benzo(ghi)Perylene	µg/L	<							
			<							<b>-</b>
- 5	Benzo(k)Fluoranthene	μg/L								
	Bis(2-Chloroethoxy)Methane	μg/L	<							
3	Bis(2-Chloroethyl)Ether	µg/L	<							
	Bis(2-Chloroisopropyl)Ether	μg/L	<							
	Bis(2-Ethylhexyl)Phthalate	μg/L	<							
	4-Bromophenyl Phenyl Ether	μg/L	<	100						
	Butyl Benzyl Phthalate	μg/L	<							
	2-Chloronaphthalene	μg/L	<							
	4-Chlorophenyl Phenyl Ether	μg/L	<							
ľ	Chrysene	µg/L	<	-						
1	Dibenzo(a,h)Anthrancene	µg/L	<	-						
	1,2-Dichlorobenzene	µg/L	<							
	1,3-Dichlorobenzene	µg/L	<							
350	1,4-Dichlorobenzene	µg/L	<							
p 5	3,3-Dichlorobenzidine	µg/L	<							
Group	Diethyl Phthalate		<							
5		μg/L	-				2			
802	Dimethyl Phthalate	μg/L	<			9				
	Di-n-Butyl Phthalate	μg/L	<							
- 6	2,4-Dinitrotoluene	μg/L	<							
85 3	2,6-Dinitrotoluene	μg/L	<							

	Di-n-Octyl Phthalate	µg/L	<						
	1,2-Diphenylhydrazine	µg/L	<					,	
	Fluoranthene	µg/L	<						
	Fluorene	µg/L	<						
1	Hexachlorobenzene	µg/L	<						
1	Hexachlorobutadiene	µg/L	<						
1	Hexachlorocyclopentadiene	µg/L	<						
	Hexachloroethane	µg/L	<						
- 1			<						
	Indeno(1,2,3-cd)Pyrene	μg/L							
1	Isophorone	μg/L	<						
- 1	Naphthalene	μg/L	<						
- 1	Nitrobenzene	μg/L	<						
- 1	n-Nitrosodimethylamine	μg/L	<						
- 1	n-Nitrosodi-n-Propylamine	μg/L	<						
	n-Nitrosodiphenylamine	µg/L	<						
	Phenanthrene	μg/L	<						
	Pyrene	μg/L	<						
	1,2,4-Trichlorobenzene	μg/L	<						
7	Aldrin	μg/L	<						
-	alpha-BHC	μg/L	<						
	beta-BHC	µg/L	<						
- 1	gamma-BHC	µg/L	<						
- 1	delta BHC	µg/L	<						
	Chlordane	µg/L	<						
1	4.4-DDT	µg/L	<						
- 1	4,4-DDE	µg/L	<						
- 1	4.4-DDD	µg/L	<						
- 1	Dieldrin		<						
	A00000 C 1917 A 1000 C	µg/L	_						
- 1	alpha-Endosulfan	µg/L	<						
200	beta-Endosulfan	μg/L	<						
	Endosulfan Sulfate	μg/L	<						
	Endrin	μg/L	<						
)	Endrin Aldehyde	μg/L	<						
J	Heptachlor	μg/L	<						
	Heptachlor Epoxide	µg/L	<						
	PCB-1016	μg/L	<						
	PCB-1221	μg/L	<						
	PCB-1232	μg/L	<						
	PCB-1242	μg/L	<						
	PCB-1248	μg/L	<						
	PCB-1254	μg/L	<						
1	PCB-1260	μg/L	<						
1	PCBs, Total	µg/L	<						
	Toxaphene	µg/L	<						
	2,3,7,8-TCDD	ng/L	<						
_	Gross Alpha	pCi/L							
1	Total Beta	pCi/L	<						
	Radium 226/228	pCi/L	<						
	Total Strontium	µg/L	<						
5			_						
	Total Uranium	µg/L	<						
-	Osmotic Pressure	mOs/kg							
		4							
1									
- 1									



#### Stream / Surface Water Information

Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003

Receiving Surface V	/ater Name:	Conemaug	h River				No. Rea	aches to Mo	odel:	1		tewide Criteri			
Location	Stream Code	e* RM	Eleva	DA / m	i²)* s	lope (ft/ft)	100000	Withdrawal MGD)	Apply Crite		SEE 1933592	at Lakes Crit SANCO Crite			
Point of Discharge	043832	65	105	3 738.	1	0.001			Ye	s					
End of Reach 1	043832	0	74	3 1120	00	-		1	Ye	s					
Q <sub>7-10</sub> Location	RMI	LFY	Flov	v (cfs)	W/D			Velocit	Time	Tribu	tary	Strea	m	Analys	sis
	TARRET.	(cfs/mi2)*	Stream	Tributary	Ratio	(ft)	(ft)	y (fps)	(dave)	Hardness	pН	Hardness*	pΗ*	Hardness	рŀ
(T) (C) (C) (C) (C) (C)	1,000,000,00	(cis/mi)	Sileain		11/10/2009										
Point of Discharge	65	0.2069	Sileani									243	7		
Point of Discharge End of Reach 1	65 0		2390									243 100	7		
End of Reach 1	2008/11	0.2069										D. ATTORNOON	7		
End of Reach 1	0	0.2069	2390				Depth		тауег			D. ATTORNOON		Analys	sis
AEX	2008/11	0.2069 0.2069 LFY	2390 Flov	v (cfs)	W/D Ratio	Width		Velocit	maver Time	Tribu	tary	100		Analys Hardness	sis pH
End of Reach 1	0 RMI	0.2069 0.2069	2390		W/D Ratio	Width	Depth (ft)		тауег		tary pH	100 Strea	m	75000 H330M PS	ACC.



#### Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003 **Model Results** RETURN TO INPUTS SAVE AS PDF PRINT Results All O Inputs O Results O Limits nstruction Hydrodynamics ☑ Wasteload Allocations ☑ AFC CCT (min): 15 PMF: 0.102 Analysis Hardness (mg/l): 226.62 Analysis pH: 7.00 WQC WQ Obj Trib Conc Stream Fate Pollutants Conc WLA (µg/L Comments CV (µg/L) 750 (µg/L) Coef 240 Total Aluminum 0.21 0 4,693 890 0.13 Total Iron N/A N/A N/A Total Manganese 260 0.19 0 N/A N/A N/A ☑ CFC CCT (min): 720 PMF: 0.705 Analysis Hardness (mg/l): 240.38 Analysis pH: 7.00 Stream Trib Conc Fate WQC WQ Obj Pollutants WLA (µg/L) Comments Conc CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 1,500 1,500 47,820 WQC = 30 day average; PMF = 1 Total Manganese 0 N/A 260 0.19 N/A N/A ☑ THH CCT (min): 720 THH PMF: 0.705 N/A Analysis pH: N/A PWS PMF: Analysis Hardness (mg/l): Trib Conc WQC WQ Obj Stream Fate WLA (µg/L) Pollutants Comments Conc CV (µg/L) (µg/L) (µg/L) Total Aluminum 240 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 N/A N/A N/A Total Manganese 260 0.19 0 1.000 1.000 40.634 ☑ CRL CCT (min): ###### N/A N/A PMF: 1 Analysis Hardness (mg/l): Analysis pH: Trib Conc WQC WQ Obj Stream Fate WLA (µg/L) Pollutants Conc Comments

Model Results 10/17/2022 Page 5

(µg/L)

N/A

(µg/L)

N/A

CV

0.21

240

Total Aluminum

(µg/L)

Coef

# NPDES Permit Fact Sheet Conemaugh Power Plant

	Total Iron	890	0.13	**************************************	0	N/A	N/A	N/A	
8	Total Manganese	260	0.19		0	N/A	N/A	N/A	

#### ☑ Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

4

	Mass	Limits		Concentra	ation Limits				
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	32.6	50.9	3,008	4,693	7,519	µg/L	3,008	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	518	809	47,820	74,607	119,551	μg/L	47,820	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	441	687	40,634	63,396	101,585	μg/L	40,634	THH	Discharge Conc ≥ 50% WQBEL (RP)

#### ☑ Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
	24 20 E	3	
		-	

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## **Discharge Information**

Instructions Dis	charge Stream		
Facility: Cone	maugh Generating Station	NPDES Permit No.: PA0005011	Outfall No.: 003
Evaluation Type:	Major Sewage / Industrial Waste	Wastewater Description: IWISEWISW	

	Service (Minus		Discharge	Characterist	tics		540	•
Design Flow	Handman for a fix	-U (CID)	F	Partial Mix Fa	s)	Complete Mix Times (min		
(MGD)*	Hardness (mg/l)*	pH (SU)*	AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
0.3	100	7						

			0 if lef	blank	0.5 if le	eft blank	0	if left blan	k	1 if left blank			
	Discharge Pollutant	Units	Ma	x Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	
	Total Dissolved Solids (PWS)	mg/L								)			
7	Chloride (PWS)	mg/L											
Ιā	Bromide	mg/L											
Group	Sulfate (PWS)	mg/L											
	Fluoride (PWS)	mg/L					į.						
	Total Aluminum	μg/L		1000000		240	Į.		0.21				
	Total Antimony	μg/L											
	Total Arsenic	μg/L					7						
	Total Barium	μg/L											
	Total Beryllium	μg/L		Ĭ.									
	Total Boron	μg/L											
	Total Cadmium	μg/L											
	Total Chromium (III)	μg/L											
	Hexavalent Chromium	μg/L											
1	Total Cobalt	µg/L											
	Total Copper	μg/L											
2	Free Cyanide	μg/L											
μŽ	Total Cyanide	μg/L		1									
Group	Dissolved Iron	μg/L						/ ·					
-	Total Iron	µg/L		1000000		890			0.13				
1	Total Lead	µg/L											
	Total Manganese	µg/L		1000000		260			0.19				
	Total Mercury	μg/L											
	Total Nickel	μg/L											
	Total Phenols (Phenolics) (PWS)	μg/L											
1	Total Selenium	μg/L					1						
1	Total Silver	µg/L											
	Total Thallium	μg/L											
1	Total Zinc	μg/L											
	Total Molybdenum	μg/L											
	Acrolein	μg/L	<										
	Acrylamide	μg/L	<										
	Acrylonitrile	μg/L	<										
	Benzene	μg/L	<										
1	Bromoform	μg/L	<										
L	Carbon Tetrachloride	μg/L	<										

	Chlorobenzene	µg/L							
	Chlorodibromomethane	µg/L	<						
	Chloroethane	µg/L	<				-		
			<						
	2-Chloroethyl Vinyl Ether	μg/L							
	Chloroform	μg/L	<						
	Dichlorobromomethane	μg/L	<						
	1,1-Dichloroethane	μg/L	<						
3	1,2-Dichloroethane	μg/L	<						
Group	1,1-Dichloroethylene	μg/L	<						
5	1,2-Dichloropropane	μg/L	<						
0	1,3-Dichloropropylene	μg/L	<						
	1,4-Dioxane	μg/L	<						
	Ethylbenzene	μg/L	<						
	Methyl Bromide	µg/L	<						
	Methyl Chloride	µg/L	<						
	Methylene Chloride	µg/L	<						
	1,1,2,2-Tetrachloroethane	µg/L	<						
	Tetrachloroethylene	µg/L	<						
	Toluene		<						
	2007-0-00-00-0	µg/L	<						
	1,2-trans-Dichloroethylene	μg/L	- 200			,			
	1,1,1-Trichloroethane	μg/L	<						
	1,1,2-Trichloroethane	μg/L	<						
	Trichloroethylene	μg/L	<						
	Vinyl Chloride	μg/L	<						
	2-Chlorophenol	μg/L	<						
	2,4-Dichlorophenol	μg/L	<						
	2,4-Dimethylphenol	μg/L	<						
	4,6-Dinitro-o-Cresol	μg/L	<						
4	2,4-Dinitrophenol	μg/L	<						
Group	2-Nitrophenol	μg/L	<						
5	4-Nitrophenol	μg/L	<						
_	p-Chloro-m-Cresol	μg/L	<						
	Pentachlorophenol	μg/L	<						
	Phenol	µg/L	<						
	2,4,6-Trichlorophenol	µg/L	<						
-	Acenaphthene	µg/L	<						
	Acenaphthylene	µg/L	<						
	Anthracene	µg/L	<						
			_						
	Benzidine	μg/L	<						
	Benzo(a)Anthracene	μg/L	<						
	Benzo(a)Pyrene	μg/L	<						
	3,4-Benzofluoranthene	μg/L	<						
	Benzo(ghi)Perylene	μg/L	<						
	Benzo(k)Fluoranthene	μg/L	<						
	Bis(2-Chloroethoxy)Methane	μg/L	<	-					
	Bis(2-Chloroethyl)Ether	μg/L	<						
	Bis(2-Chloroisopropyl)Ether	μg/L	<						
	Bis(2-Ethylhexyl)Phthalate	µg/L	<						
	4-Bromophenyl Phenyl Ether	μg/L	<						
	Butyl Benzyl Phthalate	μg/L	<						
	2-Chloronaphthalene	μg/L	<						
	4-Chlorophenyl Phenyl Ether	µg/L	<						
	Chrysene	µg/L	<						
	Dibenzo(a,h)Anthrancene	µg/L	<						
	1,2-Dichlorobenzene		<						
		μg/L	_						
	1,3-Dichlorobenzene	μg/L	<						
2	1,4-Dichlorobenzene	μg/L	<						
¥	3,3-Dichlorobenzidine	μg/L	<						
Group	Diethyl Phthalate	μg/L	<						
	Dimethyl Phthalate	μg/L	<						
	Di-n-Butyl Phthalate	μg/L	<						
	2,4-Dinitrotoluene	μg/L	<						
	2,6-Dinitrotoluene	μg/L	<						

	Di-n-Octyl Phthalate	µg/L	<						
	1,2-Diphenylhydrazine	µg/L	<					,	
	Fluoranthene	µg/L	<						
	Fluorene	µg/L	<						
1	Hexachlorobenzene	µg/L	<						
1	Hexachlorobutadiene	µg/L	<						
1	Hexachlorocyclopentadiene	µg/L	<						
	Hexachloroethane	µg/L	<						
- 1			<						
	Indeno(1,2,3-cd)Pyrene	μg/L							
1	Isophorone	μg/L	<						
- 1	Naphthalene	μg/L	<						
- 1	Nitrobenzene	μg/L	<						
- 1	n-Nitrosodimethylamine	μg/L	<						
- 1	n-Nitrosodi-n-Propylamine	μg/L	<						
	n-Nitrosodiphenylamine	µg/L	<						
	Phenanthrene	μg/L	<						
	Pyrene	μg/L	<						
	1,2,4-Trichlorobenzene	μg/L	<						
7	Aldrin	μg/L	<						
-	alpha-BHC	μg/L	<						
	beta-BHC	µg/L	<						
- 1	gamma-BHC	µg/L	<						
- 1	delta BHC	µg/L	<						
	Chlordane	µg/L	<						
1	4.4-DDT	µg/L	<						
- 1	4,4-DDE	µg/L	<						
- 1	4.4-DDD	µg/L	<						
- 1	Dieldrin		<						
	A00000 C 1917 A 1000 C	µg/L	_						
- 1	alpha-Endosulfan	µg/L	<						
200	beta-Endosulfan	μg/L	<						
	Endosulfan Sulfate	μg/L	<						
	Endrin	μg/L	<						
)	Endrin Aldehyde	μg/L	<						
J	Heptachlor	μg/L	<						
	Heptachlor Epoxide	µg/L	<						
	PCB-1016	μg/L	<						
	PCB-1221	μg/L	<						
	PCB-1232	μg/L	<						
	PCB-1242	μg/L	<						
	PCB-1248	μg/L	<						
	PCB-1254	μg/L	<						
1	PCB-1260	μg/L	<						
1	PCBs, Total	µg/L	<						
	Toxaphene	µg/L	<						
	2,3,7,8-TCDD	ng/L	<						
_	Gross Alpha	pCi/L							
1	Total Beta	pCi/L	<						
	Radium 226/228	pCi/L	<						
	Total Strontium	µg/L	<						
5			_						
	Total Uranium	µg/L	<						
-	Osmotic Pressure	mOs/kg							
		4							
1									
						*			
- 1									



#### Stream / Surface Water Information

Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003

Receiving Surface V	Vater Name:	Conemaug	h River				No. Rea	aches to Mo	del:	1		itewide Criter eat Lakes Crit			
Location	Stream Co	de* RM	Eleva (ft)		ni²)*	Slope (ft/ft)	100000	Withdrawal MGD)	Apply Criter		SEE 17 11 15 17	SANCO Crite			
Point of Discharge	043832	65			.1	0.001			Ye	s					
End of Reach 1	043832	0	746	3 112	00			1	Ye	s					
2 <sub>7-10</sub> Location	RMI	LFY	Flov	v (cfs)	T W	//D Width	Depth	Velocit	<del>naver</del> Time	Tribi	itary	Strea	m	Analys	sis
Location	IXIVII	(cfs/mi <sup>2</sup> )*	Stream	Tributary	Ra	itio (ft)	(ft)	y (fps)	(daye)	Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	65	0.2069										243	7		
End of Reach 1										************	ne verseeensu				



Pollutants

Total Aluminum

Toxics Management Spreadsheet Version 1.3, March 2021

Comments

#### Conemaugh Generating Station, NPDES Permit No. PA0005011, Outfall 003 **Model Results** RETURN TO INPUTS SAVE AS PDF PRINT Results All O Inputs O Results O Limits nstruction Hydrodynamics ☑ Wasteload Allocations ☑ AFC CCT (min): 15 PMF: 0.101 Analysis Hardness (mg/l): 238.86 Analysis pH: 7.00 WQC WQ Obj Trib Conc Stream Fate Pollutants Conc WLA (µg/L Comments CV (µg/L) 750 (µg/L) Coef 240 Total Aluminum 0.21 0 17,838 890 0.13 Total Iron N/A N/A N/A Total Manganese 260 0.19 0 N/A N/A N/A ☑ CFC CCT (min): 720 PMF: 0.697 Analysis Hardness (mg/l): 242.39 Analysis pH: 7.00 Stream Trib Conc Fate WQC WQ Obj Pollutants WLA (µg/L) Comments Conc CV (µg/L) Coef (µg/L) (µg/L) Total Aluminum 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 1,500 1,500 204,669 WQC = 30 day average; PMF = 1 Total Manganese 0 260 0.19 N/A N/A N/A ☑ THH CCT (min): 720 THH PMF: 0.697 N/A Analysis pH: N/A PWS PMF: Analysis Hardness (mg/l): Trib Conc WQC WQ Obj Stream Fate WLA (µg/L) Pollutants Comments Conc CV (µg/L) (µg/L) (µg/L) Total Aluminum 240 0.21 0 N/A N/A N/A Total Iron 890 0.13 0 N/A N/A N/A Total Manganese 260 0.19 0 1.000 1.000 172.778 ☑ CRL CCT (min): ###### N/A N/A PMF: 1 Analysis Hardness (mg/l): Analysis pH: Trib Conc WQC WQ Obj

Model Results 10/17/2022 Page 5

(µg/L)

(µg/L)

N/A

WLA (µg/L)

N/A

Fate

Coef

Stream

CV

0.21

(µg/L)

Conc

240

# NPDES Permit Fact Sheet Conemaugh Power Plant

ſ	Total Iron	890	0.13	//////////////////////////////////////	0	N/A	N/A	N/A	
ा	Total Manganese	260	0.19		0	N/A	N/A	N/A	

#### ☑ Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

4

	Mass	Limits		Concentra	tion Limits				
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Aluminum	28.6	44.6	11,433	17,838	28,583	µg/L	11,433	AFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Iron	512	799	204,669	319,317	511,673	μg/L	204,669	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	432	674	172,778	269,561	431,945	μg/L	172,778	THH	Discharge Conc ≥ 50% WQBEL (RP)

#### ☑ Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
		81 20.	
	F 67		6
		1	

Model Results 10/17/2022 Page 6

Conemaugh Generating Station 1442 Power Plant Road New Florence, PA 15944

August 22, 2022

#### Via OnBase DEP Upload Module

Mr. Justin C. Dickey, P.E.
Environmental Program Manager - Permits Chief
Clean Water Program
Pennsylvania Department of Environmental Protection
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

Re: Keystone-Conemaugh Projects, LLC – Conemaugh Generating Station NPDES Permit No. PA0005011 (effective January 1, 2019)

Conemaugh River Surface Water - Background Data Collection Summary Report

Dear Mr. Dickey:

Please find enclosed the subject report that was prepared in accordance with our recent correspondence and in support of Conemaugh Station's proposed TMDL compliance plan. Conemaugh Station and our project support team – Aptim and Apex Companies – are grateful for the Department's support with this effort, and we are looking forward to receipt of the Department's comment to the report. If you have any questions or concerns regarding this submittal, then please contact me at (724) 235-4496 or jshimshock@keyconops.com.

Respectfully submitted,

John P. Thinstock

John P. Shimshock

Environmental Specialist - Conemaugh Generating Station

Attachment

Certification by a Responsible Official per 25 Pa. Code §127.402(d)

Based on the information and belief formed after reasonable inquiry, the statements and information in this document are true, accurate and complete.

Signature:

Name: Barry J. Hunt

Official Title: General Manager - Conemaugh Station

Telephone No.: (724) 235-4500

Date Signed: 8-22-22



# CONEMAUGH RIVER SURFACE WATER--BACKGROUND DATA COLLECTION SUMMARY REPORT

#### Prepared for:



Keystone-Conemaugh Projects, LLC Conemaugh Generating Station New Florence, Pennsylvania

Prepared by:

Aptim Environmental & Infrastructure, LLC Pittsburgh, Pennsylvania

August 2022

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## List of Acronyms & Abbreviations

APTIM Aptim Environmental & Infrastructure, LLC

Cb long-term average background/ambient water quality

cfs cubic feet per second

Conemaugh Generating Station

CV<sub>d</sub> coefficient of variation (associated with Cb)

DO dissolved oxygen mg/L milligram per liter

PADEP Pennsylvania Department of Environmental Protection

PWS Potable Water Supply
SAP Sampling & Analysis Plan
Station Conemaugh Generating Station
TMDL Total Maximum Daily Load
TDS total dissolved solids
TSS total suspended solids

TSS total suspended solids
USGS U.S. Geological Survey
WWF Warm Water Fishes

#### 1.0 Introduction

The Conemaugh Generating Station (Conemaugh or the Station) is presently subject to compliance requirements associated with Total Maximum Daily Load (TMDL) obligations for process and stormwater discharges to the Conemaugh River, specific to a number of constituents, including aluminum, iron, and manganese. In view of the TMDL obligations, Conemaugh has requested PADEP's consideration for an aggregate approach to collectively manage all of the Station's point source and non-point source discharges to the river. To assist with this decision-making process, and as agreed by PADEP, Conemaugh conducted a surface water sampling program, allowing for the collection of samples intended to characterize the "background" concentrations of the noted constituents in the river. These data collection efforts, in turn, will serve to facilitate potential refinement of the river's predicted assimilative capacity in the context of the TMDLs.

In support of a proposed two-phase data collection program, Aptim Environmental & Infrastructure, LLC (APTIM) prepared a Sampling & Analysis Plan (SAP) that was submitted on May 10, 2022 for PADEP's review. PADEP's concurrence was subsequently received on June 2, 2022 via written correspondence (see Appendix A), and which also provided a further recommendation to include the analysis of blank samples during those events involving the collection of field duplicate samples. Commensurate with the above, Apex Companies, LLC (Apex) implemented the Phase I and Phase II sampling programs over an approximate two-month period spanning early-June to early-August 2022.

Following the introductory section of this report, field and analytical summaries of the Phase I and Phase II programs are further discussed in Sections 2.0 and 3.0, respectively. Section 4.0 provides a statistical review of the Phase II analytical data relative to characterization of river background concentrations for the specific TMDL constituents of aluminum, iron, and manganese, as well as other select analytes targeted in the SAP. Section 5.0 concludes the report with a list of references.

Although not an aspect of the Phase I and II sampling efforts presented herein, an aquatic survey of the river was performed by PADEP on May 25, 2022 at locations above, between and below the Seward and Conemaugh Stations. The findings from this survey, which included collection of macroinvertebrates, documentation of water chemistry, and a habitat assessment, are being addressed by PADEP in a separate report. These findings are intended to offer additional context to the current impairment designation assigned to the river reaches adjacent to the Conemaugh Station.

### 2.0 Phase I Sampling Program Summary

#### 2.1 Overview

As noted in the introductory section, the surface water sampling program was designed to encompass a two-phased approach. The first phase (Phase I) focused on initial sampling along a transect established upstream of the Conemaugh Station, corresponding to the span of the Seward Bridge as shown in the attached Figure 1. This transect is also upstream and outside the potential influence of discharges associated with the Seward Station just upriver from Conemaugh. The width of the Conemaugh River along this transect is approximately 280 feet, and thus, a total of three discrete sampling points were utilized to provide reasonable indications of any potential spatial variabilities/ influences on chemical concentrations. These points are shown on Figure 1 and represent the mid-channel ("SEWARD-MID"), and two points spaced roughly equidistant between the mid-channel and the respective right- and left-descending banks ("SEWARD-RMID" and "SEWARD-LMID"). The Seward Bridge was selected as the location for the sampling effort based on the results generated from a preliminary sampling effort conducted in April 2022 and reported in the SAP. The April 2022 results showed no discernible differences in water quality in river water samples collected at the Seward Bridge and at the New Florence Bridge located downstream of Conemaugh Station.

Per the SAP, two separate sampling events were conducted as part of the Phase I program, including sample collections on June 1, 2022 and June 13, 2022. During each event, samples were collected from the approximate mid-depth horizon of the river, and field measurements recorded for pH, temperature, specific conductance, dissolved oxygen (DO), and turbidity. Collected samples (including a field duplicate from each event) were submitted to Geochemical Testing (Somerset, PA) for laboratory analysis of the following constituents:

- pH (also field-recorded), acidity, alkalinity, sulfate, and total suspended solids (TSS)
- Total aluminum, total iron, and total manganese
- Total calcium, total magnesium, total sodium, and total hardness.

#### 2.2 River Flow Considerations

Per the SAP, river flow conditions were monitored on the days selected for sample collection, with relevant online information obtained from the U.S. Geological Survey's (USGS) Gaging Station at Seward, Pennsylvania (Station No. 03041500; <u>Current Conditions for USGS 03041500</u> <u>Conemaugh River at Seward, PA</u>). With consideration of sampling taking place outside the low-flow season (Q<sub>7-10</sub>; typically July thru November), evaluation of flow conditions relied on two other metrics, including comparison of actual river flow to historical median values (50<sup>th</sup> percentile) and determination of relative percentage differences in flows from the prior day.

More specifically, and on the day(s) targeted for sampling, an initial comparison was made of the Instantaneous Flow Value versus the historical Median Value for that particular date. Once confirmed that the Instantaneous Flow was less than the Median Value, then potential satisfaction of the second metric was determined via comparison of current day versus prior day river flow values. For this metric to be satisfied, the current day's flow value should not have increased by more than 25 percent compared to the prior day's flow value. If both of these metrics were satisfied, river conditions were deemed acceptable for surface water sample collection; otherwise, sample collection activities were deferred until the metrics were satisfied.

#### 2.3 Phase I Program Observations

The river flow information, field data, and laboratory analytical results from the Phase I sampling program are summarized in the attached Table 1, which was also forwarded to PADEP on June 21, 2022 for review and information. As acknowledged in the SAP, the principal objective of the Phase I efforts was to demonstrate a reasonable level of chemical uniformity across the river's width, such that the Phase II sampling program could be initiated to solely focus on continued data collection from the mid-channel location only ("SEWARD-MID").

Upon further review of Table 1, the agreement in values for both field and laboratory parameters during each of the events suggests minimal spatial variability across the three sampling locations of the Seward Bridge transect. The laboratory results, in particular, provide clear evidence of tightly grouped datasets for the metals (including aluminum, iron, and manganese), as well as the general chemistry constituents. Examination of the field duplicate samples from the June 1 and June 13, 2022 events indicates verifiable laboratory accuracy and precision, while the blank sample from the June 13, 2022 event confirms the absence of any externally-introduced contamination or bias. Completed field sample collection forms and laboratory analytical reports from each of the two Phase I sampling events are contained in Appendix B of this report.

Based on the above and the achievement of the Phase I sampling program objective, the transition to the Phase II sampling program was made on June 24, 2022, as further detailed in Section 3.0.

#### 3.0 Phase II Sampling Program Summary

#### 3.1 Overview

Based on the successful outcome of the Phase I program, sample collection in support of the Phase II program commenced on June 24, 2022 and concluded on August 2, 2022, encompassing a total of eight separate sampling events. Samples during Phase II were only collected from the midchannel location ("SEWARD-MID") of the Seward Bridge transect (refer to attached Figure 1), with field duplicates and blank samples jointly prepared during every other event. Field parameters and laboratory analyses remained the same as done for the Phase I program.

#### 3.2 River Flow Considerations

Pre-requisite monitoring of the river flow conditions was again performed during the Phase II program to confirm the suitability of the days targeted for each sampling event. Both river flow metrics (Section 2.2) were satisfied for each of the eight individual sampling events conducted.

#### 3.3 Phase II Program Observations

The river flow information, field data, and laboratory analytical results from the Phase II sampling program are summarized in the attached Table 2. Examination of the field duplicate samples from the June 24, July 1, July 15, and July 25, 2022 events indicates verifiable laboratory accuracy and precision, while the blank samples from the same four events confirm the absence of any externally-introduced contamination or bias. Completed field sample collection forms and laboratory analytical reports from all of the Phase II sampling events are contained in Appendix C of this report.

With particular regard to the TMDL constituents (i.e., aluminum, iron, and manganese), the data from Table 2 show aluminum and manganese concentrations with minimal variation and generally ranging between approximately 0.2 to 0.3 milligrams per liter (mg/L). Concentrations of iron exhibit a slightly greater degree of variability, but still fall within a generally narrow band ranging from approximately 0.7 to 1.1 mg/L. Values for pH were observed between approximately 7.5 and 7.8, and overall total hardness of the river water was calculated at values ranging between approximately 220 to 270 mg/L CaCO<sub>3</sub>. As an additional point of reference, the river flows throughout the majority of the Phase II program (excluding the value from the June 24, 2022 event) were slightly more than double the documented Q<sub>7-10</sub> value of approximately 150 cubic feet per second (cfs) (PADEP, 2018 NPDES Permit Fact Sheet).

Utilizing the data from Table 2 (excluding the duplicate samples), Section 4.0 provides a discussion of the statistical evaluations performed to arrive at calculated background values for

each of the TMDL constituents, including aluminum, iron, and manganese. Similar statistics and calculations are also performed for alkalinity, dissolved oxygen, and total hardness.

#### 4.0 Statistical Review

#### 4.1 Aluminum, Iron, and Manganese

The relevant data extracted from Table 2 for aluminum, iron, and manganese is provided below for reference to facilitate the discussion of the statistics and background value calculations.

Sample Date	Total Aluminum (mg/L)	Total Iron (mg/L)	Total Manganese (mg/L)
June 24, 2022	0.3	0.92	0.32
June 29, 2022	0.2	0.91	0.30
July 1, 2022	0.2	0.76	0.32
July 11, 2022	0.2	0.79	0.26
July 15, 2022	0.2	0.80	0.23
July 21, 2022	0.3	0.86	0.22
July 25, 2022	0.3	1.14	0.21
August 2, 2022	0.2	0.95	0.21

These calculations are patterned directly from those contained in the "Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances" (PADEP, 2003). A complete copy of this guidance document is contained in Appendix D of this report, with an excerpt of "Appendix 2" from the guidance document included below to illustrate an example calculation. As noted in the example calculation, the dataset(s) being evaluated should first be tested to confirm that it fits a normal/log-normal distribution. Accordingly, the respective datasets from above were input to ProUCL Statistical Software (U.S. EPA, 2022), with confirmation received (via goodness-of-fit tests) that iron and manganese satisfy the criteria for normal/log-normal distribution. However, with the minimally observed variation in the reported aluminum concentrations, this dataset was found not to fit a normal/log-normal distribution, and thus was characterized as non-parametric.

For the iron and manganese datasets, the approach from the guidance document was applied to develop the necessary statistical parameters (mean and variance), and then ultimately arrive at calculated values for the long-term average background water quality (Cb, essentially the mean plus one-half of the variance of the sample data) and associated coefficient of variation ( $CV_d$ , essentially the ratio of the sample data standard deviation to its mean). Despite the non-parametric designation assigned to the aluminum dataset, there is not anticipated to be a significant degree of inaccuracy from subjecting the data to the guidance document calculational approach. These calculations are contained in Appendix E of this report.

As a supplement, ProUCL was used to additionally analyze the aluminum dataset (focusing on mean and coefficient of variation), and these results are also provided for comparison. Again, for purposes of comparison, similar supplemental application of ProUCL to the iron and manganese datasets was performed. The output from the ProUCL software is contained in Appendix F of this report.

Appendix 2

## An Example to Determine the Long Term Average Background/Ambient Water Quality and its Variability

To determine the long-term average background ambient water quality, the data must be log-transformed (assuming the data are log-normally distributed):

$$Y_i = ln(X_i)$$
 where:

Xi = observed data

Yi = the natural log of the observed data

Next, calculate the mean and the variance of the log-transformed data:

The Mean (µy)

$$\mu_y = \frac{\sum(Y_i)}{k}$$
  $\mu_y = \frac{11.2}{10}$   $\mu_y = -1.12$ 

where

 $\mu_y$  = the lognormal mean of example data

 $Y_i = lognormal data$ 

k = the number of data points in example data set

The Variance  $(\sigma_{\nu}^2)$ 

The lognormal variance is calculated.

$$\sigma_y^2 = \frac{\sum (Y_i - \mu_y)^2}{(k-1)}$$
  $\sigma_y^2 = \frac{20.2}{10-1}$  = 2.24

The long term average background/ambient water quality (Cb) and associated coefficient of variation ( $\mathrm{CV}_d$ ) are then:

Cb = exp
$$\left(\mu_y + \frac{\sigma_y^2}{2}\right)$$
 Cb = exp 1.12 +  $\frac{2.24}{2}$  = 1.0

$$CV_d = \sqrt{\exp(\sigma_y^2)-1}$$
  $CV_d = \sqrt{\exp(2.24)-1}$  = 2.9

	50000	Exam	ple Data	
	ug/l		5.0	
$X_1$	= 0.41	Y <sub>1</sub>	$= \ln(0.41)$	= -0.89
$X_2$	= 0.92	Y <sub>2</sub>	$= \ln(0.92)$	= -0.08
$X_3$	= 1.07	Y <sub>3</sub>	$= \ln(1.07)$	= 0.07
$X_4$	= 0.22	$Y_4$	$= \ln(0.22)$	= -1.51
X5	= 0.09	Y <sub>5</sub>	$= \ln(0.09)$	= -2.41
$X_6$	= 0.31	Y <sub>6</sub>	$= \ln(0.31)$	= -1.17
$X_7$	= 0.55	Y <sub>7</sub>	$= \ln(0.55)$	= -0.6
$X_8$	= 0.01	Ys	$= \ln(0.01)$	= -4.6
X <sub>9</sub>	= 0.49	Y <sub>9</sub>	$= \ln(0.49)$	= -0.71
$X_{10}$	= 1.99	Y10	$= \ln(1.99)$	= 0.7
		T)	The Sum of	Yi =
			-11.2	

$(Y_i  \mu_y)$	)2	
$(-0.89-(-1.12))^2$	=	0.05
$(-0.08-(-1.12))^2$	=	1.08
$(0.07-(-1.12))^2$	=	1.42
$(-1.51-(-1.12))^2$	=	0.15
$(-2.41-(-1.12))^2$	=	1.65
$(-1.17-(-1.12))^2$	=	0.002
$(-0.6-(-1.12))^2$	=	0.27
$(-4.6-(-1.12))^2$	=	12.1
$(-0.71-(-1.12))^2$	=	0.17
$(0.7-(-1.12))^2$	=	3.28
$\sum (Y_i - \mu_y)^2$	=	20.2

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A summary of the calculated background values (Cb) and coefficients of variation (CV<sub>d</sub>) as determined using the PADEP guidance (Appendix E) are presented below.

Parameter	Total Aluminum	Total Iron	Total Manganese
Background (Cb)	0.24 mg/L	0.89 mg/L	0.26 mg/L
Coefficient of Variation (CV <sub>d</sub> )	0.21	0.13	0.19

For comparison, a summary of the mean and coefficient of variation values from the ProUCL Software application (Appendix F) is provided as well.

Parameter	Total Aluminum	Total Iron	Total Manganese
Mean	0.24 mg/L	0.89 mg/L	0.26 mg/L
Coefficient of Variation	0.22	0.14	0.19

In review of the above, there is obvious consistency in the calculated background and mean values provided by each evaluation approach, along with agreement in the respective coefficients of variation. It is therefore concluded that the values are reasonable and defensible relative to their potential future use in possible refinements within the context of the TMDLs, or application as part of other water quality-based determinations specific to these reaches of the Conemaugh River.

In the regulatory context and as one additional point of comparison, the water quality criteria for total aluminum, total iron, and total manganese (as cited from the relevant sections of 25 Pa. Code, Chapter 93) are tabulated below. As observed, the calculated background values for each of these constituents as determined within the scope of this report, are measurably under their respective water quality thresholds.

Parameter	Total Aluminum	Total Iron	Total Manganese
Water Quality Criterion	0.75 mg/L	1.5 mg/L	1.0 mg/L
Regulatory Citation	25 Pa. Code, §93.8c; Table 5	25 Pa. Code, §93.7; Table 3	25 Pa. Code, §93.7; Table 3
Applicability	Acute Fish Criterion	30-day average; WWF	Maximum; PWS

WWF - Warm Water Fishes; PWS - Potable Water Supply

#### 4.2 Alkalinity, Dissolved Oxygen (DO), and Total Hardness

The relevant data extracted from Table 2 for alkalinity, DO, and total hardness is provided below for reference to facilitate the discussion of the statistics and background value calculations. These parameters offer more of an insight to the general chemistry of the river, and also represent another measure for comparison against established water quality criteria.

Sample Date	Alkalinity to pH 4.5 (mg/L CaCO <sub>3</sub> )	Dissolved Oxygen (mg/L)	Total Hardness (mg/L CaCO <sub>3</sub> )
June 24, 2022	36	6.62	217
June 29, 2022	38	8.71	235
July 1, 2022	37	6.46	263
July 11, 2022	49	9.90	239
July 15, 2022	44	7.01	270
July 21, 2022	44	10.1	217
July 25, 2022	50	12.1	232
August 2, 2022	50	11.4	268

Following the same approach as outlined in Section 4.1, the distributions of each of the datasets was initially evaluated using ProUCL, confirming their fit into a normal/log-normal distribution. As such, the datasets were then run through the statistical calculations contained in the PADEP guidance document, resulting in the background values (Cb) and coefficients of variation ( $CV_d$ ) shown below. The detailed calculations are presented in Appendix E of this report.

Parameter	Alkalinity to pH 4.5	Dissolved Oxygen	Total Hardness
Background (Cb)	43.6 mg/L CaCO₃	9.06 mg/L	243 mg/L CaCO <sub>3</sub>
Coefficient of Variation (CV <sub>d</sub> )	0.14	0.25	0.09

Again, the datasets were also fully run through ProUCL to determine corresponding values for the mean and coefficient of variation for each of the constituents. These values are presented below, with detailed calculations contained in Appendix F of this report.

Parameter	Alkalinity to pH 4.5	Dissolved Oxygen	Total Hardness
Mean	43.5 mg/L CaCO <sub>3</sub>	9.03 mg/L	237 mg/L CaCO₃
Coefficient of Variation	0.14	0.24	0.09

Very close agreement between the two statistical calculation approaches is noted, with near identical values derived for the background/mean and the coefficient of variation using the separate methodologies.

In the regulatory context and commensurate with the final comparisons made in Section 4.1, the water quality criteria for alkalinity, dissolved oxygen, and total hardness (as cited from the relevant sections of 25 Pa. Code, Chapter 93) are tabulated below. Although no criterion exists for total hardness, its comparison with the criterion for total dissolved solids (TDS) was done in proxy due to a somewhat overlapping relationship in the constituents that form the basis for these two

parameters. When compared to the below, the calculated background values for each of these constituents as determined within the scope of this report, are at acceptable levels relative to their respective water quality thresholds, including the qualitative proxy assessment for total hardness.

Parameter	Alkalinity to pH 4.5	Dissolved Oxygen	Total Hardness
Water Quality Criterion	20.0 mg/L CaCO₃	5.5/5.0 mg/L	500/750 mg/L*
Regulatory Citation	25 Pa. Code, §93.7; Table 3	25 Pa. Code, §93.7; Table 3	25 Pa. Code, §93.7; Table 3
Applicability	Minimum; WWF	7-day average/ minimum; WWF	Monthly average/ maximum; PWS

WWF - Warm Water Fishes; PWS - Potable Water Supply; \* - criterion for Total Dissolved Solids

#### 5.0 References

Aptim Environmental & Infrastructure, LLC, 2022, Conemaugh River Surface Water Sampling & Analysis Plan for Background Data Collection. Prepared for Keystone-Conemaugh Projects, LLC, Conemaugh Generating Station.

PADEP, 2003, Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, Document Number 391-2000-022.

PADEP, 2018, NPDES Permit Fact Sheet, PA0005011. Southwest Regional Office—Clean Water Program.

U.S. Environmental Protection Agency, 2022, ProUCL Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations, v5.2.

U.S. Geological Survey, National Water Information System: Web Interface. <u>Current Conditions</u> for USGS 03041500 Conemaugh River at Seward, PA.

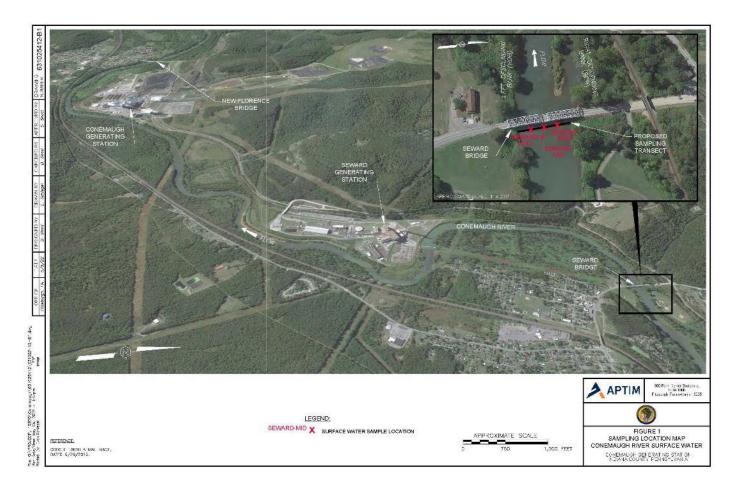


**Tables** 

Sample Name/Location	Date	R	iver Flow I	Vietrics	ĺ	Fi	eld Parame	eters	- 1	Ē				La	b Analys	is					
))		Flow (cfs)	≤50th Percentile	≤ 25% increase from prior day	pH (S.U.)	Temp (°F)	Spec Cond. (µS/cm)	Turbidity (NTU)	DO (mg/L)	pH (S.U.)	Acidity to pH 8.3 (mg/L CaCO <sub>3</sub> )	Alkalinity to pH 4.5 [mg/L CaCO <sub>2</sub> ]	TSS (mg/L)	Sulfate (mg/L)	Al (mg/L)	Ca (mg/L)	Fe (mg/L)	Mg (mg/L)	Mn (mg/L)	Na (mg/L)	Hardness (mg/L CaCO
Seward Bridge:	6/1/2022	553	YES (893 cfs)	YES (572 cfs on 5/31/22)	8 X							¢:									
Mid-Channel (MID)	3			5	6.58	73.3	657	5.1	9.22	7.69	-27	38	5	203	0.2	61.8	0.89	19.8	0.40	21.9	236
Mid-Channel Duplicate (FD)					6.58	73.3	657	5.1	9.22	7.71	-27	40	.5	203	0.3	61.6	0.90	19.8	0.40	21.9	235
Center Left-Descending (LMID)				8	7.34	76.6	605	5.0	5.66	7.68	-25	43	4	203	0.3	60.5	0.90	19.5	0.40	21.5	231
Center Right-Descending (RMID)					7.61	75.3	617	4.4	5.17	7.75	-25	41	3	205	0.2	52.2	0.85	20.0	0.40	22.1	238
Seward Bridge:	6/13/2022	651	YES (724 cfs)	YES (631 cfs on 6/12/22)																	
Mid-Channel (MID)					6.01	69.1	564	29.8	7.61	7.46	-25	3.8	16	158	0.6	48.4	1.46	15.0	0.35	18.1	183
Center Left-Descending (LMID)				8	6.91	68.5	514	34.7	5.68	7.43	-22	37	15	155	0.7	48.2	1.48	15.0	0.35	18.1	182
Center Right-Descending (RMID)					7.17	68.8	534	20.2	6,69	7.56	-22	38	11	165	0.4	49.6	1.28	15.5	0.33	19.2	187
Center Right Duplicate (FD)				ŝ	7.17	68.8	534	20.2	6,69	7.56	-22	3.8	11	166	0.4	51.6	1.19	16.1	0.34	19.1	195
Trip Blank (TB)					444	404	440	inte		5.03	11	< 10	<2	< 2	< 0.1	< 0.1	< 0.05	< 0.1	< 0.01	< 0.2	<1

							Conemai	igh River S	amplin	g Sum	mary (Phase	11)									
Sample Name/Location	Date		River Flo	w Metrics	1		Field Parame	ters	- 100	ii.	0.000	(199)		Lab A	nalysis						
		Flow (efs)	s 50th Percentile	£25% increase from prior day	pH (S.U.)	Temp(°F)	Spec Cond. (µS/cm)	Turbidity (NTU)	DO (mg/L)	Hq (.U.2)	Acidity to pH 8.3 (mg/L CaCO <sub>3</sub> )	Alkalinity to pH 4.5 (mg/L CaCO <sub>3</sub> )	TSS (mg/L)	Sulfate (mg/L)	Al (mg/L)	Ca (mg/L)	Fe  mg/L	Mg (mg/L	Mn (mg/L)	Na (mg/L)	Hardness (mg/L CaCO <sub>3</sub>
Seward Bridge:	6/24/2022	487	YES (597 cfs)	YES (611 cfs on 6/23/22)		2000	1000			Same .	9			(f)			St	V	i		
Mid-Channel (MID)	1470	1000			5.98	71.6	662	11.1	6.62	7.64	-21	36	- 5	187	0.3	57.4	0.92	17.9	0.32	1.9.6	217
Mid-Channel Duplicate (FD)		8 8	33	2	5.98	71.6	662	11.1	6.52	7.74	-15	37	5	192	0.3	56.7	88.0	17.8	0.82	19.3	215
Trip Blank (TB)			2				-	-		5.19	10	< 10	<2	< 2.0	< 0.1	< 0.1	< 0.05	<0.1	< 0.01	< 0.2	<1.0
Seward Bridge:	6/29/2022	387	YES (495 cfs)	YES (487 cfs on 6/28/22)						Ø			0	Ø:			2	8			
Mid-Channel (MID)			7 7 7 7		7.52	72.8	741	9.6	8.71	7.62	-19	38	8	207	0.2	62,3	0.91	19.2	0.30	19.9	235
Sward Bridge:	7/1/2022	342	VES (505 cfs)	YES (361 cls on 6/30/22)	1																
Mid-Channel (MID)		0.00		0	6.36	72.9	733	4.8	6.46	7.50	-21	37	- 5	243	0.2	70.1	0.75	21.5	0.32	21.2	263
Mid-Channel Duplicate (FD)					6.36	72.9	733	4.8	6.46	7,52	-23	36	4	239	0.2	71.4	0.81	21.7	0.32	21.7	2.68
Trip Blank (TB)			8		-			-	542	5.00	11	< 10	<2	< 2.0	< 0.1	< 0.1	< 0.05	< 0.1	< 0.01	< 0,2	<1.0
Seward Bridge:	7/11/2022	355	YES (457 cfs)	YES (374 cfs on 7/16/22)	+	1				II.							3				
Mid-Channel (MID)					6.68	72.6	721	3.8	9.9	7.70	-34	49	4	214	0.2	62.9	0.79	19.8	0.26	28.4	239
Seward Bridge:	7/15/2022	317	YES (444 cfs)	YES (330 cfs on 7/14/22)						9				0			2	8	8 8		
Mid-Channel (MID)			3 10 11 11	10000	0.05	75.2	731	4.0	7.01	7.82	-31	44	- 5	248	0.2	71.9	0.80	22.1	0.25	28.7	270
Mid-Channel Dublicate (FD)					8.05	75.2	731	4.0	7.01	7.83	-80	45	5	249	0.2	69.2	0.72	213	0.21	27.9	261
Trip Blank (TB)			8		ase	986	- 400			5.14	12	< 10	<2	< 2.0	< 0.1	< 0.1	< 0.05	< 0.1	< 0.01	< 0.2	<1.0
Seward Bridge:	7/21/2022	387	YES 1434 cfsl	YES (463 cfs on 7/20/22)	+	1		+ -			1								3 3		
Mid-Channel (MID)			8 558 55	20 - 21	7.64	74.2	744	0.0	10.0	7.66	-28	44	4	189	0.3	57,8	0.86	17.8	0.22	27.0	217
Senard Bridge:	7/25/2022	361	VES (408 cfs)	YES (447 cls on 7/24/22)	1			+								-		6			
Mid-Channel (MID)		7			7.98	74.4	681	0.0	12.1	7.82	-31	50	- 6	192	0.3	61.8	1.14	18.9	0.21	29.3	232
Mid-Channel Guplicate (FD)					7.98	74.4	682	0.0	12.1	7.84	-29	48	- 6	190	0.2	60.5	1.02	18.6	0.20	28.7	228
Trip Blank (TS)			2				***		-	5.12	14	< 10	<2	< 2.0	< 0.1	< 0.1	< 0.05	<0.1	< 0.01	< 0.3	<10
Sewand Bridge:	8/2/2022	330	VES (376 cfs)	YES (336 cfs on 8/1/22)	1					7											
Mid-Channel (MID)					8.52	72.2	744	< 0.1	11.4	7.69	-35	50	- 7	234	0.2	70.5	0.95	223	0.21	30.6	268

**Figure** 



Appendix A

Sampling & Analysis Plan Approval Letter (June 2, 2022)



**MEMO** 

TO

Justin Dickey Justin C. Dickey
Program Manager, Acting
Clean Water Program

Joe Brancato Joseph C Brancato
Aquatic Biologist Supervisor FROM

Clean Water Program

Eric Kicher (Tic C. Kicher THROUGH

Environmental Group Manager

Clean Water Program

DATE June 2, 2022

RE Keystone-Conemaugh Projects, LLC.

Conemaugh Generating Station

Surface Water Sampling and Analysis Plan Conemaugh River (Stream Code 43832) Indiana County, New Florence, Pennsylvania

The Conemaugh Generating Station (Conemaugh) is subject to compliance requirements associated with Total Maximum Daily Load (TMDL) obligations for various discharges to the Conemaugh River. The Conemaugh River's Aquatic Life Use is currently impaired with a source resulting in historical acid mine drainage (AMD) and the cause being metals, including aluminum, manganese, and iron. Because of the TMDL obligations, Conemaugh has requested an aggregate approach to collectively manage all point and non-point discharges to the Conemaugh River. To accomplish this and assist with decision making, Conemaugh has submitted to the Department a Surface Water Sampling and Analysis Plan (SAP) for the collection of background water chemistry data to characterize concentrations of AMD metals associated with the impairments addressed in the TMDL. The Department's Clean Water Program Aquatic Biologists have reviewed the Plan and provided comments below:

Conemaugh will be collecting surface water samples from the Conemaugh River to characterize background conditions and gain information on the river's assimilative capacity regarding the TMDL. On May 25, 2022, a Department Aquatic Biologist from the Clean Water Program conducted a survey of the Conemaugh River at three (3) stations; upstream of both the Seward and Conemaugh Generating stations at the Village of Seward, just downstream of the Seward Generating Station and upstream of the Conemaugh Generating Station, and downstream of the Conemaugh Generating Station above the bridge in New Florence (Map 1). Aquatic macroinvertebrates and water chemistry were collected, and a habitat survey occurred. The Department will provide a separate report on their findings.

Conemaugh will be conducting a two-phased approach to water sampling. A preliminary phase of transect water samples were collected at both the Seward and New Florence Bridges to examine potential contributary and accumulative effects of the Seward and Conemaugh Generating Stations as well as any additional contributing effects to water quality. Based on preliminary results provided in the SAP, minimal spatial variability occurred between the two stations and only the Seward Bridge site will be used moving forward for the Phase 1 and Phase 2 sampling.

This two-phased approach was agreed upon previously through conversations between the Clean Water Program and Conemaugh. Based on the overall review of the SAP, Conemaugh will follow all relevant protocols from the Department's Water Quality Monitoring Protocols for Streams and Rivers (2021), specifically sections 4.1 (In-Situ Field Meter and Transect Data Collection Protocol) and 4.2 (Discrete Water Chemistry Data Collection Protocol). The Phase 1 sampling (two sampling rounds) will occur at the bridge in Seward and used to determine Conemaugh River chemistry conformity by collecting transect data at the left descending bank (LDB), mid-channel (MID) and right descending bank (RDB). Specific parameters collected will be modeled off the determined source and cause of the impairment of the Conemaugh River which is currently Acid Mine Drainage (AMD) and metals, respectively. After demonstrating river conformity, the Phase 2 sampling plan will commence.

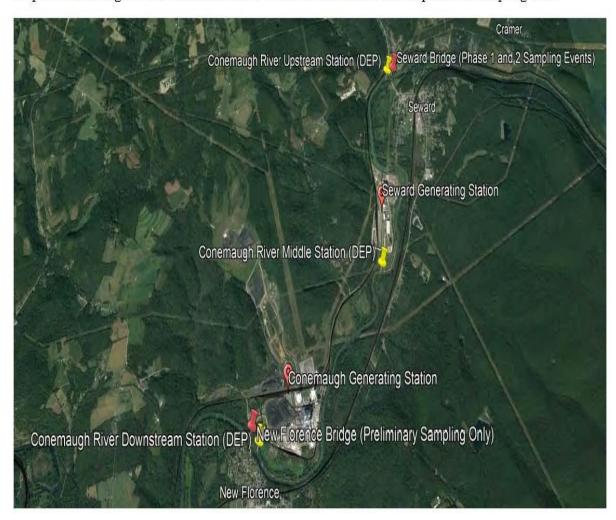
#### Brief overview of sampling:

- Preliminary Sampling Precursor to Phase 1. Preliminary round of samples at Seward and New Florence Bridges (completed). Results showed similar water chemistry between stations and uniformity across river channel. Based on these results, only sampling at Seward Bridge will occur for Phase 1 and Phase 2 sampling.
- Phase 1 two sampling rounds at Seward Bridge with collection at LDB, MID, and RDB.
   Gather information on if uniformity exists across river channel.
- Phase 2 Sampling at mid-channel only with 8-10 sampling events over a 4-5-week timeframe.
   Mid-channel only based on Phase 1 sampling and uniformity of water chemistry demonstrated.
   Also used to gather sufficient dataset to represent river background conditions.

The SAP demonstrated that a robust dataset of river conditions will be achieved during the Phase 1 and Phase 2 events. The SAP also demonstrated adherence to Department protocols for sample collection, appropriate field and laboratory sample analysis, equipment calibration, sample preservation, packing, and shipment and quality assurance / quality control (QA/QC). The Department concurs with the proper timing of river samples based on river flows at the USGS Gaging Station in Seward. One suggestion is that the SAP include a blank sample when collecting duplicate samples.

Conclusion. The SAP conformed with all Department methodology and sampling protocols, QA/QC, laboratory analysis and proper timing of river sampling. Based on the SAP, the Department will allow sampling to commence immediately.

Map 1. Conemaugh River with locations of Phase I and Phase 2 and Department sampling sites.



Appendix B

Field Forms and Laboratory Reports—Phase I Sampling Program

#### DAILY FIELD REPORT

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

COCOMONG Sta

CONCOMONG STA



PURPOSE OF SITE VISIT:
Conemaugh River Samples -TMD
ARRIVAL TIME: 1145 A.
SITE DOCUMENTATION: APEX: Brontley Rice on-Site
- Conemough River Data - USGS Website - Seward, DA Station
- 0.545 A - Lost Dota Update
-0630A - Instantaneous Flow -553 cfs
- 25th percentile - 576 cfs
- Median - 893 cfs
- 75th percentile - 1450 cfs.
- 5/31/22 Discharge a as45A - 572 cfs
- Colibrate Horiba Multi-Meter - Auto Colibrate - OK
- Somples / Field Dota.
- Sewald Bridge - Approx width of River - ~ 240'
- Sample a) MID River - ~120'
- Somple at LMID River - ~ 60' Left MID
- Sample a RMID River - ~ 60' Right MID
DEPARTURE TIME: 1210 b
COPIES TO:
APEX REPRESENTATIVE (CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: Clay Walker PRINT NAME:

#### DAILY FIELD REPORT (continued)

PROJECT NAME: PROJECT LOCATION: APEX PROJECT NO:

Conemough Sta. Conemough Diver TMBL 1147-5011 6/1/2022



- Seward - MID / Seward - FD (Field DUP)
- Water Depth - ~ 3.5' - Sample Depth - ~ 1.5'
- LAT/LON - 40.4197755, -79.0260426
- Sample Time - 1215p
- Field Parameter Time - 1222>
-Temp - 22,96
-PH - 6.58
-SL - 0.657
-NTU - 5.1
- Do- 9.22
* Note - Seward-FB Sample a) 1217 ja
· · · · · · · · · · · · · · · · · · ·
- Seward - LMID
- Water Depth - ~1.0' - Sample Depth ~ 0.5'
- LAT/LON - 40.4200042, -79.0260409
-Somple Time - 1230>
- Field Palameter Time - 1234>
-Temp - 24.80
-PH - 7.34
-56- 0,605
-NTU = 5.0
-Do- 5.66
N N N N N N N N N N N N N N N N N N N

#### DAILY FIELD REPORT (continued)

Sheet 3 of 3

PROJECT NAME:
PROJECT LOCATION:
APEX PROJECT NO;
DATE:

Conemough Sta. Conemough River - 7MDL 1147-5011 6/11/2022



Sevard - RMIE	7		900 Au
		-Somple Depth ~2,0'	
- LAT/ LON -		SAME CONTROL OF THE C	
- Sample Time			
- Field Parame	for Time - 1245	7	2000-2010 A D 2000-0010
	24.08		
- H.G			277
	0,617		
- NTU -	4.4	1000	
- DO - 5	5.17.		
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	700		
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			1 N A A A A A A A A A A A A A A A A A A

*** Lat	*** Lab Work Order #			·	ANALY	ANALYTICAL SERVICES Chain of Custody (©CC)	ANALYTICAL SERVICES Chain of Custody (©CC)					Shuff	Shuttle/Cooler ID#	#			
	Company						o o		1	1		<b> </b>	E-mail Address	iress			
	Mailing Address						Telephone No.						Landfill Site	te s			2
nillia	City, State, Zip						State Sampled	5.5 <b>-</b> 2.3 mpled	.0	PWS Number	Jec		Date Results Required	Its Requ	lired		
pecial	Special Instruction/Project ID/Analyte List/Comment.	rte List/Com	ment:	*PC-1: Nitric acid ( *PC-2: Hydrochloria *PC-3: Sulfuric acid *PC-4: Sodium Thiy *PC-6: Ascorbic ac *PC-6: Ascorbic ac *PC-7: Zinc acetate Hydroxide (NaOH) *PC-8: Ammonium *PC-9: Copper Sulf	*PC-1: Nitrie acid (HNO <sub>3</sub> )  *PC-2: Hydrochloric acid (HCL)  *PC-3: Sulfuric acid (HSO <sub>4</sub> )  *PC-3: Sodium Hydroxide (NaOH)  *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )  *PC-6: Ascorbic acid (C <sub>4</sub> H <sub>3</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> O <sub>4</sub> )  *PC-7: Zinc acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> O <sub>4</sub> )	HCL)  ),1) (NacSp.)	To Containers  Preservative*:	Enter 'X' in box below to indicate request and use appropriate preservation code listed to the left into the left preservation code listed to the left preserva	to second for	AN A	A N A L Y S I S	d use ap	REQUESTED se appropriate pres	E D preserva	Ifon code	t betsil t	o the lef
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0	T SAMPLE	Lab Use Only	DATE SAMPLED	TIME (24 hr)	SAMPLE	SAMPLE	Dissolved Field Filte	Field Filte	16.23c Preservativ 93cr2c4 Preservatir	Preservativ	Preservation	Preservativ Preservativ	Preservativ Preservatir	Preservativ	Preservativ Preservativ	Preservativ	Preservatiy Preservatiy
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ample	Sample Type: G Grab C Composite D Distribution/DW	mposite D	Distribution/L		E Entry Point/DW	R Raw/DW	S Special/DW	OW Other	2	IZ Not I	lazardou	S/HZ H	nHZ Not Hazardous / HZ Hazardous		100000		

84



2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Monday, June 6, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2206086

Dear Shelley Wojciechowski:

Geochemical Testing received 4 sample(s) on 6/1/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 06-Jun-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2206086

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



Sodium

Hardness (SM 2340B)

#### **Laboratory Results**

#### **Geochemical Testing**

Date: 06-Jun-22

CLIENT:	CONEMAUGH OPERATING, LLC	Client Sample ID: Seward - MID

21.9

236

**Lab Order:** G2206086

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2206086-001Collection Date:6/1/2022 12:15:00 PMMatrix:SURFACE WATERReceived Date:6/1/2022 3:20:45 PM

Result QL Analyses Units Date Prepared **Date Analyzed INORGANIC NON-METALS** Analyst: LAP SM 2310B(4A) SM 2310B(4A) mg/L CaCO3 1 Acidity to pH 8.3 -27 06/02/22 10:56 AM 06/02/22 12:19 PM PH BY SM 4500 H+B SM 4500-H+ B Analyst: LAP 7.69 S.U. 06/02/22 10:33 AM Lab pH Н PHYSICAL TESTS Analyst: GMG SM 2540 D SM 2540 D mg/L 06/02/22 2:51 PM Total suspended solids 5 2 06/02/22 2:45 PM **INORGANIC NON-METALS** ASTM D 1067-11 Analyst: LAP 06/02/22 10:33 AM Alkalinity to pH 4.5 38 10 mg/L CaCO3 1 **INORGANIC NON-METALS** EPA 300.0 REV 2.1 EPA 300.0 REV 2.1 Analyst: ACW Sulfate 203 2.0 mg/L 06/02/22 7:20 AM 06/02/22 9:08 AM **INORGANIC METALS** Analyst: LEB EPA 200.2 EPA 200.7 REV 4.4 Aluminum 0.2 0.1 mg/L 06/02/22 9:25 AM 06/02/22 10:07 PM Calcium 61.8 0.1 mg/L 06/02/22 9:25 AM 06/02/22 10:07 PM 0.89 0.05 mg/L 06/02/22 9:25 AM 06/02/22 10:07 PM Iron 06/02/22 9:25 AM 06/02/22 10:07 PM Magnesium 198 0.1 mg/L Manganese 0.40 0.01 mg/L 06/02/22 9:25 AM 06/02/22 10:07 PM

0.2

1.0

mg/L

mg/L CaCO3 1

1



06/02/22 9:25 AM 06/02/22 10:07 PM

06/02/22 9:25 AM 06/02/22 10:07 PM

# **Geochemical Testing**

Date: 06-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - FD

Lab Order: G2206086

Sampled By: Project: Conemaugh River Surface Water Apex Companies Collection Date: 6/1/2022 12:17:00 PM Lab ID: G2206086-002

Received Date: 6/1/2022 3:20:45 PM Matrix: SURFACE WATER

Matrix: 5	UKPACE WATER				Received D.	acc.	0/1/2022 5,20,-	ro I IVI
Analyses		Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-M	METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3		-27			mg/L CaCO3	1	06/02/22 10:56 AM	06/02/22 12:21 PN
PH BY SM 4500 H+	В		Analyst:	LAP				SM 4500-H+ B
Lab pH		7.71		Н	S.U.	1		06/02/22 10:37 AN
PHYSICAL TESTS			Analyst:	GMG			SM 2540 D	SM 2540 D
Total suspended solids	i	5	2		mg/L	1	06/02/22 2:45 PM	06/02/22 2:51 PM
INORGANIC NON-N	METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5		40	10		mg/L CaCO3	1		06/02/22 10:37 AN
INORGANIC NON-M	METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate		203	2.0		mg/L	1	06/02/22 7:20 AM	06/02/22 9:44 AM
INORGANIC META	LS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum		0.3	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Calcium		61.6	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Iron		0.90	0.05		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Magnesium		19.8	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Manganese		0.40	0.01		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Sodium		21.9	0.2		mg/L	1	06/02/22 9:25 AM	06/02/22 10:10 PM
Hardness (SM 2340B)		235	1.0		mg/L CaCO3	1	06/02/22 9:25 AM	06/02/22 10:10 PM



# **Geochemical Testing**

Date: 06-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - LMID

Lab Order: G2206086

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2206086-003Collection Date:6/1/2022 12:30:00 PM

 Matrix:
 SURFACE WATER
 Received Date:
 6/1/2022 3:20:45 PM

Mairix. SOM ACL WA	ILAC			necent car B,		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-25			mg/L CaCO3	1	06/02/22 10:56 AM	06/02/22 12:23 PN
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.68		Н	S.U.	1		06/02/22 10:42 AN
PHYSICAL TESTS		Analyst:	GMG			SM 2540 D	SM 2540 D
Total suspended solids	4	2		mg/L	1	06/02/22 2:45 PM	06/02/22 2:51 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	43	10		mg/L CaCO3	1		06/02/22 10:42 AN
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	203	2.0		mg/L	1	06/02/22 7:20 AM	06/02/22 9:56 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.3	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Calcium	60.5	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Iron	0.90	0.05		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Magnesium	19.5	0.1		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Manganese	0.40	0.01		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Sodium	21.5	0.2		mg/L	1	06/02/22 9:25 AM	06/02/22 10:12 PM
Hardness (SM 2340B)	231	1.0		mg/L CaCO3	1	06/02/22 9:25 AM	06/02/22 10:12 PM



#### **Geochemical Testing**

Date: 06-Jun-22

vard - RMID
varo

**Lab Order:** G2206086

Project:Concmaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2206086-004Collection Date:6/1/2022 12:39:00 PMMatrix:SURFACE WATERReceived Date:6/1/2022 3:20:45 PM

Result QLAnalyses Units Date Prepared **Date Analyzed INORGANIC NON-METALS** Analyst: LAP SM 2310B(4A) SM 2310B(4A) mg/L CaCO3 1 Acidity to pH 8.3 -25 06/02/22 10:56 AM 06/02/22 12:26 PM PH BY SM 4500 H+B SM 4500-H+ B Analyst: LAP 7.75 S.U. 06/02/22 10:46 AM Lab pH Н PHYSICAL TESTS Analyst: GMG SM 2540 D SM 2540 D mg/L 06/02/22 2:51 PM Total suspended solids 3 2 06/02/22 2:45 PM **INORGANIC NON-METALS** ASTM D 1067-11 Analyst: LAP 06/02/22 10:46 AM Alkalinity to pH 4.5 41 10 mg/L CaCO3 1 **INORGANIC NON-METALS** EPA 300.0 REV 2.1 EPA 300.0 REV 2.1 Analyst: ACW Sulfate 205 2.0 mg/L 06/02/22 7:20 AM 06/02/22 10:08 AM **INORGANIC METALS** EPA 200.2 EPA 200.7 REV 4.4 Analyst: LEB Aluminum 0.2 0.1 mg/L 06/02/22 9:25 AM 06/02/22 10:28 PM Calcium 62.2 0.1 mg/L 06/02/22 9:25 AM 06/02/22 10:28 PM 0.05 mg/L 06/02/22 9:25 AM 06/02/22 10:28 PM Iron 0.85 20.0 06/02/22 9:25 AM 06/02/22 10:28 PM Magnesium 0.1 mg/L Manganese 0.40 0.01 mg/L 06/02/22 9:25 AM 06/02/22 10:28 PM Sodium 22.1 0.2 mg/L 1 06/02/22 9:25 AM 06/02/22 10:28 PM Hardness (SM 2340B) 238 mg/L CaCO3 1 06/02/22 9:25 AM 06/02/22 10:28 PM 1.0



#### DAILY FIELD REPORT

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

Concress Sta.



PURPOSE OF SITE VISIT:
Conemough River Samples - TMDL
ARRIVAL TIME: AOSOA
SITE DOCUMENTATION: APEX: Breatley Rice on-site
-Conemargh River Data - USGS Website - Seward Station
- OSHSA - Lost update
- 0630 A - Instantaneous Flow - 651 cfs
- 25th percentile - 514 cfs
- Median - 724 cfs
- 75th percentile - 1080 CFS
-6/12/22 Discharge a) 0545A - 631 Cfs.
- Collibrate Horiba Multi Meter - Auto CalOK.
- Seward Bridge - Approx River width ~ 280'
-MID RIVER Sample 1 ~ 125'
- LMID River Sample ~ 63' Left MID
- RMID River Sample ~ 63' Right MID
DEPARTURE TIME: 1030A
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: Clay Wolker PRINT NAME:

#### DAILY FIELD REPORT (continued)

Sheet 2 of 3

PROJECT NAME: PROJECT LOCATION: APEX PROJECT NO: DATE; Conemough Stu. Conemough River-TMUL 1147-5011 6/13/2022



Sewer J-MID	
-Water Depth ~4.0'	-Sample Depth ~ 2.0'
- LAT/LONG 40,4197142,	*** **** ***** ***** ***** ***** ***** ****
- Sample Time - 0846	
- Field Poismeter Time - 08	53
-Temp - 20.63"	
- PH - 6.01	
- 56 - 0,564	
-NTU - 29.8	
-Do - 7.61	19094810: 1 (62.2
Seward - LMID	_
	- Sample Depth ~ 1.0'
- LAT/LONG 40.4200160,	
- Sample Time - 0906	
- Field Poismeter Time - C	910
-Temp - 20.26	407-1-
1P.3 - HG-	
- SC - 0.514	
- NTU - 34.7	
- Do - 5.68	
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#### DAILY FIELD REPORT (continued)

Sheet 3 of 3

PROJECT NAME: PROJECT LOCATION: APEX PROJECT NO: DATE: Conemough Sta Conemough River AMBL 1147-Soll 6/13/2022



- Seward - RMID / Seward - FD (Field DUP)	
"Water Depth ~4.0' -Sample Depth ~20'	
- LAT/LUNG 40.4195195, -79.0260352	
- Sample Time - RMID-0922 -FD-0924	<del>Valence</del>
- Field Parameter Time - 0928	
-Temp - 20.44	
- pH - 7.17	
- SC - 0.534	
- NTU - 20.Z	
- 20 - 6.69	
- Seward -TB (Trip Blank)	
- Sample Time -0932	
- Samples on ICE / To Geochemical & End of Day	
	* +

					á	Chair	Chain of Custody (COC)	000	0		. 7			Shu	ttle/Cc	Shuttle/Cooler ID#			::# 9:	
	Company	1					(Page 1)	91	 -			١.			Е-таі	E-mail Address			ŀ	
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	New Florence	P						State	State Sampled	_	<u> </u>	PWS Number	per		Date F	Date Results Required	equirec		117	82
Specia	Special Instruction/Project ID/Analyte List/Comment:	te List/Co	mment:	ِي *	-1: Nitric	Nitric acid (HNO3)					1	Ā	ANALYSIS	SRE	QUE	REQUESTED				
12 - 13 - 1		, id		*PC-2	-2: Hydrod 3: Stuffuri	*PC-2: Hydrochloric acid (HCL) *PC-3: Sulfune acid (H.SO.)	HCL)		Enter 'X' in box below to indicate request and	box be	low to ii	ndicate r	equest 8	esn pu	appropr	use appropriate preservation code listed to the left	ervation	code lis	sted to the	he left
				*PC-4	4: Sodium 5: Sodium 6: Ascorb	*PC-4: Sodium Hydroxide (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-6: Ascorbic acid (C <sub>4</sub> H <sub>2</sub> O <sub>6</sub> )	4. NaOH) (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) O <sub>6</sub> )	s,	*5: Talanur phi Saf- CC		s lossi				V.		-	gr.		
				#	*PC-7; Zinc acetate Hydroxide (NaOH) *PC-8: Ammonium *PC-9: Copper Sulf *PC-1; Ice *PC-N: 1	*PC-7: Zinc acetate (CallaO.Zn) / Sodi Hydroxide (NaOH) *PC-8: Ammonium chloride (NH <sub>2</sub> CL) *PC-9: Copper Sulfate (CuSO <sub>4</sub> -5H <sub>2</sub> O) *PC-1: Ice *PC-N: None *PC-O: Other	*PC-7: Zinc acetate (CalisO.Zn) / Sodium Hydroxide (NaOH) *PC-8: Ammonium chloride (NH <sub>2</sub> CL) *PC-9: Copper Sulfate (CuSO <sub>4</sub> .5H <sub>2</sub> O) *PC-1: (ce *PC-N: None *PC-O: Other	iber of Container	V/W Preservativ	85-0 W-7	m-Tor, 5,001			ä	* *	*				-1
SR 1st	SR 1st Review: CS 2nd Review:	Review:			16 7		8 E		:bar	C) (2)	€ -1-0 €	1000	:*84	19.5		1		200		
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Printed	Printed Sampler Name: スイピメ	Г	7					4	Logged in by:	1		ŀ		.		Date/Time:				
Sample Type.	,	, J.	D Dietribution/DW		mace we	W. F.	PW Potable water	-	www.wastewater so	aler	<i>n</i> _	N 101	SL Sludge	Coal	PO	PO/Quote #:	a 1	-		
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2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Tuesday, June 21, 2022

Shelley Wojciechowski CONEMAUGH OPERATING, LLC CONEMAUGH STATION PO BOX K NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2206843

Dear Shelley Wojciechowski:

Geochemical Testing received 5 sample(s) on 6/13/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Timely W Bay how

Leslie A. Nemeth Project Manager



Geochemical Testing

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC
Project: Conemaugh River Surface Water

Lab Order: G2206843

CASE NARRATIVE

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value

Q - Qualifier QL -Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits

T - Sample received above required temperature and is not compliant with 40CFR136 Table II.

T1 - Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



# **Geochemical Testing**

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - MID

Lab Order: G2206843

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2206843-001
 Collection Date:
 6/13/2022 8:46:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/13/2022 1:34:28 PM

IER			Received De	acc.	0/13/2022 1.54	.201141
Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
	Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
-25			mg/L CaCO3	1	06/14/22 11:16 AM	I 06/14/22 11:36 AN
	Analyst:	LAP				SM 4500-H+ B
7.46		Н	S.U.	1		06/14/22 8:53 AM
	Analyst:	AGF			SM 2540 D	SM 2540 D
16	2		mg/L	1	06/14/22 1:30 PM	06/14/22 1:41 PM
	Analyst:	LAP				ASTM D 1067-11
38	10		mg/L CaCO3	1		06/14/22 8:53 AM
	Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
158	2.0		mg/L	1	06/13/22 3:30 PM	06/13/22 8:51 PM
	Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
0.6	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
48.4	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
1.46	0.05		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
15.0	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
0.35	0.01		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
18.1	0.2		mg/L	1	06/15/22 9:30 AM	06/15/22 4:29 PM
183	1.0		mg/L CaCO3	1	06/15/22 9:30 AM	06/15/22 4:29 PM
	7.46 7.46 16 38 158 0.6 48.4 1.46 15.0 0.35 18.1	Result QL  Analyst:   -25  Analyst:   7.46  Analyst:   16	Result         QL         Q           Analyst: LAP         -25           Analyst: LAP         7.46         H           Analyst: AGF         16         2           Analyst: LAP         38         10           Analyst: LAP         38         10           Analyst: LEB         0.6         0.1           48.4         0.1         1.46           15.0         0.1         0.35           15.1         0.2         0.2	Result   QL   Q   Units	Result         QL         Q         Units         DF           Analyst: LAP         -25         mg/L CaCO3 1           Analyst: LAP         7.46         H         S.U.         1           Analyst: AGF         1         Analyst: LAP           38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           Analyst: LAP         38         10         mg/L         1           4         1         1         <	Result   QL   Q   Units   DF   Date Prepared

# **Geochemical Testing**

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - LMID

Lab Order: G2206843

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2206843-002
 Collection Date:
 6/13/2022 9:06:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/13/2022 1:34:28 PM

Matrix: SURFACE WA	IER			Received Da	ate.	0/13/2022 1.34	.20 FW
Analyses	Result	$_{ m QL}$	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst: I	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-22			mg/L CaCO3	1	06/14/22 11:16 AM	06/14/22 11:39 AN
PH BY SM 4500 H+B		Analyst: I	LAP				SM 4500-H+ B
Lab pH	7.43		Н	S.U.	1		06/14/22 8:57 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	16	2		mg/L	1	06/14/22 1:30 PM	06/14/22 1:41 PM
INORGANIC NON-METALS		Analyst: I	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	37	10		mg/L CaCO3	1		06/14/22 8:57 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	155	2.0		mg/L	1	06/13/22 3:30 PM	06/13/22 9:03 PM
INORGANIC METALS		Analyst: I	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.7	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Calcium	48.2	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Iron	1.48	0.05		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Magnesium	15.0	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Manganese	0.35	0.01		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Sodium	18.1	0.2		mg/L	1	06/15/22 9:30 AM	06/15/22 4:32 PM
Hardness (SM 2340B)	182	1.0		mg/L CaCO3	1	06/15/22 9:30 AM	06/15/22 4:32 PM



# **Geochemical Testing**

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - RMID

Lab Order: G2206843

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2206843-003
 Collection Date:
 6/13/2022 9:22:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/13/2022 1:34:28 PM

Matrix: SURFACE WA	IER			Received D	acc.	0/13/2022 1.54	.20114
Analyses	Result	$_{ m QL}$	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst: L	AP.			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-22			mg/L CaCO3	1	06/14/22 11:16 AM	I 06/14/22 11:41 AM
PH BY SM 4500 H+B		Analyst: L	AP.				SM 4500-H+ B
Lab pH	7.56		Н	S.U.	1		06/14/22 9:02 AM
PHYSICAL TESTS		Analyst: A	GF			SM 2540 D	SM 2540 D
Total suspended solids	11	2		mg/L	1	06/14/22 1:30 PM	06/14/22 1:41 PM
INORGANIC NON-METALS		Analyst: L	AP.				ASTM D 1067-11
Alkalinity to pH 4.5	38	10		mg/L CaCO3	1		06/14/22 9:02 AM
INORGANIC NON-METALS		Analyst: A	CW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	165	2.0		mg/L	1	06/13/22 3:30 PM	06/13/22 9:15 PM
INORGANIC METALS		Analyst: L	EB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.4	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Calcium	49.6	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Iron	1.28	0.05		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Magnesium	15.5	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Manganese	0.33	0.01		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Sodium	19.2	0.2		mg/L	1	06/15/22 9:30 AM	06/15/22 4:34 PM
Hardness (SM 2340B)	187	1.0		mg/L CaCO3	1	06/15/22 9:30 AM	06/15/22 4:34 PM



# **Geochemical Testing**

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - FD

Lab Order: G2206843

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2206843-004
 Collection Date:
 6/13/2022 9:24:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/13/2022 1:34:28 PM

Matrix: SURFACE WA	IER			Received Da	acc.	0/13/2022 1.54	LO I IVI
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-22			mg/L CaCO3	1	06/14/22 11:16 AM	06/14/22 11:44 AI
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.56		Н	S.U.	1		06/14/22 9:06 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	10	2		mg/L	1	06/14/22 1:30 PM	06/14/22 1:41 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	38	10		mg/L CaCO3	1		06/14/22 9:06 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.
Sulfate	166	2.0		mg/L	1	06/13/22 3:30 PM	06/13/22 9:27 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.4	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Calcium	51.6	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Iron	1.19	0.05		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Magnesium	16.1	0.1		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Manganese	0.34	0.01		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Sodium	19.1	0.2		mg/L	1	06/15/22 9:30 AM	06/15/22 4:37 PM
Hardness (SM 2340B)	195	1.0		mg/L CaCO3	1	06/15/22 9:30 AM	06/15/22 4:37 PM

# **Geochemical Testing**

Date: 21-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward - TB

Lab Order: G2206843

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2206843-005
 Collection Date:
 6/13/2022 9:32:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/13/2022 1:34:28 PM

name of the second	LLIC						
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	11			mg/L CaCO3	1	06/14/22 11:16 AM	06/14/22 11:46 A
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	5.03		Н	S.U.	1		06/14/22 9:11 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	< 2	2		mg/L	1	06/14/22 1:30 PM	06/14/22 1:41 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	< 10	10		mg/L CaCO3	1		06/14/22 9:11 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.
Sulfate	< 2.0	2.0		mg/L	1	06/13/22 3:30 PM	06/13/22 9:39 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.
Aluminum	< 0.1	0.1		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Calcium	< 0.1	0.1		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Iron	< 0.05	0.05		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Magnesium	< 0.1	0.1		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Manganese	< 0.01	0.01		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Sodium	< 0.2	0.2		mg/L	1	06/15/22 10:20 AM	06/17/22 4:11 PM
Hardness (SM 2340B)	< 1.0	1.0		mg/L CaCO3	1	06/15/22 10:20 AM	06/17/22 4:11 PM



NPDES Permit No. PA0005011 A-2

Appendix C

Field Forms and Laboratory Reports—Phase II Sampling Program

#### DAILY FIELD REPORT

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

CONEMBUSH Sto.

CONEMBUSH ST



PURPOSE OF SITE VISIT:
Concraugh River Somples - TMDL
ARRIVAL TIME: OBJOA
SITE DOCUMENTATION: APEX: Breatley Rice on-site
- Conemargh River Data - USGS Website - Seward Station
-OS45A - Lost Site update
- 0615 A - Instantaneous Flow - 487 Cfs
- 25 th Percentile - 433 Cfs
- Median - 597 cfs
- 75th Dercentile - 996 cfs
- 6/23/2022 - Discharge a 0545A - 6/1 Cfs
- Colibrate Horiba Mult:-Meter - Auto Col - OK
- Seword Bridge - Approx River width ~ 200 240'
- MID River Sample @ ~ 120'
Sample Data - Phose II
- Seward -TB (Trip Blank)
- Sample Time - 0848 A.
DEPARTURE TIME: 1000 A
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: Clay Walker PRINT NAME:

Sheet 2 of Z

#### DAILY FIELD REPORT (continued)

REPORT (continued)

PROJECT NAME: PROJECT LOCATION: APEX PROJECT NO:

Conomough River-TMDL 1147-5011 6/24/2022



- Seword - MID	/ Seword - FD (	Field DUP)			
- Water Dep	oth ~ 3.0'	- Samj	le Depth ~ 1.	5'	
- LAT/LON	- 40.4197615, -7	9,0260758	70s	100,000	
	me - MID - 08:				
- Sample Tin	ne - FD - 081	HOA			
- Field Paran	neter Time - 084	15 A.			
- Tem	p - 22.02°6				
HG -	- 5.98			TTP YOURSE )	
- <u>5</u> c	- 0.662			1111	
- NT(	) - [[.]			177	
- <i>po</i>	- 6.62	3+6		of (c) at	7.1
****		1			
- Samples on 10	ie from Station	To Geochen	nicol		-1.
- Samples on 10	ie from Station	To Geochen	വ്ധി	- A	
- Samples on 10	ie from Station	To Geochen	nicol	7 <del></del>	
· Samples on 10	ie from Station	To Geochen	nicol		
· Samples on 14	ie from Station	To Geochen	വ്ധി		
· Somples on 10	ie from Station	1 To Geochen	nicol		
· Somples on 10	ie from Station	To Geochen	nicol		
· Somples on 14	ie from Station	1 To Geochen	nicol		
· Somples on 10	ie from Station	1 To Geochen	nicol		
· Somples on 10	ie from Station	1 To Geochen	nicol		
· Somples on 10	ie from Station	1 To beachen	nicol		
· Somples on 10	ie from Station	1 To Geochen	nicol		
· Somples on 10	ie from Station	1 To Geochen	nicol		
Samples on 14	ie from Station	1 To Geochen	nicol		
- Somples on 10	ie from Station	1 To Geochen	nicol		



2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Thursday, June 30, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2206G55

Dear Shelley Wojciechowski:

Geochemical Testing received 3 sample(s) on 6/24/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 30-Jun-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2206G55

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value. Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



# **Geochemical Testing**

Date: 30-Jun-22

Apex

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - Mid

Lab Order: G2206G55

Project: Conemaugh River Surface Water Sampled By:

 Lab ID:
 G2206G55-001
 Collection Date:
 6/24/2022 8:37:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 6/24/2022 1:32:58 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-21			mg/L CaCO3	1	06/28/22 12:35 PM	06/28/22 2:42 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.64		Н	S.U.	1		06/28/22 12:04 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	5	2		mg/L	1	06/27/22 1:45 PM	06/27/22 1:53 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	36	10		mg/L CaCO3	1		06/28/22 12:04 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	187	2.0		mg/L	1	06/27/22 9:20 AM	06/27/22 9:26 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.3	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Calcium	57.4	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Iron	0.92	0.05		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Magnesium	17.9	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Manganese	0.32	0.01		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Sodium	19.6	0.2		mg/L	1	06/27/22 10:00 AM	06/28/22 1:06 PM
Hardness (SM 2340B)	217	1.0		mg/L CaCO3	1	06/27/22 10:00 AM	06/28/22 1:06 PM



## **Geochemical Testing**

Date: 30-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - FD

Lab Order: G2206G55

Project: Conemaugh River Surface Water

Sampled By: Apex

Collection Date: 6/24/2022 8:40:00 AM

Lab ID: G2206G55-002

Matrix: SURFACE WATER

**Received Date:** 6/24/2022 1;32;58 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-15			mg/L CaCO3	1	06/28/22 12:35 PM	06/28/22 2:45 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.74		Н	S.U.	1		06/28/22 12:09 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	5	2		mg/L	1	06/27/22 1:45 PM	06/27/22 1:53 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	37	10		mg/L CaCO3	1		06/28/22 12:09 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	192	2.0		mg/L	1	06/27/22 9:20 AM	06/27/22 12:41 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.3	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Calcium	56.7	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Iron	0.88	0.05		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Magnesium	17.8	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Manganese	0.32	0.01		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Sodium	19.3	0.2		mg/L	1	06/27/22 10:00 AM	06/28/22 1:09 PM
Hardness (SM 2340B)	215	1.0		mg/L CaCO3	1	06/27/22 10:00 AM	06/28/22 1:09 PM



## **Geochemical Testing**

Date: 30-Jun-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - TB

Lab Order: G2206G55

Project: Conemaugh River Surface Water

Sampled By: Apex

Lab ID: G2206G55-003

Matrix: SURFACE WATER

Collection Date: 6/24/2022 8:48:00 AM Received Date: 6/24/2022 1:32:58 PM

Manna: Sold field Will	LLIC						
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	10			mg/L CaCO3	1	06/28/22 12:35 PM	06/28/22 2:47 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	5.19		Н	S.U.	1		06/28/22 12:14 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	< 2	2		mg/L	1	06/27/22 1:45 PM	06/27/22 1:53 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	< 10	10		mg/L CaCO3	1		06/28/22 12:14 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	< 2.0	2.0		mg/L	1	06/27/22 9:20 AM	06/27/22 10:08 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	< 0.1	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Calcium	< 0.1	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Iron	< 0.05	0.05		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Magnesium	< 0.1	0.1		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Manganese	< 0.01	0.01		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Sodium	< 0.2	0.2		mg/L	1	06/27/22 10:00 AM	06/28/22 1:12 PM
Hardness (SM 2340B)	< 1.0	1.0		mg/L CaCO3	1	06/27/22 10:00 AM	06/28/22 1:12 PM



#### DAILY FIELD REPORT



www.apexcos.com	
PURPOSE OF SITE VISIT:	5,82
Covenangh First Sampling - IMDL	
ARRIVAL TIME: 11150	
SITE DOCUMENTATION: Agex Carson K on-site	
- Concravel Piver Duta - USGS Website - Seward Station.	
-0745A - Last site update	
- 0745A - Instantaneous flow - 387 cfs	
- 25th percontile	Property of the Property of th
- Median - 495 cfs	
- 6/28/2022 - Discharge @ 0745 - 487 cfs	
- Calibrated Horiba Multi-Meter - Auto Cal OK	
_	
- Seward Bridge - Approx River Width - 240	
- MID Riser Sample @ 170	
- Seward MID	
- water Depth - 3.0" - Souple Depth - 1.5"	
- LAT / LON - 40.4197615 - 79.0260758	
- Sample Time - MID - B307	
- Field Promoters Time - 1338p	
-Temp - 22.69 ° - DO - 8.71	
- PH - 7.52	
- SC - 0.741	
- NTU - 9.6	
DEPARTURE TIME: 1250	
COPIES TO:	
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE	
SIGNATURE: SIGNATURE:	
PRINT NAME: Bastley S. Tire PRINT NAME:	

Daily Field Report

Company	Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:	E-mail Address Landfill Site Date Results Required R E Q U E S T E D se appropriate preservation t	Versions ops	5.00	Γ
Address  Address  Action/Project ID/Analyte List/Comment:  Action/Project ID/Analyte List/Comment:  Action/Project ID/Analyte List/Comment:  Action/Project ID/Analyte List/Comment:  PPC-1: Nitric acid (HNO <sub>3</sub> )  PPC-2: Hydrochloric acid (HCL)  PPC-3: Sulfunic acid (H <sub>2</sub> SO <sub>4</sub> )  PPC-4: Sodium Hydroxide (NaOH)  PPC-4: Sodium Hydroxide (NaOH)  PPC-5: Sodium Hydroxide (NaOH)  PPC-6: Ascorbic acid (C-H <sub>2</sub> O <sub>2</sub> )  PPC-7: Zinc acetate (C-H <sub>2</sub> O <sub>2</sub> )  PPC-7: Zinc acetate (C-H <sub>2</sub> O <sub>2</sub> )  PPC-7: Zinc acetate (C-H <sub>2</sub> O <sub>2</sub> )  PPC-8: Ammonium chloride (NH <sub>2</sub> CL)  PPC-9: Copper Sulfate (CuSO <sub>4</sub> ·SH <sub>2</sub> O)  PPC-9: Copper Sulfate (CuSO <sub>4</sub> ·SH <sub>2</sub> O)  PPC-1: Ite PPC-N: None *PC-O: Other  AMPLE ID Only SAMPLED (24 hr) MATRIX TYPE  AMONIUS (NAMPLE) SAMPLE (24 hr) MATRIX TYPE	PWS Number  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:	Date Results Req	uired		_
#PC-1: Nitric acid (HNO <sub>3</sub> )  *PC-2: Hydrochloric acid (HCL)  *PC-2: Hydrochloric acid (HCL)  *PC-3: Sulfuric acid (HCL)  *PC-4: Sodium Hydroxide (NaOH)  *PC-5: Sodium Hydroxide (NaOH)  *PC-6: Sodium Hydroxide (NaOH)  *PC-6: Sodium Hydroxide (NaOH)  *PC-6: Sodium Hydroxide (NaOH)  *PC-7: Zinc accrate (C-HsOZn) / Sodium  Hydroxide (NaOH)  *PC-7: Zinc accrate (C-HsOZn) / Sodium  Hydroxide (NaOH)  *PC-7: Zinc accrate (C-HsOZn) / Sodium  *PC-7: Zi	PWS Number  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:	Date Results Req	nired		
ction/Project ID/Analyte List/Comment: *PC-1: Nitric acid (HNO <sub>3</sub> ) *PC-2: Hydrochloric acid (HCL) *PC-2: Sulfuric acid (HcL) *PC-3: Sulfuric acid (HcL) *PC-4: Sodium Hydroxide (NaOH) *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-6: Ascorbic acid (C.H.O.A.) *PC-6: Ascorbic acid (C.H.O.A.) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaQL) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaQL) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaQL) *PC-7: Zinc acctate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-8: Copper Sulfate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-8: Copper Sulfate (C.H.O.A.) / Sodium Hydroxide (NaOH) *PC-9: Copper Sulfate (NaOH) *PC-	Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:  Preservative*:	REQUESTED appropriate preserve			1
*PC-3: Sulture acid (H <sub>2</sub> NO <sub>1</sub> ) *PC-4: Sodium Hydroxide (NaOH) *PC-4: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-6: Ascorbic acid (CAH <sub>2</sub> O <sub>2</sub> ) *PC-6: Ascorbic acid (CAH <sub>2</sub> O <sub>2</sub> ) *PC-7: Zinc acetate (CAH <sub>2</sub> O <sub>2</sub> ) / Sodium Hydroxide (NaOH) *PC-7: Zinc acetate (CAH <sub>2</sub> O <sub>2</sub> ) *PC-7: Zinc acetate (CAH <sub>2</sub> O <sub>2</sub> ) *PC-8: Ammonium chloride (NH <sub>2</sub> CL) *PC-8: Ammonium chloride (NH <sub>2</sub> CL) *PC-8: Ammonium chloride (NH <sub>2</sub> CL) *PC-9: Copper Sulfate (CuSO <sub>4</sub> -5H <sub>2</sub> O) *PC-1: Ice *PC-N: None *PC-O: Other *PC-1: Ice *PC-N: Ice *PC-N: None *PC-O: Other *PC-1: Ice *PC-N: I	Preservative*:  Preservative*:  Preservative*:	:*	ition code listed	to the left	
TSAMPLE ID  Only  Aptroxide (NaOH)  *PC-B. Copper Sulfate (CuSO <sub>4</sub> -SH <sub>2</sub> O)  *PC-B. Time SAMPLE SAMPLE  DATE TIME SAMPLE  TYPE  DATE  Only  Aptroxide (NaOH)  *PC-B. Toe *PC-N: None *PC-O: Other  Aummaher of Poseety attive *PC-O: Other  Aummahe	Preservative*:  Preservative*:  Preservative*:	*:			
CS 2nd Review:  TSAMPLE ID Lab Use DATE TIME SAMPLE SAMPLE Only SAMPLED (24 hr) MATRIX TYPE Tried Filtered:  TYPE TYPE TRIES SAMPLED (24 hr) MATRIX TYPE TYPE TYPE TYPE TYPE TYPE TYPE TYPE	Preservative*:  Preservative*:  Preservative*:	:*	3		persture on F
Lab Use DATE TIME SAMPLE SAMPLE Only SAMPLED (24 hr) MATRIX TYPE DESCRIVED TO 1230 S.C. (3) C.	Preservati Preservati Preservati	AG,	:*9V		wə,L (
MID Why 1330 SW G 5 XX		Preservati Preservati Preservati	Preservati Preservati	reservati	Cooler (s
	X				oN -
	3				OL
					Yes
					7
					ceipt:
					ea uc
					quese.
					ıce bı
Date/Time: 12/16/2021, 1475 Received by:	1100 A 11	Date/Time:	C/29/22	1425	Γ
Date/Time:		Date/Time:			
Ground Water ST Storm Water SW Surface Water PW Potable Water WW Wastewater	SO Soil SI Sludge	C Coal PO/Ougte #:			T
G Grab C Composite D Distribution/DW   E Entry Point/DW   R Raw/DW   S Special/DW   O OF	Other nHZ Not Hazardo	Z Hazardous			T



2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Wednesday, July 6, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2206I40

Dear Shelley Wojciechowski:

Geochemical Testing received 1 sample(s) on 6/29/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 06-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2206I40

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits

T - Sample received above required temperature and is not compliant with 40CFR136 Table II.

T1 - Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



## **Geochemical Testing**

Date: 06-Jul-22

Apex

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward MID

Lab Order: G2206I40

Project: Conemaugh River Surface Water Sampled By:

 Lab ID:
 G2206I40-001
 Collection Date:
 6/29/2022 1:30:00 PM

 Matrix:
 SURFACE WATER
 Received Date:
 6/29/2022 2:33:03 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-19			mg/L CaCO3	1	07/01/22 9:10 AM	07/01/22 11:01 AN
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.62		Н	S.U.	1		07/01/22 8:30 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	8	2		mg/L	1	06/30/22 11:50 AM	06/30/22 12:00 PN
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	38	10		mg/L CaCO3	1		07/01/22 8:30 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	207	2.0		mg/L	1	06/29/22 2:55 PM	06/29/22 9:27 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Calcium	62.3	0.1		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Iron	0.91	0.05		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Magnesium	19.2	0.1		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Manganese	0.30	0.01		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Sodium	19.9	0.2		mg/L	1	07/01/22 8:35 AM	07/05/22 9:33 AM
Hardness (SM 2340B)	235	1.0		mg/L CaCO3	1	07/01/22 8:35 AM	07/05/22 9:33 AM



#### **DAILY FIELD REPORT**



PURPOSE OF SITE VISIT:
Commungh Roser Sumpling - TMDL
ARRIVALTIME: 0820 A
SITE DOCUMENTATION:
- Conemany Piser Data - USGS Websik - Several Station
-0545A - Last site update
-0630 A - Instantanous flow - 342 css
- 75th percentile - 363 efs
- Median - 505 cfs
- 6/30/2022 - Discharge @ 0545 A - 361 cfs
- Calibrated Horiba Multi-Meter - Auto Cal ou
- Seward Bridge - Approx River Width - 250"
-MID Riv Sample @ 125
- Seward MID
- Water Depth - 3.0° - Sample Depth - 1.5°
- LAT (LON - 40.4197615 -79.0260758
- Sample Time - MID - 0840 - FD - 0843 - Field Blank - 0850
- Field Parameters Time - 08484
-Temp - ZZ.70° DO - 6.46
- pH - 6.36
- SC - 0.733
- NTV - 4.8 * Somples taken to Geo Chemical LAB
DEPARTURE TIME: 6 900 A
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: B-1572- / Um Wal SIGNATURE:
PRINT NAME: Brankley S. R. & Clay Walke PRINT NAME:

Daily Field Report

*** Lab Work Order #			Y	ANALYTICAL SERVICES Chain of Custody (COC)	ANALYTICAL SERVICES Chain of Custody (COC)		, s	9 12 17				Shut	Shuttle/Cooler ID#	er ID#			e NSD	5. 5
deveco	Station	(				Name		Shinishock	Shock		s 1	7.0	E-mail Address	ddress Shack o	aken	SCACO	. 60m	
Mailing Address	ורוח	737.16	+001	2		Teleph		735	163/7-	7	, iii	1 1	Landfill Site	Sife	; 1	-		501
City, State, Zip	7	L.				State	-	C 2	M <sub>M</sub>	PWS Number	a e		Date Res	Date Results Required	duired	3		
Special Instruction/Project ID/Analyte List/Comment:	List/Com	ment:		Nitric acid (HNO <sub>3</sub> ) Hydrochloric acid (HCL)	(HCL)	ıū	ANALYSIS Enter 'X' in box below to indicate request and	box belo	w to ind	A N A licate re	ANALYSI	R E	REQUESTED use appropriate pres		E D preservation code listed to the left	de liste	d to the	· left
Conemonal R. Trade	3 7		*PC-3: Sulfurie acti *PC-4: Sodium Hyo *PC-5: Sodium Thi *PC-6: Ascorbie ac *PC-7: Zinc acetate *PC-7: Zinc acetate *PC-8: Aimmonium *PC-9: Copper Sulf *PC-1: Ice *PC-N: N	Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )  Sodium Hydroxide (NaOH)  Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )  Ascorbic acid (C-H <sub>2</sub> O <sub>4</sub> )  Zinc acetate (C-H <sub>2</sub> O <sub>4</sub> Zn) / Sodi ide (NaOH)  Armonium chloride (NH <sub>2</sub> CL)  Copper Sulfate (CuSO <sub>4</sub> ·SH <sub>2</sub> O)  [ce *PC-N: None *PC-O: Other	Suffuric acid (H <sub>2</sub> SO <sub>4</sub> )  Sodium Hydroxide (NaOH)  Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>5</sub> )  Ascorbic acid (CeH <sub>2</sub> O <sub>2</sub> )  Zinc accutate (CeH <sub>2</sub> O <sub>4</sub> Zn) / Sodium ide (NaOH)  Ammonium chloride (NH <sub>2</sub> CL)  Copper Sulfate (CuSO <sub>4</sub> ·SH <sub>2</sub> O)  ce *PC-N: None *PC-O: Other	examinated to red	M Preservative*:	25-0.0 V-3- 21-5/1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	1-7			10 4 4 10	e e e		2 2 2 2 2 2			orature on Receipt
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Ö		ST Storm Water SI	SW Surface V	ice Water   PW F	PW Potable Water	W	ww Wastewater	-	SO Soil	SL Sludge	agpn	C Coal	18	ote #:				
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2005 N. Center Ave. Somerset, PA 15501

> 814/443-1671 814/445-6666 FAX: 814/445-6729

Friday, July 8, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2207012

Dear Shelley Wojciechowski:

Geochemical Testing received 3 sample(s) on 7/1/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 08-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2207012

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits

T - Sample received above required temperature and is not compliant with 40CFR136 Table II.

T1 - Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



## **Geochemical Testing**

Date: 08-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - MID

Lab Order: G2207012

Project: Conemaugh River Surface Water Sampled By: Apex

 Lab ID:
 G2207012-001
 Collection Date:
 7/1/2022 8:40:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 7/1/2022 10:22:29 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-21			mg/L CaCO3	1	07/06/22 11:48 AM	07/06/22 12:32 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.50		Н	S.U.	1		07/06/22 9:30 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	6	2		mg/L	1	07/05/22 1:00 PM	07/05/22 1:09 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	37	10		mg/L CaCO3	1		07/06/22 9:30 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	243	2.0		mg/L	1	07/01/22 10:45 AM	07/01/22 11:07 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Calcium	70.1	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Iron	0.76	0.05		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Magnesium	21.5	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Manganese	0.32	0.01		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Sodium	21.2	0.2		mg/L	1	07/05/22 9:30 AM	07/06/22 9:15 AM
Hardness (SM 2340B)	263	1.0		mg/L CaCO3	1	07/05/22 9:30 AM	07/06/22 9:15 AM



## **Geochemical Testing**

Date: 08-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - FD

Lab Order: G2207012

**Project:** Conemaugh River Surface Water

Sampled By: Apex

Lab ID: G2207012-002

Matrix: SURFACE WATER

**Collection Date:** 7/1/2022 8:43:00 AM **Received Date:** 7/1/2022 10:22:29 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-23			mg/L CaCO3	1	07/06/22 11:48 AM	07/06/22 12:37 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.52		Н	S.U.	1		07/06/22 9:38 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	4	2		mg/L	1	07/05/22 1:00 PM	07/05/22 1:09 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	36	10		mg/L CaCO3	1		07/06/22 9:38 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	239	2.0		mg/L	1	07/01/22 10:45 AM	07/01/22 12:31 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Calcium	71.4	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Iron	0.81	0.05		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Magnesium	21.7	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Manganese	0.32	0.01		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Sodium	21.7	0.2		mg/L	1	07/05/22 9:30 AM	07/06/22 9:28 AM
Hardness (SM 2340B)	268	1.0		mg/L CaCO3	1	07/05/22 9:30 AM	07/06/22 9:28 AM



## **Geochemical Testing**

Date: 08-Jul-22

Apex

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward - TB

Sampled By:

Lab Order: G2207012

Project: Conemaugh River Surface Water

 Lab ID:
 G2207012-003
 Collection Date:
 7/1/2022 8:50:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 7/1/2022 10:22:29 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	11			mg/L CaCO3	1	07/06/22 11:48 AM	07/06/22 12:40 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	5.00		Н	S.U.	1		07/06/22 9:42 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	< 2	2		mg/L	1	07/05/22 1:00 PM	07/05/22 1:09 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	< 10	10		mg/L CaCO3	1		07/06/22 9:42 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	< 2.0	2.0		mg/L	1	07/01/22 10:45 AM	07/01/22 12:45 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	< 0.1	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Calcium	< 0.1	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Iron	< 0.05	0.05		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Magnesium	< 0.1	0.1		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Manganese	< 0.01	0.01		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Sodium	< 0.2	0.2		mg/L	1	07/05/22 9:30 AM	07/06/22 9:31 AM
Hardness (SM 2340B)	< 1.0	1.0		mg/L CaCO3	1	07/05/22 9:30 AM	07/06/22 9:31 AM



#### **DAILY FIELD REPORT**

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONEMOUGH River - TMD

CONTRACTOR:

DATE:

WEATHER:

Conemough Station

Conemough River - TMD

Conemough Riv



PURPOSE OF SITE VISIT:		
Conema	ugh River Sompling - TMDL	
ARRIVAL TIME: 0830		
SITE DOCUMENTATION: APEX - Brontley	Rice on-site	
- Conemough River Dota - USG	65 website - Seward Station.	
-0530 - Lost Site upd	ole	
-0630 - Instantaneous F	How - 355 cfs	
- 25th Percentile - 341	cfs	
- Median - 457	cfs	
- 7/10/2022 Discharge a	0.530 - 374 cfs	
- Auto Cal. Horiba Multi-Met	ey - OK	
- Seword Bridge - Approx Total	width ~240'	
-MID River S	sample ~ 120'	
- Seward - MID	1	
- Water Depth ~ 3.0'	- Sample Depth ~1.5'	
- LAT/LON - 40.4197615	, -79.0260 758	
- Somple Time - 0858		
- Field Parameter Time - 09	905	
- Temp: 22.54.6	-Do: 9.94	
- 7H: 6.68	-NTU: 3,8	
- 56: 0.721		×
COPIES TO:	- Somples To Geochemical	
APEX REPRESENTATIVE	CONTRACTOR REPRESENTATIVE	
SIGNATURE: Cly Wah	SIGNATURE:	
PRINT NAME: Clay Walker	PRINT NAME:	

Daily Field Report

Special Billing Client				7		Che	ANALY IICAL SERVICES Chain of Custody (COC)	WICE:	0					Shuttle/Cooler ID#	Coole	# <u>1</u>	1		1	
Special Billing Clier	Company		-					Name	ł	1				ŭ	E-mail Address	dress				
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	Special Instruction/Project ID/Analyte List/Comment:	ct ID/Analy	te List/Com	ment:	*PC-1: Nitr	*PC-1: Nitric acid (HNO <sub>3</sub> ) *PC-2: Hydrochloric acid (HCL)	(HCL)	En	ANALYSIS REQUESTED Enter 'X' in box below to indicate request and use appropriate preservation code listed to the left	ox belov	v to indic	ANALYSIS	YSIS est and	R E Q use app	REQUESTE se appropriate pre	E D preserv	ation c	ode list	ed to th	ne left
	Conemary River	专力	Rich		*PC-3: Sulfuric aci *PC-4: Sodium Hyc *PC-5: Sodium Thi *PC-6: Ascorbic ac *PC-7: Zinc acctate Hydroxide (NaCH) *PC-8: Ammonium *PC-9: Copper Sulf *PC-9: Copper Sulf *PC-9: Copper Sulf *PC-9: Copper Sulf *PC-9: Copper Sulf	*PC-3: Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )  *PC-4: Sodium Hydroxide (NaOH)  *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )  *PC-6: Ascorbic acid (C <sub>6</sub> H <sub>6</sub> O <sub>6</sub> ZN) / Sodi  *PC-7: Zinc acctate (C <sub>4</sub> H <sub>6</sub> O <sub>4</sub> ZN) / Sodi  *PC-7: Annonium chloride (NH <sub>6</sub> CL)  *PC-8: Ammonium chloride (NH <sub>6</sub> CL)  *PC-9: Copper Sulfate (CuSO <sub>4</sub> ·SH <sub>2</sub> O <sub>7</sub> )	*PC-3: Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )  *PC-3: Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )  *PC-4: Sodium Hydroxide (NaOH)  *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )  *PC-5: Ascorbic acid (C <sub>4</sub> H <sub>6</sub> O <sub>4</sub> Zn) / Sodium Hydroxide (NaOH)  *PC-7: Zinc acctate (C <sub>4</sub> H <sub>6</sub> O <sub>4</sub> Zn) / Sodium Hydroxide (NaOH)  *PC-7: Copper Sulfate (CuSO <sub>4</sub> -5H <sub>2</sub> O)  *PC-9: Copper Sulfate (CuSO <sub>4</sub> -5H <sub>2</sub> O)	er of Containers	N Preservative*:	61-0.0 21-13-14_TOT, F.	1							=		
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rinted S	Printed Sampler Name:	APPX				100		Logged in by:	in by:						Date/	Date/Time:				
Sample Matrix:		GW Ground Water		ST Storm Water SW Surface Water	10		PW Potable Water	WW V	WW Wastewater		SO Soil	SL Sludge	ge C	C Coal PO/Quote #:	PO/Quo	te #:				
Sample Type:		srab C Co	mposite D	G Grab C Composite D Distribution/DW	_	E Entry Point/DW	R Raw/DW	S Spec	S Special/DW (	O Other		Not Ha	rardous	nHZ Not Hazardous / HZ Hazardous	zardous					



2005 N. Center Ave. Somerset, PA 15501

> 814/443-1671 814/445-6666 F AX: 814/445-6729

Thursday, July 14, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2207436

Dear Shelley Wojciechowski:

Geochemical Testing received 1 sample(s) on 7/11/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 14-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2207436

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

S - Surrogate Recovery outside accepted recovery limits

T - Sample received above required temperature and is not compliant with 40CFR136 Table II.

T1 - Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



## **Geochemical Testing**

Date: 14-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC

Client Sample ID: Seward-Mid

G2207436 Lab Order:

Sampled By: Project: Conemaugh River Surface Water Apex

Collection Date: 7/11/2022 8:58:00 AM G2207436-001 Lab ID: Received Date: 7/11/2022 10;34;23 AM Matrix: SURFACE WATER

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-34			mg/L CaCO3	1	07/12/22 9:51 AM	07/12/22 11:34 AM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.70		Н	S.U.	1		07/12/22 9:13 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	4	2		mg/L	1	07/12/22 11:15 AM	07/12/22 11:21 AN
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	49	10		mg/L CaCO3	1		07/12/22 9:13 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	214	2.0		mg/L	1	07/11/22 1:20 PM	07/11/22 5:03 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Calcium	62.9	0.1		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Iron	0.79	0.05		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Magnesium	19.8	0.1		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Manganese	0.26	0.01		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Sodium	28.4	0.2		mg/L	1	07/11/22 12:00 PM	07/12/22 7:19 PM
Hardness (SM 2340B)	239	1.0		mg/L CaCO3	1	07/11/22 12:00 PM	07/12/22 7:19 PM



#### **DAILY FIELD REPORT**

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

CAMBRIGH Station

Consumant Five TMS

1147-5011

7/15/2022

Clear 75"



PURPOSE OF SITE VISIT:
Conemaugh River Sampling - IMDL
ARRIVAL TIME: /D30
SITE DOCUMENTATION: ADEX - Cargon K on - site
Comemough Piver Data - USGS Website - Separal
-CB30 - Cast site update
-0900 - Instartaneous Flow - 317 cfs - 25th percertie - 321 cfs
- Median - 4/4/ cfs
- 7/15/2012 discharge @ 0830 cfs
- Aporto Cal Horiba Multi Metar - Ol
Mento Cali Moriba Multi Meta Ou
- See I had - As The walk - and
- Sewerd bridge - Approx Total Width -2 240' - MID River Sample - 120'
111 K30 Sample -2 108
Seward - MID / Seward - FD (Field DUP)
- water Depth - 3.0° - Sample Depth - 1.5°
- LAT/LON - 40.7197615 , -79.0260758
- Sample Time: 1040 FD: 1045 * Sound TB (Trip Blank)
- Tield Parameters: Sample Time: 1055
-Temp: 23.99° L - Do: 7.01
- PH: 8.05 - NTU: 4.0
-SC: 6.731
* Souple Token to GreoChemical
DEPARTURE TIME: 120
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: Brantley 5. Zecl PRINT NAME:

Daily Field Report

S			The second secon				5											
Company		A CAROLLES IN	777	1 H		Nam	Name		U	1		ш_	E-mail Address	2 3				1. Sec. 1
C Mailing Address	15	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	7 1445 0		1 to 10	24	Telephone No.	e No.		0		120	Landfill Site	Site	07 T		30	Let 1
City, State, Zip			DO			5	State Sam			PWS Number	Ser		Date Results Required	ts Requi	pa			
ecial Instructiv	t Di	e List/Com	ment	*PC-1: Nitrie *PC-2: Hydro	*PC-1: Nitrie acid (HNO <sub>5</sub> ) *PC-2: Hydrochloric acid (HCL)	HCL)	, Enter	Enter 'X' in box	ト A NAエY S x below to indicate request	A N.A	ANA⊥YSIS ate request and	6. (1042)	E S T	E.D. preservation	on code listed	listed to	to the left	
Ö	onemaigh TMDC	7.06		*PC-3: Sulfuțic aci *PC-4: Sodium Hya *PC-5: Sodium Thi *PC-6: Ascorbic ac *PC-7: Zinc acetate Hydroxide (NaOH) *PC-8: Ammonium *PC-9: Copper Sulf *PC-1: Ice *PC-N: 1	*PC-3: Sulfuție acid (H <sub>2</sub> SO <sub>4</sub> ) *PC-4: Sodium Hydroxide (NaOH) *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-6: Ascorbie acid (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> ) *PC-7: Zine acetate (C <sub>4</sub> H <sub>2</sub> O <sub>4</sub> Zi) / Sodium Hydroxide (NaOH) *PC-8: Anmonium chloride (NH <sub>4</sub> CL) *PC-9: Copper Sulfate (CuSO <sub>4</sub> : SH <sub>2</sub> O) *PC-9: Copper Sulfate (CuSO <sub>4</sub> : SH <sub>2</sub> O) *PC-1: Ice *PC-N: Nome *PC-O: Other	(NaOH) (NaS2O,) (Oa,) (Na,S2O,) (Oa,)	Breat and the residence of the second design and the	25-000 200 00 000 000 000 000 000 000 000	17.29									persiture on Receipt
SR 1st Review.	CS 2nd Review:	eview:					l Metal ered:	Thater Thater	£12 : <sub>*</sub> 9λ	183		123 (					e	8 7
CLIENT	CLIENT SAMPLE ID	Lab Use Only	DATE SAMPLED	TIME (24 hr)	SAMPLE	SAMPLE	boyloszi <b>Q</b> biliT bloiT	1,421,139 18V13831¶	Preservati Preservati	Preservati Preservati	Ргеѕегуаці	Preservati	Preservati Preservati	Ргезегуай	Preservati	Preservati	Preservati Preservati	4.
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13			<b>-&gt;</b>	1055	一	<b>-</b> )	<i>→</i> >	×	XX	2.5	+							10 8
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Printed Sampler Name:	Name: / / /// /	(4) × 2	120	130 100 200 200 200 200 200 200 200 200 20			Logged in by:	by: /		25	+		Date/Time:	Time:				7
Sample Matrix:	GW Ground Water /	er / ST Str	ST Storm Water SW Surface W	75 F	/ater			stewater	sos	1.3	SL Sludge	C Coal	PO/Quote #:	#:		· .	98	HC
Sample Type:	G Grab C Composite D Distribution/DW	nposite D	Distribution/D	_	E Entry Point/DW	R Raw/DW	S Special/DW	O MON	Other	nHZ Not	Hazardo	JS / HZ. h	Not Hazardous / HZ. Hazardous		<i>t</i>		8) 9	621



2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Thursday, July 21, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2207876

Dear Shelley Wojciechowski:

Geochemical Testing received 3 sample(s) on 7/15/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 21-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2207876

No problems were encountered during analysis of this workorder, except if noted in this report.

Legend:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



# **Geochemical Testing**

Date: 21-Jul-22

CLIENT:	CONEMAUGH OPERATING, LLC	Client Sample ID: MID

Lab Order: G2207876

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2207876-001Collection Date:7/15/2022 10:40:00 AM

Matrix: SURFACE WATER Received Date: 7/15/2022 12:52:25 PM

Analyses Result OL O Units DF Date Prepared Date Analyze

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	GMG			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-31			mg/L CaCO3	1	07/18/22 12:59 PM	07/18/22 3:10 PM
PH BY SM 4500 H+B		Analyst:	GMG				SM 4500-H+ B
Lab pH	7.82		Н	S.U.	1		07/18/22 12:28 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	5	2		mg/L	1	07/18/22 1:05 PM	07/18/22 1:13 PM
INORGANIC NON-METALS		Analyst:	GMG				ASTM D 1067-11
Alkalinity to pH 4.5	44	10		mg/L CaCO3	1		07/18/22 12:28 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	248	2.0		mg/L	1	07/18/22 10:25 AM	07/18/22 10:31 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Calcium	71.9	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Iron	0.80	0.05		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Magnesium	22.1	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Manganese	0.23	0.01		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Sodium	28.7	0.2		mg/L	1	07/19/22 9:25 AM	07/19/22 7:13 PM
Hardness (SM 2340B)	270	1.0		mg/L CaCO3	1	07/19/22 9:25 AM	07/19/22 7:13 PM



# **Geochemical Testing**

Date: 21-Jul-22

CLIENT:	CONEMAUGH OPERATING, LLC	Client Sample ID: MID FD

**Lab Order:** G2207876

 Project:
 Conemaugh River Surface Water
 Sampled By:
 Apex Companies

 Lab ID:
 G2207876-002
 Collection Date:
 7/15/2022 10:45:00 AM

Matrix:SURFACE WATERReceived Date:7/15/2022 12:52:25 PMAnalysesResultQLQUnitsDFDate PreparedDate Analyze

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	GMG			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-30			mg/L CaCO3	1	07/18/22 12:59 PM	07/18/22 3:12 PM
PH BY SM 4500 H+B		Analyst:	GMG				SM 4500-H+ B
Lab pH	7.83		н	S.U.	1		07/18/22 12:32 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	5	2		mg/L	1	07/18/22 1:05 PM	07/18/22 1:13 PM
INORGANIC NON-METALS		Analyst:	GMG				ASTM D 1067-11
Alkalinity to pH 4.5	45	10		mg/L CaCO3	1		07/18/22 12:32 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	249	2.0		mg/L	1	07/18/22 10:25 AM	07/18/22 11:12 AN
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Calcium	69.2	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Iron	0.72	0.05		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Magnesium	21.3	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Manganese	0.21	0.01		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Sodium	27.9	0.2		mg/L	1	07/19/22 9:25 AM	07/19/22 7:15 PM
Hardness (SM 2340B)	261	1.0		mg/L CaCO3	1	07/19/22 9:25 AM	07/19/22 7:15 PM



## **Geochemical Testing**

Date: 21-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: TB

Lab Order: G2207876

Sampled By: Project: Conemaugh River Surface Water Apex Companies Collection Date: 7/15/2022 10:55:00 AM G2207876-003 Lab ID: 7/15/2022 12;52;25 PM Received Date:

Matrix: SURFACE WATER

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	GMG			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	12			mg/L CaCO3	1	07/18/22 12:59 PM	07/18/22 3:15 PM
PH BY SM 4500 H+B		Analyst:	GMG				SM 4500-H+ B
Lab pH	5.14		Н	S.U.	1		07/18/22 12:37 PM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	< 2	2		mg/L	1	07/18/22 1:05 PM	07/18/22 1:13 PM
INORGANIC NON-METALS		Analyst:	GMG				ASTM D 1067-11
Alkalinity to pH 4.5	< 10	10		mg/L CaCO3	1		07/18/22 12:37 PM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	< 2.0	2.0		mg/L	1	07/18/22 10:25 AM	07/18/22 11:26 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	< 0.1	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Calcium	< 0.1	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Iron	< 0.05	0.05		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Magnesium	< 0.1	0.1		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Manganese	< 0.01	0.01		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Sodium	< 0.2	0.2		mg/L	1	07/19/22 9:25 AM	07/19/22 7:18 PM
Hardness (SM 2340B)	< 1.0	1.0		mg/L CaCO3	1	07/19/22 9:25 AM	07/19/22 7:18 PM



#### **DAILY FIELD REPORT**

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

CONTRACTOR

DITTOR

CONTRACTOR



PURPOSE OF SITE VISIT:
Communication River Sampling - TMDL
ARRIVAL TIME: 715 A
SITE DOCUMENTATION: Apex Jonah L on-sit + Clay W - completed Field Sampling
· Conemargh River Data - USKIS Website - Seward
- 0645 Cast site appente
-0770 Instrutaneous Flow 387 cfs
- 25th percontile - 329 cfs
- Media - 434 cfs
- Media - 434 cfs - 7/20/22 discharge @ 0645 - 367 efs
- Auto Cal. Hariba Mulli Mehr - ale
- Seward Bridge - Approx Total Width - 2400
- MID River Sample - 120
Servid - MID
-Water Depth - 4.0° Sample Depth - 2.0°
- LAT/LON -40.7197615 ,-79.0760758
- Simple Time: 0733
- Field Parameters: 0740
- Temp: 23.44 - Do: 10.00
- PH: 7.64 - DTu: 40.0
- SC: 0,744
DEPARTURE TIME: 745
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: Brantley 5 Pize PRINT NAME:

Daily Field Report



2005 N. Center Ave. Somerset, PA 15501

> 814/443-1671 814/445-6666 F AX: 814/445-6729

Thursday, July 28, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2207C41

Dear Shelley Wojciechowski:

Geochemical Testing received 1 sample(s) on 7/22/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 28-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2207C41

No problems were encountered during analysis of this workorder, except if noted in this report.

Glossary:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value. Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



# Glossary (continued)

		,	
1	Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor of four or greater.	M6	The reporting limits were raised due to sample matrix interference.
B1	Dilution water blank exceeded method criterion.	M7	Recovery for matrix spike could not be quantified due to matrix interference.
C1	CCV recovery above the acceptance limits. Results may	M8	Analyte was spiked into the MS, but was not recovered.
C2	be biased high.  CCV recovery below the acceptance limits. Results may	N1	The lab does not hold accreditation from PA-DEP for this parameter by this method
C3	be biased low.  ICV recovery above the acceptance limits. Results may	N2	PADEP does not accredit labs for this analyte by this method.
C4	be biased high.  ICV recovery below the acceptance limits. Results may	N3	The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).
	be biased low.	01	The flashpoint tester cannot detect below 50 degrees F.
C5	Positive values verified by second column confirmation.	02	Result is temperature of the sample when flame
C6	Confirmation analysis by another detector or chromatographic column was not performed.	03	observed. No flash observed. Result qualified.  The reporting limits were raised due to the high
D1	The analysis did not meet the minimum DO depletion of at least 2 mg/L.		concentration of non-target compounds.
D2	The analysis did not meet the minimum residual DO of at	04	Sample was received with headspace.
D3	least 1 mg/L.  Sample required dilution due to a matrix interference.	O5	Sample was received in incorrect container and is not compliant with 40CFR136 Table II.
D4	Sample was diluted in the extraction steps due to marked	06	Insufficient sample volume was received to comply with the method.
D5	matrix interferences.  Sample required dilution due to a chloride interference.	P1	The pH of the sample was >2 and is not compliant with 40CFR136 Table II.
D6	Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.	P2	Sample contained residual chlorine and is not compliant with 40CFR136 Table II
D7	Sample was digested at a dilution due to the formation of a post-digestion precipitate.	P3	The pH of the sample was <12 and is not compliant with 40CFR136 Table II.
D8	Sample was digested at a dilution to achieve method compliant matrix spike recovery.	P4	Field preservation does not meet EPA or method recommendations for this analysis.
D9	Sample was digested at a dilution to meet method compliant digestion criteria.	P5	Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.
E2	Unable to obtain a stable weight within specified limits	P6	Sample required additional preservative upon receipt.
E4	due to sample matrix. Value is estimated.	P7	The sample was received unpreserved.
F1 H1	Fecal sample tested positive for residual chlorine.  Due to under-depletion from the initial dilutions for BOD,	P8	The pH of the sample was < 9 and is not compliant with 40 CFR136 Table II.
H2	the sample was reanalyzed outside the hold time.  Due to over-depletion from the initial dilutions for BOD,	R	Relative Percent Difference (RPD) was above the control limit.
НЗ	the sample was reanalyzed outside the hold time.  Sample was re-analyzed outside of hold time due to error	R1	RPD above control limits between matrix spike and MS duplicates.
	during original analysis.	R2	RPD above the control limit between duplicates.
H4	The Nitrite result used to report Nitrate was analyzed past the 48-hour holding time.	R3	RSD above the control limit between replicates.
11	Internal standard recovery above method acceptance limits. Results are estimated.	R4	RPD above control limits between Inorganic Carbon check and spike.
12	Internal standard recovery was below method acceptance limits. Results are estimated.	R5	RPD above control limits between control sample and control sample duplicates.
IP	One of the instrument performance checks ( ) did not meet the acceptance criteria.	S2	Surrogate recovery in the blank was below the control limit.
L1	LCS above the acceptance limits. Result may be biased high.	S3	Surrogate recovery in the blank was above the control limit.
L2	LCS below the acceptance limits. Result may be biased	S4	Surrogate recovery in the LCS is above the control limit.
	low.	S5	Surrogate recovery in the LCS is below the control limit.
L3	Analyte was spiked into the LCS, but was not recovered.	SR	Analyte recovery was outside the accepted recovery limits
M1	Matrix Spike recovery above the acceptance limits.	19202	and above the control limit for RPD.
M2	Matrix Spike recovery below the acceptance limits.	Т3	Target analyte found in trip/field blank.
M4	The matrix spike failed high for the surrogate.	TC	The MS tune check (tailing factor) did not meet the acceptance criteria.
M5	The matrix spike failed low for the surrogate.		

## **Geochemical Testing**

Date: 28-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Scward-Mid

Lab Order: G2207C41

Project: Conemaugh River Surface Water Sampled By: Apex Cos

 Lab ID:
 G2207C41-001
 Collection Date:
 7/21/2022 7:33:00 AM

 Matrix:
 SURFACE WATER
 Received Date:
 7/22/2022 8:47;29 AM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-28			mg/L CaCO3	1	07/25/22 12:08 PM	07/25/22 2:08 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.66		Н	S.U.	1		07/25/22 11:40 AN
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	4	2		mg/L	1	07/25/22 12:15 PM	07/25/22 12:23 PM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	44	10		mg/L CaCO3	1		07/25/22 11:40 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	189	2.0		mg/L	1	07/22/22 10:00 AM	07/22/22 10:05 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.3	0.1		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Calcium	57.8	0.1		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Iron	0.86	0.05		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Magnesium	17.8	0.1		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Manganese	0.22	0.01		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Sodium	27.0	0.2		mg/L	1	07/25/22 11:15 AM	07/26/22 8:39 AM
Hardness (SM 2340B)	217	1.0		mg/L CaCO3	1	07/25/22 11:15 AM	07/26/22 8:39 AM



#### **DAILY FIELD REPORT**

PROJECT NAME:	Conemauch Station
PROJECT LOCATION:	Concravely River TMDI
APEX PROJECT NO:	1147-504
CONTRACTOR:	
DATE:	7/25/2032
WEATHER:	Overcast 70°



PURPOSE OF SITE VISIT:
Commangh firer Sampling TMDL
ARRIVALTIME: 08:30 A
SITE DOCUMENTATION: Apex Corson K on side
- Conemaugh Tive Data - USGIS Website - Seward
- 0645 Cast site update
- 0730 Instantaneous Flow 361 cfs
- 25th percentile - 312 cfs
- Median - 408 cfs
-7/24/2022 discharge @ 0645 447 cfs
- Auto Cal. Horiba Multi Meter - ok
- Several Bridge - Approx. Total Width - 2 240
- MID Ziver Sample - 170'
- Seward - MID / MID DUP
- Duter Depth - 4.0° - Sample Depth Z.0°
- LAT/LON - 40.7197615 , -79.0260753
- Sample Time: 0840 * TB (Trip Blank)
Field Parameters: 0845 Time: 0855
-Tanp: 23.57 - Do: 12.09
- PH: 7.98 - DTU: 40.0
-So: 0.682
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
SIGNATURE: SIGNATURE:
PRINT NAME: PRINT NAME:

Daily Field Report

*** Lab Work Order #	der#				ANALY	ANALYTICAL SERVICES	VICES	20				Shuttle	Shuttle/Cooler ID#	#0				
1					Cha	Chain of Custody (GOC)	(00)							857-7				
		DAMENCH	Station	2			Name	John	Shimshock	hock		<u>ū</u> ′	E-mail Address	- 3	a.Kond	10%	)	
Mailing Address	idness Kax	, X	7 Chil	Power Plus	12d to		Telephone No.	(v)	38.	45%	77557	La	Landfill Site	1	-			
City, State, Zip	,zip Wew	Flore	STENCE				State Sampled	mpled	<u> </u>	PWS Number	per.	Δ	Date Results Required	Requir	pe			
ecial Instructio	Special Instruction/Project ID/Analyte List/Comment:	te List/Com	ment:	*PC-1: Nitr *PC-2: Hyd	*PC-1: Nitric acid (HNO <sub>3</sub> ) *PC-2: Hydrochloric acid (HCL)	HCL)	Enter	ANALYSIS REQUESTED Enter 'X' in box below to indicate request and use appropriate preservation code listed to the left	below to it	A N A	ANALYSIS	REQ d use appr	EQUESTED appropriate pres	D eservatio	n code li	sted to t	he left	
5	oreneugh	(X)	ī	*PC-3: Sull *PC-4: Sod *PC-5: Sod *PC-6: Ase	*PC-3: Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> ) *PC-4: Sodium Hydroxide (NaOH) *PC-5: Sodium Thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) *PC-6: Ascorbic acid (CaHoOs)	(NaOH) (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) O <sub>6</sub> )	SELECT SELECT	My M	spetsw		-				*****			Jdie
	- mor	9.	8/05 5/	*PC-7: Zinc acetate Hydroxide (NaOH) *PC-8: Ammonium *PC-9: Copper Sulf *PC-1: Ice *PC-N: N	*PC-7: Zinc acetate (C,H <sub>0</sub> O,Z <sub>D</sub> ) / Sodium Hydroxide (NaOH) *PC-8: Ammonium chloride (NH <sub>4</sub> CL) *PC-9: Copper Sulfate (CuSO <sub>4</sub> .5H <sub>2</sub> O) *PC-1: Ice *PC-N: None *PC-O: Other	o (NH <sub>4</sub> CL) 30 <sub>4</sub> ·5H <sub>2</sub> O) C-O: Other	Vitevieservativ	91 - 0000 11-73 11-74 - 402 - 51 11-75 - 402 - 403	112 L002					16 25 10				perature on Rece
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CLIENT S	CLIENT SAMPLE ID	Lab Use Only	DATE SAMPLED	TIME (24 hr)	SAMPLE	SAMPLE	Dissolved	Proservati	Preservati PJĽP⊤ Preservati	reservati itevreser	Teservati Teservati	reservati	reservati	reservati reservati	ituvies <u>er</u>	iteservati iteservati	reservati	Cooler (s
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Relinquished by:	1	N	Dat	Date/Time:	7/15/702	13:52	Received by:	, , , , , , , , , , , , , , , , , , ,	3	1	1	1	Date/Time:	me: 17	15.75	2 /3	2 ( :	
Relinquished by:	V	- 4		Date/Time:			Received at lab by:	it lab by:	_	}			Date/Time:	:ец				Π
Sample Matrix: GW	GW Ground Water	2	Mater Water	SW Surface Water	-	PW Potable Water	WW Wastewater	by:	loo OS	-	St. Studge	lean o	DO/Onote #:	# He:				T
Sample Type:	G Grab C Composite D Distribution/DW	nposite D	Distribution/D/		- 1 달	-	S Special/DW O Other	DW O	,	HZ Not	Hazardous	HZH.	)	6				

142



2005 N. Center Ave. Somerset, PA 15501

> 814/443-1671 814/445-6666 F AX: 814/445-6729

Thursday, July 28, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2207D45

Dear Shelley Wojciechowski:

Geochemical Testing received 3 sample(s) on 7/25/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 28-Jul-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2207D45

No problems were encountered during analysis of this workorder, except if noted in this report.

Glossary:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected

MCL - Contaminant Limit J - Indicates an estimated value. Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



### Glossary (continued)

1	Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor	M6	The reporting limits were raised due to sample matrix interference.
B1	of four or greater.  Dilution water blank exceeded method criterion.	M7	Recovery for matrix spike could not be quantified due to matrix interference.
C1	CCV recovery above the acceptance limits. Results may	M8	Analyte was spiked into the MS, but was not recovered.
	be biased high.	N1	The lab does not hold accreditation from PA-DEP for this
C2	CCV recovery below the acceptance limits. Results may		parameter by this method
C3	be biased low.  ICV recovery above the acceptance limits. Results may	N2	PADEP does not accredit labs for this analyte by this method.
C4	be biased high.  ICV recovery below the acceptance limits. Results may	N3	The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).
-05	be biased low.	01	The flashpoint tester cannot detect below 50 degrees F.
C5	Positive values verified by second column confirmation.	02	Result is temperature of the sample when flame
C6	Confirmation analysis by another detector or chromatographic column was not performed.		observed. No flash observed. Result qualified.
D1	The analysis did not meet the minimum DO depletion of at least 2 mg/L.	03	The reporting limits were raised due to the high concentration of non-target compounds.
D2	The analysis did not meet the minimum residual DO of at	04	Sample was received with headspace.
	least 1 mg/L.	O5	Sample was received in incorrect container and is not compliant with 40CFR136 Table II.
D3 D4	Sample required dilution due to a matrix interference.  Sample was diluted in the extraction steps due to marked	06	Insufficient sample volume was received to comply with the method.
D5	matrix interferences.  Sample required dilution due to a chloride interference.	P1	The pH of the sample was >2 and is not compliant with 40CFR136 Table II.
D6	Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.	P2	Sample contained residual chlorine and is not compliant with 40CFR136 Table II
D7	Sample was digested at a dilution due to the formation of a post-digestion precipitate.	P3	The pH of the sample was <12 and is not compliant with 40CFR136 Table II.
D8	Sample was digested at a dilution to achieve method compliant matrix spike recovery.	P4	Field preservation does not meet EPA or method recommendations for this analysis.
D9	Sample was digested at a dilution to meet method compliant digestion criteria.	P5	Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.
E2	Unable to obtain a stable weight within specified limits	P6	Sample required additional preservative upon receipt.
<b>L</b> Z	due to sample matrix. Value is estimated.	P7	The sample was received unpreserved.
F1	Fecal sample tested positive for residual chlorine.	P8	The pH of the sample was < 9 and is not compliant with
H1	Due to under-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.		40 CFR136 Table II.
H2	Due to over-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.	R	Relative Percent Difference (RPD) was above the control limit.
H3	Sample was re-analyzed outside of hold time due to error	R1	RPD above control limits between matrix spike and MS duplicates.
***	during original analysis.	R2	RPD above the control limit between duplicates.
H4	The Nitrite result used to report Nitrate was analyzed past the 48-hour holding time.	R3	RSD above the control limit between replicates.
11	Internal standard recovery above method acceptance limits. Results are estimated.	R4	RPD above control limits between Inorganic Carbon check and spike.
12	Internal standard recovery was below method acceptance limits. Results are estimated.	R5	RPD above control limits between control sample and control sample duplicates.
IP	One of the instrument performance checks ( ) did not meet the acceptance criteria.	S2	Surrogate recovery in the blank was below the control limit.
L1	LCS above the acceptance limits. Result may be biased high.	S3	Surrogate recovery in the blank was above the control limit.
L2	LCS below the acceptance limits. Result may be biased	S4	Surrogate recovery in the LCS is above the control limit.
District.	low.	S5	Surrogate recovery in the LCS is below the control limit.
L3	Analyte was spiked into the LCS, but was not recovered.	SR	Analyte recovery was outside the accepted recovery limits
M1	Matrix Spike recovery above the acceptance limits.		and above the control limit for RPD.
M2	Matrix Spike recovery below the acceptance limits.	Т3	Target analyte found in trip/field blank.
M4	The matrix spike failed high for the surrogate.	TC	The MS tune check (tailing factor) did not meet the
M5	The matrix spike failed low for the surrogate.		acceptance criteria.

### **Geochemical Testing**

Date: 28-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Mid

Lab Order: G2207D45

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2207D45-001Collection Date:7/25/2022 8:40:00 AM

Matrix: SURFACE WATER Received Date: 7/25/2022 2:04:05 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-31			mg/L CaCO3	1	07/26/22 11:49 AM	07/26/22 12:58 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.82		Н	S.U.	1		07/26/22 11:30 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	6	2		mg/L	1	07/26/22 10:45 AM	07/26/22 10:54 AM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	50	10		mg/L CaCO3	1		07/26/22 11:30 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	192	2.0		mg/L	1	07/26/22 8:10 AM	07/26/22 11:07 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.3	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Calcium	61.8	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Iron	1.14	0.05		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Magnesium	18.9	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Manganese	0.21	0.01		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Sodium	29.3	0.2		mg/L	1	07/26/22 10:50 AM	07/27/22 11:07 AM
Hardness (SM 2340B)	232	1.0		mg/L CaCO3	1	07/26/22 10:50 AM	07/27/22 11:07 AM



### **Geochemical Testing**

Date: 28-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Mid Dup

228

Lab Order: G2207D45

Hardness (SM 2340B)

Project:Concmaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2207D45-002Collection Date:7/25/2022 8:40:00 AMMatrix:SURFACE WATERReceived Date:7/25/2022 2:04:05 PM

Matrix: Result QLAnalyses Units **DF** Date Prepared **Date Analyzed INORGANIC NON-METALS** Analyst: LAP SM 2310B(4A) SM 2310B(4A) mg/L CaCO3 1 Acidity to pH 8.3 -29 07/26/22 11:49 AM 07/26/22 1:00 PM PH BY SM 4500 H+B SM 4500-H+ B Analyst: LAP S.U. 07/26/22 11:35 AM Lab pH 7.84 PHYSICAL TESTS Analyst: AGF SM 2540 D SM 2540 D mg/L 07/26/22 10:45 AM 07/26/22 10:54 AM Total suspended solids 6 2 **INORGANIC NON-METALS** ASTM D 1067-11 Analyst: LAP 07/26/22 11:35 AM Alkalinity to pH 4.5 48 10 mg/L CaCO3 1 **INORGANIC NON-METALS** EPA 300.0 REV 2.1 EPA 300.0 REV 2.1 Analyst: ACW Sulfate 190 2.0 mg/L 07/26/22 8:15 AM 07/26/22 9:16 AM **INORGANIC METALS** Analyst: LEB EPA 200.2 **EPA 200 7 REV 4.4** Aluminum 0.2 0.1 07/26/22 10:50 AM 07/27/22 11:09 AM mg/L Calcium 60.5 0.1 mg/L 07/26/22 10:50 AM 07/27/22 11:09 AM 0.05 mg/L 07/26/22 10:50 AM 07/27/22 11:09 AM Iron 1.02 18.6 07/26/22 10:50 AM 07/27/22 11:09 AM Magnesium 0.1 mg/L Manganese 0.20 0.01 mg/L 07/26/22 10:50 AM 07/27/22 11:09 AM Sodium 28.7 0.2 mg/L 1 07/26/22 10:50 AM 07/27/22 11:09 AM

1.0

mg/L CaCO3 1



07/26/22 10:50 AM 07/27/22 11:09 AM

### **Geochemical Testing**

Date: 28-Jul-22

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: TB

Lab Order: G2207D45

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2207D45-003Collection Date:7/25/2022 8:55:00 AM

Matrix: SURFACE WATER Received Date: 7/25/2022 2:04:05 PM

Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	14			mg/L CaCO3	1	07/26/22 11:49 AM	07/26/22 1:03 PM
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	5.12		Н	S.U.	1		07/26/22 11:40 AN
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	< 2	2		mg/L	1	07/26/22 10:45 AM	07/26/22 10:54 AM
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	< 10	10		mg/L CaCO3	1		07/26/22 11:40 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	< 2.0	2.0		mg/L	1	07/26/22 8:10 AM	07/26/22 11:55 AM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	< 0.1	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Calcium	< 0.1	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Iron	< 0.05	0.05		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Magnesium	< 0.1	0.1		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Manganese	< 0.01	0.01		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Sodium	< 0.2	0.2		mg/L	1	07/26/22 10:50 AM	07/27/22 11:12 AM
Hardness (SM 2340B)	< 1.0	1.0		mg/L CaCO3	1	07/26/22 10:50 AM	07/27/22 11:12 AM



#### **DAILY FIELD REPORT**

PROJECT NAME:

PROJECT LOCATION:

APEX PROJECT NO:

CONTRACTOR:

DATE:

WEATHER:

Concrough Station

Concrough Pier TMDL

II 47 - SON

B/2/7072

WEATHER:

OVERAGE POP



PURPOSE OF SITE VISIT:
Congraugh Fire Sampling TMDL
ARRIVAL TIME: 1230 p
SITE DOCUMENTATION: Agex Clary Welker on-Site
- Conemany River Duta - USGS Website - Seward
- 1045 Lost Site Update
- 1130 Instantaneous Flow - 330 cfs
- 25th percentite - 288 cfs
- Median - 376 cfs
- 8/1/2012 Discharge @ 1130 - 336 cfs
- Auto Cal. Horiba Multi-Meter - ok
- Sewed Bridge - Approx. Total Width 2 240
- MID River Sample - 120'
- Sevard - MID
- Water Depth - 3.0' - Sample Depth 1.5"
- LAT / LON -40.7197615 , -79,0260758
- Sumple Time: 1242
- Field Parameters: 1248
- Temp: 22.34 - Do: 11.44
- pH : 8.52 - NTu: 40.1
- SC : 0.744
55.57,1
DEPARTURE TIME: 100 e
COPIES TO:
APEX REPRESENTATIVE CONTRACTOR REPRESENTATIVE
R1 00:
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PRINT NAME: PRINT NAME:

Daily Field Report

Concernment	Company	1		3/2	20 50 100	Cha	Chain of Custody (COC)	(202)	3 0										2
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T SAMPLE ID. Lab Use DATE TIME SAMPLE SAMPLE SAMPLE SAMPLE OF SAMPLE SAMPLE TYPE SAMPLE SAMPL	it Review.	CS 2nd Rev	view:		100			(Richal)	rtun F *6V	Ve*: Ve*: ₹:*9V		A AUGUST	; <sub>‡</sub> ∂∧						
Pril	CLIENT SAN		Lab Use Only	4.7.7	TIME (24 hr)	SAMPLE	SAMPLE		Leselvan	1 Preservati 13M Teservati			Preservati			11.	+	80 (S	
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2005 N. Center Ave. Somerset, PA 15501

814/443-1671 814/445-6666 FAX: 814/445-6729

Friday, August 5, 2022

Shelley Wojciechowski
CONEMAUGH OPERATING, LLC
CONEMAUGH STATION
POBOX K
NEW FLORENCE, PA 15944

RE: Conemaugh River Surface Water

Order No.: G2208147

Dear Shelley Wojciechowski:

Geochemical Testing received 1 sample(s) on 8/2/2022 for the analyses presented in the following report.

There were no problems with sample receipt protocols and analyses met the TNI/NELAC, EPA, and laboratory specifications except where noted in the Case Narrative or Laboratory Results.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Timothy W. Bergstresser Director of Technical Services

Leslie A. Nemeth Project Manager



**CASE NARRATIVE** 

Date: 05-Aug-22 **Geochemical Testing** 

CLIENT: CONEMAUGH OPERATING, LLC Project: Conemaugh River Surface Water

Lab Order: G2208147

No problems were encountered during analysis of this workorder, except if noted in this report.

Glossary:

H - Method Hold Time exceeded and is not compliant with 40CFR136 Table II.

U - The analyte was not detected at or above the listed concentration, which is below the laboratory quantitation limit.

B - Analyte detected in the associated Method Blank

Q1 - See case narrative

ND - Not Detected MCL - Contaminant Limit J - Indicates an estimated value.

Q - Qualifier

QL -Quantitation Limit DF - Dilution Factor

- S Surrogate Recovery outside accepted recovery limits
- T Sample received above required temperature and is not compliant with 40CFR136 Table II.
- T1 Sample received above required temperature

MDA - Minimum Detectable Activity.

\*\* - Value exceeds Action Limit

TICs - Tentatively Identified Compounds.

E - Value above quantitation range



### Glossary (continued)

1	Spike recovery limits are not applicable when the sample concentration exceeds the spike concentration by a factor	M6	The reporting limits were raised due to sample matrix interference.
B1	of four or greater.  Dilution water blank exceeded method criterion.	M7	Recovery for matrix spike could not be quantified due to matrix interference.
C1	CCV recovery above the acceptance limits. Results may	M8	Analyte was spiked into the MS, but was not recovered.
	be biased high.	N1	The lab does not hold accreditation from PA-DEP for this
C2	CCV recovery below the acceptance limits. Results may		parameter by this method
C3	be biased low.  ICV recovery above the acceptance limits. Results may	N2	PADEP does not accredit labs for this analyte by this method.
C4	be biased high.  ICV recovery below the acceptance limits. Results may	N3	The lab is accredited for this method in West Virginia, but not in PA (its primary accrediting body).
	be biased low.	01	The flashpoint tester cannot detect below 50 degrees F.
C5	Positive values verified by second column confirmation.	02	Result is temperature of the sample when flame
C6	Confirmation analysis by another detector or chromatographic column was not performed.	1000000	observed. No flash observed. Result qualified.
D1	The analysis did not meet the minimum DO depletion of at least 2 mg/L.	O3	The reporting limits were raised due to the high concentration of non-target compounds.
D2	\$5545 \ R\$P\$467 \ \ \ R\$P\$467 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	04	Sample was received with headspace.
	The analysis did not meet the minimum residual DO of at least 1 mg/L.	O5	Sample was received in incorrect container and is not compliant with 40CFR136 Table II.
D3 D4	Sample required dilution due to a matrix interference.  Sample was diluted in the extraction steps due to marked	06	Insufficient sample volume was received to comply with the method.
D5	matrix interferences.  Sample required dilution due to a chloride interference.	P1	The pH of the sample was >2 and is not compliant with 40CFR136 Table II.
D6	Sample was diluted and the reporting limits were raised to achieve method compliant internal standard recovery.	P2	Sample contained residual chlorine and is not compliant with 40CFR136 Table II
D7	Sample was digested at a dilution due to the formation of a post-digestion precipitate.	P3	The pH of the sample was <12 and is not compliant with 40CFR136 Table II.
D8	Sample was digested at a dilution to achieve method compliant matrix spike recovery.	P4	Field preservation does not meet EPA or method recommendations for this analysis.
D9	Sample was digested at a dilution to meet method compliant digestion criteria.	P5	Acid preservation may not be appropriate for the analysis of 2-Chloroethylvinyl ether.
E2	Unable to obtain a stable weight within specified limits	P6	Sample required additional preservative upon receipt.
-	due to sample matrix. Value is estimated.	P7	The sample was received unpreserved.
F1	Fecal sample tested positive for residual chlorine.	P8	The pH of the sample was < 9 and is not compliant with
H1	Due to under-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.	R	40 CFR136 Table II.  Relative Percent Difference (RPD) was above the control
H2	Due to over-depletion from the initial dilutions for BOD, the sample was reanalyzed outside the hold time.		limit.
H3	Sample was re-analyzed outside of hold time due to error during original analysis.	R1	RPD above control limits between matrix spike and MS duplicates.
H4	The Nitrite result used to report Nitrate was analyzed past	R2	RPD above the control limit between duplicates.
Π4	the 48-hour holding time.	R3	RSD above the control limit between replicates.
11	Internal standard recovery above method acceptance limits. Results are estimated.	R4	RPD above control limits between Inorganic Carbon check and spike.
12	Internal standard recovery was below method acceptance limits. Results are estimated.	R5	RPD above control limits between control sample and control sample duplicates.
IP	One of the instrument performance checks ( ) did not meet the acceptance criteria.	S2	Surrogate recovery in the blank was below the control limit.
L1	LCS above the acceptance limits. Result may be biased high.	S3	Surrogate recovery in the blank was above the control limit.
L2	LCS below the acceptance limits. Result may be biased	S4	Surrogate recovery in the LCS is above the control limit.
Seaso.	low.	S5	Surrogate recovery in the LCS is below the control limit.
L3	Analyte was spiked into the LCS, but was not recovered.	SR	Analyte recovery was outside the accepted recovery limits
M1	Matrix Spike recovery above the acceptance limits.		and above the control limit for RPD.
M2	Matrix Spike recovery below the acceptance limits.	Т3	Target analyte found in trip/field blank.
M4	The matrix spike failed high for the surrogate.	TC	The MS tune check (tailing factor) did not meet the
M5	The matrix spike failed low for the surrogate.		acceptance criteria.

### **Geochemical Testing**

**Date:** *05-Aug-22* 

CLIENT: CONEMAUGH OPERATING, LLC Client Sample ID: Seward-MID

Lab Order: G2208147

Project:Conemaugh River Surface WaterSampled By:Apex CompaniesLab ID:G2208147-001Collection Date:8/2/2022 12:42:00 PM

Matrix: SURFACE WATER Received Date: 8/2/2022 3:01:28 PM

Mains. Sold ACL WA	ILIC			meetine a		7, -,	
Analyses	Result	QL	Q	Units	DF	Date Prepared	Date Analyzed
INORGANIC NON-METALS		Analyst:	LAP			SM 2310B(4A)	SM 2310B(4A)
Acidity to pH 8.3	-35			mg/L CaCO3	1	08/03/22 10:42 AM	08/03/22 11:36 AN
PH BY SM 4500 H+B		Analyst:	LAP				SM 4500-H+ B
Lab pH	7.69		Н	S.U.	1		08/03/22 9:50 AM
PHYSICAL TESTS		Analyst:	AGF			SM 2540 D	SM 2540 D
Total suspended solids	7	2		mg/L	1	08/03/22 11:20 AM	08/03/22 11:28 AN
INORGANIC NON-METALS		Analyst:	LAP				ASTM D 1067-11
Alkalinity to pH 4.5	50	10		mg/L CaCO3	1		08/03/22 9:50 AM
INORGANIC NON-METALS		Analyst:	ACW			EPA 300.0 REV 2.1	EPA 300.0 REV 2.1
Sulfate	234	2.0		mg/L	1	08/02/22 8:20 PM	08/02/22 10:46 PM
INORGANIC METALS		Analyst:	LEB			EPA 200.2	EPA 200.7 REV 4.4
Aluminum	0.2	0.1		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Calcium	70.5	0.1		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Iron	0.95	0.05		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Magnesium	22.3	0.1		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Manganese	0.21	0.01		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Sodium	30.6	0.2		mg/L	1	08/03/22 10:45 AM	08/04/22 8:52 AM
Hardness (SM 2340B)	268	1.0		mg/L CaCO3	1	08/03/22 10:45 AM	08/04/22 8:52 AM



Appendix D

PADEP Guidance for Background Determination (Doc No. 391-2000-022)

#### DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau of Water Supply and Wastewater Management

DOCUMENT NUMBER: 391-2000-022

TITLE: Implementation Guidance for the Determination and Use of

Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances

EFFECTIVE DATE: March 22, 1999

Minor changes were made throughout (March 6, 2003)

AUTHORITY: Federal Clean Water Act, Pa. Code Title 25, Chapter 92, 93, and 95. The Clean

Stream Law, 35 P.S. §§691.1 et seg.

POLICY: It is the policy of the Department of Environmental Protection (DEP) to use the

best available data in the calculation or estimation of wasteload allocations (WLA) and NPDES effluent limitations. This often involves the use of data that

can only be collected in the field.

When data is not available or existing data is not adequate, other interested parties or dischargers may provide the necessary data. In the absence of site-specific data, DEP may use a default value or an empirical estimation of the data

until the site-specific data becomes available.

PURPOSE: The purpose of this document is to lay out the procedures recommended or used

by DEP for field data collection and evaluation of such data. The procedures are not mandatory. DEP will consider the use of alternative procedures which interested parties or dischargers believe are more appropriate than those

presented in this document.

APPLICABILITY: DEP will use this guidance to provide technical details on how the program

carries out various calculations and applies the evaluated results in preparing NPDES permits for discharges, based on water quality criteria published in

Chapters 93 and 16 (Statement of Policy).

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement

existing requirements. Nothing in the policies or procedures shall affect

regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to

deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 14 pages

LOCATION: Volume 29, Tab 10

#### 1.1 INTRODUCTION

For single discharge WLA's, background water quality is equal to the ambient water quality (as defined in Section 93.1) that is expected to occur at design flow conditions. This implementation guidance describes how to determine background/ambient water quality, and how to use it to determine single discharge WLA's and effluent limits. Guidance for collecting site-specific background/ambient data is presented in Sections 1.6. Guidance for evaluating the data is presented in Section 1.3. Figure 1 will aid in understanding the decisions and requirements one will find in this guidance.

#### 1.2 NATURALLY AND NON-NATURALLY OCCURRING SUBSTANCES

The water quality constituents that DEP regulates can be divided into two broad categories--those that occur naturally and those that do not. Table 1 lists the substances that are considered to be naturally occurring in the aquatic environment.

#### Table 1 Naturally Occurring Substances

Alkalinity, Total	Fluoride, Total	Methylene Blue Act Subs	Selenium, Dissolved
Aluminum, Dissolved	Hardness, Total	Nickel, Total	Selenium, Total
Aluminum, Total	Iron, Dissolved	Nitrate as Nitrogen	Specific Conductivity
Ammonia as Nitrogen	Iron, Total	Nitrite as Nitrogen	Sulfate, Total
Carbonaceous 5-day BOD	Lead, Dissolved	Osmotic Pressure	Suspended Solids
Chloride	Lead, Total	pН	Total Dissolved Solids
Copper, Dissolved	Manganese, Dissolved	Phenols	Zinc, Dissolved
Copper, Total	Manganese, Total	Phosphorus, Total	Zine, Total
Fecal Coliforms	5. The second se	100000000000000000000000000000000000000	

Naturally occurring No Assume Background = 0 substance Yes Is site-specific Yes Use available site-specific data available? data No Can Eco-region Yes Use ecoregion data data be used? No Assume Background = 0 for (re)permitting. Require data collection for next permit renewal. Is background at the Yes No Collect 10 samples Collect 10 samples at discharge site affected above discharges one alternative site by other point sources?

Figure 1
Determination and Use of Background/Ambient

For non-naturally occurring substances, it can usually be assumed that virtually all pollutant loading at design conditions will come from controllable, continuous point source discharges. Therefore, for substances not listed in Table 1, WLA's should be developed based on the assumption that background/ambient concentrations are equal to zero (0), unless (a) there are site-specific data available that indicates otherwise and (b) these data also demonstrate that the pollutant source is not controllable.

While it is reasonable to assume that background/ambient concentrations are zero for non-naturally occurring substances, making this same assumption for the substances listed in Table 1 is not reasonable. Therefore, for the substances listed in Table 1, background/ambient water quality must be estimated for use in WLA calculations (using the procedure shown in Figure 1).

Sections 1.3 and 1.4 below refer to Figure 2. Note that the current version of PENTOXSD only carries out the calculations and determinations associated with Step 4.2. All other calculations and comparisons have to be carried out manually (unless and until PENTOXSD is modified).

#### 1.3 DETERMINING THE WATER QUALITY OBJECTIVE

To determine the Water Quality Objective, the long term average background/ambient water quality (Step 1) must be transformed to the (applicable) water quality criterion duration (Step 2), and then compared with the criterion (Step 3).

Step 1: Determine the Long Term Average Background/Ambient Water Quality and its Variability

To determine the long term average background/ambient water quality, the data (see Section 1.6.2 for data collection) should be log-transformed (this assumes that the data are log-normally distributed and there are no values less than detection):

$$Y_i = ln[X_i]$$
 where,

 $X_i$  = observed data

Y<sub>i</sub> = the natural log of the raw data

Next, calculate the mean and variance of the log-transformed data:

$$\mu_y = \frac{\sum (Y_i)}{k}$$

$$\sigma_y^2 = \frac{\sum (Y_i - \mu_y)^2}{(k-1)}$$
 where,

 $\mu_v$  = mean of log-transformed data

Y<sub>i</sub> = log-transformed data

k = total number of data points

 $\sigma_{\rm v}^2$  = variance of log-transformed data

The long term average background/ambient water quality and associated coefficient of variation are then:

Cb = 
$$\exp(\mu_y + \sigma^2_y/2)$$
 (from TSD)  
CV<sub>d</sub> =  $[\exp(\sigma^2_y)-1]^{0.5}$  (TSD)

where,

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Cb = Long term average (50th percentile) background/ambient water quality CV<sub>d</sub> = (daily) Coefficient of Variation

An example of the calculations shown in Step 1 appears as Appendix 2.

Step 1a: Determine the Long Term Average Background/Ambient Water Quality and its Variability using the Delta Log Normal Distribution (for use when there are less than detect values in the data set)

$$\mu_y = \frac{\sum (Y_i)}{k-r}$$

$$\sigma_y^2 = \frac{\sum (Y_i - \mu_y)^2}{(k-r-1)}$$
 where,

r = number of nondetect values in sample

The long term average background/ambient water quality and associated coefficient of variation are then:

$$Cb = \delta D + (1 - \delta) \exp(\mu_y + 0.5\sigma_y^2)$$

$$V(x) = (1 - \delta) \exp(2\mu_y + \sigma_y^2) \exp(\sigma_y^2) - (1 - \delta) + \delta(1 - \delta) D[D - 2\exp(\mu_y + 0.5\sigma_y^2)]$$

$$CVd = \frac{(V(x))^{0.5}}{Cb} \qquad \text{where,}$$

$$\delta = \frac{r}{k}$$

D = detection limit

Step 2: Transform the LTA background/ambient water quality to the (applicable) criterion duration.

DEP regulations specify that water quality criteria should be achieved at least 99 percent of the time. Therefore, to determine if background/ambient water quality is better than the applicable criterion, the 99<sup>th</sup> percentile background/ambient water quality (at the criterion duration) must be determined.

The 99th percentile background/ambient concentration at the criteria duration is:

$$C_{b\_crit} = \frac{Cb}{\exp(0.5 \times \sigma_n^2 - z \times \sigma_n)}$$
 where,

(the above formula is based on Table 5-1 of the TSD)

 $C_{b\_crit}$  = 99th percentile background/ambient concentration at criteria duration n Cb = LTA daily background/ambient concentration (from Step 1)  $\sigma_n^2$  = ln [  $CV_d^2/n + 1$  ] where,

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(daily) Coefficient of Variation (from Step 1)  $CV_d$ 

Criterion duration (1 for acute; 4 for chronic, 30 for threshold HH, and 25,260 for

non-threshold HH)

z-score = 2.326 (99th percentile) Z

Step 3: Compare the Background/Ambient Water Quality at the Criterion Duration with the Water Quality Criterion.

Once the background/ambient water quality at the applicable criterion duration has been determined from Step 2, it must be compared to the water quality criterion. The water quality criterion is:

 $C_x = C_c * C_m$ where,

 $C_x$  = water quality objective  $C_c$  = water quality criterion a  $C_m$  = Site-specific water qual water quality criterion as published or calculated from Chapter 93 or Chapter 16

Site-specific water quality criteria modifier

If  $C_{b \text{ crit}} \ge C_x$ , then (1)  $C_{b \text{ crit}}$  becomes the water quality objective, and (2) there is no assimilation capacity in the receiving water body. WLA's and effluent limits for this criterion should be determined using Step 4.1 Figure 2.

If  $C_b$  crit  $< C_x$ , then (1)  $C_x$  is the water quality objective, and (2) there is assimilation capacity in the receiving water body. WLA's and effluent limits for this criterion should be determined using Step 4.2 (PENTOXSD) Figure 2.

#### 1.4 DETERMINING THE WASTELOAD ALLOCATION AND EFFLUENT LIMIT

If, in step 3 above,  $C_{b \text{ crit}} \ge C_x$ , follow Step 4.1. If  $C_{b \text{ crit}} \le C_x$ , follow Step 4.2.

Step 4.1: Determining the WLA and Effluent Limit When  $C_{b\_crit} \ge Cx$ 

When  $C_{b \text{ crit}} \geq C_x$ :

 $WLA_x = C_b c_{rit}/exp(-kt_c)$ 

 $LTA_x = WLA_x * exp(0.5 * ln[CV_d^2/n + 1] - 2.326 * (ln[CV_d^2/n + 1])^5)$ 

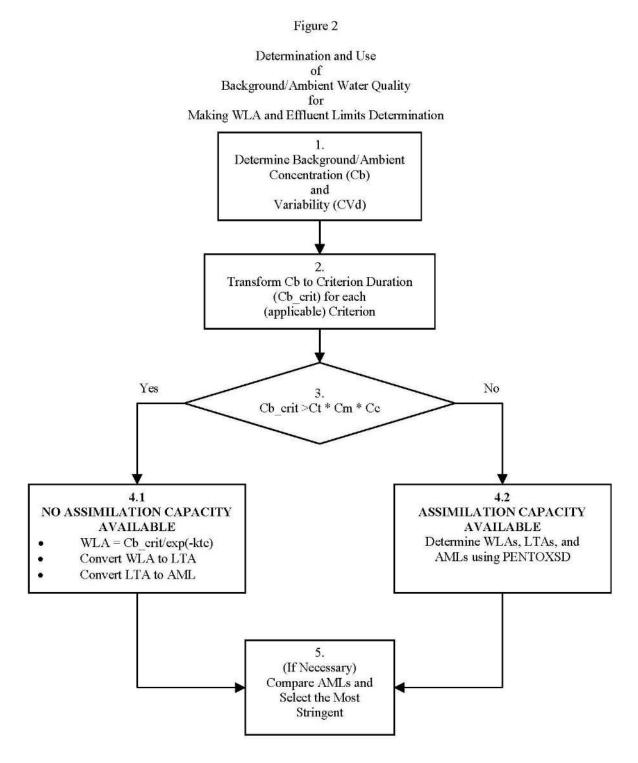
 $AML_x = LTA * exp(2.326* \sigma_n - 0.5* \sigma_n^2)$ 

 $WLA_x$  = Wasteload Allocation for Criterion x

 $LTA_x = Long Term Average for Criterion x$ 

AML<sub>x</sub> = Average Monthly Limit for Criterion x (based on four samples per month)

 $\sigma_n^2 = \ln(CV_d^2/4 + 1)$  (four samples per month)



Note that this step should be repeated for all criteria where  $C_{b\_crit} \ge C_x$  and the most stringent WLA and AML should be selected.

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#### Step 4.2: Determining the WLA and Effluent Limit When $C_b$ crit $\leq C_x$

When  $C_{b\_crit} \le C_x$ , there is available assimilation capacity. WLA<sub>x</sub>, LTA<sub>x</sub>, AML<sub>x</sub> may therefore be determined using PENTOXSD with an inputted Background/Ambient CV of zero (0). Note that PENTOXSD makes these determinations for all criteria and criteria duration's, and also determines which is the most stringent.

Step 5: Determining the WLA and Effluent Limit When  $C_{b\_crit} \ge C_x$  for one or more criterion and  $C_{b\_crit} \le C_x$  for others.

Depending on the degree of variability in the background/ambient water quality and the relative values of the different criteria for a given parameter, it is possible that assimilation capacity will exist for some criteria while there is no assimilation capacity for other criteria. Where this is the case, this step must be carried out.

When  $C_{b\_crit} \ge C_x$  for one or more criterion and  $C_{b\_crit} \le C_x$  for others, the results from Steps 4.1 and 4.2 must be compared to determine which is the more stringent. The more stringent results are the basis for the NPDES permit.

#### 1.5 WHEN BACKGROUND/AMBIENT DATA IS UNAVAILABLE

Background/ambient for naturally occurring substances must be based on available data from the site or from a reference site, unless that data is documented by the Region as being insufficient or inappropriate for use. If, in the judgment of the permit writer, these data are insufficient because of deficiencies in spatial or temporal coverage the permit writer may assume a value of 0 ug/l for naturally occurring substances for initial permit issuance, or to reissue an expiring permit. However, permits issued on this basis must include a special condition that requires the discharger to collect background/ambient data for any parameters of concern so that these data are available for the next permit renewal. Sample permit language, for this special condition, is shown on Attachment 2. If site-specific background/ambient data is unavailable, a permit writer may use available background/ambient data from upstream or within the same watershed, or data from one or more DEP reference water quality network sites located in the same ecoregion as the discharge to estimate background/ambient water quality.

#### 1.6 SITE SPECIFIC DATA COLLECTION AND EVALUATION

The information in this and subsequent sections should be used to design a site-specific data collection program. Field data should be reported using the form provided in Attachment 1. When collecting data for Hardness consult the implementation guidance "Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness" (DEP ID: 391-2000-021) available on DEP's website at <a href="https://www.dep.state.pa.us">www.dep.state.pa.us</a>.

#### 1.6.1 SAMPLE SITE SELECTION

Background/ambient water quality samples should be collected immediately upstream of the existing (or proposed) discharge outfall.<sup>1</sup> In the case of an existing discharge, the site should be far enough upstream so that water flow and water quality are not affected by the outfall itself. In addition, the site should be (ideally) located on a straight stretch of stream that is devoid of areas of standing water, eddy currents, and backflow.

Where the water quality limits for TDS, Phenols, Fluoride, and NO2-NO3 are based on THH protection at a downstream potable water supply it is not appropriate to sample background/ambient above the discharge. However, where there is a question of fish and aquatic life protection it would be appropriate to monitor background/ambient at the point of discharge.

If the site upstream of the outfall is believed to be affected by one or more upstream point source discharges, an alternative site must be sampled. The alternative site can be located:

- 1. on the same stream above the interfering discharge(s); or
- on a tributary stream that is not affected by point source discharges, and which
  contributes a significant amount of the flow to the site where characterization of
  background is desired.

#### 1.6.2 DATA COLLECTION

Sampling should be performed on days during the low flow  $(Q_{7-10})$  season of July through November. Sampling should not be conducted when the waterbody level is rising. Measure the waterbody level and again two hours later, if the level is not rising sample. A single mid-depth grab sample should be collected between the hours of 10:00 a.m. and 2:00 p.m. This time restriction is necessary due to the variation in pH throughout the day which can affect metals data. A minimum of ten grab samples should be collected, with no more than one sample per week; samples may be taken during the three-year collection period (see Attachment 2). The data are evaluated as described in Section 1.3.

#### 1.6.3 <u>SAMPLE COLLECTION</u><sup>2</sup>

Obtain a representative sample in accordance with established water sample collection procedures taking care not to expose the sample or any sampling equipment or containers to contamination through contact with your skin or any of the following:

Rubber Cigarette smoke Dust, Dirt or Soil

Metal products Automobile exhaust Painted Surfaces Paper products

All equipment/containers that come into contact with the sample must be certified metals free from the supplier; or washed with 0.1% reagent grade hydrochloric acid and rinsed with metals free distilled or deionized water.

Remove the sample container cap, submerge the container below the surface of the water, move the container opening towards the upstream flow, and away from the collector. Hold the lower portion of the sample container making sure that water which contacts the hands cannot enter. Never touch the container opening or the inside of the container cap. Replace the cap after the container is filled with the appropriate quantity of water.

#### 1.6.3.1 SAMPLE VOLUME, FIELD PREP, AND FIXATIVE CHART

Standard Inorganics (includes C-BOD5)	1-500 milliliter plastic bottle	iced to 4° C
Total Metals	*1-500 or 1-125 milliliter plastic bottle	nitric acid to pH < 2 iced to 4° C
Phenols	1-500 milliliter glass bottle	Sulfuric acid to pH < 2 iced to 4° C
Cyanides	1-500 milliliter plastic bottle	Sodium hydroxide to pH > 12 iced to 4° C
Oil & Grease	1-500 milliliter glass bottle	hydrochloric acid to pH < 2 iced to 4° C
Radiological	1-500 milliliter plastic bottle	iced to 4° C

<sup>\*</sup> Bottle size depends on number or metals collecting for.

See Pennsylvania's Surface Water Quality Monitoring Network, 3800-BK-DEP0636 available on DEP's website.

#### 1.6.4 METALS DATA COLLECTION

<u>Note</u>: Existing DEP procedures translate dissolved metals water quality criteria into an equivalent total recoverable metals water quality objective. There is, therefore, no need for the collection or evaluation of dissolved metals background/ambient water quality data.

Water samples collected to determine metals concentrations must be handled extensively in the field. Included in this field sample preparation are procedures involving acid fixation which provide numerous opportunities for sample contamination. Because of the low natural concentrations of metals in many water samples and the difficulties associated with maintaining quality control under field conditions, the procedures described in Appendix 1 should be followed. The field blanks specified in Appendix 1 must be submitted at least once every day that metals samples are collected and every time acid, distilled/deionized water, or manufacturer's sample container lots change.

#### 1.6.5 ANALYTICAL METHODS

Analytical methods promulgated in 40 CFR Part 136 or other DEP approved test methods must be used where applicable. Typically the method with the lowest detection level should be used. If EPA has promulgated no method for a particular pollutant, use a suitable method for measuring the level of the pollutant provided that a description of the method or a reference to a published method is attached to the results. The description shall include the sample holding time, preservation technique, and quality control measures applied. DEP reserves the right to review the methodology used and require further analysis, if necessary.

In the determination of Free Cyanide (Group B, 16M), DEP's Bureau of Laboratories has developed a method to be used. Contact the Bureau of Laboratories, PO Box 1467, Harrisburg, PA 17210 (717-787-4669) for a copy of this procedure.

#### Appendix 1

#### The Collection and Field Preparation of Samples for Metals Analysis

#### 1 COLLECT SAMPLE

Obtain a representative sample in accordance with established water sample collection procedures taking care not to expose the sample or any sampling equipment or containers to contamination through contact with your skin or any of the following:

Rubber Cigarette smoke Dust, Dirt or Soil

Metal products Automobile exhaust Painted Surfaces Paper products

All equipment/containers that come into contact with the sample must be certified metals free from the supplier; or washed with 0.1% reagent grade hydrochloric acid and rinsed with metals free distilled or deionized water.

#### 2 PRESERVE SAMPLES

Samples for metals must be immediately acidified to a pH  $\leq$  2.0 to prevent precipitation or other changes in metals speciation. Use reagent grade or ultra pure 1:1 nitric acid for this process. Be careful to ensure the acid does not come in contact with any metals or other contaminants in the process of transferring it from storage to the sample

Normally 2 ml of 1:1 nitric acid is sufficient to preserve the sample. Check the pH of a small aliquot of the fixed sample to ensure pH depression below 2.0 and then discard this aliquot. Do not insert pH probes or other testing devices directly into the fixed sample. Samples to be analyzed for ferrous iron must be prepared in the same way except that they are fixed with 1:1 hydrochloric acid instead of nitric acid.

#### 3 FIX BLANKS

Using the procedures described above, acidify a blank consisting of a 125-ml aliquot of the deionized water used in all sample preparations. This blank should be so labeled and forwarded to the laboratory along with the sample. Both bottles (sample, and unfiltered blank) should be placed on ice for storage/shipping.

#### 4 <u>CARE OF EQUIPMENT</u>

All reagents, equipment and containers that come into contact with the sample must be kept as clean as possible. Distilled or deionized water and nitric acid fixative must be kept in sealed containers which are protected from dust, fumes and other contaminants by outer containers and/or sealed plastic bags. The sample bottles should be stored in closed boxes between uses to minimize the potential for contamination.

#### Attachment 1

### STREAM PARAMETER CONCENTRATION DATA REPORT

Stream: \_\_\_\_\_ Stream Code: \_\_\_\_

	Stream	n Concentration Data		
Date	Parameter Name	Sample Conc.	Stream Flow <sup>3</sup> (cfs)	Level Detectability Achieved

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<sup>&</sup>lt;sup>3</sup> Stream flow is optional unless specifically required by the permit writer.

### Attachment 2

<u>Proposed Language for addition to PART A/C Background/Ambient Data Collection Requirements:</u> (This language will eventually be integrated with the latest PART A/C language with all other data submissions)
"This permit contains water quality based effluent limits and monitoring requirements for,, and  Because of the lack of available site-specific background/ambient data the water quality assessment for these parameters was based on an assumption of zero (0) background/ambient concentration.
The permittee shall collect and submit background/ambient water quality data for,, and to DEP no later than 3 years after the permit issuance (or amendment date). The data must be collected and analyzed in accordance with the enclosed protocol or an alternative plan. The plan must be submitted to DEP for approval."

#### Appendix 2

# An Example to Determine the Long Term Average Background/Ambient Water Quality and its Variability

To determine the long-term average background ambient water quality, the data must be log-transformed (assuming the data are log-normally distributed):

$$Y_i = ln(X_i)$$
 where:

Xi = observed data

Yi = the natural log of the observed data

Next, calculate the mean and the variance of the log-transformed data:

The Mean (µ<sub>v</sub>)

$$\mu_y = \frac{\sum (Y_i)}{k}$$
  $\mu_y = \frac{11.2}{10}$   $\mu_y = -1.12$ 

where,

 $\mu_y$  = the lognormal mean of example data

 $Y_i =$ lognormal data

k = the number of data points in example data set

The Variance  $(\sigma_v^2)$ 

The lognormal variance is calculated.

$$\sigma_y^2 = \frac{\sum (Y_i - \mu_y)^2}{(k-1)}$$
  $\sigma_y^2 = \frac{20.2}{10-1}$  = 2.24

The long term average background/ambient water quality (Cb) and associated coefficient of variation (CV<sub>d</sub>) are then:

Cb = 
$$\exp\left(\mu_y + \frac{\sigma_y^2}{2}\right)$$
 Cb =  $\exp\left(-1.12 + \frac{2.24}{2}\right)$  = 1.0

$$CV_d = \sqrt{\exp(\sigma_y^2) - 1}$$
  $CV_d = \sqrt{\exp(2.24) - 1}$  = 2.9

		Exam	ple Data
	ug/l		
$X_1$	= 0.41	$Y_1$	$= \ln(0.41) = -0.89$
$X_2$	= 0.92	$Y_2$	$= \ln(0.92) = -0.08$
$X_3$	= 1.07	$Y_3$	$= \ln(1.07) = 0.07$
$X_4$	= 0.22	$Y_4$	$= \ln(0.22) = -1.51$
$X_5$	= 0.09	Y5	$= \ln(0.09) = -2.41$
$X_6$	= 0.31	$Y_6$	$= \ln(0.31) = -1.17$
X <sub>7</sub>	= 0.55	$Y_7$	$= \ln(0.55) = -0.6$
X <sub>8</sub>	= 0.01	Y <sub>8</sub>	$= \ln(0.01) = -4.6$
X <sub>9</sub>	= 0.49	Yo	$= \ln(0.49) = -0.71$
$X_{10}$	= 1.99	Y <sub>10</sub>	$= \ln(1.99) = 0.7$
			The Sum of Yi =
			-11.2

$(Y_i  \mu_y)$	)2	
$(-0.89-(-1.12))^2$	=	0.05
$(-0.08-(-1.12))^2$	=	1.08
$(0.07-(-1.12))^2$	=	1.42
$(-1.51-(-1.12))^2$	=	0.15
$(-2.41-(-1.12))^2$	Ξ	1.65
$(-1.17-(-1.12))^2$	Ξ	0.002
$(-0.6-(-1.12))^2$	=	0.27
$(-4.6 - (-1.12))^2$	=	12.1
$(-0.71-(-1.12))^2$	=	0.17
$(0.7-(-1.12))^2$	<del>172</del> 3	3.28
$\sum (Y_i - \mu_y)^2$	=	20.2

Appendix E

Background Water Quality Calculations (using PADEP Guidance)

# Conemaugh River Surface Water Long-Term Average Background Water Quality

<u>Date</u>	Total Aluminum (mg/L)	Total Iron (mg/L)	Total Manganese (mg/L)
6/24/2022		0.92	0.32
6/29/2022		0.91	0.30
7/1/2022		0.76	0.32
7/11/2022		0.79	0.26
7/15/2022		0.80	0.23
7/21/2022		0.86	0.22
7/25/2022		1.14	0.21
8/2/2022	0.2	0.95	0.21
$\mathbf{Y}_{\mathbf{i}}$	Natural Log (LN)	Natural Log (LN)	Natural Log (LN)
	-1.20	-0.08	-1.14
	-1.61	-0.09	-1.20
	-1.61	-0.27	-1.14
	-1.61	-0.24	-1.35
	-1.61	-0.22	-1.47
	-1.20	-0.15	-1.51
	-1.20	0.13	-1.56
	<u>-1.61</u>	-0.05	<u>-1.56</u>
$\Sigma(Y_i)$	-11.66	-0.98	-10.94
	<u>Mean</u>	Mean	Mean
	Medil	IVICALI	
$\mu_{y}$	-1.46	-0.12	-1.37
$\mu_{y}$	-1.46	-0.12	-1.37
	-1.46 <u>Variance</u>	-0.12 <u>Variance</u>	-1.37 <u>Variance</u>
$\mu_y$ $(Y_i - \mu_y)^2$	-1.46 <u>Variance</u> 0.064	-0.12 <u>Variance</u> 0.002	-1.37 <u>Variance</u> 0.052
	-1.46 <u>Variance</u> 0.064  0.023	-0.12 <u>Variance</u> 0.002 0.001	-1.37 <u>Variance</u> 0.052 0.027
	-1.46 <u>Variance</u> 0.064  0.023  0.023	-0.12 <u>Variance</u> 0.002 0.001 0.023	-1.37 <u>Variance</u> 0.052  0.027  0.052
	-1.46 <u>Variance</u> 0.064  0.023  0.023  0.023	-0.12 <u>Variance</u> 0.002  0.001  0.023  0.013	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000
	-1.46 <u>Variance</u> 0.064  0.023  0.023  0.023  0.023	-0.12 <u>Variance</u> 0.002  0.001  0.023  0.013  0.010	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011
	-1.46 <u>Variance</u> 0.064  0.023  0.023  0.023  0.023  0.023	-0.12 <u>Variance</u> 0.002  0.001  0.023  0.013  0.010  0.001	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022
	-1.46 <u>Variance</u> 0.064  0.023  0.023  0.023  0.023  0.064  0.064	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.0064	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038
(Υ <sub>i</sub> - μ <sub>γ</sub> ) <sup>2</sup>	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.0623	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038
	-1.46 <u>Variance</u> 0.064  0.023  0.023  0.023  0.023  0.064  0.064	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.0064	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.004 0.005 0.119	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.038
(Υ <sub>i</sub> - μ <sub>γ</sub> ) <sup>2</sup>	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.0623	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005 0.119	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.238
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$ $\sigma_y^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308  0.044  Long-Term Avg. Background	Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005 0.119  0.017  Long-Term Avg. Background	-1.37  Variance  0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.038 0.238  0.034  Long-Term Avg. Background
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308	-0.12  Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005 0.119	-1.37 <u>Variance</u> 0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.238
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$ $\sigma_y^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308  0.044  Long-Term Avg. Background 0.24	Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005 0.119  0.017  Long-Term Avg. Background 0.89	-1.37  Variance  0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.238  0.034  Long-Term Avg. Background 0.26
$(Y_i - \mu_y)^2$ $\Sigma (Y_i - \mu_y)^2$ $\sigma_y^2$	-1.46  Variance  0.064 0.023 0.023 0.023 0.023 0.064 0.064 0.064 0.023 0.308  0.044  Long-Term Avg. Background	Variance  0.002 0.001 0.023 0.013 0.010 0.001 0.064 0.005 0.119  0.017  Long-Term Avg. Background	-1.37  Variance  0.052 0.027 0.052 0.000 0.011 0.022 0.038 0.038 0.038 0.238  0.034  Long-Term Avg. Background

# Conemaugh River Surface Water Long-Term Average Background Water Quality

<u>Date</u>	Alkalinity to pH 4.5 (mg/L CaCO <sub>3</sub> )	Dissolved Oxygen (mg/L)	Total Hardness (mg/L CaCO <sub>3</sub> )
6/24/2022	36	6.62	217
6/29/2022	38	8.71	235
7/1/2022	37	6.46	263
7/11/2022	49	9.90	239
7/15/2022	44	7.01	270
7/21/2022	44	10.0	217
7/25/2022	50	12.1	232
8/2/2022	50	11.4	268
$\mathbf{Y}_{\mathbf{i}}$	Natural Log (LN)	Natural Log (LN)	Natural Log (LN)
	3.58	1.89	5.38
	3.64	2.16	5.46
	3.61	1.87	5.57
	3.89	2.29	5.48
	3.78	1.95	5.60
	3.78	2.30	5.38
	3.91	2.49	5.45
	<u>3.91</u>	<u>2.43</u>	<u>5.59</u>
$\Sigma(Y_i)$	30.12	17.39	43.90
20/125			
	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>
$\mu_{y}$	3.76	2.17	5.49
		99 - 8	100 m
	<u>Variance</u>	<u>Variance</u>	<u>Variance</u>
$(Y_i - \mu_y)^2$	0.033	0.080	0.012
	0.016	0.000	0.001
	0.024	0.095	0.007
	0.016	0.014	0.000
	0.000	0.051	0.012
	0.000	0.017	0.012
	0.022	0.102	0.002
	0.022	0.068	<u>0.011</u>
$\Sigma(Y_i - \mu_y)^2$	0.133	0.427	0.056
$\sigma^2_{\gamma}$	0.019	0.061	0.008
	Control of the Contro		
124	Long-Term Avg. Background	Long-Term Avg. Background	Long-Term Avg. Background
Cb	43.6	9.06	243
	Coefficient of Variation	Coefficient of Variation	Coefficient of Verickies
CV <sub>d</sub>	0.14	0.25	Coefficient of Variation 0.09



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Appendix F

Output from ProUCL Software

	Α	В	С	D	E	F	G	Н	1	J	K	L
1	Ü				UCL Stati	stics for Und	ensored Ful	Data Sets				
2	s			0.50								
3	0	User Selec	ted Options	5								
4	Da	te/Time of Co	mputation	ProUCL 5.2	8/11/2022	12:52:45 PM						
5			From File	River Stats	for Al Fe Mn	_ProUCL in	put.xls					
6		Full	Precision	OFF								
7	*	Confidence C	Coefficient	95%								
8	Number o	of Bootstrap C	perations	2000								
9												
10												

Sugarge e	A B C D E Total Aluminum (mg/L)	F	G H I J K	L
11	Total Administra (mgr.)			
12		General S	Statistics	
14	Total Number of Observations	8	Number of Distinct Observations	2
15			Number of Missing Observations	0
16	Minimum	0.2	Mean	0.238
17	Maximum	0.3	Median	0.2
18	SD	0.0518	Std. Error of Mean	0.0183
19	Coefficient of Variation	0.218	Skewness	0.644
20				
21	Note: Sample size is small (e.g., <10), if data a	re collected	using incremental sampling methodology (ISM) approach,	
22	refer also to ITRC Tech Reg Guide o	n ISM (ITRO	2020 and ITRC 2012) for additional guidance,	
23	but note that ITRC may recommend the	e t-UCL or th	e Chebyshev UCL for small sample sizes (n < 7).	
24	The Chebyshev UCL of	ten results ir	gross overestimates of the mean.	
25	Refer to the ProUCL 5.2 Tec	hnical Guide	for a discussion of the Chebyshev UCL.	
26			3900	
27		Normal G	OF Test	
28	Shapiro Wilk Test Statistic	0.641	Shapiro Wilk GOF Test	
29	1% Shapiro Wilk Critical Value	0.749	Data Not Normal at 1% Significance Level	
30	Lilliefors Test Statistic	0.391	Lilliefors GOF Test	
31	1% Lilliefors Critical Value	0.333	Data Not Normal at 1% Significance Level	
32	Data Not	Normal at 19	% Significance Level	
33				
34	Ass	suming Norm	al Distribution	
35	95% Normal UCL		95% UCLs (Adjusted for Skewness)	
36	95% Student's-t UCL	0.272	95% Adjusted-CLT UCL (Chen-1995)	0.272
37			95% Modified-t UCL (Johnson-1978)	0.273
38				
39		Gamma G	OF Test	
40	A-D Test Statistic	1.558	Anderson-Darling Gamma GOF Test	
41	5% A-D Critical Value	0.716	Data Not Gamma Distributed at 5% Significance Lev	el
42	K-S Test Statistic	0.406	Kolmogorov-Smirnov Gamma GOF Test	
43	5% K-S Critical Value	0.294	Data Not Gamma Distributed at 5% Significance Levi	el
44	Data Not Gamm	na Distribute	d at 5% Significance Level	
45				
46		Gamma S	000000000000000000000000000000000000000	
47	k hat (MLE)	25.42	k star (bias corrected MLE)	15.97
48	Theta hat (MLE)	0.00934	Theta star (bias corrected MLE)	0.0149
49	nu hat (MLE)	406.7	nu star (bias corrected)	255.5
50	MLE Mean (bias corrected)	0.238	MLE Sd (bias corrected)	0.0594
51			Approximate Chi Square Value (0.05)	219.5
52	Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	211

	A B C D E	F	G	Н	- 1		J		K	L
53		7000								
54	Ass	uming Gamn	na Distributio	п					- 124	
55	95% Approximate Gamma UCL	0.276			9	95% Ad	justed (	Gamma	a UCL	0.288
56	W	19							18	
57		Lognormal (	GOF Test							
58	Shapiro Wilk Test Statistic	0.641			ro Wilk L					
59	10% Shapiro Wilk Critical Value	0.851	ı	Data Not Lo	(TAN)				Level	
60	Lilliefors Test Statistic	0.391		Lilli	efors Log	norma	GOF 1	Test		
61	10% Lilliefors Critical Value	0.265	Į	Data Not Lo	gnormal	at 10%	Signific	cance	Level	
62	Data Not Lo	gnormal at 1	0% Significa	nce Level						
63										
64		Lognormal	Statistics							
65	Minimum of Logged Data	-1.609				٨	/lean of	logged	d Data	-1.457
66	Maximum of Logged Data	-1.204					SD of	logged	d Data	0.21
67										
68	Assu	ming Lognor	mal Distributi	ion						
69	95% H-UCL	0.278			909	% Cheb	yshev (	MVUE	) UCL	0.29
70	95% Chebyshev (MVUE) UCL	0.314			97.5%	% Cheb	yshev (	MVUE	) UCL	0.348
71	99% Chebyshev (MVUE) UCL	0.413								
72	-	4								
73	Nonparame	tric Distributio	on Free UCL	Statistics						
74	Data do no	ot follow a Dis	scernible Dis	tribution						
75										
76	Nonpara	ametric Distri	bution Free	UCLs						
77	95% CLT UCL	0.268				95%	BCA Bo	otstra	p UCL	N/A
78	95% Standard Bootstrap UCL	N/A				9.	5% B∞	tstrap-	t UCL	N/A
79	95% Hall's Bootstrap UCL	N/A			95%	% Perce	ntile Bo	otstra	p UCL	N/A
80	90% Chebyshev(Mean, Sd) UCL	0.292			95% (	Chebys	hev(Me	an, Sd	) UCL	0.317
81	97.5% Chebyshev(Mean, Sd) UCL	0.352			99% (	Chebys	hev(Me	an, Sd	) UCL	0.42
82	900 ABOV 500 30 I	3.0				100	180	300 0		
83		Suggested U	CL to Use							
84	Recommendation cannot be provided	3,555,							27	
85									10	
86	Note: Suggestions regarding the selection of a 95%	UCL are prov	ided to help	the user to	select the	e most	appropi	riate 95	5% UCL	
87	Recommendations are based upon data size,	data distribut	ion, and skew	vness using	g results f	from sir	nulation	studie	es.	
88	However, simulations results will not cover all Real Wo	orld data sets	for additiona	al insight th	e user ma	ay want	t to cons	sult a s	statistici	an.
00				_						
89										

	А	В		С	1	D	Т	Е	ΙF	Т	G	T	Н	Ĺ	1	-			1	K	Т	1
91	Total Iron (n			U	00 00				1 1		u			8						11	43.5	<b>ા</b> ≌
92		20075 - 500																				
93									Gen	eral S	tatistics											
94				Total	ıl Num	ber of	Obse	rvations	8						Num	ber o	f Dist	inct	Obse	rvatio	ns	8
95															Numl	ber of	f Miss	sing	Obse	rvatio	ns	0
96							Ν	linimum	0.76	3										Me	an	0.891
97	5						М	aximum	1.14	4										Medi		0.885
98								SE	0.12	21							5	Std. E	Error	of Me	an	0.0429
99					Со	efficier	nt of V	'ariation	0.13	36									SI	ewne	SS	1.226
100									200												5.07	
101	2	Note: S				-					sing incr									roach	,	
102							330			-6	2020 an			100			-					
103	2		but no	ote that		on the contract of					e Chebys						sizes	(n <	7).			
104							17				gross ov											
105				Re	iter to	the Pro	oUCL	. 5.2 Te	chnical C	iuide	for a disc	noissus	of the	Che	ebysh	ev U	CL.					
106									<b>76</b> (1 <b>6</b> (1))													
107							_				OF Test											
108					32			Statistic					•		apiro					-1	1	
109	8			1% S	412000380011	10-1/10/1947/2000		al Value		Witte		Da	ta app						canc	e Leve	1	
110						and the second second		Statistic				-			_illiefc					6		
111	9			- 8	1% Ш	lliefors (	100000000	al Value	100000	886	407 01 11	2500	ta app	10000000	Vorma	al at 1	1% SI	gniti	canc	e Leve	2	
112	7					NI-			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	IND COLUMN	1% Signif				125							
113						NO	ie Gl	JF TOSTS	may be	unrei	iable for s	small S	ampie	SIZO	Ş							
114									in-a	Norm	al Dietrib	ution										
115				95% N	lorma	LUCI		Α.	ssurring	NOTITI	al Distrib	ution	DE	- 110	Ls (A	dinat	ad fa	- CL		\		
116	8			337014	79400		ıdant	s-t UCL	.l 0.97	72					Adju:	100					5)	0.982
117						70 70 Oll	udent	5-1 OCL	0.37	-					% Moc	*****		2001000000		700. A D C P O	-	0.976
118	-													007	0 IVIOC			_ (00	711130	A1-107	9	0.070
119									Gam	ma G	OF Test											
120	c.					A-D	Test	Statistic	200 ARREST (2002)		J. 1001		Ande	rson	-Darli	na G	amm	a G	OF T	est		
121					5	LL ADVISOR		al Value			Detecte	ed data				10070					cano	e Level
122						K-S	Test	Statistic	0.16	68			Colmo							213		
123					5'			al Value	0.0000000	distant.	Detecto										cano	e Level
124											tributed a		9197							J		and the population of the control of
125					TIS.		303-5105-51	No. of the State o	1525-2011-2-0-570-10		iable for s	Action Co.	A PLANTER OF THE	2.5%20.00	G476.53995	200						
126 127						0.000000		Service Delay					10 / 10 <b>B</b> A R R		100							
									Gam	ıma S	tatistics											
128 129	8						k ha	t (MLE)								k sta	ır (bia	s co	rrect	ed ML	E)	41.14
130	9					The		t (MLE)												ed ML		0.0217
131								t (MLE)		_							52			rrecte		658.3
132				М	1LE M	lean (bi	as co	rrected	0.89	91						M	ILE S	d (bi	as $\alpha$	rrecte	ed)	0.139
133						- 8				+				Аррі	oxima			100			17.35	599.8
100				Adiu	sted I	evel of	f Sian	ificance	0.01	95				157.00		Adju					200	585.6
134							-		100000000000000000000000000000000000000	95500								100	-400	CVU	1000	

Page 4 of 7

	A	В		С	1	D		E	F	I G		Н		1			J	Ī	K		I	L
136	19						•	As	suming Ga	mma Distri	but	ion			•						_	
137			1	95% A	pprox	imate	Gamm	a UCL	0.978						95%	6 Ad	justed	Gam	ma	UCL		1.002
138																						
139									Lognorm	I GOF Te	st											
140				S	Shapir	o Wilk	Test S	Statistic	0.926	Ī			Shapi	ro Wil	k Logi	orn	nal GC	F Te	st			
141			9	10% SI	hapir	o Wilk	Critica	Value	0.851		[	Data ap	pear L	ogno	rmal a	t 10	% Sigr	nifica	nœ	Leve	əl	
142					Lil	liefors	Test S	Statistic	0.166			90	Lillie	fors l	.ogno	rma	GOF	Test	Ô			
143				10	% Lill	liefors (	Critica	l Value	0.265	1	1	Data ap	pear L	ogno	rmal a	t 10	% Sigr	nifica	nœ	Leve	əl	
144							Data a	appear	Lognormal	at 10% Si	gni	icance	Level	B								
145						No	te GO	F tests	may be un	eliable for	sm	all sam	ple si	zes								
146																						
147									Lognorm	al Statistic	s											
148					Minim	num of	Logge	d Data	-0.274	1						N	lean o	flogg	jed [	Data	-	0.123
149				N	Maxim	num of	Logge	d Data	0.131	1							SDo	flogg	ged [	Data	1	0.13
150																		110				
151								Assı	ıming Logr	ormal Dist	ribu	ition										
152							95%	H-UCL	0.978	V comment					90% C	heb	yshev	(MVI	JE)	UCL		1.014
153				95%	Cheb	yshev	(MVUI	E) UCL	1.07					97	.5% C	heb	yshev	(MVI	JE)	UCL		1.147
154				99%	Cheb	yshev	(MVUE	E) UCL	1.299	1							55 0	.20	8550	-	_	
155				10000000	occur percept.	Action 1990	• ********	************														
156							Non	parame	etric Distrib	ution Free	UC	L Statis	stics									
157							Data	арреа	r to follow	a Discernit	ble	Distribu	ition									
158													1907500000									
159							- 1	Nonpa	rametric Di	stribution F	ree	UCLs	ė.									
160						9.	5% CL	TUCL	0.962		10000		10		9	5%1	BCA B	ootst	rap	UCL		0.974
161				95%	Stan	dard B	ootstra	p UCL	0.958						7997.0	9	5% Bo	otstra	ap-t	UCL	+	1.003
162						lall's B		15/5	1.039	1				ç	5% P	erce	ntile B	ootst	rap	UCL		0.964
			9	90% Ch	2012/2012/20	Water and Common	20703-05-33-05-4		1.02					- 10	2000	3500000	hev(Me		2005		3	1.078
163 164				.5% Ch	200	1330		378	1.159	+							hev(M					1.319
165					80	320	1833	ň		1						*	8.	*	350			
166									Suggester	UCL to U	se											
167					9	5% Stu	ıdent's	-t UCL	0.973											-	Т	
168										1										_		
169	Not	e: Suga	estions	regard	ing th	e sele	ction o	f a 95%	UCLarep	rovided to	hel	o the us	er to	select	the m	ost	approp	riate	95%	6 UC	CL.	
170		00							data distri													
171	Howe	VC2865- 2		F1 #1211512-1	9905XXG	eminent i inni	(Astronomics)	Child. ISSUED	orld data s		3-7-6	20000055140	CAN ATTENNED			2605000			MASSES LEGI	000	cian	•00
	. contraction						- 2000/5444	v-300000111 ali 3					-							www.		
172																						
173																						

	АВ	С	1 1	D	ı	E	F	G	Н	1 1	- 1		J	ì	K	1	1.
174	Total Manganese (mg/L)		0 0 0					_ u	1 31				3		- 1	3.45	
175	5 200000 100000 1000																
176							General	Statistics									
177		Total	l Numb	er of C	Obser	vations	8			Nu	mber	of Dis	stinct (	Obse	rvation	าร	6
178										Nu	mber o	of Mis	ssing (	Obse	rvatior	ıs	0
179					M	inimum	0.21								Mea	in	0.259
180					Ma	ximum	0.32								Media	in	0.245
181						SD	0.0482						Std. F	Error	of Mea	in	0.0171
182			Coef	fficient	t of Va	ariation	0.186							SI	(ewne	ss	0.367
183																	
184	Note: Samp	ole size is	small (	e.g., <	:10), i	if data	are collected	l using inc	remental sar	npling m	ethode	ology	(ISM	) app	roach,	00	
185	re	efer also t	o ITRC	Tech	Reg	Guide	on ISM (ITR	C 2020 an	d ITRC 2012	2) for add	litiona	ıl guid	dance	,			
186	but	note that	ITRC r	пау ге	comi	mend t	he t-UCL or	the Cheby:	shev UCL fo	r small s	ample	size	s (n <	7).			
187			The	Cheby	yshev	UCL	often results	in gross o	verestimates	of the m	еап.						
188		Ref	fer to th	he Pro	UCL	5.2 Te	chnical Guid	e for a disc	cussion of th	e Cheby	shev l	JCL.					
189																	
190							Normal (	GOF Test									
191	3	S	Shapiro	Wilk	Test S	Statistic	0.841			Shapi	ro Will	k GO	F Tes	t			
192		1% S	Shapiro	Wilk C	Critica	l Value	0.749		Data app	oear Nor	mal at	1%5	Signifi	canc	e Leve		
193			Lillie	efors 7	Test S	Statistic	0.224			Lillie	ofors (	GOF :	Test				
194		1	1% Lillie	efors C	Critica	l Value	0.333		Data app	oear Nor	mal at	1%5	3ignifi	canc	e Leve		
195					Dat	ta appe	ar Normal a	t 1% Signi	ficance Leve	d.							
196	2			Note	e GO	F tests	may be unre	eliable for	small sample	sizes							
197																	
198						As	ssuming Nor	mal Distrib	ution								
199		95% N	lormal l	UCL					95	% UCLs	(Adjus	sted f	or Sk	ewne	ess)		
200			95	% Stu	dent's	s-t UCL	0.291			95% Ad	justed	I-CLT	CUCL	(Che	n-199:	5)	0.289
201										95% M	odifie	d-t UC	CL (Jo	hnsc	n-197	8)	0.291
202																	
203							Gamma	GOF Test									
204				A-D	Test S	Statistic	0.585		And	erson-Da	rling (	Gamr	ma G(	OF T	est		
205			5%	A-D C	Critica	l Value	0.716	Detect	ed data appe	ear Gamr	na Dis	stribut	ted at	5% 5	Signific	ance	Level
206				K-S	Test S	Statistic	0.229		Kolmo	gorov-S	mirno	v Gar	mma (	GOF	Test		
207			5%	K-SC	Critica	l Value	0.294	Detect	ed data appe	ear Gamr	na Dis	stribut	ted at	5% 5	Signific	ance	Level
208			De	tected	data	appea	r Gamma Di	stributed a	nt 5% Signific	ance Le	vel						
209				Note	e GO	F tests	may be unr	eliable for	small sample	sizes							
210	0																
211	32						Gamma	Statistics								7.02	
212	8				k hat	t (MLE)	33.54				k st	tar (bi	ias co	rrect	ed MLE	Ξ)	21.04
213	S			The	ta hat	t (MLE)	0.00772			Th	neta st	tar (bi	ias co	rrect	ed MLE	Ξ)	0.0123
214				r	nu hat	t (MLE)	536.6					nu st	tar (bi	as co	rrecte	d)	336.7
		M	ILE Mea	an (bia	as cor	rected)	0.259						100		rrecte	0.3%	0.0564
											-		107700		1000000000		20E 2
215										Approxi	mate (	Chi S	quare	Valu	ie (0.0	5)	295.2
		Adjus	sted Le	vel of	Signi	ficance	0.0195			Approxi					ie (0.0) re Valu	200	285.3

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210	A B C D E	F	G H I J K	L
219	Ass	uming Gamma	Distribution	
220	95% Approximate Gamma UCL	0.295	95% Adjusted Gamma UCL	0.305
221				
222	1380 - 200 -	Lognormal G		
223	Shapiro Wilk Test Statistic	0.848	Shapiro Wilk Lognormal GOF Test	
224	10% Shapiro Wilk Critical Value	0.851	Data Not Lognormal at 10% Significance Level	
225	Lilliefors Test Statistic	0.212	Lilliefors Lognormal GOF Test	
226	10% Lilliefors Critical Value	0.265	Data appear Lognormal at 10% Significance Level	
227	Data appear Approx	imate Lognorn	nal at 10% Significance Level	
228	Note GOF tests r	nay be unrelial	ble for small sample sizes	
229				
230		Lognormal S		****
231	Minimum of Logged Data	-1.561	Mean of logged Data	-1.367
232	Maximum of Logged Data	-1.139	SD of logged Data	0.184
233				
234		ming Lognorm	al Distribution	
235	95% H-UCL	0.297	90% Chebyshev (MVUE) UCL	0.309
236	95% Chebyshev (MVUE) UCL	0.332	97.5% Chebyshev (MVUE) UCL	0.364
237	99% Chebyshev (MVUE) UCL	0.427		
238				
239	Nonnarama	tric Distribution	Free UCL Statistics	
205	Поправать			
240		r to follow a Dis	scernible Distribution	
		r to follow a Dis	scernible Distribution	
240	Data appear		scernible Distribution ution Free UCLs	
240 241	Data appear			0.286
240 241 242	Data appear	ametric Distrib	ution Free UCLs	0.286
240 241 242 243	Nonpari 95% CLT UCL	o.287	ution Free UCLs 95% BCA Bootstrap UCL	1140-1164-10
240 241 242 243 244	Nonpari 95% CLT UCL 95% Standard Bootstrap UCL	0.287 0.285	ution Free UCLs  95% BCA Bootstrap UCL  95% Bootstrap-t UCL	0.296
240 241 242 243 244 245	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL	0.287 0.285 0.28	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL	0.296 0.286
240 241 242 243 244 245 246	Nonpari 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.31	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333
240 241 242 243 244 245 246 247	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.31	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333
240 241 242 243 244 245 246 247 248 249	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.28 0.31 0.365	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333
240 241 242 243 244 245 246 247 248 249 250	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.28 0.31 0.365	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333
240 241 242 243 244 245 246 247 248 249 250 251	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.31 0.365 Suggested UC	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333 0.428
240 241 242 243 244 245 246 247 248 249 250 251	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL	0.287 0.285 0.28 0.28 0.31 0.365 Suggested UC 0.291	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333 0.428
240 241 242 243 244 245 246 247 248 249 250 251	Nonpan 95% CLT UCL 95% Standard Bootstrap UCL 95% Hall's Bootstrap UCL 90% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL 97.5% Chebyshev(Mean, Sd) UCL Note: Suggestions regarding the selection of a 95% Recommendations are based upon data size,	0.287 0.285 0.28 0.31 0.365  Suggested UC 0.291  UCL are provided at a distribution	95% BCA Bootstrap UCL 95% Bootstrap-t UCL 95% Percentile Bootstrap UCL 95% Chebyshev(Mean, Sd) UCL 99% Chebyshev(Mean, Sd) UCL	0.296 0.286 0.333 0.428

-	Α	В	С	D	E	F	G	Н	1	J	K	L
1					UCL Statis	stics for Unc	ensored Ful	Data Sets				
2												
3	0	User Selecte	ed Options	3								
4	Da	te/Time of Com	nputation	ProUCL 5.2	8/18/2022 9	54:08 AM						
5		F	rom File	River Stats	for Alk DO H	lard_ProUCL	_ input.xls					
6		Full F	Precision	OFF								
7		Confidence Co	pefficient	95%								
8	Number	of Bootstrap Op	perations	2000								
9												
10												

	A B C D E	F	G	Тн	I 1	_	J	1	K	1	L
11	Alkalinity to pH 4.5 (mg/L CaCO3)			1 2.						20	
12	AA 100 100 100 100 100 100 100 100 100 1										
13		General	Statistics								
14	Total Number of Observations	8			Numb	ber of	Distinct	Obse	ervations	5	6
15					Numb	per of	Missing	Obse	ervations	5	0
16	Minimum	36							Mear	1	43.5
17	Maximum	50							Mediar	1 4	44
18	SD	5.904					Std.	Error	of Mear	1	2.087
19	Coefficient of Variation	0.136						S	kewnes	5 -	0.136
20	*	S									
21	Note: Sample size is small (e.g., <10), if data a								proach,		
22	refer also to ITRC Tech Reg Guide of					100					
23	but note that ITRC may recommend th					Walter Concrete	izes (n ·	< 7).			
24	The Chebyshev UCL of										
25	Refer to the ProUCL 5.2 Tec	hnical Guid	e for a disc	ussion of the	Chebysh	ev UC	CL.				
26											
27			GOF Test								
28	Shapiro Wilk Test Statistic	0.862		1020	Shapiro '						
29	1% Shapiro Wilk Critical Value	0.749		Data appe					e Level		
30	Lilliefors Test Statistic	0.199					OF Test				
31	1% Lilliefors Critical Value	0.333		Data appe	er Norma	l at 19	% Signif	icano	e Level		
32				icance Level							
33	Note GOF tests	may be unre	eliable for s	mall sample	sizes						
34				<b>31</b>							
35		suming Non	mal Distribu		1101 (4						
36	95% Normal UCL	47.45			UCLs (A				200	a .	10.00
37	95% Student's-t UCL	47.45			95% Adjus		20000 20000		econo. All chocono		46.83
38					95% Mod	iitiea-t	OCL (J	onns	on-19/8	,	47.44
39		C	GOF Test								
40	A-D Test Statistic	AND CONTRACTOR	GOF Test	Anda	David	0-		OF T			
41	5% A-D Critical Value	0.546	Datasta	Ander ed data appea	son-Darli	10000				n 00	l aval
42	K-S Test Statistic	0.713	Detecte		orov-Smi					iii Ce	Level
43	5% K-S Critical Value	0.214	Datasta	ed data appea							اميما
44	Detected data appear			0.001			ibuleu a	1370	Significa	iiice i	Level
45	Note GOF tests		e-cooking secondaries	CONTRACTOR AND	MORNING AND STREET	26					
46	NOTE GOT LESIS	may be unit	3114 DE 5	man sample	312-03						
47		Gamma	Statistics								
48	k hat (MLE)	60.94	Ciariotto			ketor	(hige o	orrec	ted MLE	ű e	38.17
49	Theta hat (MLE)	0.714							ted MLE		1.14
50	nu hat (MLE)	975			inet		55		orrected		10.7
51	MLE Mean (bias corrected)	43.5					e the country		orrected	200	7.041
52	MEE Meen (Dies Corrected)	-10.0			Approxima					10	54.4
53	Adjusted Level of Significance	0.0195				45 200			re Value	0	40.7
54	Adjusted Level of Olghincance	0.0130				, rujus	0111	-que	Value		10.7
55											

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П	ABCDE	F	G	Н	I	J	I K		L				
56		uming Gar	nma Distribu										
57	95% Approximate Gamma UCL	47.92			S	5% Adjuste	d Gamma	UCL	49.13				
58													
59		Lognorma	GOF Test										
60	Shapiro Wilk Test Statistic	0.861	Shapiro Wilk Lognormal GOF Test										
61	10% Shapiro Wilk Critical Value	0.851	į.	Data appear	Lognorma	al at 10% Sig	gnificance	Level					
62	Lilliefors Test Statistic	0.197		Lill	efors Log	normal GOI	F Test						
63	10% Lilliefors Critical Value	0.265	8	Data appear	Lognorma	al at 10% Sig	gnificance	Level					
64	Data appear l	_ognormal	at 10% Sign	ificance Leve	əl								
65	Note GOF tests r	nay be unr	eliable for sn	nall sample s	izes								
66	\$4.00 (1.00 m) Price (1.00 m) (1.00 m) (1.00 m) (1.00 m) (1.00 m)			- Committee of the comm									
67		Lognorma	al Statistics										
68	Minimum of Logged Data	3.584				Mean	of logged	Data	3.765				
69	Maximum of Logged Data	3.912				W3W30W30	of logged	son many,	0.138				
70							12.7						
71	Assu	ming Logn	ormal Distrib	ution									
	95% H-UCL	48.04			90%	% Chebyshe	v (MVUE)	UCL	49.87				
72	95% Chebyshev (MVUE) UCL	52.75				√ Chebyshe			56.75				
73	99% Chebyshev (MVUE) UCL	64.61					756 SA	8 0					
74	, , , , , , , , , , , , , , , , , , , ,	107. STATE U.						- 13					
75	Nonparame	tric Distribu	tion Free UC	CL Statistics									
76	Data appear		Market Charles her										
77													
78	Nonpar	ametric Dis	tribution Fre	e UCLs									
79	95% CLT UCL	46.93		Arrest errestant		95% BCA	Bootstrap	UCL	46.5				
80	95% Standard Bootstrap UCL	46.73					ootstrap-t		47.35				
81	95% Hall's Bootstrap UCL	46.15			95%	6 Percentile	- A		46.75				
82	90% Chebyshev(Mean, Sd) UCL	49.76			:5/220385	Chebyshev(N	Section of the sectio		52.6				
83	97.5% Chebyshev(Mean, Sd) UCL	56.54				Chebyshev(N			64.27				
84	,,					7	,	8					
85		Suggested	UCL to Use										
86	95% Student's-t UCL	47.45		*									
87	5575 51335.115 1 505												
88	Note: Suggestions regarding the selection of a 95%	LICI are n	avided to be	n the user to	select the	most appro	opriate 95	% LICI					
89	Recommendations are based upon data size,			(3)		1879	139.		E				
90	However, simulations results will not cover all Real Wo							3500	an				
91	Towerer, simulations results will not over all near we	ona aata Se	is, ioi additio	ziiai iiisigiit ti	ie usei IIIa	ay want to co	Albuit a St	adouck	an.				
92	Note: For highly possitively alcound data confid	onco limito	lan Char	Johnson La	VIDOEMO!	and Com-	a) may re	nt ho					
93	Note: For highly negatively-skewed data, confid	- Carolin Control Control	080178274 000 007100	the state of the s	THE RESERVE OF THE PARTY OF THE		and the same of th	A DB					
94	reliable. Chen's and Johnson's me	unous prov	ue aujustme	and for positi	rely SKEW	eu 02/2 5 <b>0</b> (5	Be:						
95													
96													

	A B C D E	F	G	Тн	Ι ι	J	K	L
97	Dissolved Oxygen (mg/L)							
98	200 WHO 200 WHO WHO							
99		General	Statistics					
100	Total Number of Observations	8			Numb	er of Distinct	Observations	8
101					Numbe	er of Missing	Observations	0
102	Minimum	6.46					Mean	9.025
103	Maximum	12.1					Median	9.305
104	SD	2.182				Std.	Error of Mean	0.772
105	Coefficient of Variation	0.242					Skewness	0.0929
106								
107	Note: Sample size is small (e.g., <10), if data a				_			
108	refer also to ITRC Tech Reg Guide of	1876				1197		
109	but note that ITRC may recommend the						: 7).	
110	The Chebyshev UCL or							
111	Refer to the ProUCL 5.2 Tec	chnical Guid	e for a disc	ussion of the	Chebyshe	v UCL.		
112								
113			GOF Test					
114	Shapiro Wilk Test Statistic			3050	- 10 TO	Vilk GOF Tes		
115	1% Shapiro Wilk Critical Value	0.749		Data appe		at 1% Signifi	cance Level	
116	Lilliefors Test Statistic					s GOF Test		
117	1% Lilliefors Critical Value	0.333		And addings to the term	ar Normal	at 1% Signifi	cance Level	
118				icance Level				
119	Note GOF tests	may be unre	eliable for s	mall sample:	sizes			
120								
121		suming Nor	mal Distribi					
122	95% Normal UCL	1 72 72				usted for Sk		1
123	95% Student's-t UCL	10.49				20-001-1-01-100 - 271-10V-V-	. (Chen-1995)	10.32
124					95% Modif	ied-t UCL (Jo	ohnson-1978)	10.49
125								
126			GOF Test					
127	A-D Test Statistic		D			g Gamma G		V - C
128	5% A-D Critical Value	0.716	Detecte	ed data appea				nce Level
129	K-S Test Statistic	0.0000000 G-DE-770		330000000000000000000000000000000000000		ov Gamma		2000 F 1000 F 10
130	5% K-S Critical Value	0.294		ed data appea		Distributed at	5% Significal	nce Level
131	Detected data appear		describer and contraction	A SECTION AND A SECTION ASSESSMENT	MACHINE MANAGEMENT AND			
132	Note GOF tests	may be unr	BII	maii sample :	5126\$			
133		0	Otatistiss					
134	[		Statistics			-t/l-!		10.00
135	k hat (MLE)	19.17					orrected MLE)	12.06
136	Theta hat (MLE)	0.471			Ineta	93	orrected MLE)	0.748
137	nu hat (MLE)	59270000000				State State of the State	ias corrected)	193
138	MLE Mean (bias corrected)	9.025			\ navarina - t		ias corrected)	2.599
139	Administration of the Committee of the C	0.0405				and the second	Value (0.05)	161.9
140	Adjusted Level of Significance	0.0195			F	ajustea Uni	Square Value	154.6
141								

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	Α	F	3	(	С	Г	D	T	Е		F	T	(	à		Н		1			J	T	-	K	I	L
142	10001					_				Ass	uming (	Gami	ma D	stribu	tion											
143		95% Approximate Gamma UCL 10.76 95% Adjusted Gamma U													a UCL		11.26									
144																										
145											Logno	rmal	GOF	Test												
146				0.90	3				SI	napir	o Will	( Log	nor	mal G0	OF To	est	Ì									
147		10% Shapiro Wilk Critical Value												į	Data	арр	ear L	ogno	rmal a	at 10	)% Sig	nifica	ance	e Lev	el	
148		Lilliefors Test Statistic										5					Lillie	fors L	.ogno	rma	I GOF	Tes	t			
149		10% Lilliefors Critical Value										55		8	Data	арр	ear L	ogno	rmal a	at 10	)% Sig	nifica	ance	e Lev	el	
150								Data	app	pearl	Lognorr	nal a	t 10%	Sign	ificar	nce L	evel									
151							No	te G0	OF t	ests r	may be	unrel	liable	for sn	nall s	samp	le siz	es								
152																										
153											Logno	rmal	Stati	stics												
154					V	Minin	num of	Logg	ged [	Data	1.86	6									Mean o	of log	geo	I Data	a	2.174
155					N	/laxin	num of	Logg	ged [	Data	2.49	3									SD	of log	geo	d Data	9	0.247
156																										
157									9	Assu	ming Lo	ognoi	rmal l	Distrib	utior	1										
158								95%	% H-	UCL	10.9	2						(	90%(	Che	oyshev	(MV	ΊUΕ	) UCI		11.4
159					95% (	Chet	yshev	(MVL	JE)	UCL	12.4	7						97	.5% (	Che	oyshe\	(MV	ΊUΕ	) UCL		13.96
160					99% (	Chet	yshev	(MVL	JE)	UCL	16.8	9									200	10000	-			
161																							_		_	
162								No	npa	rame	tric Dist	ributi	ion F	ee U(	CLS	tatisti	ics									
163								Da	ta a	ppea	r to follo	wal	Disce	rnible	Dist	ributi	on						_			
164																							_			
165									No	onpar	ametric	Distr	ributio	n Fre	e UC	Ls										
166							g	95% C	CLT	UCL	10.2	9							9	95%	BCA E	3oots	trap	) UCL		10.24
167					95%	Stan	dard B	Bootst	rap	UCL	10.2	1								Ç	5% B	otstr	ар-	t UCI		10.53
168					9	5% F	Hall's B	ootst	rap	UCL	10.2	7						g	5% F	ero	entile E	3oots	trap	o UCL		10.27
169				90	)% Ch	ebys	hev(M	ean, S	Sd)	UCL	11.3	4						959	% Ch	ebys	shev(N	lean,	Sd	) UCI	_	12.39
170				97.5	5% Ch	ebys	hev(M	ean, S	Sd)	UCL	13.8	4						999	% Ch	ebys	shev(N	lean,	Sd	) UCI		16.7
171						000000	3400		330			- 1								222	150		- 50	000		
172											Sugges	ted (	JCL t	o Use												
173						g	5% St	udent	t's-t	UCL	10.4	9											_		21	
174																							_			
175	١	Vote: Si	uggesti	ions re	egardi	ing th	ne sele	ection	of a	95%	UCLar	e pro	wided	to he	lp the	e use	r to s	elect	the n	nost	appro	priate	e 95	5% U	CL.	
176		Re	ecomm	nenda	tions a	are b	ased u	ipon c	data	size,	data dis	stribu	tion, a	and sk	ewn	ess u	sing	resul	ts fro	m si	mulati	on sti	udie	<b>≆</b> s.		
177	Ho	wever,	simula	tions	results	s will	not co	veral	II Re	al W	orld data	sets	s; for	additio	onal i	insigh	nt the	user	may	war	t to co	nsult	as	tatist	ician	
178																										
179																										

	A B C D E	F	G	Н	I i	-	J	Ť	K	T	1.
180	Total Hardness (mg/L CaCO3)			1						20	
181	5.096/05461 991										
182		General	Statistics								
183	Total Number of Observations	8			Numl	ber of	Distino	t Obs	ervation	s	7
184					Numb	oer of	Missing	g Obs	ervation	s	0
185	Minimum	217							Mea	n 2	242.6
186	Maximum	270							Media	n 2	237
187	SD	21.73					Std.	Erro	of Mea	n	7.683
188	Coefficient of Variation	0.0896						5	kewnes	s	0.185
189										100	
190	Note: Sample size is small (e.g., <10), if data a	re collected	using incr	emental sam	oling meth	rodol	ogy (ISI	М) ар	proach,		
191	refer also to ITRC Tech Reg Guide of	on ISM (ITR	C 2020 and	HTRC 2012)	for additi	onal	guidano	<b>29</b> ,			
192	but note that ITRC may recommend th	e t-UCL or	the Chebys	hev UCL for	small sam	nple s	izes (n	< 7).			
193	The Chebyshev UCL of	ften results	in gross ov	erestimates o	of the mea	an.					
194	Refer to the ProUCL 5.2 Tec						CL.				
195					:550						
196		Normal (	GOF Test								
197	Shapiro Wilk Test Statistic	0.877			Shapiro	Wilk	GOF Te	est			
198	1% Shapiro Wilk Critical Value	0.749		Data appe	er Norma	lat 1	% Signi	ficano	e Level		
199	Lilliefors Test Statistic	0.201		Lilliefors GOF Test							
200	1% Lilliefors Critical Value	0.333		Data appe	er Norma	lat 1	% Signi	ficano	e Level		
201	Data appea	ar Normal a	t 1% Signifi	icance Level							
202	Note GOF tests				sizes						
203											
203	As	suming Non	mal Distribu	ution							
205	95% Normal UCL		1		UCLs (A	djuste	ed for S	kewn	ess)		
206	95% Student's-t UCL	257.2			95% Adju	100			200	0 2	255.8
	46.66.30 - 10.90.00 - 10.00 -				95% Mod	*****	20000 - 20000		- AND CONTROL	200	257.3
207										•	
208		Gamma	GOF Test								
209	A-D Test Statistic	0.479	Southern president	Ande	son-Darli	na G	amma (	GOF	Гest		
210	5% A-D Critical Value	0.715	Detecte	ed data appea		10070				ance	Level
211	K-S Test Statistic	0.218			orov-Smi						
212	5% K-S Critical Value	0.294	Detecte	ed data appea						ance	Level
213	Detected data appear			0.007					3		A. 100 A.
214	Note GOF tests			CENTRAL MARKETON	French Parlementaries	255					
215											
216		Gamma	Statistics								
217	k hat (MLE)	143.1				k sta	r (bias o	orrec	ted MLE	al—	89.5
218	Theta hat (MLE)	1.696				3133001 6151			ted MLE	,	2.711
219	nu hat (MLE)	2289					120	-	orrected	2	432
220	MLE Mean (bias corrected)	242.6					Ne-Street California		orrected	100	25.65
221	mee man (sus corrected)				Approxima		100			377	345
222	Adjusted Level of Significance	0.0195							are Value	200	324
223	/ Agusted core of eightheatres	0.0100				, naja	011	. Oqui	7 4 61 00		
224											

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	Α	В		С	D	E		F	G	Н	1	J		K	L	
225								suming Gam	ma Distribu	tion						
226			1	95% Ap	proximate	Gamma	UCL	258.3			9	5% Adjusted	I Gamm	a UCL	262.5	
227																
228				10000	4-000	*11560 Oxfo		Lognormal	GOF Test			20072000				
229					napiro Wilk		an used some	0.88			apiro Wilk Lo					
230		10% Shapiro Wilk Critical Value 0.851 Data appear Lognormal at 10% Significance Level														
231		Lilliefors Test Statistic 0.202 Lilliefors Lognormal GOF Test														
232		10% Lilliefors Critical Value 0.265 Data appear Lognormal at 10% Significance Level  Data appear Lognormal at 10% Significance Level														
233								233								
234					No	ote GOF	tests	may be unre	aliable for sn	nall sample	e sizes					
235																
236		Lognormal Statistics  Minimum of Logged Data 5.38 Mean of logged Data Mean of logged Data														
237							Medical Control	5.38							5.488	
238				M	aximum o	f Logged	Data	5.598				SD	of logge	d Data	0.0894	
239								100 100-1	100000000000000000000000000000000000000							
240	Assuming Lognormal Distribution													265.6		
241						95% H		N/A 276		90% Chebyshev (MVUE) UCL						
242		95% Chebyshev (MVUE) UCL								97.5% Chebyshev (MVUE) UCL						
243				99% 0	Chebyshev	(MVUE	) UCL	318.9								
244																
245						5/30053583		tric Distribut	KINDERPORTS VIE		805					
246						Data	appea	r to follow a	Discernible	Distribution	n					
247																
248						7900		ametric Dist	ribution Fre	e UCLs						
249						95% CLT		255.3				95% BCA E			255.1	
250					Standard E			254.8					∞tstrap		258.8	
251				Catte	5% Hall's E		20000000000	254			1000000	Percentile E	200000000000000000000000000000000000000		254.6 276.1	
252					ebyshev(N		0	265.7								
253			97.	5% Che	ebyshev(N	lean, Sd	) UCL	290.6			99% C	hebyshev(N	lean, So	d) UCL	319.1	
254																
255								Suggested	UCL to Use							
256					95% St	tudent's-	t UCL	257.2								
257			Navacou Ligardania						annous Later beautiful and a second			×				
258	V			-						, S),	to select the	\$80	30		2	
259		2004000	THE RESERVE AND ADDRESS OF THE PERSON NAMED IN COLUMN TO SHAPE AND ADDRESS OF THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED	a deposit desperien		Salar Contract Contra	W. S		Secretary and the many	all browns a receive	sing results f	SHOW STORY OF THE		establica.		
260	Ho	wever, sir	mulations	results	will not co	over all F	Real W	orld data set	s; for addition	onal insight	the user ma	y want to co	nsult a	statistic	an.	
261																