

Application Type Renewal
 Facility Type Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0084026
 APS ID 278097
 Authorization ID 1518234

Applicant and Facility Information

Applicant Name	<u>Northwestern Lancaster County Authority</u>	Facility Name	<u>Northwestern Lancaster County STP</u>
Applicant Address	<u>97 N Penryn Road</u> <u>Manheim, PA 17545-9326</u>	Facility Address	<u>400 Hostetter Road</u> <u>Manheim, PA 17545</u>
Applicant Contact	<u>Mark Hiester</u>	Facility Contact	<u>Donald Martzall</u>
Applicant Phone	<u>(717) 665-4508</u>	Facility Phone	<u>(717) 664-0746</u>
Client ID	<u>51022</u>	Site ID	<u>246984</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Penn Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lancaster</u>
Date Application Received	<u>February 27, 2025</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>March 11, 2025</u>	If No, Reason	<u>Significant CB Discharge, Chiques Creek Alternate TMDL</u>
Purpose of Application	<u>NPDES Renewal.</u>		

Summary of Review

Northwestern Lancaster County Authority (NLCA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued on August 12, 2020, and became effective on September 1, 2020, authorizing discharge of treated sewage from the facility into Chiques Creek. The existing permit expiration date was August 31, 2025, and the permit has been administratively extended since that time.

Based on the previous fact sheet, NLCA constructed a 0.25 mgd sequencing batch reactor (SBR) WWTP in June 1992. The WWTP was expanded to four (4) SBRs with a design flow of 0.65 mgd and maximum monthly flow of 0.71 mgd. The SBRs were designed to handle a peak flow of 1,130 gpm. Each SBR has a maximum working level of 81,000 gallons and operates at 5 cycles per day. The new WWTP included ultraviolet (UV) disinfection. The facility is approximately 9,000 feet upstream of the Manheim Borough WWTP. These two facilities were included in the WQM Modeling for NLCA. The stream at this point is 15 to 30 feet wide and 3 to 18 inches deep. The streambed is relatively flat with a rocky to bedrock bottom. The pool/riffle ratio is 40/60. An abundance of mayflies and caddis larvae was found by observing rocks.

Changes in this renewal: A slightly more stringent CBOD₅ limit will be added to the renewal. Total Copper and Total Zinc monitoring has been added to the permit. E. Coli monitoring has been added to the permit.

Sludge use and disposal description and location(s): Sludge holding tank with offsite disposal

Supplemental information for this facility is provided at the end of this fact sheet.

Public Participation

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	December 12, 2025
X		<i>Daniel W. Martin</i> Daniel W. Martin, P.E. / Environmental Engineer Manager	February 4, 2026

Summary of Review

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.

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>001</u>	Design Flow (MGD)	<u>.65</u>
Latitude	<u>40° 9' 54"</u>	Longitude	<u>76° 23' 17"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Effluent</u>			
Receiving Waters	<u>Chiques Creek (WWF)</u>	Stream Code	<u>7919</u>
NHD Com ID	<u>57462537</u>	RMI	<u>21</u>
Drainage Area	<u>22.9 mi²</u>	Yield (cfs/mi ²)	<u>0.12</u>
Q ₇₋₁₀ Flow (cfs)	<u>2.75</u>	Q ₇₋₁₀ Basis	<u>USGS Gage #01576500</u>
Elevation (ft)	<u>394</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>7-G</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>N/A</u>	Exceptions to Criteria	<u>N/A</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Pathogens, Siltation, Siltation, Eutrophication</u>		
Source(s) of Impairment	<u>Source Unknown, Agriculture, Urban Runoff/Storm Sewers, Agriculture</u>		
TMDL Status	<u>N/A</u>	Name	<u>Chiques Creek Alternate TMDL</u>
Nearest Downstream Public Water Supply Intake	<u>Columbia Water Company</u>		
PWS Waters	<u>Susquehanna River</u>	Flow at Intake (cfs)	<u></u>
PWS RMI	<u></u>	Distance from Outfall (mi)	<u>23</u>

Changes Since Last Permit Issuance: A drainage area of 22.9 mi² and a Q₇₋₁₀ flow of 2.75 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q₇₋₁₀ and drainage area at the gage are 38.6 cfs and 324 mi², respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q₇₋₁₀ runoff rate at the gage station was calculated as follows:

$$\text{Yield} = (38.6 \text{ cfs}) / 324 \text{ mi}^2 = 0.12 \text{ cfs/mi}^2$$

The drainage area at the discharge point, taken from USGS PA StreamStats = 22.9 mi²

The Q₇₋₁₀ at the discharge point = 22.9 mi² x 0.12 cfs/mi² = 2.75 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Sequencing Batch Reactor	Ultraviolet	0.65
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.741	1762	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: The treatment process consists of: Influent Fine Screen, Influent Pump Station, Four (4) SBR Basins, Post Equalization Tank, Sludge De-watering Unit, Sludge Holding Tank, UV Disinfection Chamber, Outfall 001 to Chiques Creek.

Compliance History	
Summary of DMRs:	A summary of past DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	<p>8/12/2021: A routine inspection was conducted. Effluent field samples were within permitted limits. It was recommended to sample influent when the press was not operational, to limit sample collection of plant returns. No other issues were noted in the inspection report.</p> <p>10/2/2025: A routine inspection was conducted. At the time of inspection, the influent screen conveyor was leaking at a few joints halfway up the conveyor. The plant was operating in 3 SBR mode at the time of inspection. The post EQ tank contents appeared clear. The effluent appeared clear. Outfall 001 was inspected, and no discharge was occurring at the time of inspection and no concerns were noted at the receiving stream. Effluent field samples were within permitted limits.</p>

Other Comments: There are no open violations for this Applicant.

Compliance History

DMR Data for Outfall 001 (from November 1, 2024 to October 31, 2025)

Parameter	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24
Flow (MGD) Average Monthly	0.3219	0.3213	0.3344	0.6003	0.4926	0.4312	0.3453	0.3348	0.3702	0.3548	0.3601	0.3227
Flow (MGD) Daily Maximum	0.3865	0.3734	0.3685	1.9674	1.0806	0.5952	0.4196	0.3848	0.5114	0.4034	0.4507	0.3591
pH (S.U.) Instantaneous Minimum	7.6	7.7	7.7	7.2	7.5	7.6	7.7	7.6	7.7	7.7	7.6	7.7
pH (S.U.) Instantaneous Maximum	8.1	8.0	8.0	7.9	7.9	8.1	8.0	8.0	8.0	8.0	8.0	8.1
DO (mg/L) Instantaneous Minimum	6.4	6.1	6.4	6.6	8.0	8.6	8.3	8.7	9.4	8.0	6.8	6.9
CBOD5 (lbs/day) Average Monthly	< 10	< 7	4	9	8	6	12	21	12	12	14	< 6
CBOD5 (lbs/day) Weekly Average	13	9	9	34	14	13	18	39	16	16	22	8
CBOD5 (mg/L) Average Monthly	< 3.7	< 2.6	1.4	1.2	2.0	1.5	4.4	7.8	4.0	4.0	4.6	< 2.4
CBOD5 (mg/L) Weekly Average	5.0	3.1	3.3	3.7	3.1	3.7	6.0	14.8	4.7	5.9	7.1	2.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	1173	1096	759	640	348	512	359	686	468	900	1258	1101
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	1693	1533	980	1153	460	695	398	797	680	1450	1834	1534
BOD5 (mg/L) Raw Sewage Influent Average Monthly	449.4	402.5	275	122.6	95.2	132.2	128.4	246.5	158.5	305	432	417.8
TSS (lbs/day) Average Monthly	< 14	< 13	31	36	13	50	70	54	29	17	21	16
TSS (lbs/day) Raw Sewage Influent Average Monthly	948	1091	1680	1302	886	1330	1168	717	587	1254	1304	918

**NPDES Permit Fact Sheet
Northwestern Lancaster County STP**

NPDES Permit No. PA0084026

TSS (lbs/day) Raw Sewage Influent Daily Maximum	1367	1261	3071	2095	1671	1611	1453	898	952	2078	1892	1232
TSS (lbs/day) Weekly Average	35	18	39	76	35	79	130	94	37	35	47	23
TSS (mg/L) Average Monthly	< 5	< 5	11	8	4	13	25	19	10	6	8	6
TSS (mg/L) Raw Sewage Influent Average Monthly	363	403	615	255	213	344	419	255	194	424	447	348
TSS (mg/L) Weekly Average	13	7	14	12	11	23	43	31	13	11	18	9
Total Dissolved Solids (lbs/day) Average Monthly	3891	4898	5013	5559	5149	4435	3772	4135	4507	4007	3404	3572
Total Dissolved Solids (lbs/day) Daily Maximum	4545	5924	5799	8366	6615	4650	4093	4665	5673	4376	4063	3996
Total Dissolved Solids (mg/L) Average Monthly	1378	1714	1693	1169	1209	1365	1230	1394	1355	1323	1120	1288
Total Dissolved Solids (mg/L) Daily Maximum	1480	1910	1890	1290	1540	1480	1430	1510	1730	1410	1310	1340
Fecal Coliform (No./100 ml) Geometric Mean	1693	34	24	26	14	52	42	110	7	13	27	19
Fecal Coliform (No./100 ml) Instantaneous Maximum	80	58	35	58	26	196	53	2419	27	39	198	23
UV Intensity (mW/cm ²) Instantaneous Minimum	4.8	6.1	6.1	5.8	5.8	5	4.9	3.9	3.3	7.1	7.0	6.3
Nitrate-Nitrite (mg/L) Average Monthly	5.81	5.06	4.55	3.7	4.70	4.76	4.21	4.07	2.59	2.74	4.42	5.26
Nitrate-Nitrite (lbs) Total Monthly	488	430	408	593	633	535	370	357	229	252	419	427
Total Nitrogen (mg/L) Average Monthly	7.4	7.2	6.6	5.3	6.9	7.5	8.5	10.3	7.5	5.5	5.8	< 6.5
Total Nitrogen (lbs) Total Monthly	623	609	592	879	992	843	752	917	652	503	552	526

**NPDES Permit Fact Sheet
Northwestern Lancaster County STP**

NPDES Permit No. PA0084026

Total Nitrogen (lbs) Effluent Net Total Annual		< 8276										
Total Nitrogen (lbs) Total Annual		< 8276										
Ammonia (lbs/day) Average Monthly	1.0	3.1	0.3	0.3	0.3	0.2	0.4	9.0	6.6	1.0	< 0.4	< 0.1
Ammonia (mg/L) Average Monthly	0.4	1.1	0.1	0.1	0.1	0.1	0.1	3.1	2.2	0.4	< 0.1	< 0.1
Ammonia (lbs) Total Monthly	30.1	91.8	8.8	10.3	10.5	7.5	12.8	279.8	186	32.3	< 13.2	< 3.3
Ammonia (lbs) Total Annual		< 691										
TKN (mg/L) Average Monthly	1.6	2.1	2.1	1.6	2.2	2.8	4.3	6.2	4.9	2.8	1.4	< 1.2
TKN (lbs) Total Monthly	135	178	184	287	359	308	382	560	423	252	132	99
Total Phosphorus (lbs/day) Average Monthly	1.9	2.3	2.6	4.5	5.0	2.8	4.4	4.5	2.1	2.3	2.2	2.5
Total Phosphorus (mg/L) Average Monthly	0.7	0.8	0.9	0.9	1.1	0.8	1.5	1.6	0.7	0.8	0.7	0.9
Total Phosphorus (lbs) Total Monthly	60	68	81	139	149	88	133	140	58	71	67	74
Total Phosphorus (lbs) Effluent Net Total Annual		< 1136.0										
Total Phosphorus (lbs) Total Annual		1136										
Sulfate (lbs/day) Average Monthly	285	252	239	291	263	228	231	222	256	240	263	267
Sulfate (lbs/day) Daily Maximum	355	288	248	469	362	245	247	243	293	251	287	293
Sulfate (mg/L) Average Monthly	101	88	81	60	61	70	76	75	78	80	87	96
Sulfate (mg/L) Daily Maximum	110	93	87	66	69	78	86	82	82	87	96	98
Chloride (lbs/day) Average Monthly	1679	2299	2348	2456	2107	2150	1666	2079	2210	1910	1539	1597
Chloride (lbs/day) Daily Maximum	2050	2993	2660	3680	2627	2246	1977	2341	2892	2120	2032	1801
Chloride (mg/L) Average Monthly	593	803	793	518	530	663	546	701	663	632	506	576

**NPDES Permit Fact Sheet
Northwestern Lancaster County STP**

NPDES Permit No. PA0084026

Chloride (mg/L) Daily Maximum	639	976	867	581	729	715	673	756	918	703	655	621
Bromide (lbs/day) Average Monthly	< 3	< 3	< 15	< 23	< 18	< 8	< 8	< 7	< 8.0	< 6	< 3	< 3
Bromide (lbs/day) Daily Maximum	< 3	< 3	< 15	< 43	< 45	< 9	< 9	< 8	< 10	< 8	< 4	< 3
Bromide (mg/L) Average Monthly	< 1.0	< 1.0	< 5.0	< 4.4	< 3.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.1	< 1.0	< 1.0
Bromide (mg/L) Daily Maximum	< 1.0	< 1.0	< 5.0	< 5.0	< 5.0	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 1.0	< 1.0

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Carbonaceous Biochemical Oxygen Demand (CBOD ₅)	103	151 Wkly Avg	XXX	19	28 Wkly Avg	38	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD ₅) Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	163	244 Wkly Avg	XXX	30	45 Wkly Avg	60	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	73	XXX	XXX	13.5	XXX	27	2/week	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	24	XXX	XXX	4.5	XXX	9.0	2/week	24-Hr Composite
Total Phosphorus	10.8	XXX	XXX	2.0	XXX	4.0	2/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Sulfate, Total	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Composite samples may be taken before or after disinfection
Grab samples shall be taken after disinfection

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	14,612	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1,826.5	XXX	XXX	XXX	XXX	1/year	Calculation

Composite samples may be taken before or after disinfection
Grab samples shall be taken after disinfection

Development of Effluent Limitations

Outfall No. 001
Latitude 40° 9' 54"
Wastewater Description: Effluent

Design Flow (MGD) .65
Longitude 76° 23' 17"

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
CBOD ₅	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

CBOD₅, NH₃-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand (CBOD₅), ammonia (NH₃-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The flow data used to run the model was acquired from USGS PA StreamStats and is included in the attachment. Default stream pH and temperature inputs were used for this model run. The model output indicated a CBOD₅ average monthly limit of 18.25 mg/l, an NH₃-N average monthly limit of 6.1 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The existing NH₃-N limit of 4.5 mg/l is more stringent and will remain in the permit. The existing CBOD₅ limit of 19 mg/l is less stringent than the model output; therefore, a more stringent limit of 18.0 mg/l will be included in the renewal.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.4 to develop appropriate permit requirements for toxic pollutants of concern. The Toxics Management Spreadsheet combines the functions of PENTOXSD and DEP's Toxics Screening Analysis. A stream hardness value of 250.9 mg/l was used in modeling. This value was based off a 90th percentile analysis of the stream hardness data from the WQN Station ID 206 from October 1998 to March 2019. Based on effluent sample results reported on the application, the Toxics Management Spreadsheet recommended monitoring for Total Copper and Total Zinc.

This data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BPNPSM-PMT-033. The results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

- a. Establish average monthly and instantaneous maximum (IMAX) limits in the draft permit where the maximum reported concentration exceeds 50% of the WQBEL.
- b. For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
- c. For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10%-50% of the WQBEL.

Since the reported maximum concentrations were between 10%-50% of their respective WQBEL, monitoring will be required for Total Copper and Total Zinc.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan (WIP)*, dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement)* was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement (Phase 3 Supplement)* was developed, and was most recently revised on July 29, 2022, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

Northwestern Lancaster County Authority is a Phase 2 significant discharger. The facility's waste load allocation (WLA) is tracked under an individual WLA as a significant discharger in the Phase 3 Supplement. The following Cap Loads specified in the current Phase 3 Supplement will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0084026	2	Northwestern Lancaster County Authority	8/12/2020	8/31/2025	10/1/2008	14,612	-	1,827	0.819	0.477

The Phase 3 Supplement states that "the minimum monitoring frequency for TN species and TP in new or renewed NPDES permits for significant sewage dischargers will be 2/week." This is consistent with the existing monitoring requirements, which will remain in the renewal. DEP'S SOP New and Reissuance Sewage Individual NPDES Permit Applications states that 24-hour composite sampling is recommended as a minimum for Chesapeake Bay sewage discharger nutrient requirements, which is consistent with existing permit requirements.

The previous permit included a list of 15 on-lot disposal systems (OLDS) which were permitted/installed prior to January 1, 2003 and were retired by connection to the collection system after January 1, 2003. Based on the Chesapeake Bay Strategy, the offset load was calculated at 25 lbs TN/year, which increased the CAP Load by 375 lbs/year. In the existing permit, the 375 lbs/year offset was included as a mass load effluent limitation for net total nitrogen. *Supplement to Phase II Watershed Implementation Plan (revised on 04/02/2025)* states that from this point forward, permits will be issued with the wasteload allocations (WLAs) as cap loads and will identify offsets separately to facilitate nutrient trading activities and compliance with the TMDL. Therefore, the proposed effluent limits will contain a net total nitrogen limit of 14,612 lbs/year, to reflect the Cap Loads required by the WIP Supplement. Additionally, several new offsets were incorporated during the last renewal. A total of 3 equivalent dwelling units (EDUs) have been abandoned during the previous permit renewal. The systems existed prior to January 1, 2003. Based on 25 lbs TN/year, an additional 75 lbs/year are available for TN offsets. These offsets were

included with the existing offsets, for a total of 450 lbs TN/year. The offsets will be identified separately below the limits table.

Dissolved Oxygen

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit based BPJ. It is still recommended to include this limit in the draft permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

Total Phosphorus

For Total Phosphorus (TP), the current NPDES permit requires the permittee to comply with average monthly and IMAX limits of 2.0 mg/L and 4.0 mg/L, respectively. DEP's Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams (Guidance No. 391-2000-018) was used during the past renewal to evaluate if phosphorus limitations were necessary. According to the guidance, phosphorus limits would be needed if the contributions from this facility exceeded 0.25% of the total phosphorus load of all discharges in the Lower Susquehanna River Basin. The calculated 33.3 lbs/day was 0.87% of the loading after delivery ratios to the lower Susquehanna River were applied; therefore, a TP limit of 2 mg/l was included in the permit.

Phosphorus limits were also developed based on the 2001 Chiques Creek TMDL, which has been withdrawn. The TMDL limited NLCA to 1,521 lbs/yr based on 2 mg/l and 0.25 mgd. The TMDL loads were reallocated to 1,978.6 lbs/yr at 1 mg/l and 0.65 mgd. The existing TP limit of 2.0 mg/l will remain unchanged in the permit to protect the local watershed.

Chiques Creek Alternate Restoration Plan

This facility discharges to Chiques Creek. Chiques Creek was included on Pennsylvania's 1996 303(d) List of Impaired Waters due to nutrient impairments. A Total Maximum Daily Load (TMDL) for the Chiques Creek Watershed was approved by the United States Environmental Protection Agency (EPA) on April 9, 2001. Due to several deficiencies within the TMDL, it was withdrawn with approval from EPA on October 28, 2015. DEP, Susquehanna River Basin Commission (SRBC) and watershed stakeholders have been in the process of developing a large scale monitoring and restoration plan. The goal of this Alternate Restoration Plan (ARP) is to address impacts to the Chiques Creek Watershed due to suspended solids/siltation and nutrient pollution. During the ongoing ARP development, this discharge permit will be renewed to conform with existing guidance. This permit will include a Total Phosphorus (TP) limit of 2.0 mg/l. The TP limit of 2.0 mg/l is derived from 25 Pa. Code § 96.5(c). This section states that "when it is determined that the discharge of phosphorus, alone or in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses in a free flowing surface water, phosphorus discharges from point source discharges shall be limited to an average monthly concentration of 2 mg/l." This is consistent with existing limits for other dischargers to the Chiques Creek Watershed. This limit is included in the existing permit, and will remain in the renewal. A continued evaluation of dischargers to Chiques Creek will be performed as described in the NPDES Part C Conditions.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.
- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.
- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/l and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD

or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/l.

NLCA reported the maximum effluent TDS concentration of 2,430 mg/l. Based upon the data provided in the application, monitoring will be necessary for TDS, sulfate, chloride, and bromide. A monitoring frequency of 1/week will be used for these parameters.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. These limits are consistent with the existing permit.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of ≥ 0.05 mgd and < 1 mgd will include E. Coli monitoring with a frequency of 1/quarter. This parameter has been added to the renewal permit.

UV Monitoring

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This is a reasonable approach and has been assigned to other facilities equipped with similar technology. A monitoring requirement for UV Intensity is included in the existing permit, and will remain in the renewal.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Influent BOD₅ and Total Suspended Solids (TSS) Monitoring

As a result of negotiation with US EPA, influent monitoring of TSS and BOD₅ are required for any publicly owned treatment works (POTWs); therefore, influent sampling of BOD₅ and TSS will remain in the permit.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is a recreational impairment due to pathogens from an unknown source. There is an aquatic life impairment due to siltation from agriculture, siltation from urban runoff/storm sewers, and eutrophication from agriculture.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

Proposed Effluent Limitations and Monitoring Requirements

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	98	146 Wkly Avg	XXX	18.0	27 Wkly Avg	36	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	163	244 Wkly Avg	XXX	30	45 Wkly Avg	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Intensity (mW/cm ²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia Nov 1 - Apr 30	73	XXX	XXX	13.5	XXX	27	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	24	XXX	XXX	4.5	XXX	9	2/week	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instantaneous Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Total Phosphorus	10.8	XXX	XXX	2.0	XXX	4	2/week	24-Hr Composite
Sulfate	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Copper	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite
Total Zinc	XXX	XXX	XXX	XXX	Report	XXX	1/month	24-Hr Composite

Compliance Sampling Location: Composite samples may be taken before or after disinfection
Grab samples shall be taken after disinfection

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	14,612	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1,826.5	XXX	XXX	XXX	XXX	1/year	Calculation

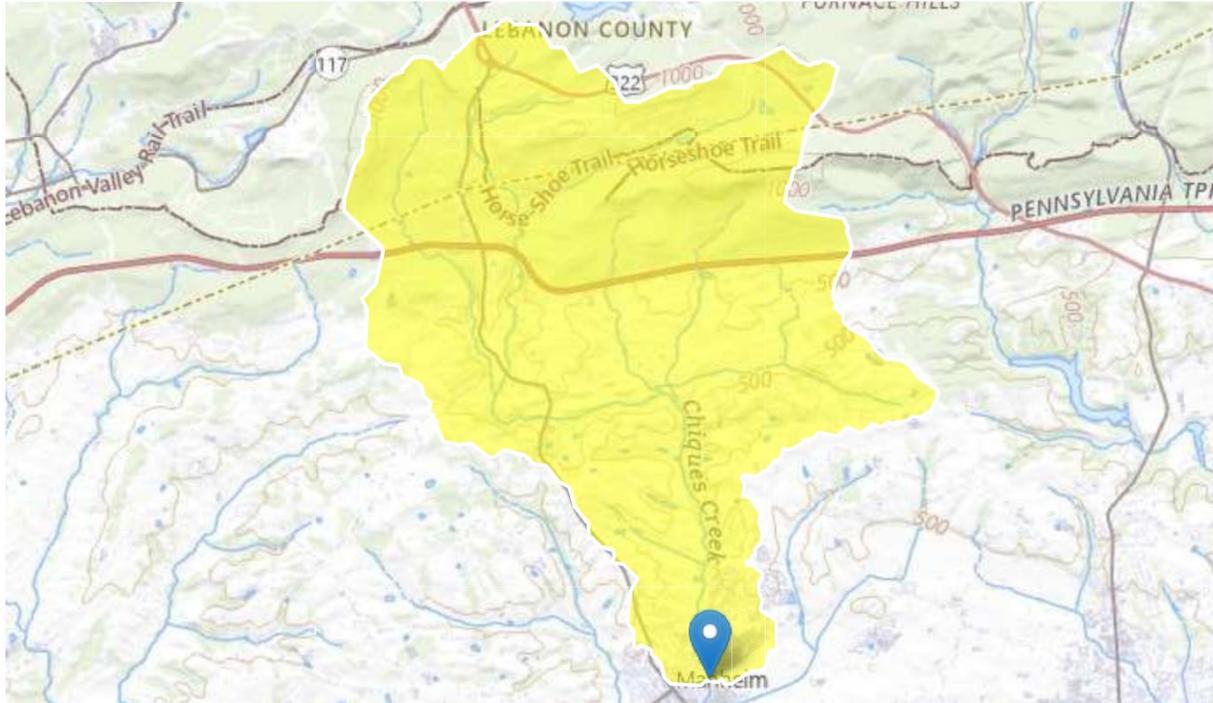
Compliance Sampling Location: Composite samples may be taken before or after disinfection
Grab samples shall be taken after disinfection

Other Comments: None

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input checked="" type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: BCW-PMT-033, BCW-PMT-002
<input type="checkbox"/>	Other: [redacted]

Northwestern Lancaster County Authority PA0084026 Outfall 001

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Time: 2025-12-12 08:45:51 -0500



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➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	5.0354	degrees
DRNAREA	Area that drains to a point on a stream	22.9	square miles
ROCKDEP	Depth to rock	3.9	feet
URBAN	Percentage of basin with urban development	4.5802	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	5.0354	degrees	1.7	6.4
DRNAREA	Drainage Area	22.9	square miles	4.78	1150
ROCKDEP	Depth to Rock	3.9	feet	4.13	5.21
URBAN	Percent Urban	4.5802	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	2.38	ft ³ /s
30 Day 2 Year Low Flow	3.37	ft ³ /s
7 Day 10 Year Low Flow	1	ft ³ /s
30 Day 10 Year Low Flow	1.48	ft ³ /s
90 Day 10 Year Low Flow	2.49	ft ³ /s

Low-Flow Statistics Citations

Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

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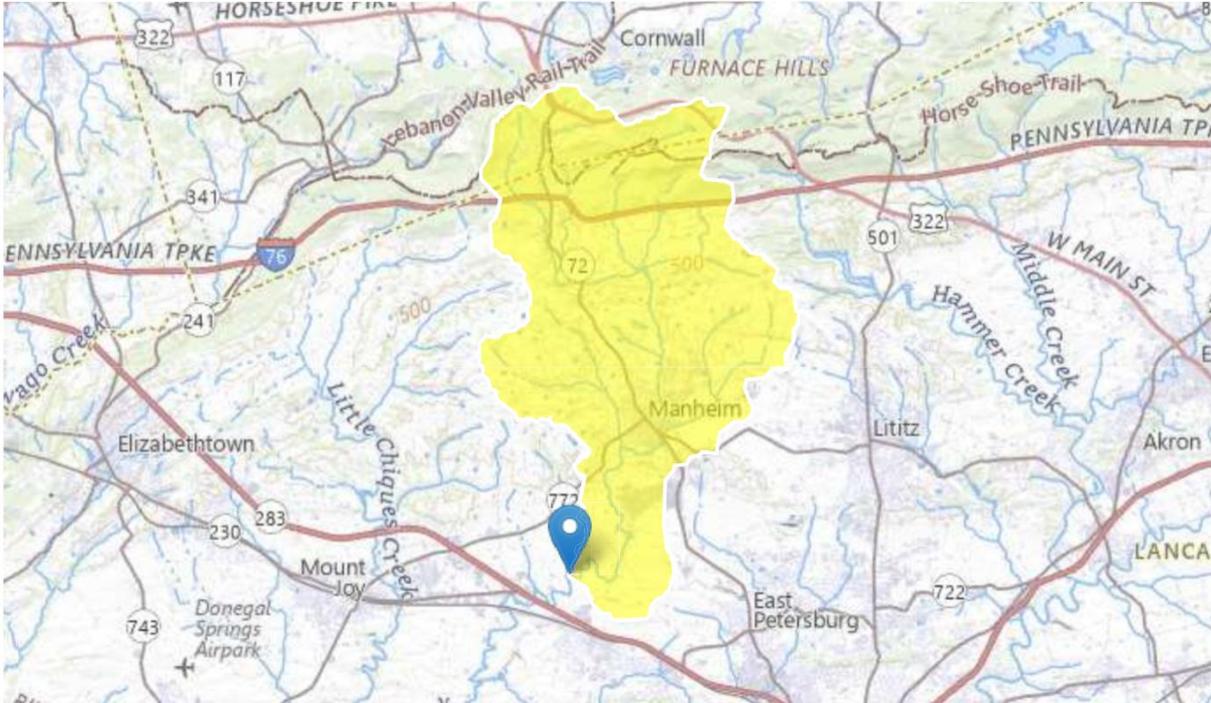
Application Version: 4.29.4

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Northwestern Lancaster County Authority PA0084026 RMI = 13.96

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 Time: 2025-12-12 10:59:14 -0500



Collapse All

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	4.1266	degrees
DRNAREA	Area that drains to a point on a stream	41.8	square miles
ROCKDEP	Depth to rock	4.2	feet
URBAN	Percentage of basin with urban development	5.5895	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	4.1266	degrees	1.7	6.4
DRNAREA	Drainage Area	41.8	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.2	feet	4.13	5.21
URBAN	Percent Urban	5.5895	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	4.74	ft^3/s	46	46
30 Day 2 Year Low Flow	6.7	ft^3/s	38	38
7 Day 10 Year Low Flow	2.06	ft^3/s	51	51
30 Day 10 Year Low Flow	2.99	ft^3/s	46	46
90 Day 10 Year Low Flow	5.19	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

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Application Version: 4.29.4

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07G	7919	CHICKIES CREEK	21.000	394.00	22.90	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	2.75	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
NLCA	PA0084026	0.6500	0.6500	0.6500	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07G	7919	CHICKIES CREEK	19.100	379.00	36.20	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	4.34	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Manheim STP	PA0020893	2.3000	2.3000	2.3000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07G	7919	CHICKIES CREEK	13.960	348.00	41.80	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	5.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	20.00	7.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
07G		7919				CHICKIES CREEK						
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
Q7-10 Flow												
21.000	2.75	0.00	2.75	1.0055	0.00150	.649	28.91	44.56	0.20	0.580	21.34	7.00
19.100	4.34	0.00	4.34	4.5637	0.00114	.737	42.08	57.09	0.29	1.094	22.56	7.00
Q1-10 Flow												
21.000	1.76	0.00	1.76	1.0055	0.00150	NA	NA	NA	0.17	0.688	21.82	7.00
19.100	2.78	0.00	2.78	4.5637	0.00114	NA	NA	NA	0.26	1.219	23.11	7.00
Q30-10 Flow												
21.000	3.74	0.00	3.74	1.0055	0.00150	NA	NA	NA	0.23	0.509	21.06	7.00
19.100	5.90	0.00	5.90	4.5637	0.00114	NA	NA	NA	0.31	0.999	22.18	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin **Stream Code** **Stream Name**
07G 7919 CHICKIES CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
21.000	NLCA	14.42	39.65	14.42	35.22	2	11
19.100	Manheim STP	13.28	23.65	12.95	21.01	2	11

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
21.000	NLCA	1.76	8.32	1.76	6.64	2	20
19.100	Manheim STP	1.67	4.44	1.64	3.55	2	20

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
21.00	NLCA	20.59	18.25	6.64	6.1	5	5	2	10
19.10	Manheim STP	15.51	12.95	3.55	3.55	5	5	2	10

WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
07G	7919	CHICKIES CREEK			
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
21.000	0.650	21.339		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
28.909	0.649	44.561		0.200	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
6.35	0.769	1.63		0.776	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
7.375	2.937	Tsviglou		5	
<u>Reach Travel Time (days)</u>					
0.580					
Subreach Results					
	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.058	6.06	1.56	6.91	
	0.116	5.78	1.49	6.55	
	0.174	5.51	1.43	6.28	
	0.232	5.25	1.36	6.08	
	0.290	5.01	1.30	5.94	
	0.348	4.78	1.25	5.85	
	0.406	4.56	1.19	5.80	
	0.464	4.34	1.14	5.78	
	0.522	4.14	1.09	5.78	
	0.580	3.95	1.04	5.81	
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
19.100	2.950	22.563		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
42.076	0.737	57.088		0.287	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>		<u>Reach Kn (1/days)</u>	
7.20	0.649	1.86		0.853	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
5.921	3.311	Tsviglou		5	
<u>Reach Travel Time (days)</u>					
1.094					
Subreach Results					
	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>	
	0.109	6.65	1.69	5.45	
	0.219	6.13	1.54	5.23	
	0.328	5.66	1.40	5.18	
	0.438	5.23	1.28	5.24	
	0.547	4.83	1.16	5.36	
	0.656	4.46	1.06	5.53	
	0.766	4.11	0.97	5.71	
	0.875	3.80	0.88	5.91	
	0.985	3.51	0.80	6.10	
	1.094	3.24	0.73	6.29	

WQM 7.0 Effluent Limits

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
07G	7919	CHICKIES CREEK					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
21.000	NLCA	PA0084026	0.650	CBOD5	18.25		
				NH3-N	6.1	12.2	
				Dissolved Oxygen			5
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
19.100	Manheim STP	PA0020893	2.300	CBOD5	12.95		
				NH3-N	3.55	7.1	
				Dissolved Oxygen			5



Discharge Information

Instructions **Discharge** Stream

Facility: **Northwestern Lancaster County STP** NPDES Permit No.: **PA0084026** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage Effluent**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _h
0.65	100	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	2430								
	Chloride (PWS)	mg/L	1840								
	Bromide	mg/L	< 1								
	Sulfate (PWS)	mg/L	1441								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	µg/L									
	Total Antimony	µg/L									
	Total Arsenic	µg/L									
	Total Barium	µg/L									
	Total Beryllium	µg/L									
	Total Boron	µg/L									
	Total Cadmium	µg/L									
	Total Chromium (III)	µg/L									
	Hexavalent Chromium	µg/L									
	Total Cobalt	µg/L									
	Total Copper	mg/L	0.011								
	Free Cyanide	µg/L									
	Total Cyanide	µg/L									
	Dissolved Iron	µg/L									
	Total Iron	µg/L									
	Total Lead	µg/L	< 0.11								
	Total Manganese	µg/L									
	Total Mercury	µg/L									
	Total Nickel	µg/L									
	Total Phenols (Phenolics) (PWS)	µg/L									
Total Selenium	µg/L										
Total Silver	µg/L										
Total Thallium	µg/L										
Total Zinc	mg/L	0.11									
Total Molybdenum	µg/L										
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									

Group 3	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	<																		
	1,2-Dichloroethane	µg/L	<																		
	1,1-Dichloroethylene	µg/L	<																		
	1,2-Dichloropropane	µg/L	<																		
	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	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	<																			
Group 4	2-Chlorophenol	µg/L	<																		
	2,4-Dichlorophenol	µg/L	<																		
	2,4-Dimethylphenol	µg/L	<																		
	4,6-Dinitro-o-Cresol	µg/L	<																		
	2,4-Dinitrophenol	µg/L	<																		
	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	<																		
Group 5	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)Anthracene	µg/L	<																		
	1,2-Dichlorobenzene	µg/L	<																		
	1,3-Dichlorobenzene	µg/L	<																		
	1,4-Dichlorobenzene	µg/L	<																		
	3,3-Dichlorobenzidine	µg/L	<																		
	Diethyl Phthalate	µg/L	<																		
Dimethyl Phthalate	µg/L	<																			
Di-n-Butyl Phthalate	µg/L	<																			
2,4-Dinitrotoluene	µg/L	<																			



Stream / Surface Water Information

Northwestern Lancaster County STP, NPDES Permit No. PA0084026, Outfall 001

Instructions **Discharge** **Stream**

Receiving Surface Water Name: Chiques Creek No. Reaches to Model: 1

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	007919	21	394	22.9			Yes
End of Reach 1	007919	13.96	348	41.8			Yes

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	21	0.1	2.75									250.9	7		
End of Reach 1	13.96	0.1	5									250.9	7		

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	21														
End of Reach 1	13.96														



Northwestern Lancaster County STP, NPDES Permit No. PA0084026, Outfall 001

Model Results

All
 Inputs
 Results
 Limits

- Hydrodynamics
- Wasteload Allocations

AFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	25.512	26.6	75.0	Chem Translator of 0.96 applied
Total Lead	0	0		0	134.299	194	548	Chem Translator of 0.692 applied
Total Zinc	0	0		0	208.544	213	602	Chem Translator of 0.978 applied

CFC CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	16.917	17.6	65.8	Chem Translator of 0.96 applied
Total Lead	0	0		0	5.601	8.21	30.6	Chem Translator of 0.683 applied
Total Zinc	0	0		0	221.962	225	841	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

Total Copper	0	0	0	N/A								
Total Lead	0	0	0	N/A								
Total Zinc	0	0	0	N/A								

CRL CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0	0	0	N/A	N/A	N/A	
Chloride (PWS)	0	0	0	0	N/A	N/A	N/A	
Sulfate (PWS)	0	0	0	0	N/A	N/A	N/A	
Total Copper	0	0	0	0	N/A	N/A	N/A	
Total Lead	0	0	0	0	N/A	N/A	N/A	
Total Zinc	0	0	0	0	N/A	N/A	N/A	

Recommended WQBELs & Monitoring Requirements

No. Samples/Month:

Pollutants	Mass Limits			Concentration Limits			Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Copper	Report	Report	Report	Report	Report	Report	0.048	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	Report	Report	Report	Report	Report	Report	0.39	AFC	Discharge Conc > 10% WQBEL (no 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
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Lead	N/A	N/A	Discharge Conc < TQL