Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0218651**
Facility Type	**Municipal**	APS ID	**1059423**
Major / Minor	**Minor**	Authorization ID	**1389513**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Indiana County Municipal Service Authority**	Facility Name	**Armagh STP**
Applicant Address	602 Kolter Drive	Facility Address	10985 Rt 56 E
	Indiana, PA 15701		Armagh, PA 15920
Applicant Contact	Tricia Lefko	Facility Contact	Tricia Lefko
Applicant Phone	(724) 349-6640	Facility Phone	(724) 349-6640
Client ID	38534	Site ID	539617
Ch 94 Load Status	Not Overloaded	Municipality	East Wheatfield Township
Connection Status	No Prohibitions	County	Indiana
Date Application Received	March 18, 2022	EPA Waived?	Yes
Date Application Accepted	March 25, 2022	If No, Reason	-

Purpose of Application: Renewal of NPDES permit.

Summary of Review

The applicant is requesting the renewal of an NPDES permit to discharge up to 0.11 MGD of treated sewage into Mardis Run, a Cold-Water Fish (CWF) receiving stream in State Water Plan Basin 18-D (Conemaugh River – Blacklick Creek). As per the Department's current existing use list, the receiving stream does not have an existing use classification that is more protective than its designated use. This discharge is not expected to affect public water supplies.

All limitations and monitoring requirements from the previously issued permit (effective November 1, 2017) are carried over in this renewal and summarized in Appendix A of this fact sheet.

The discharge was modeled with DEP's WQM 7.0 and Toxics Management Spreadsheet (TMS). For water quality modeling inputs, drainage areas were delineated using USGS's StreamStats interactive map, RMIs were obtained using the historic streams feature of DEP's eMapPA and the "measure" tool, and elevations were obtained using the elevation profile feature of StreamStats. Since there's no nearby representative stream gages with current data, the statewide default low flow yield (LFY) of 0.1 cfs/mi^2 was used to generate low flow data. Modeling data is summarized in Appendix B of this fact sheet.

WQM 7.0 did not recommend more stringent limitations for Ammonia-N, $CBOD_5$, or Dissolved Oxygen (DO). The TMS made the recommendations below.

- Total Aluminum: The most recent annual sample result for Total Aluminum in eDMR was 0.17 mg/L and the calculated governing WQBEL is 1.11 mg/L. Since the discharge concentration is greater than 10% of the WQBEL, monitoring/reporting requirements were recommended. Annual monitoring/reporting is continued in this renewal for Total Aluminum.

- Total Copper: The sample result provided for Total Copper in the renewal application was 0.0101 mg/L and the calculated governing WQBEL is 0.021 mg/L. Since the discharge concentration is greater than 10% of the WQBEL,

Approve	Deny	Signatures	Date
X		Brian Burden, E.I.T. / Project Manager	February 11, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Program Manager	February 19, 2025

Summary of Review

monitoring/reporting requirements were recommended. Annual monitoring/reporting is added to the permit for Total Copper.

- Total Lead: The sample result provided for Total Lead in the renewal application was non-detect using an analytical QL of 0.008 mg/L and the calculated governing WQBEL is 0.007 mg/L. Since the QL is greater than DEP's target QL of 0.001 mg/L, the discharge concentration was assumed to be 0.008 mg/L and limitations were recommended. The permittee may resample Total Lead at DEP's target QL during the draft permit public comment period to either modify or remove the weekly monitoring requirements / limitations for Total Lead. Three additional samples of Total Lead taken at least one week apart are required to remodel the discharge. If Total Lead isn't detected in the effluent when using DEP's target QL to analyze the samples, then it's not considered present in the discharge and the water quality limitations may be removed from the final permit. It's unknown if the permittee will be able to meet the new limitations, therefore, a compliance schedule is included in the permit with yearly milestones (see Part C.III). The limitations will come into effect three years after the permit effective date and monitoring requirements are included until then. Additionally, if it is determined that the WQBELs for Total Lead are no longer required based on the sampling during the Draft Permit Comment Period, then Part C.III. may also be removed from the Final Permit.

- Total Zinc: The sample result provided for Total Zinc in the renewal application was 0.0531 mg/L and the calculated governing WQBEL is 0.18 mg/L. Since the discharge concentration is greater than 10% of the WQBEL, monitoring/reporting requirements were recommended. Annual monitoring/reporting is added to the permit for Total Zinc.

Sample results were provided with the renewal application for the public water supply sensitive pollutants (TDS, Bromide, Chloride and Sulfate). Since the nearest downstream public water supply intake is approximately 67 miles downstream on the Allegheny River, there was no need to model the discharge with the water supply intake as the second modeling point due to the distance and large dilution available.

Monitoring frequencies for all parameters with limitations are consistent with the recommended frequencies found in Table 6-3 of DEP's Technical Guidance for the Development and Specification of Effluent Limitations (Document No. 362-0400-001).

The facility utilizes ultraviolet (UV) radiation for disinfection and the requirement to monitor daily UV transmittance is continued in this renewal. The permittee shall monitor TRC in the effluent each day chlorine is utilized for backup disinfection, cleaning, or other purposes (See Part C.I.D.).

Annual monitoring/reporting requirements for Total Nitrogen and Total Phosphorus are carried over from the previous renewal as well as weekly monitoring reporting for influent BOD_5 and TSS. As per current DEP guidance, quarterly monitoring/reporting requirements are included in the renewed permit for E. Coli.

The receiving stream is part of the TMDLs for Streams Impaired by Acid Mine Drainage in the Kiskiminetas-Conemaugh River Watershed, Pennsylvania (approved 1/29/2010). There are no wasteload allocations (WLAs) assigned to this facility. The contribution of metals from this STP as reported in eDMR are less than water quality criteria in the TMDL (see Appendix C of fact sheet). Annual monitoring/reporting is continued in this renewal for Total Aluminum, Total Iron, and Total Manganese.

The most recently submitted Chapter 94 report for the 2023 operating year doesn't show any current or projected hydraulic/organic overloads at the WWTP. There are no open WPC NPDES violations for the client that would warrant withholding issuance of the final permit.

Template Part C special conditions are carried over in this renewal. The following non-template Part C.I.E. special condition is carried over from the previous renewal:

The permittee shall not accept hauled-in wastes at the treatment facility under the following conditions, unless otherwise approved by DEP in writing:

- *When acceptance of hauled-in wastes would cause a hydraulic or organic overload as defined in Chapter 94.1 of the DEP's regulations.*

Summary of Review

- *When the treatment facility is considered to be in an existing hydraulic or organic overload condition, as determined by the permittee or DEP, as defined in Chapter 94.1 of the DEP's regulations.*

- *When the instantaneous flow at the treatment facility exceeds 0.33 MGD (the Chapter 94 hydraulic design capacity of the facility multiplied by a peaking factor of three), and for 24 hours following exceedance of this threshold.*

Sludge use and disposal description and location(s): The most recently submitted Sewage Sludge / Biosolids Production and Disposal supplemental DMR form that documents sludge removed from the facility (October 2024 – 1.051 dry tons) indicates it's hauled to the ICMSA Creekside STP and compost unit.

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.11
Latitude	40º 27' 47"	Longitude	-79º 2' 10"
Quad Name	New Florence	Quad Code	1513
Wastewater Description:	Sewage Effluent		

Receiving Waters	Mardis Run	Stream Code	44465
NHD Com ID	123721937	RMI	1.1
Drainage Area	2.22 mi^2	Yield (cfs/mi^2)	0.1
Q_{7-10} Flow (cfs)	0.22	Q_{7-10} Basis	Statewide default LFY
Elevation (ft)	1457	Slope (ft/ft)	0.028
Watershed No.	18-D	Chapter 93 Class.	CWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL

Background/Ambient Data		Data Source
pH (SU)	7	Default assumption
Temperature (°F)	20	Default assumption
Hardness (mg/L)	100	Default assumption

Nearest Downstream Public Water Supply Intake		Buffalo Township Municipal Authority (1,250,000 safe yield)	
PWS Waters	Allegheny River	Flow at Intake (cfs)	-
PWS RMI	311	Distance from Outfall (mi)	~67.5

Treatment Facility Summary

Treatment Facility Name: Armagh STP

WQM Permit No.	Issuance Date
3200405	7/20/2001

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Aeration	UV	0.11

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.11	240	Not Overloaded	Aerobic Digestion	Hauled

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.11
Latitude 40º 27' 47" **Longitude** -79º 2' 10"
Wastewater Description: Sewage Effluent

Technology-Based & BPJ 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
$CBOD_5$	25.0 - (22.9 lbs/day)	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	38.0 - (34.9 lbs/day)	Average Weekly	BPJ	BPJ
	50.0	IMAX	-	-
Total Suspended Solids	30.0 - (27.5 lbs/day)	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45.0 - (41.3 lbs/day)	Average Weekly	133.102(b)(2)	92a.47(a)(2)
	60.0	IMAX	-	-
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)
	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)
	10,000 / 100 ml	IMAX	-	92a.47(a)(5)

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	6.0	Minimum	2000 WQAM6.3
Ammonia-N (5/1 – 10/31)	3.0 - (2.8 lbs/day)	Average Monthly	2000 WQAM6.3
	4.5 - (4.1 lbs/day)	Average Weekly	
	6.0	IMAX	
Ammonia-N (11/1 – 4/30)	8.5 - (7.8 lbs/day)	Average Monthly	
	12.8 - (11.7 lbs/day)	Average Weekly	
	17.0	IMAX	
Total Lead	0.007	Average Monthly	2025 TMS
	0.011	Daily Maximum	

Comments: The Total Lead limitations may be removed from the final permit depending on the resampling results (if the permittee chooses to resample during the draft permit public comment period).

Anti-Backsliding

No limitations were removed from the permit or made less stringent.

Appendix A

Requirements from Previous Permit

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	22.9	34.9	XXX	25.0	38.0	50.0	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Total Suspended Solids	27.5	41.3	XXX	30.0	45.0	60.0	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	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	1,000	1/week	Grab
Ultraviolet light transmittance (%)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
Ammonia-Nitrogen Nov 1 - Apr 30	7.8	11.7	XXX	8.5	12.8	17.0	1/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	2.8	4.1	XXX	3.0	4.5	6.0	1/week	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Iron, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Manganese, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

New Requirements

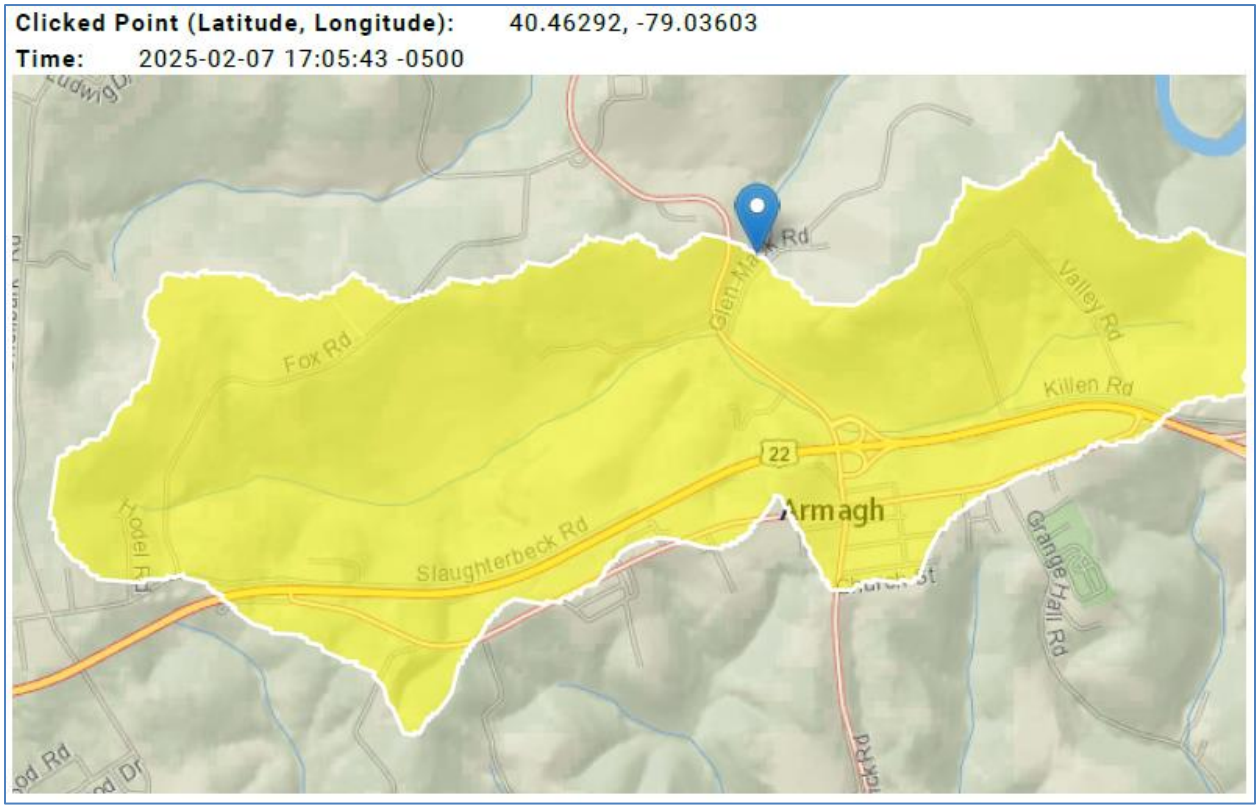
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Copper, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Zinc, Total	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Lead, Total	0.006	0.010 Daily Max	XXX	0.007	0.011 Daily Max	XXX	1/week	8-Hr Composite
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Appendix B

Watershed Information

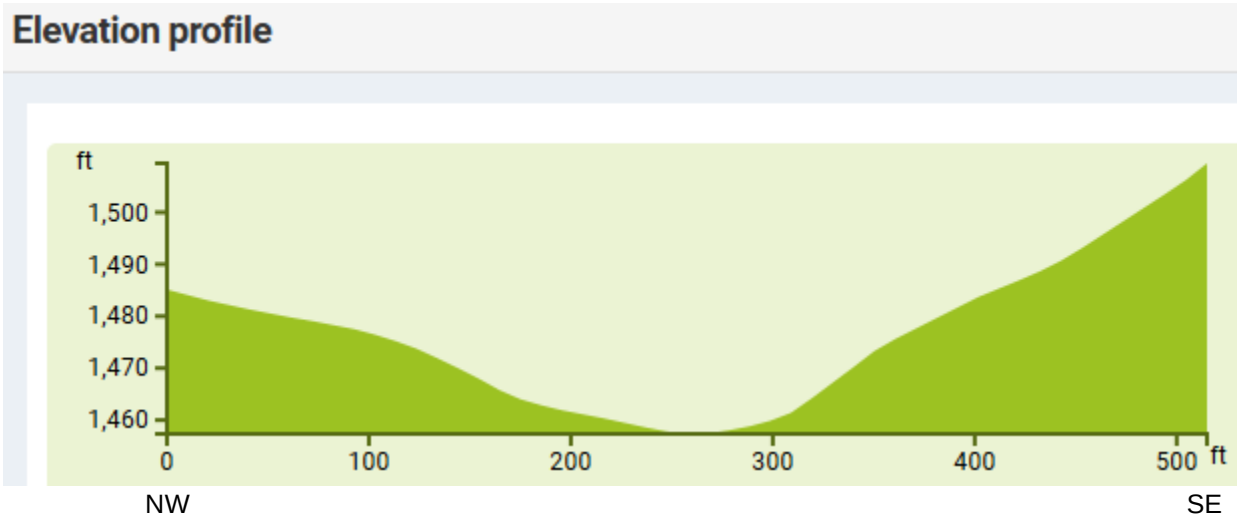
@ Outfall 001 on Mardis Run (stream code 44465)

RMI = 1.1



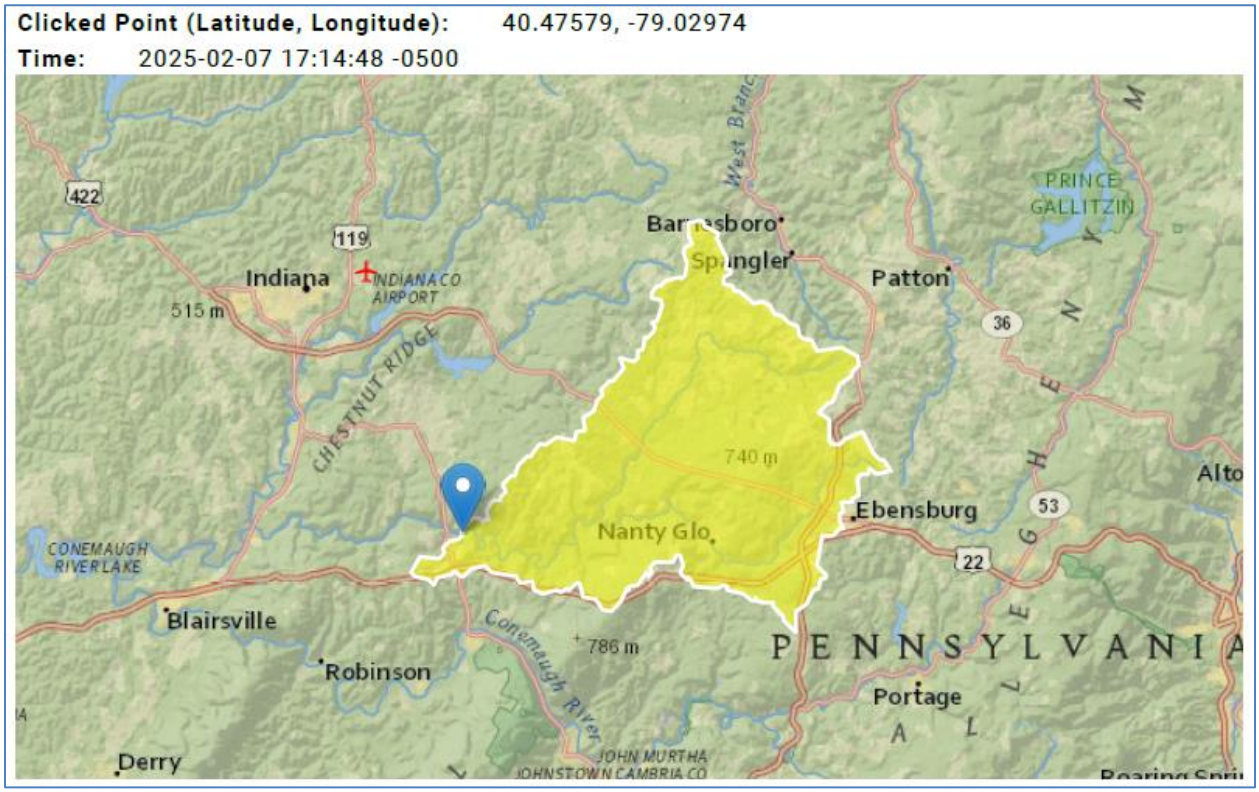
DRNAREA	Area that drains to a point on a stream	2.22	square miles

Elevation: 1457 ft



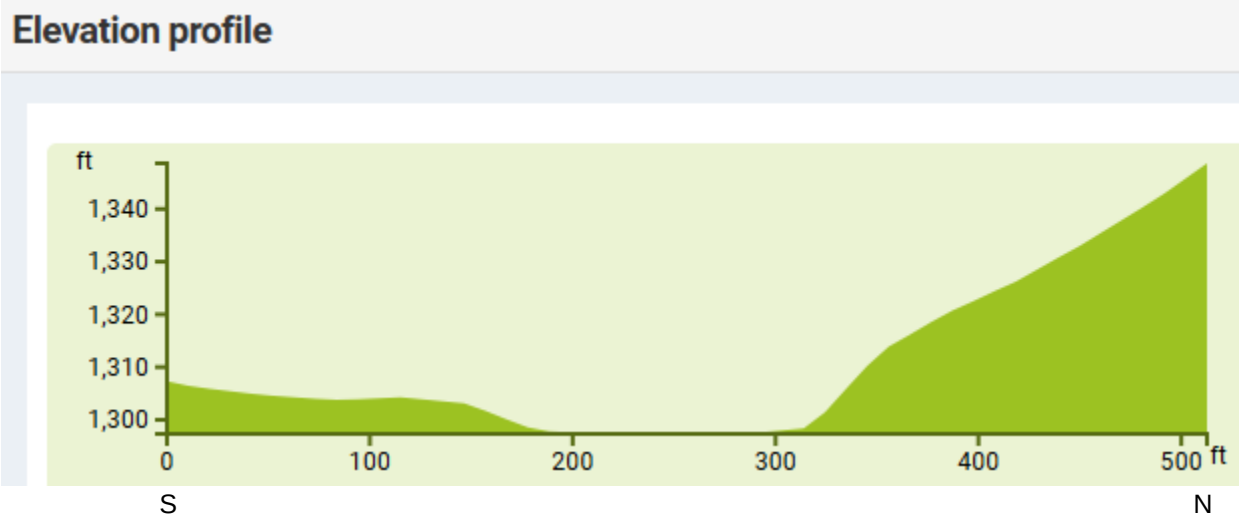
@ confluence with Blacklick Creek

RMI = 0



DRNAREA	Area that drains to a point on a stream	144	square miles

Elevation: 1297 ft



WQM 7.0 Modeling

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
18D	44465	MARDIS RUN	**1.100**	1457.00	2.22	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
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
Armagh	PA0218651	0.1100	0.1100	0.1100	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	3.00	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
18D	44465	MARDIS RUN	**0.010**	1297.00	144.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
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	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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
18D	44465	MARDIS RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.100	0.22	0.00	0.22	.1702	0.02780	.447	7.28	16.28	0.12	0.554	22.17	7.00
Q1-10 Flow												
1.100	0.14	0.00	0.14	.1702	0.02780	NA	NA	NA	0.11	0.629	22.72	7.00
Q30-10 Flow												
1.100	0.30	0.00	0.30	.1702	0.02780	NA	NA	NA	0.13	0.499	21.80	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
18D	44465	MARDIS RUN

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
1.100	Armagh	7.95	14.58	7.95	14.58	0	0

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
1.100	Armagh	1.68	4.67	1.68	4.67	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.10	Armagh	25	25	4.67	4.67	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
18D	44465	MARDIS RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.100	0.110	22.170	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
7.283	0.447	16.277	0.120
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
11.98	1.283	2.03	0.827
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.968	24.480	Owens	5
Reach Travel Time (days)			
0.554			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.055	11.08	1.94	7.11
0.111	10.24	1.85	7.47
0.166	9.47	1.77	7.62
0.221	8.75	1.69	7.72
0.277	8.09	1.61	7.80
0.332	7.48	1.54	7.87
0.387	6.92	1.47	7.92
0.443	6.40	1.40	7.92
0.498	5.91	1.34	7.92
0.554	5.47	1.28	7.92

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
18D	44465	MARDIS RUN

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)
1.100	Armagh	PA0218651	0.110	CBOD5	25		
				NH3-N	4.67	9.34	
				Dissolved Oxygen			3

Friday, February 7, 2025 Version 1.0b

TMS Modeling

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Armagh STP NPDES Permit No.: PA0218651 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated sewage

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
0.11	100	7						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	Stream Conc	0.5 if left blank: Daily CV	Hourly CV	0 if left blank: Stream CV	Fate Coeff	FOS	1 if left blank: Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		408									
	Chloride (PWS)	mg/L		76.5									
	Bromide	mg/L	<	0.4									
	Sulfate (PWS)	mg/L		27.2									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	mg/L		0.17									
	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		0.0101									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	mg/L	<	0.2									
	Total Lead	mg/L	<	0.008									
	Total Manganese	µg/L		0.0406									
	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		0.0531									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Discharge Information 2/8/2025 Page 1

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)Anthrancene	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	<										

	2,6-Dinitrotoluene	µg/L	<										
	Di-n-Octyl Phthalate	µg/L	<										
	1,2-Diphenylhydrazine	µg/L	<										
	Fluoranthene	µg/L	<										
	Fluorene	µg/L	<										
	Hexachlorobenzene	µg/L	<										
	Hexachlorobutadiene	µg/L	<										
	Hexachlorocyclopentadiene	µg/L	<										
	Hexachloroethane	µg/L	<										
	Indeno(1,2,3-cd)Pyrene	µg/L	<										
	Isophorone	µg/L	<										
	Naphthalene	µg/L	<										
	Nitrobenzene	µg/L	<										
	n-Nitrosodimethylamine	µg/L	<										
	n-Nitrosodi-n-Propylamine	µg/L	<										
	n-Nitrosodiphenylamine	µg/L	<										
	Phenanthrene	µg/L	<										
	Pyrene	µg/L	<										
	1,2,4-Trichlorobenzene	µg/L	<										
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	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	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Armagh STP, NPDES Permit No. PA0218651, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Mardis Run**

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	044465	1.1	1457	2.22			Yes
End of Reach 1	044465	0	1297	144			Yes

Q_{7-10}

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	1.1	0.1										100	7		
End of Reach 1	0	0.1													

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	1.1														
End of Reach 1	0														

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Armagh STP, NPDES Permit No. PA0218651, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | ◉ All ○ Inputs ○ Results ○ Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.471 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

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 Aluminum	0	0		0	750	750	1,728	
Total Copper	0	0		0	13.439	14.0	32.3	Chem Translator of 0.96 applied
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	64.581	81.6	188	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	117.180	120	276	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.471 PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.00

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	21.5	Chem Translator of 0.96 applied
Total Iron	0	0		0	1,500	1,500	3,457	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	7.33	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	118.139	120	276	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.471 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Model Results 2/8/2025 Page 5

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	2,305	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.404 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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 Aluminum	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		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	Report	Report	Report	Report	Report	mg/L	1.11	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	mg/L	0.021	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	0.007	0.01	0.007	0.011	0.018	mg/L	0.007	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	Report	Report	Report	Report	Report	mg/L	0.18	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 Iron	3.46	mg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	2,305	µg/L	Discharge Conc ≤ 10% WQBEL

Appendix C

eDMR Discharge Concentrations

	2020	2021	2022	2023	2024
Total Aluminum	0.115	0.112	< 0.1	< 0.1	0.17
Total Iron	< 0.2	0.029	< 0.2	< 0.2	< 0.2
Total Manganese	< 0.02	< 0.02	< 0.02	0.0406	< 0.02

Table 6-1. TMDL Endpoints

Water quality criterion	Designated use	Criterion value (mg/L)	TMDL endpoint (mg/L)
Total iron	CWF, TSF, WWF	1.5	1.425 (30-day average)
Total iron	HQ, EV	0.212	0.2014 (30-day average)
Total aluminum	CWF, TSF, WWF	0.75	0.7125
Total aluminum	HQ, EV	0.231	0.2195 (30-day average)
Total manganese	CWF, TSF, WWF	1.0	0.95
Dissolved iron	CWF, TSF, WWF	0.3	0.285