

Application Type Renewal
Facility Type Industrial
Major / Minor Minor

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

Application No. PA0205699
APS ID 705928
Authorization ID 1249598

Applicant and Facility Information

Applicant Name	<u>Cowanshannock Township Municipal Authority</u>	Facility Name	<u>Yatesboro NuMine WTP</u>
Applicant Address	<u>P.O. Box 127</u> <u>NuMine, PA 16244-0127</u>	Facility Address	<u>State Route 1037</u> <u>NuMine, PA 16244</u>
Applicant Contact	<u>Peter Catanese (Chairman)</u>	Facility Contact	<u>Justin Lamison</u>
Applicant Phone	<u>(724) 783-7609</u>	Facility Phone	<u>(724) 783-7609 (Operator)</u>
Client ID	<u>28690</u>	Site ID	<u>243604</u>
SIC Code	<u>4941</u>	Municipality	<u>Cowanshannock Township</u>
SIC Description	<u>Trans. & Utilities - Water Supply</u>	County	<u>Armstrong</u>
Date Application Received	<u>October 22, 2018</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 21, 2020</u>	If No, Reason	
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of industrial waste</u>		

Summary of Review

This facility is a municipal potable water treatment plant. Wastewater is generated during periodic backflush of two pressure filters and then subsequent filter-to-wastewater flushes. Typical backwash frequency is every 48 hours with approximately 6500 gallons per batch.

The facility plans to connect to public sewer and cease discharging from this facility by 12/31/2024 as part of a CO&A executed on 11/04/2021 with the Department.

There are currently 12 open violations listed in EFACTS for this permittee under the Safe Drinking Water Program (6 at the Sagamore WTP – 6 at the Yatesboro NuMine WTP) (1/28/2022).

Residual waste disposal must meet solid waste regulations.

It is recommended that a draft permit be published for public comment in response to this application.

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
X		Adam J. Pesek Adam J. Pesek, E.I.T. / Environmental Engineer	February 3, 2022
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	February 3, 2022

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0065
Latitude	40° 49' 10"	Longitude	-79° 19' 40"
Quad Name	Rural Valley	Quad Code	1211
Wastewater Description: Supernatant from sludge lagoon (IW Process Effluent without ELG)			
Receiving Waters	Unnamed Tributary to Cowanshannock Creek (WWF)	Stream Code	47039
NHD Com ID	123853936	RMI	1.53
Drainage Area	0.82	Yield (cfs/mi²)	0.03365
Q7-10 Flow (cfs)	0.0276	Q7-10 Basis	USGS StreamStats
Elevation (ft)	1186	Slope (ft/ft)	0.004
Watershed No.	17-E	Chapter 93 Class.	WWF
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		Name	
Background/Ambient Data		Data Source	
pH (SU)	7.0	Default	
Temperature (°F)			
Hardness (mg/L)	114	Previous application	
Other:			
Nearest Downstream Public Water Supply Intake	Kittanning Suburb Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	2070
PWS RMI	48.3	Distance from Outfall (mi)	17.0

Changes Since Last Permit Issuance:

Other Comments:

Treatment Facility Summary				
Treatment Facility Name: Yatesboro WTP				
WQM Permit No.	Issuance Date			
0391202	August 20, 1993			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Basic	Sedimentation	No Disinfection	
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
		Not Overloaded	N/A	N/A

Changes Since Last Permit Issuance:

Other Comments: Treatment consists of a four-foot deep lagoon with additional two-feet of freeboard. The lagoon is lined with 36-mil thick Hypalon. The lagoon is designed to handle the expected maximum flow of 13,000 gallons per day.

Compliance History

DMR Data for Outfall 001 (from December 1, 2020 to November 30, 2021)

Parameter	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20
Flow (MGD) Average Monthly	0.216	0.216	0.216	0.216	0.216	0.216	0.216	0.216	0.216	0.216	0.216	0.216
Flow (MGD) Daily Maximum	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288	0.288
pH (S.U.) Minimum	7.4	7.4	7.3	7.93	7.2	7.64	7.66	7.87	9.16	8.84	8.5	7.1
pH (S.U.) Instantaneous Maximum	7.73	7.87	8.71	8.63	8.75	9.15	9.1	9.08	9.31	9.13	8.88	8.0
TRC (mg/L) Average Monthly	< 0.100	< 0.1000	< 0.001	< 0.0100	< 0.010	0.065	< 0.015	< 0.015	< 0.065	0.030	< 0.040	< 0.010
TRC (mg/L) Instantaneous Maximum	< 0.100	< 0.1000	< 0.001	< 0.0100	< 0.010	0.100	0.030	0.020	0.120	0.030	0.070	< 0.010
TSS (mg/L) Average Monthly	51	14	32	11	11.0	< 30	18	< 7	167	10	37	76
TSS (mg/L) Instantaneous Maximum	70	16	59	12	12.0	56	28	10	318	12	70	93
Total Aluminum (mg/L) Average Monthly	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	< 0.100	0.135
Total Aluminum (mg/L) Instantaneous Maximum	< 0.100	< 0.1000	< 0.1	< 0.100	0.100	0.1	< 0.1	< 0.10	0.100	< 0.100	0.100	0.17
Total Copper (mg/L) Average Monthly	0.003	0.004	0.005	0.005	0.006	0.004	0.004	0.004	0.004	0.003	0.008	0.007
Total Copper (mg/L) Instantaneous Maximum	0.004	0.006	0.008	0.006	0.006	0.005	0.005	0.005	0.005	0.004	0.012	0.008
Total Iron (mg/L) Average Monthly	0.20	0.20	0.2	0.1	0.20	0.9	0.465	0.2	0.10	0.1	0.2	0.20
Total Iron (mg/L) Instantaneous Maximum	0.27	0.30	0.3	0.16	0.26	1.62	0.47	0.21	0.12	0.22	0.2	0.38

NPDES Permit Fact Sheet
Cowanshannock Township Municipal Authority Yatesboro Numine WTP

NPDES Permit No. PA0205699

Total Manganese (mg/L) Average Monthly	1.1	1.4	1.8	1.6	1.6	0.3	5.8	3.1	2.1	2.0	1.8	0.80
Total Manganese (mg/L) Instantaneous Maximum	1.39	1.90	2.0	2.10	1.67	0.33	5.97	3.19	2.49	2.26	2.02	1.12

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2021 To: November 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	04/30/21	IMAX	9.08	S.U.	9.0	S.U.
pH	03/31/21	IMAX	9.31	S.U.	9.0	S.U.
pH	06/30/21	IMAX	9.15	S.U.	9.0	S.U.
pH	05/31/21	IMAX	9.1	S.U.	9.0	S.U.
pH	02/28/21	IMAX	9.13	S.U.	9.0	S.U.
TRC	04/30/21	Avg Mo	< 0.015	mg/L	.014	mg/L
TRC	05/31/21	Avg Mo	< 0.015	mg/L	.014	mg/L
TRC	06/30/21	Avg Mo	0.065	mg/L	.014	mg/L
TRC	01/31/21	Avg Mo	< 0.040	mg/L	0.014	mg/L
TRC	10/31/21	Avg Mo	< 0.1000	mg/L	.014	mg/L
TRC	02/28/21	Avg Mo	0.030	mg/L	0.014	mg/L
TRC	11/30/21	Avg Mo	< 0.100	mg/L	.014	mg/L
TRC	03/31/21	Avg Mo	< 0.065	mg/L	0.014	mg/L
TRC	05/31/21	IMAX	0.030	mg/L	.028	mg/L
TRC	06/30/21	IMAX	0.100	mg/L	.028	mg/L
TRC	11/30/21	IMAX	< 0.100	mg/L	.028	mg/L
TRC	02/28/21	IMAX	0.030	mg/L	0.028	mg/L
TRC	01/31/21	IMAX	0.070	mg/L	0.028	mg/L
TRC	10/31/21	IMAX	< 0.1000	mg/L	.028	mg/L

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Cowanshannock Township Municipal Authority Yatesboro Numine WTP

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TRC	03/31/21	IMAX	0.120	mg/L	0.028	mg/L
TSS	09/30/21	Avg Mo	32	mg/L	30	mg/L
TSS	03/31/21	Avg Mo	167	mg/L	30	mg/L
TSS	11/30/21	Avg Mo	51	mg/L	30	mg/L
TSS	01/31/21	Avg Mo	37	mg/L	30	mg/L
TSS	03/31/21	IMAX	318	mg/L	60	mg/L
TSS	11/30/21	IMAX	70	mg/L	60	mg/L
TSS	01/31/21	IMAX	70	mg/L	60	mg/L
Total Copper	01/31/21	Avg Mo	0.008	mg/L	0.006	mg/L
Total Manganese	04/30/21	Avg Mo	3.1	mg/L	1.0	mg/L
Total Manganese	07/31/21	Avg Mo	1.6	mg/L	1.0	mg/L
Total Manganese	05/31/21	Avg Mo	5.8	mg/L	1.0	mg/L
Total Manganese	03/31/21	Avg Mo	2.1	mg/L	1.0	mg/L
Total Manganese	08/31/21	Avg Mo	1.6	mg/L	1.0	mg/L
Total Manganese	11/30/21	Avg Mo	1.1	mg/L	1.0	mg/L
Total Manganese	10/31/21	Avg Mo	1.4	mg/L	1.0	mg/L
Total Manganese	01/31/21	Avg Mo	1.8	mg/L	1.0	mg/L
Total Manganese	09/30/21	Avg Mo	1.8	mg/L	1.0	mg/L
Total Manganese	02/28/21	Avg Mo	2.0	mg/L	1.0	mg/L
Total Manganese	02/28/21	IMAX	2.26	mg/L	2.0	mg/L
Total Manganese	05/31/21	IMAX	5.97	mg/L	2.0	mg/L
Total Manganese	04/30/21	IMAX	3.19	mg/L	2.0	mg/L

NPDES Permit Fact Sheet
Cowanshannock Township Municipal Authority Yatesboro Numine WTP

NPDES Permit No. PA0205699

Total Manganese	03/31/21	IMAX	2.49	mg/L	2.0	mg/L
Total Manganese	08/31/21	IMAX	2.10	mg/L	2.0	mg/L
Total Manganese	01/31/21	IMAX	2.02	mg/L	2.0	mg/L

Summary of Inspections: Last site inspection was conducted on 7/17/2019, which noted a relatively new operator, incorrect TRC effluent measuring.

Other Comments: As noted on Page 1 of this Fact Sheet, the facility executed a CO&A in 2021. The CO&A was a response to numerous effluent violations over the last few years including those noted above. The chosen corrective action taken in the CO&A is to cease the stream discharge and connect to public sewer by 2025.

Development of Effluent Limitations

Outfall No. 001
Latitude 40° 49' 10.00"
Design Flow (MGD) 0.0065
Longitude -79° 19' 40.00"
Wastewater Description: Supernatant from sludge lagoon (IW Process Effluent without ELG)

Technology-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Federal Regulation	State Regulation
Total Suspended Solids	30	Average Monthly		362-2183-003
Total Suspended Solids	40	Daily Maximum		362-2183-003
Aluminum	4.0	Average Monthly		362-2183-003
Aluminum	8.0	Daily Maximum		362-2183-003
Manganese	1.0	Average Monthly		362-2183-003
Manganese	2.0	Daily Maximum		362-2183-003
Total Iron	2.0	Average Monthly		362-2183-003
Total Iron	4.0	Daily Maximum		362-2183-003
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
Total Residual Chlorine	1.0	Daily Maximum		362-2183-003
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)

Comments: 362-2183-003 References the Department's technical guidance document entitled "Technology-based Control Requirements for Water Treatment Plant Wastes." The limits are BPT (Best Practical Control Technology) and are not based on actual regulation. The Department has identified the TSD requirements as the Best Available Treatment (BAT) that, as a minimum, the permittee will be required to meet. Since no federal effluent limitation guidelines (ELGs) have been promulgated, the Department's Best Professional Judgment of BAT, as outlined in the TSD, satisfies the Federal requirements of the 40 CFR 125.3(d) regulations.

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Total Residual Chlorine	0.41	Average Monthly	TRC_Calc Spreadsheet
Total Cadmium (ug/l)	1.06	Average Monthly	Toxics Management Spreadsheet Ver. 1.3
Total Cadmium (ug/l)	1.65	Daily Maximum	Toxics Management Spreadsheet Ver. 1.3
Total Copper	0.006	Average Monthly	(old) PENTOXSD Release 1.02
Total Iron	1.9	Average Monthly	(old) PENTOXSD Release 1.02

Comments: The permittee completed a Pre-Draft Permit Survey saying they were unsure if they could meet the new total cadmium effluent limits and have not conducted any site-specific studies. They did not elect to do any additional sampling at a lower QL. The permittee is believed to be able to meet the new total cadmium WQBELs if they use a lower MDL based on a review of effluent and influent sampling data from the previous NPDES Permit renewal application in which all results were "< 1 ug/l." Therefore a compliance schedule will not be included in the proposed renewed permit.

The Toxics Management Spreadsheet also recommended monitoring for total barium and hexavalent chromium due to the reported discharge concentrations being greater than ten percent of the calculated WQBELs. Monitoring for total barium and hexavalent chromium will be placed in the permit at a monitoring frequency of 1/month to determine if WQBELs are necessary in the future.

Best Professional Judgment (BPJ) Limitations

Comments: See Tech-Based Limitations section above.

Anti-Backsliding

The total residual chlorine limits were made less stringent as part of this NPDES Permit renewal. Backsliding of the TRC limits is permissible under 402(o)(1) of the CWA based on compliance with 303(d)(4)(B) – Attainment Water. Compliance with 303(d)(4)(B) is being met because the receiving stream is attaining its designated use and the backsliding of the effluent limits is consistent with PADEP's antidegradation policy located in 25 Pa. Code Chapter 93.4(a). The total residual chlorine effluent limits are meeting state antidegradation requirements because instream water uses are being met and state water quality standards for total residual chlorine in 25 Pa. Code Chapter 93.7 will be achieved, as was demonstrated in the TRC_Calc Spreadsheet that was done for this permit amendment.

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" (362-0400-001), 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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0	XXX	2/month	Grab
TRC	XXX	XXX	XXX	0.41	XXX	1.0	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Total Aluminum	XXX	XXX	XXX	0.750	XXX	1.5	2/month	Grab
Total Barium	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Cadmium, Total (ug/L)	0.00006	0.00009	XXX	1.06	1.65	2.65	2/month	Grab
Hexavalent Chromium	Report	Report	XXX	Report	Report	XXX	1/month	Grab
Total Copper	XXX	XXX	XXX	0.006	XXX	0.012	2/month	Grab
Total Iron	XXX	XXX	XXX	1.9	XXX	3.8	2/month	Grab
Total Manganese	XXX	XXX	XXX	1.0	XXX	2.0	2/month	Grab

Compliance Sampling Location: Outfall 001 (prior to mixing with any other waters)

Other Comments:



Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions Discharge Stream

Facility: **Yatesboro Numine WTP** NPDES Permit No.: **PA0205699** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Filter backwash**

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
0.0065	84.3	7.9						

				0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	213		162							
	Chloride (PWS)	mg/L	33.1		16.9							
	Bromide	mg/L	< 0.1		23.8							
	Sulfate (PWS)	mg/L	8.85									
	Fluoride (PWS)	mg/L	< 0.2									
Group 2	Total Aluminum	µg/L	36									
	Total Antimony	µg/L	< 0.4									
	Total Arsenic	µg/L	< 1									
	Total Barium	µg/L	1050									
	Total Beryllium	µg/L	< 0.4									
	Total Boron	µg/L	< 50									
	Total Cadmium	µg/L	< 2									
	Total Chromium (III)	µg/L	< 1									
	Hexavalent Chromium	µg/L	< 5									
	Total Cobalt	µg/L	< 1									
	Total Copper	µg/L	4									
	Free Cyanide	µg/L										
	Total Cyanide	µg/L	21									
	Dissolved Iron	µg/L	< 20									
	Total Iron	µg/L	7670									
	Total Lead	µg/L	< 1									
	Total Manganese	µg/L	3370									
	Total Mercury	µg/L	< 0.2									
	Total Nickel	µg/L	< 1									
	Total Phenols (Phenolics) (PWS)	µg/L	< 20									
	Total Selenium	µg/L	< 5									
	Total Silver	µg/L	0.5									
	Total Thallium	µg/L	< 0.4									
	Total Zinc	µg/L	6									
	Total Molybdenum	µg/L	< 1									
	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	<																	

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Toxics Management Spreadsheet
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Stream / Surface Water Information

Yatesboro Numine WTP, NPDES Permit No. PA0205699, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **UNT to Cowanshannock 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	047039	17.05	1186	0.82			Yes
End of Reach 1	042122	0.05	801	425			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	17.05	0.03365	0.0276									114	7		
End of Reach 1	0.05	0.11	2070			220						152	7.5		

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	17.05														
End of Reach 1	0.05														



Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Yatesboro Numine WTP, NPDES Permit No. PA0205699, Outfall 001

Instructions **Results** [RETURN TO INPUTS](#) [SAVE AS PDF](#) [PRINT](#) ☒ All ☐ Inputs ☐ Results ☐ Limits

☒ Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
17.05	0.03		0.03	0.01	0.004	0.303	3.6	11.885	0.035	30.078	0.874
0.05	2070.00		2,070								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
17.05	0.32		0.32	0.01	0.004	0.79	3.6	4.558	0.117	8.883	0.363
0.05	5876.881		5876.88								

☒ 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)	162000	0		0	N/A	N/A	N/A	
Chloride (PWS)	16900	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	2,809	
Total Antimony	0	0		0	1,100	1,100	4,119	
Total Arsenic	0	0		0	340	340	1,273	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	78,640	
Total Boron	0	0		0	8,100	8,100	30,333	
Total Cadmium	0	0		0	2.132	2.26	8.48	Chem Translator of 0.942 applied
Total Chromium (III)	0	0		0	597.931	1,892	7,086	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	61.0	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	356	

Total Copper	0	0		0	14.206	14.8	55.4	Chem Translator of 0.96 applied
Dissolved Iron	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	68.856	88.0	330	Chem Translator of 0.782 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	6.17	Chem Translator of 0.85 applied
Total Nickel	0	0		0	492.167	493	1,847	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.560	4.19	15.7	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	243	
Total Zinc	0	0		0	123.179	126	472	Chem Translator of 0.978 applied

☒ **CFC** CCT (min): 0.874 PMF: 1 Analysis Hardness (mg/l): 106.07 Analysis pH: 7.12

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)	162000	0		0	N/A	N/A	N/A	
Chloride (PWS)	16900	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	824	
Total Arsenic	0	0		0	150	150	562	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	15,354	
Total Boron	0	0		0	1,600	1,600	5,992	
Total Cadmium	0	0		0	0.256	0.28	1.06	Chem Translator of 0.907 applied
Total Chromium (III)	0	0		0	77.779	90.4	339	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	38.9	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	71.2	
Total Copper	0	0		0	9.418	9.81	36.7	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	5,617	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.683	3.43	12.8	Chem Translator of 0.782 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	3.39	Chem Translator of 0.85 applied
Total Nickel	0	0		0	54.665	54.8	205	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	18.7	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	48.7	
Total Zinc	0	0		0	124.186	126	472	Chem Translator of 0.986 applied

☒ **THH** CCT (min): 0.874 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc	Stream CV	Trib Conc	Fate	WQC	WQ Obj	WLA (µg/L)	Comments
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Model Results

1/3/2022

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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)	162000	0		0	500,000	500,000	N/A	
Chloride (PWS)	16900	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	21.0	
Total Arsenic	0	0		0	10	10.0	37.4	
Total Barium	0	0		0	2,400	2,400	8,987	
Total Boron	0	0		0	3,100	3,100	11,609	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	1,123	
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	3,745	
Total Mercury	0	0		0	0.050	0.05	0.19	
Total Nickel	0	0		0	610	610	2,284	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	0.9	
Total Zinc	0	0		0	N/A	N/A	N/A	

☒ CRL

CCT (min): 0.363

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)	162000	0		0	N/A	N/A	N/A	
Chloride (PWS)	16900	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	

Dissolved Iron	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 Mercury	0	0		0	N/A	N/A	N/A
Total Nickel	0	0		0	N/A	N/A	N/A
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	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

Pollutants	Mass Limits		Concentration Limits				Governing WQBEL	WQBEL Basis	Comments
	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units			
Total Barium	Report	Report	Report	Report	Report	µg/L	8,987	THH	Discharge Conc > 10% WQBEL (no RP)
Total Cadmium	0.00006	0.00009	1.06	1.65	2.65	µg/L	1.06	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Hexavalent Chromium	Report	Report	Report	Report	Report	µg/L	38.9	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	µg/L	35.5	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Iron	0.3	0.48	5,617	8,764	14,043	µg/L	5,617	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Manganese	0.2	0.32	3,745	5,842	9,362	µg/L	3,745	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
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
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Aluminum	1,800	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Beryllium	N/A	N/A	No WQS
Total Boron	5,992	µg/L	Discharge Conc < TQL
Total Chromium (III)	339	µg/L	Discharge Conc < TQL
Total Cobalt	71.2	µg/L	Discharge Conc < TQL

NPDES Permit Fact Sheet
Cowanshannock Township Municipal Authority Yatesboro Numine WTP

NPDES Permit No. PA0205699

Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	1,123	µg/L	Discharge Conc < TQL
Total Lead	12.8	µg/L	Discharge Conc < TQL
Total Mercury	0.19	µg/L	Discharge Conc < TQL
Total Nickel	205	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	18.7	µg/L	Discharge Conc < TQL
Total Silver	10.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.9	µg/L	Discharge Conc < TQL
Total Zinc	302	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

1A	B	C	D	E	F	G
2	TRC EVALUATION Yatesboro NuMine WTP					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0276 = Q stream (cfs)			0.5 = CV Daily		
5	0.0065 = Q discharge (MGD)			0.5 = CV Hourly		
6	30 = no. samples			1 = AFC_Partial Mix Factor		
7	0.3 = Chlorine Demand of Stream			1 = CFC_Partial Mix Factor		
8	0 = Chlorine Demand of Discharge			15 = AFC_Criteria Compliance Time (min)		
9	0.5 = BAT/BPJ Value			720 = CFC_Criteria Compliance Time (min)		
	0 = % Factor of Safety (FOS)			0 = Decay Coefficient (K)		
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.895		1.3.2.iii	WLA cfc = 0.865
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.333		5.1d	LTA_cfc = 0.503
14						
15	Source	Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.410		AFC	
18			INST MAX LIMIT (mg/l) = 1.342			
	WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))... ...+ Xd + (AFC_Yc*Qs*Xd/Qd)]*(1-FOS/100)				
	LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)				
	LTA_afc	wla_afc*LTAMULT_afc				
	WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))... ...+ Xd + (CFC_Yc*Qs*Xd/Qd)]*(1-FOS/100)				
	LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)				
	LTA_cfc	wla_cfc*LTAMULT_cfc				
	AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))				
	AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)				
	INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)				

Yatesboro Numines WTP

Cowanshannock Township, Armstrong County

PA0205699

Discharge pH

Outfall 001

<u>Date</u>	<u>pH min</u>	<u>pH max</u>	<u>10⁻ -pH min</u>	<u>10⁻ -pH max</u>	<u>& pH max</u>	<u>-Log (Ave pH)</u>
Jul-19	8.0	8.0	1E-08	1E-08	1E-08	8.0
Aug-19	7.50	8.0	3.16E-08	1E-08	2.08E-08	7.7
Sep-19	8.0	8.0	1E-08	1E-08	1E-08	8.0
Jul-20	7.9	8.5	1.26E-08	3.16E-09	7.88E-09	8.1
Aug-20	7.90	7.90	1.26E-08	1.26E-08	1.26E-08	7.9
Sep-20	7.9	8.0	1.26E-08	1E-08	1.13E-08	7.9
Jul-21	7.2	8.75	6.31E-08	1.78E-09	3.24E-08	7.5
Aug-21	7.93	8.63	1.17E-08	2.34E-09	7.05E-09	8.2
Sep-21	7.3	8.71	5.01E-08	1.95E-09	2.6E-08	7.6
Median:						7.9

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