pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0256081**
Facility Type	**Industrial**	APS ID	**1052606**
Major / Minor	**Minor**	Authorization ID	**1377867**

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

Applicant and Facility Information

Applicant Name	**Northern Cambria Municipal Authority**	Facility Name	**Miller Hollow Water Treatment Facility**
Applicant Address	1202 Philadelphia Avenue	Facility Address	Old Miller Road
	Northern Cambria, PA 15714-1385		Northern Cambria, PA 15714
Applicant Contact	Paul Weaver	Facility Contact	Ron Depto
Applicant Phone	(814) 948-5791	Facility Phone	(814) 948-5791
Client ID	213850	Site ID	848623
SIC Code	4941	Municipality	Susquehanna Township
SIC Description	Trans. & Utilities – Water Supply	County	Cambria
Date Application Received	November 24, 2021	EPA Waived?	Yes
Date Application Accepted	December 10, 2021	If No, Reason	

Purpose of Application: New NPDES permit for the new discharge of process wastewater from the water treatment plant.

Summary of Review

Background

The Department received a new NPDES permit application from Northern Cambria Borough Municipal Authority on November 24, 2021 for coverage of the new discharge from its Miller Hollow Water Treatment Facility in Susquehanna Township of Cambria County. The facility is a new municipal water treatment plant with an SIC Code 4941 (Water Supply).

The Miller Hollow Water Treatment Facility (WTP) was issued a PAG-02 NPDES Permit to cover the discharges of stormwater associated with construction activities on July 12, 2021. Construction of the facility is anticipated to start in May of 2022. The facility is also covered under Chapter 105 GP-4 and GP-5 Permits and a Public Water Supply Construction Permit.

Property and Operations

Miller Hollow WTP operates as a new municipal water treatment plant that treats raw water from the existing Miller Hollow Mine Source through membrane filtration. Construction of the Miller Hollow WTP is in response to a Consent Order and Agreement for violations of the Pennsylvania Safe Drinking Water Act and regulations from the Safe Drinking Water Program. Construction of the facility is anticipated to be complete by the end date of the Consent Order in July of 2024. Construction of the Miller Hollow WTP involved an earth disturbance of 5.13 acres and construction/ modification of a water treatment plant, source, pump stations, transmission main and storage facility. The Miller Hollow WTP will supply drinking water to serve 4813 people through 2270 connections.

Approve	Deny	Signatures	Date
X		Lauren Nolfi, E.I.T. / Environmental Engineering Specialist	March 11, 2022
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	March 11, 2022

Summary of Review

The Miller Hollow WTP is a membrane filtration plant and utilizes microfiltration and reverse osmosis technologies in its water treatment system. The treatment system includes two microfiltration units, a 5000-gallon equalization tank, a 5000-gallon microfiltration break (filtrate) tank, two reverse osmosis (RO) units, a neutralization tank, and a backwash equalization tank. Chemical treatment includes orthophosphate for corrosion inhibition, sodium bisulphite for chlorine removal, anti-scalent to prevent RO membrane scaling and fouling, citric acid softener, sodium hypochlorite for disinfection, and sodium hydroxide to control acidity and remove metals. Flux maintenance is performed at scheduled intervals to loosen and remove foulant from the membrane fibers. Finished water is used in the flush and backwash water that is discharged to a 1350-gallon backwash equalization tank.

Outfalls

The facility has one outfall, Outfall 001, which discharges to the Unnamed Tributary to Walnut Run, designated in 25 PA Code Chapter 93 as a Cold Water Fishery (WWF) and Migratory Fishery (MF). Outfall 001 discharges filter backwash water from the equalization tank at a design, average and maximum flow of 0.02 MGD. Outfall 001 will not begin discharging until construction of the facility is complete.

Public Participation

Northern Cambria Municipal Authority provided evidence of Act 14 municipal and county notifications to Susquehanna Township and Cambria County on October 8, 2021.

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.

Conclusion

Draft permit issuance is recommended.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.02
Latitude	40º 39' 57.89"	Longitude	-78º 45' 53.33"
Quad Name	Barnesboro	Quad Code	1315

Wastewater Description: Filter backwash water from equalization tank.

Receiving Waters	Unnamed Tributary to Walnut Run (CWF, MF)	Stream Code	27255
NHD Com ID	61837293	RMI	0.36
Drainage Area	2.08 mi^2	Yield (cfs/mi^2)	0.0468
Q_{7-10} Flow (cfs)	0.0974	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1506	Slope (ft/ft)	0.012
Watershed No.	8-B	Chapter 93 Class.	CWF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Habitat Alterations, Siltation		
Source(s) of Impairment	Channelization, Erosion from derelict land (barren land)		
TMDL Status	N/A	Name	N/A

Nearest Downstream Public Water Supply Intake	Indiana County Municipal Services Authority (ICMSA) Cherrytree		
PWS Waters	West Branch Susquehanna River	Flow at Intake (cfs)	0
PWS RMI	231	Distance from Outfall (mi)	6

Other Comments:

Miller Hollow WTP has not been inspected since it is a proposed facility. The Miller Hollow Mine Source has a Consent Order and Agreement for violations of the Pennsylvania Safe Drinking Water Act and regulations from the Safe Drinking Water Program.

The client has no open violations.

The USGS Stream Stats Data for the drainage area is displayed in Attachment A.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.02
Latitude 40º 39' 57.89" **Longitude** -78º 45' 53.33"
Wastewater Description: Filter backwash water from equalization tank.

Technology-Based Limitations (TBELs)

Miller Hollow Water WTP is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1.

Effluent standards for pH pursuant to 25 Pa. Code § 92a.48(a)(2) and 25 Pa. Code § 95.2(1), as indicated in Table 1, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 1.

Table 1: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
Total Residual Chlorine	0.5 mg/l	1.0 mg/l	1.6 mg/l

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of water treatment plant (WTP) sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which recommends effluent limitations be imposed under Best Professional Judgement in accordance with 40 CFR § 125.3, and detailed in Table 2.

Table 2: BPT Limits for WTP sludge and filter backwash wastewater

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Total Suspended solids	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow (MGD)	Monitor and Report	
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5 mg/l	1.0 mg/l

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Management Analysis

The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken form the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and contained in the DMRs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Tables 3 and 4 below.

Table 3: TMS Design Inputs

Parameter	Value
Design Flow (MGD)	0.2
Hardness (mg/L)	575
pH (S.U.)	7.79
Partial Mix Factors (PMFs)	
AFC	calc.
CFC	calc.
THH	calc.
CRL	calc.
Complete Mix Times	
Q_{7-10} (min)	calc.
Q_h (min)	calc.

Table 4: TMS Stream Inputs

Parameter	Value
Stream Code	27255
RMI	0.36
Elevation	1506
Drainage Area (mi^2)	2.08
Slope (ft/ft)	0.12
PWS Withdrawal (MGD)	
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	0.0468
Stream Flow (cfs)	0.0974
Tributary Flow (cfs)	N/A
Width (ft)	
Stream Hardness (mg/L)	100
Stream pH (S.U.)	7

Based on the recommendations of the TMS, no WQBELs are recommended at Outfall 001. Analysis Report from the TMS run is included in Attachment B.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and discharge chlorine demands for the receiving stream, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is then proposed. The results of the modeling, included in Attachment C, identify that BAT is the most stringent criteria for TRC at an average monthly limit of 0.5 mg/L. The maximum daily limit is 2 times the average monthly limit resulting in a 1.0 mg/L limit for maximum daily.

Anti-Backsliding

Miller Hollow WTP was not previously covered under an NPDES permit since the facility is a new discharge.

Effluent Limitations and Monitoring Requirements

Effluent limitations and monitoring requirements applicable at Outfall 001 are the most stringent of TBELs, WQBELs, and regulatory effluent standards and monitoring requirements, as summarized below in Table 5. The applicable limits and monitoring requirements provided below are based on those in Tables 1-4 of this Fact Sheet.

Table 5: Effluent Limits and Monitoring Requirements – Outfall 001

Parameter	Mass		Concentration		Monitoring Requirements	
	Average Monthly	Daily Maximum	Average Monthly (mg/L)	Daily Maximum (mg/L)	Monitoring Frequency	Sample Type
Flow (MGD)	Monitor & Report				2/ month	Measured
Total Residual Chlorine	-	-	0.5	1.0	2/ month	Grab
Total Suspended Solids	-	-	30.0	60.0	2/ month	Grab
Aluminum, total	-	-	4.0	8.0	2/ month	Grab
Iron, total	-	-	2.0	4.0	2/ month	Grab
Manganese, total	-	-	1.0	2.0	2/ month	Grab
pH (S.U.)	-	-	Not less than 6.0 nor greater than		2/ month	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment B)
☒	TRC Model Spreadsheet (see Attachment C)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☒	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

Attachment A: USGS StreamStats Report

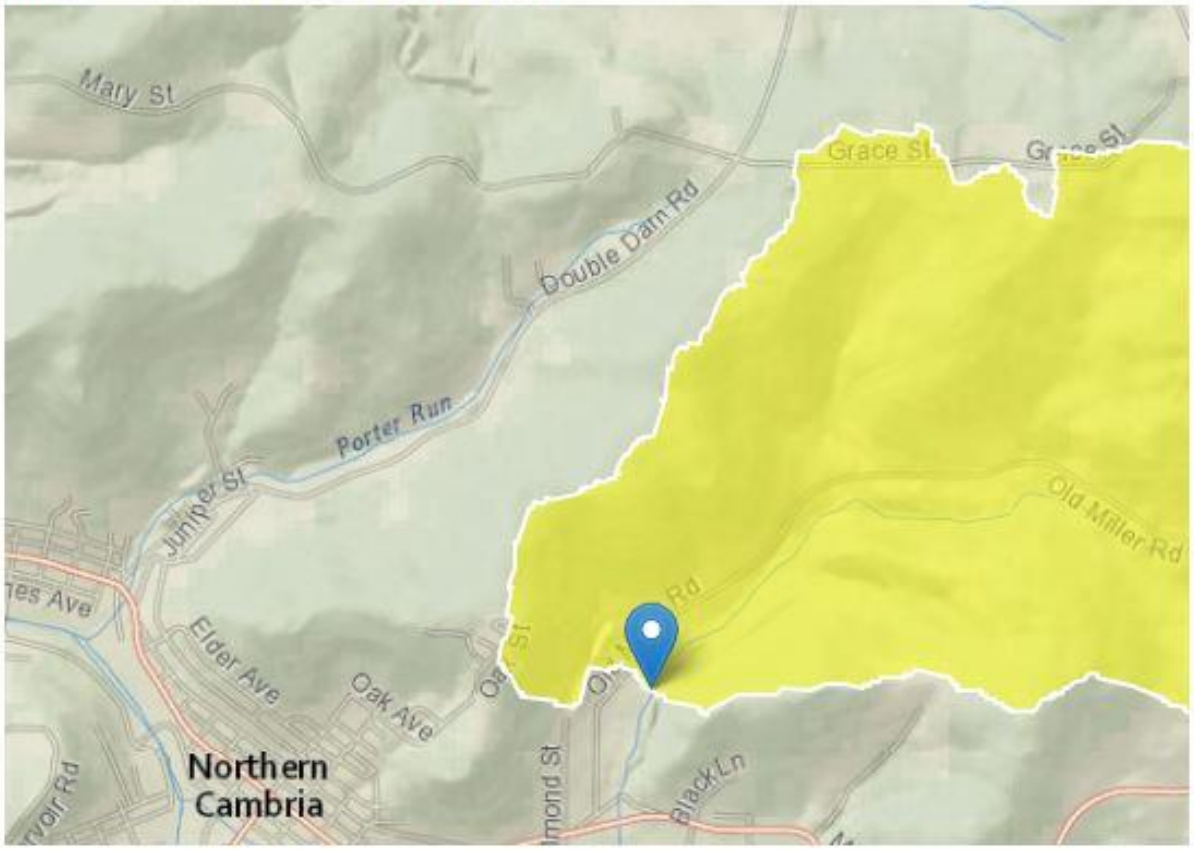
Attachment B: Toxics Management Spreadsheet Model Output

Attachment C: TRC Modeling Results

ATTACHMENT A:
USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20220223191743688000
Clicked Point (Latitude, Longitude): 40.66602, -78.76470
Time: 2022-02-23 14:18:12 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.08	square miles

Parameter Code	Parameter Description	Value	Unit
ELEV	Mean Basin Elevation	1818	feet
PRECIP	Mean Annual Precipitation	43	inches

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.08	square miles	2.33	1720
ELEV	Mean Basin Elevation	1818	feet	898	2700
PRECIP	Mean Annual Precipitation	43	inches	38.7	47.9

Low-Flow Statistics Disclaimers [Low Flow Region 3]

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 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.239	ft^3/s
30 Day 2 Year Low Flow	0.346	ft^3/s
7 Day 10 Year Low Flow	0.0974	ft^3/s
30 Day 10 Year Low Flow	0.137	ft^3/s
90 Day 10 Year Low Flow	0.205	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: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

ATTACHMENT B:

Toxics Management Spreadsheet Model Output

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Miller Hollow Water Treatment Plant** NPDES Permit No.: **PA0256081** Outfall No.: **001**

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

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
0.2	575	7.79						

					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		676									
	Chloride (PWS)	mg/L		17.8									
	Bromide	mg/L		0.4									
	Sulfate (PWS)	mg/L		312									
	Fluoride (PWS)	mg/L		2									
Group 2	Total Aluminum	µg/L		0.0467									
	Total Antimony	µg/L		0.001									
	Total Arsenic	µg/L		0.0015									
	Total Barium	µg/L		0.0213									
	Total Beryllium	µg/L		0.0005									
	Total Boron	µg/L		0.0682									
	Total Cadmium	µg/L		0.0005									
	Total Chromium (III)	µg/L		0.00199									
	Hexavalent Chromium	µg/L		0.00025									
	Total Cobalt	µg/L		0.0004									
	Total Copper	µg/L		0.0025									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		0.01									
	Dissolved Iron	µg/L		0.02									
	Total Iron	µg/L		1.1									
	Total Lead	µg/L		0.0002									
	Total Manganese	µg/L		0.0097									
	Total Mercury	µg/L		0.0002									
	Total Nickel	µg/L		0.006									
	Total Phenols (Phenolics) (PWS)	µg/L		0.005									
	Total Selenium	µg/L		0.0125									
	Total Silver	µg/L		0.000274									
	Total Thallium	µg/L		0.0001									
	Total Zinc	µg/L		0.0123									
	Total Molybdenum	µg/L		0.0001									
	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)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												

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Miller Hollow Water Treatment Plant, NPDES Permit No. PA0256081, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Unnamed Tributary to Walnut 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	027255	0.36	1506	2	0.12		Yes
End of Reach 1	027255	0	1483	2.19			Yes

$Q_{7\text{-}10}$

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	0.36	0.0468	0.0974									100	7		
End of Reach 1	0	0.0466	0.102									100	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	0.36														
End of Reach 1	0														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Miller Hollow Water Treatment Plant, NPDES Permit No. PA0256081, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 0.012 PMF: 1 Analysis Hardness (mg/l): 461.27 Analysis pH: 7.44

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	986	
Total Antimony	0	0		0	1,100	1,100	1,446	
Total Arsenic	0	0		0	340	340	447	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	27,611	
Total Boron	0	0		0	8,100	8,100	10,650	
Total Cadmium	0	0		0	8.882	10.1	13.3	Chem Translator of 0.88 applied
Total Chromium (III)	0	0		0	1992.850	6,306	8,292	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	21.4	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	125	
Total Copper	0	0		0	56.748	59.1	77.7	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	324.843	572	752	Chem Translator of 0.568 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	2.17	Chem Translator of 0.85 applied
Total Nickel	0	0		0	1706.756	1,710	2,249	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	44.609	52.5	69.0	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	85.5	
Total Zinc	0	0		0	427.982	438	575	Chem Translator of 0.978 applied

☑ ***CFC*** CCT (min): 0.012 PMF: 1 Analysis Hardness (mg/l): 461.27 Analysis pH: 7.44

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	
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	289	
Total Arsenic	0	0		0	150	150	197	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	5,391	
Total Boron	0	0		0	1,600	1,600	2,104	
Total Cadmium	0	0		0	0.710	0.84	1.1	Chem Translator of 0.845 applied
Total Chromium (III)	0	0		0	259.229	301	396	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	13.7	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	25.0	
Total Copper	0	0		0	33.071	34.4	45.3	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	1,972	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	12.659	22.3	29.3	Chem Translator of 0.568 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	1.19	Chem Translator of 0.85 applied
Total Nickel	0	0		0	189.568	190	250	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	6.56	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	17.1	
Total Zinc	0	0		0	431.483	438	575	Chem Translator of 0.986 applied

☑ ***THH*** CCT (min): 0.012 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	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	
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	7.36	
Total Arsenic	0	0		0	10	10.0	13.1	
Total Barium	0	0		0	2,400	2,400	3,156	
Total Boron	0	0		0	3,100	3,100	4,076	
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	394	
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	1,315	
Total Mercury	0	0		0	0.050	0.05	0.066	
Total Nickel	0	0		0	610	610	802	
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	0.32	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 0.059 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	
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			

☑ ***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	PWS Not Applicable
Total Aluminum	750	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	7.36	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	13.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	3,156	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	2,104	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	1.1	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	396	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	13.7	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	25.0	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	45.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	394	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,972	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	29.3	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,315	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.066	µg/L	Discharge Conc ≤ 10% WQBEL
Total Nickel	250	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	6.56	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	52.5	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.32	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	438	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

ATTACHMENT C:
TRC Modeling Results

TRC EVALUATION

0.0974	= Q stream (cfs)	0.5	= CV Daily
0.02	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	0.012	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	0.012	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	1.023	**1.3.2.iii**	WLA cfc =	0.990
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.381	**5.1d**	LTA_cfc =	0.576

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) =	1.170	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/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*Xs/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)**