pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0233340**
Facility Type	**Industrial**	APS ID	**1079938**
Major / Minor	**Minor**	Authorization ID	**1425202**

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

Applicant and Facility Information

Applicant Name	**Cooper Township Municipal Authority**	Facility Name	**Cooper Township Municipal Authority**
Applicant Address	PO Box 446	Facility Address	139 Casanova Spur
	Winburne, PA 16879-0446		Munson, PA 16879
Applicant Contact	Randy Killion	Facility Contact	Randy Killion
Applicant Phone	(814) 345-5673	Facility Phone	(814) 345-5673
Client ID	66571	Site ID	261694
SIC Code	4941	Municipality	Rush Township
SIC Description	Trans. & Utilities - Water Supply	County	Clearfield
Date Application Received	January 20, 2023	EPA Waived?	Yes
Date Application Accepted	February 6, 2023	If No, Reason	

Purpose of Application: Cooper Township Muni Auth Water Treatment Plant backwash discharge upgrades.

Summary of Review

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

A WQM amendment (WQM1423201) for the construction of a level spreader system will be issued simultaneously with the final NPDES permit.

Note: The Safe Drinking Water program has required the permittee to obtain these permits for this existing facility. The permittee has been discharging without an NPDES permit.

Approve	Deny	Signatures	Date
X		Jonathan P. Peterman / Project Manager	December 14, 2023
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 14, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.006
Latitude	40º 56' 59.88"	Longitude	-78º 8' 27.18"
Quad Name	Phillipsburg	Quad Code	1120
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	Moshannon Creek (TSF, MF)	Stream Code	25695
NHD Com ID	61830867	RMI	0.6500
Drainage Area	1.48	Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)	6.46	Q_{7-10} Basis	
Elevation (ft)	1383	Slope (ft/ft)	
Watershed No.	8-D	Chapter 93 Class.	TSF, MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Moshannon Creek Watershed
Nearest Downstream Public Water Supply Intake	PA American Water White Deer		
PWS Waters	West Branch of Susquehanna River	Flow at Intake (cfs)	682
PWS RMI	10.5	Distance from Outfall (mi)	147

Changes Since Last Permit Issuance: N/A.
Other Comments: None.

Treatment Facility Summary

Treatment Facility Name: Cooper Township Municipal Authority
Treatment System Components:
- Filter Backwash
- 60,000-Gallon Settling Tank
- Outfall 001

Changes Since Last Permit Issuance: None.
Other Comments: None

Chesapeake Bay Requirements

In accordance with the Phase III WIP Chesapeake Bay Strategy this facility has been identified previously by DEP as “insignificant dischargers” by virtue of having gross effluent discharges that do not exceed 75 lbs/day of TN or 25 lbs/day of TP. For these non-significant IW facilities, monitoring and reporting of TN and TP will be required throughout the permit term in renewed or amended permits anytime the facility has the potential to introduce a net TN or TP increase to the load contained within the intake water used in processing. No nutrient monitoring is required for this facility.

TMDL Impairment Discussion

The Department's Geographic Information System (GIS) shows that Moshannon Creek is impaired and a TMDL exists for the stream segment for metals due to acid drainage from abandoned coalmines. The TMDL addresses the three primary metals associated with acid mine drainage (iron, manganese, aluminum) and pH. There is no Waste Load Allocation (WLA) for this facility established in the TMDL. In accordance with 40 CFR §122.44(d)(1)(i), effluent limitations for these parameters will be implemented at §93.7 Specific Water Quality Standards requirements to ensure that this pollutant will not be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.006
Latitude 40º 56' 59.88" **Longitude** -78º 8' 27.18"
Wastewater Description: Filter backwash from the Water Treatment Plant

Technology-Based Limitations

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

Parameter	Limit (mg/l) (Average Monthly)	Limit (mg/l) (Daily Maximum)	Federal Regulation	State Regulation
Iron (Total)	1.5	3.0	-	§93.7
Aluminum (Total)	0.75	1.5	-	§93.7
Manganese (Total)	1.0	2.0	-	§93.7
pH	6-9 at all times	-	§133.102(c)	§95.2
TRC	0.5	-	-	§92a.48

Parameter	Limit (mg/l) (Average Monthly)	Limit (mg/l) (Daily Maximum)	Basis
TSS	30	60	These limits are derived from Guidance Document (392-2183-003) *Technology-Based Control Requirements for Water Treatment Plant.*
Iron (Total)	2.0	4.0	
Aluminum (Total)	4.0	8.0	
Manganese (Total)	1.0	2.0	
TRC	0.5	1.0	

Comments: None.

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for toxics, the Department utilizes the PENTOXSD v2.0d model. The use of a WQM7.0 analysis is not required for this discharge type.

Toxics Management Spreadsheet

This model is a single discharge wasteload allocation program for toxics that uses a mass-balance water quality analysis to determine recommended water quality-based effluent limits. The model incorporates consideration for mixing, first-order decay and other factors to computes a Wasteload Allocation (WLA) for each applicable criterion. Finally, the model determines a maximum water quality-based effluent limitation (WQBEL) for each parameter and outputs the more stringent of the WQBEL or the input concentration. The output of which is the recommends average monthly and maximum daily effluent limitations.

Sampling for pollutant Groups was submitted with the application. This sampling information and the receiving stream information was entered into the Toxics Management Spreadsheet. This "Reasonable Potential Analysis" (See Appendix C) determined that there were no parameters that were considered candidates for monitoring or limitations.

Best Professional Judgement (BPJ) Limitations

Comments: None Required.

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 the abovementioned 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) and/or BPJ.

Proposed Limits - Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date

Discharge Parameter	Limitations							
	Mass (lb/day)		Concentration (mg/L)				Monitoring Requirements	
	Monthly Average	Daily Maximum	Minimum	Average Monthly	Daily Max.	Instantaneous Maximum	Minimum Frequency	Sample Type
Flow (MGD)	Report	Report					1/ Week	Estimate
pH (Std. Units)			6.0			9.0	1/ Week	Grab
TSS				30	60	75	1/ Month	Grab
Aluminum				0.75	1.5	1.8	1/ Month	Grab
Total Iron				1.5	3.0	3.7	1/ Month	Grab
Total Manganese				1.0	2.0	2.5	1/ Month	Grab
TRC				0.5		1.6	1/ Day	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.006 MGD.

Flow
The existing monitoring frequency (1/ Week) and sample type (Estimate) for Flow will remain.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

Total Suspended Solids (TSS)
The technology-based effluent limits have been proposed in accordance with DEP Guidance Document (392-2183-003) *Technology-Based Control Requirements for Water Treatment Plants.*

Total Aluminum, Total Iron, and Total Manganese
In accordance with 40 CFR §122.44(d)(1)(i), effluent limitations for these parameters will be implemented at §93.7 Specific Water Quality Standards requirements to ensure that these pollutants will not be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard. The limit for manganese also corresponds to the technology-based limits (BPT) found in the DEP Guidance Document (392-2183-003) *Technology-Based Control Requirements for Water Treatment Plants*. The abovementioned limits for total iron and aluminum are more stringent than the BPT limits, but it must be implemented to ensure that water quality standards are met. The sampling results provided with the application indicate that the facility is capable of meeting these effluent limits.

Total Residual Chlorine (TRC)
The Guidance Document (392-2183-003) stipulates that the monthly average limit for TRC should be 0.5 mg/L, but it also stipulates that the technology limit for TRC is required by former Section 93.5 of Title 25 of the Departments Regulations. It also refers to Section 93.5 and the Implementation Guidance for Total Residual Chlorine (TRC) Regulation for details on how to impose TRC limitations. The TRC model evaluation was conducted using the existing technology-based limit of 0.5 mg/l and the results indicate that the proposed limit is protective of water quality.

The proposed monitoring frequencies and sample types for the abovementioned parameters are consistent with other water treatment plant wastewater discharges and the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3.

Compliance History

WMS Query Summary -A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed the following unresolved violation. The Safe Drinking Water program is aware of this open violation. This violation will not affect the issuance of this permit.

CLIENT ID	CLIENT	PF ID	FACILITY	INSP PROGRAM	PROGRAM SPECIFIC ID	INSP ID	VIOLATION ID	VIOLATION DATE	VIOLATION CODE	VIOLATION
66571	COOPER TWP MUNI AUTH CLEARFIELD CNTY	279364	COOPER TWP MUNICIPAL AUTH	Safe Drinking Water	6170041	3377090	958834	06/09/2022	B6F	CHRONIC FAILURE TO FOLLOW APPROVED METHODS FOR SAMPLING AND ANALYSIS

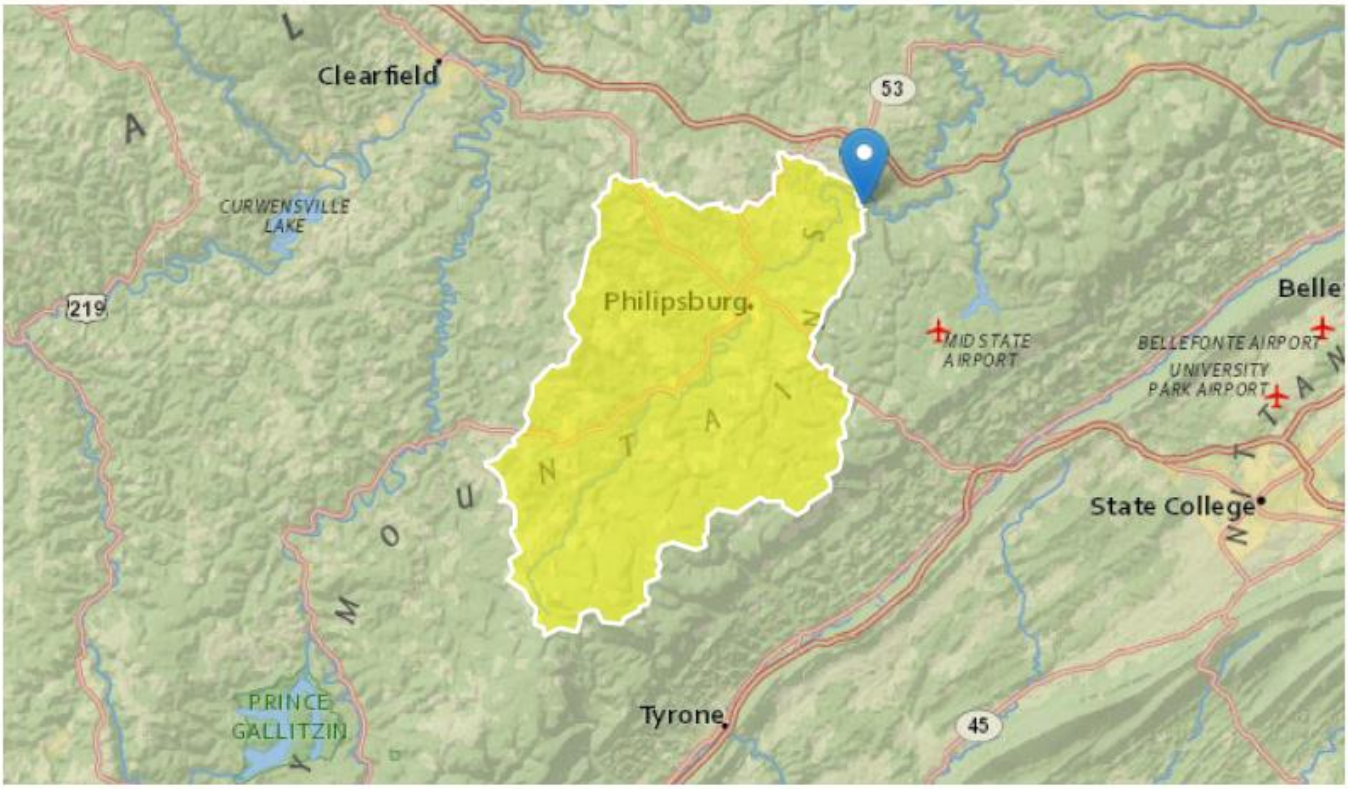
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment **B**)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.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

APPENDIX A

Q_{7-10} ANALYSIS AND STREAM DATA

StreamStats Report

Region ID: PA
Workspace ID: PA20231128155317977000
Clicked Point (Latitude, Longitude): 40.94997, -78.14088
Time: 2023-11-28 10:53:40 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	148	square miles
ELEV	Mean Basin Elevation	1765	feet
PRECIP	Mean Annual Precipitation	39	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (148 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	148	square miles	2.33	1720
ELEV	Mean Basin Elevation	1765	feet	898	2700
PRECIP	Mean Annual Precipitation	39	inches	38.7	47.9

Low-Flow Statistics Flow Report [100.0 Percent (148 square miles) Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

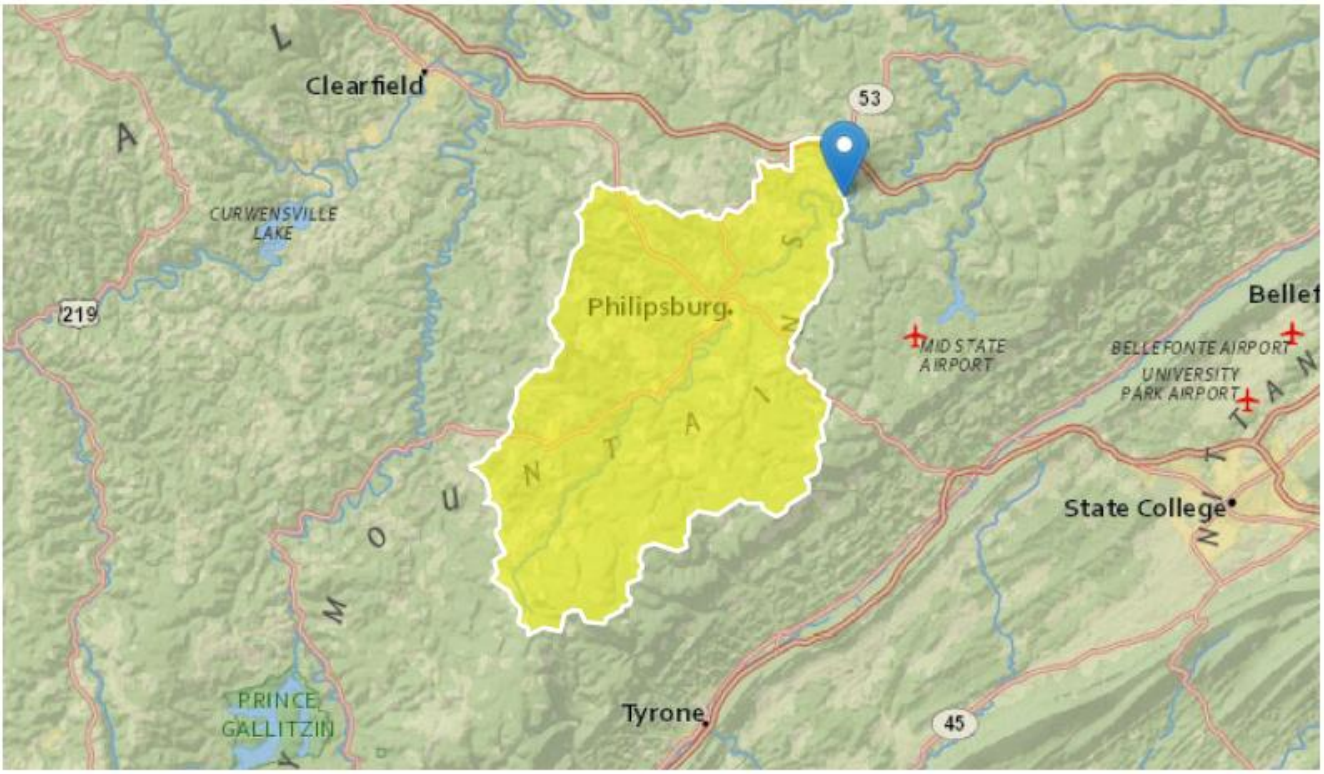
Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	14.4	ft^3/s	43	43
30 Day 2 Year Low Flow	18.9	ft^3/s	38	38
7 Day 10 Year Low Flow	6.46	ft^3/s	54	54
30 Day 10 Year Low Flow	8.59	ft^3/s	49	49
90 Day 10 Year Low Flow	12.5	ft^3/s	41	41

Low-Flow Statistics Citations

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

StreamStats Report

Region ID: PA
Workspace ID: PA20231128155703421000
Clicked Point (Latitude, Longitude): 40.95872, -78.13891
Time: 2023-11-28 10:57:26 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	152	square miles
ELEV	Mean Basin Elevation	1760	feet
PRECIP	Mean Annual Precipitation	39	inches

Low-Flow Statistics

Low-Flow Statistics Parameters [100.0 Percent (152 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	152	square miles	2.33	1720
ELEV	Mean Basin Elevation	1760	feet	898	2700
PRECIP	Mean Annual Precipitation	39	inches	38.7	47.9

Low-Flow Statistics Flow Report [100.0 Percent (152 square miles) Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	14.8	ft^3/s	43	43
30 Day 2 Year Low Flow	19.4	ft^3/s	38	38
7 Day 10 Year Low Flow	6.63	ft^3/s	54	54
30 Day 10 Year Low Flow	8.82	ft^3/s	49	49
90 Day 10 Year Low Flow	12.9	ft^3/s	41	41

Low-Flow Statistics Citations

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

APPENDIX B

TOXICS MANAGEMENT SPREADSHEET

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Cooper Township Municipal Authority** NPDES Permit No.: **PA0233340** 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
0.006	100	7						

					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	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		72									
	Chloride (PWS)	mg/L		15									
	Bromide	mg/L	<	0.4									
	Sulfate (PWS)	mg/L		9.51									
	Fluoride (PWS)	mg/L	<	0.099									
Group 2	Total Aluminum	µg/L		322									
	Total Antimony	µg/L	<	10									
	Total Arsenic	µg/L	<	8									
	Total Barium	µg/L		50.3									
	Total Beryllium	µg/L	<	2.5									
	Total Boron	µg/L	<	100									
	Total Cadmium	µg/L	<	4									
	Total Chromium (III)	µg/L	<	1.99									
	Hexavalent Chromium	µg/L	<	0.00025									
	Total Cobalt	µg/L	<	10									
	Total Copper	µg/L	<	12.5									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L	<	200									
	Total Iron	µg/L	<	200									
	Total Lead	µg/L	<	8									
	Total Manganese	µg/L	<	20									
	Total Mercury	µg/L	<	0.0002									
	Total Nickel	µg/L	<	50									
	Total Phenols (Phenolics) (PWS)	µg/L		90									
	Total Selenium	µg/L	<	20									
	Total Silver	µg/L	<	4									
	Total Thallium	µg/L	<	7									
	Total Zinc	µg/L											
	Total Molybdenum	µg/L	<	10									
	Acrolein	µg/L											
	Acrylamide	µg/L											
	Acrylonitrile	µg/L											
	Benzene	µg/L											
	Bromoform	µg/L											
	Carbon Tetrachloride	µg/L											

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Cooper Township Municipal Authority , NPDES Permit No. PA0233340, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Moshannon 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	025695	0.65	1383	148			Yes
End of Reach 1	025695	0.01	1375	152			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	0.65	0.1	6.46									100	7		
End of Reach 1	0.01	0.1	6.63												

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	0.65														
End of Reach 1	0.01														

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Toxics Management Spreadsheet
Version 1.3, March 2021

Model Results

Cooper Township Municipal Authority , NPDES Permit No. PA0233340, Outfall 001

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.414 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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	216,831	
Total Antimony	0	0		0	1,100	1,100	318,019	
Total Arsenic	0	0		0	340	340	98,297	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	6,071,268	
Total Boron	0	0		0	8,100	8,100	2,341,775	
Total Cadmium	0	0		0	2.014	2.13	617	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	569.763	1,803	521,276	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	4,711	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	27,465	
Total Copper	0	0		0	13.439	14.0	4,047	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	64.581	81.6	23,604	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	476	Chem Translator of 0.85 applied
Total Nickel	0	0		0	468.236	469	135,642	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	3.217	3.78	1,094	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	18,792	

☑ ***CFC*** CCT (min): 87.531 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	
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	153,334	
Total Arsenic	0	0		0	150	150	104,546	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	2,857,580	
Total Boron	0	0		0	1,600	1,600	1,115,153	
Total Cadmium	0	0		0	0.246	0.27	189	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.115	86.2	60,065	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	7,245	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	13,242	
Total Copper	0	0		0	8.956	9.33	6,502	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	1,045,456	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.517	3.18	2,217	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	631	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.007	52.2	36,356	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	3,477	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	9,061	

☑ ***THH*** CCT (min): 87.531 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	3,903	
Total Arsenic	0	0		0	10	10.0	6,970	
Total Barium	0	0		0	2,400	2,400	1,672,730	
Total Boron	0	0		0	3,100	3,100	2,160,609	
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	209,091	
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	696,971	
Total Mercury	0	0		0	0.050	0.05	34.8	
Total Nickel	0	0		0	610	610	425,152	
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	167	

☑ ***CRL*** CCT (min): 27.294 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	

☑ ***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	Discharge Conc < TQL
Total Aluminum	138,980	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	3,903	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	6,970	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	1,672,730	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	1,115,153	µg/L	Discharge Conc < TQL
Total Cadmium	189	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	60,065	µg/L	Discharge Conc < TQL
Hexavalent Chromium	3,019	µg/L	Discharge Conc < TQL
Total Cobalt	13,242	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	2,594	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	209,091	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,045,456	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	2,217	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	696,971	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	34.8	µg/L	Discharge Conc < TQL
Total Nickel	36,356	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium	3,477	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	701	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	167	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS

APPENDIX C

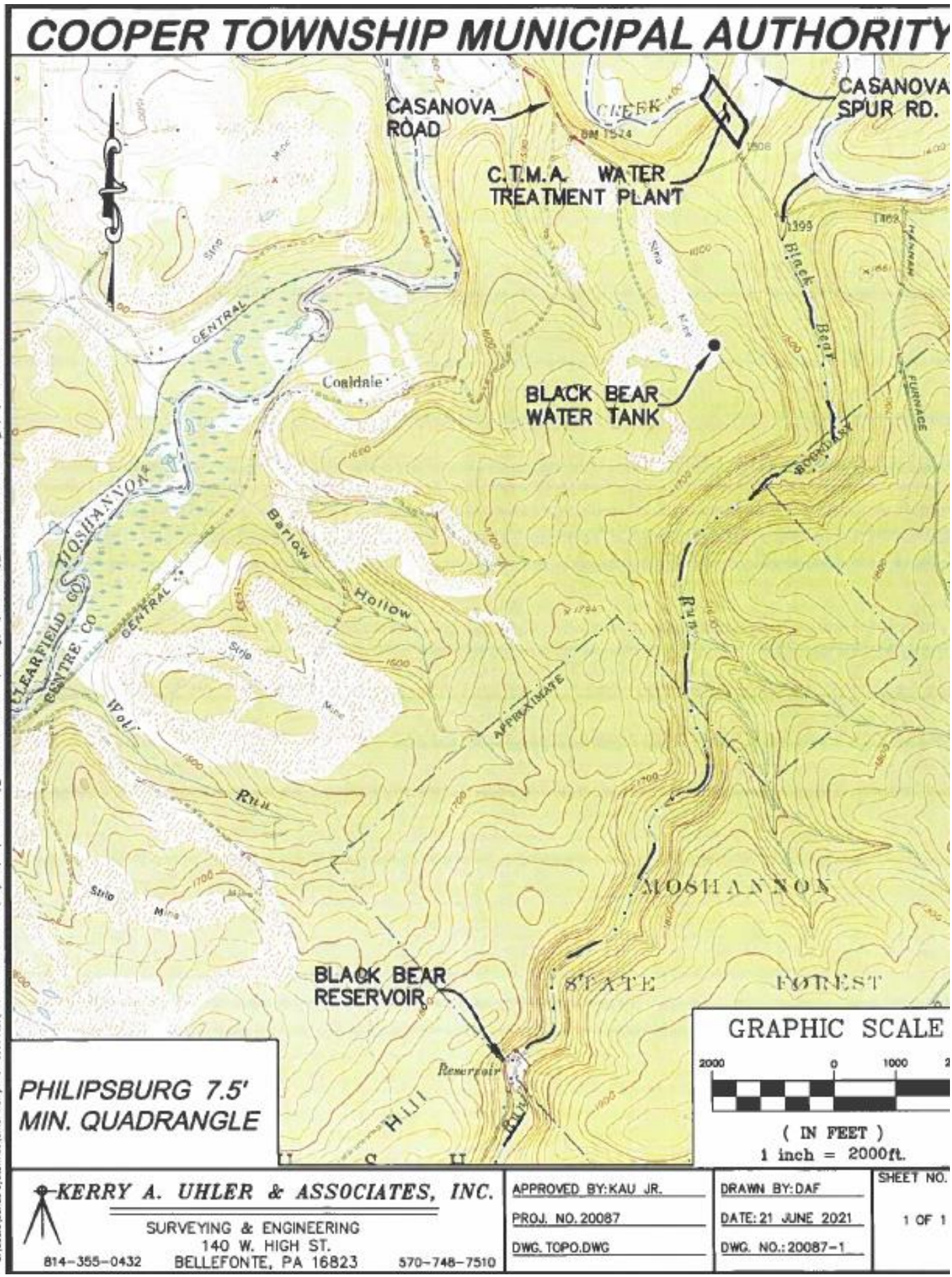
TRC SPREADSHEET

1A	B	C	D	E	F	G
2	**TRC EVALUATION**			**Cooper Twp MA PA0233340**		
3	Input appropriate values in B4:B8 and E4:E7					
4	6.46	**= Q stream (cfs)**		0.5	**= CV Daily**	
5	0.006	**= 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 = 222.034		**1.3.2.iii**	WLA cfc = 216.458
12	PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373		**5.1c**	LTAMULT cfc = 0.581
13	PENTOXSD TRG	**5.1b**	LTA_afc= 82.735		**5.1d**	LTA_cfc = 125.838
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) = 0.500		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 1.635			

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)**

APPENDIX D

FACILITY MAP AND SCHEMATIC


COOPER TOWNSHIP MUNICIPAL AUTHORITY
CASANOVA ROAD
CASANOVA SPUR RD.
C.T.M.A. WATER TREATMENT PLANT
BLACK BEAR WATER TANK
BLACK BEAR RESERVOIR
CENTRAL
Coaldale
Barlow Hollow
MOSHANNON
STATE FOREST
APPROXIMATE
Reservoir
PHILIPSBURG 7.5' MIN. QUADRANGLE
GRAPHIC SCALE
2000 0 1000
(IN FEET)
1 inch = 2000ft.
KERRY A. UHLER & ASSOCIATES, INC.
SURVEYING & ENGINEERING
140 W. HIGH ST.
814-355-0432 BELLEFONTE, PA 16823 570-748-7510
APPROVED BY: KAU JR.
PROJ. NO. 20087
DWG. TOPO.DWG
DRAWN BY: DAF
DATE: 21 JUNE 2021
DWG. NO.: 20087-1
SHEET NO.
1 OF 1