pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021075**
Facility Type	**Municipal**	APS ID	**23201**
Major / Minor	**Major**	Authorization ID	**1257551**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Myerstown Borough**	Facility Name	**Myerstown STP**
Applicant Address	101 S Railroad Street	Facility Address	331 East Mill Avenue
	Myerstown, PA 17067-1351		Myerstown, PA 17067-2404
Applicant Contact	Barry Ludwig	Facility Contact	Barry Ludwig
Applicant Phone	(717) 866-5826	Facility Phone	(717) 866-5826
Client ID	116170	Site ID	252200
Ch 94 Load Status	Not Overloaded	Municipality	Myerstown Borough
Connection Status	No Limitations	County	Lebanon
Date Application Received	December 21, 2018	EPA Waived?	No
Date Application Accepted	January 10, 2019	If No, Reason	Major Facility

Purpose of Application: NPDES Renewal for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated sewage from a wastewater treatment plant that serves Myerstown Borough (35% flow), Jackson Township (35% flow), and Millcreek-Richland Joint Authority (30% flow). Borough of Myerstown (Borough) owns, maintains and operates the wastewater treatment plant located in Jackson Township, Lebanon County. The treatment plant is a three-channel orbal oxidation ditch treatment system. The collection system has no combined sewers and no bypasses or overflows are authorized in the collection system. The facility is located within the 100-year flood zone and susceptible to flooding and was flooded a couple of times, but treatment was not impacted significantly. A discrepancy was detected in the effluent and influent flow that was traced to a filtrate return line to the headworks downstream of the influent flow meter. The filtrate return line appears to be receiving inflows as well resulting in an effluent flow that is significantly higher than the influent flow being reported by permittee. The Borough is working to address the situation. The facility has a design annual average flow of 2 MGD and hydraulic design capacity of 2.92 MGD. The organic design capacity is 8,062lbs/day. The plant's effluent discharges to an underwater outfall with diffuser, for better in-stream mixing. The receiving stream is an unnamed tributary to Tulpehocken Creek which is classified for Cold Water Fishes (CWF). The existing NPDES permit was issued on June 20, 2014 with an effective date of July 1, 2014 and expiration date of June 30, 2019. The applicant submitted a timely NPDES renewal application to the Department and is currently operating under the terms and conditions in the existing permit under administrative extension provisions pending Department action on the renewal application.

Topographical Map showing the discharge location is presented in attachment A

Approve	Deny	Signatures	Date
X		J. Pascal Kwedza, P.E. / Environmental Engineer	April 21, 2020
x		*MDB for DWM* Daniel W. Martin, P.E. / Environmental Engineer Manager	June 26, 2020
x		*MDB* Maria D. Bebenek, P.E. / Program Manager	June 26, 2020

Summary of Review

1.1 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.

1.2 Changes to the existing Permit

- Monitoring frequency for Raw Sewage Influent has been increased to the same frequency monitoring as effluent.
- Total Nitrogen monitoring has been added
- Limitation on Total Arsenic has been added
- Monitoring of Free Available Cyanide has been added

1.3 Existing Permit Limits and Monitoring Requirements

Discharge Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instantaneous Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	417	667	XXX	25	40	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	283	450	XXX	17	27	34	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	500	750	XXX	30	45	60	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/week	Grab
Ammonia Nov 1 - Apr 30	21	XXX	XXX	15.9	XXX	31.8	2/week	24-Hr Composite

Summary of Review

Ammonia May 1 - Oct 31	7.1	XXX	XXX	5.3	XXX	10.6	2/week	24-Hr Composite
Total Phosphorus	16.7	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Quarterly Avg	XXX	XXX	1/quarter	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Quarterly Avg	XXX	XXX	1/quarter	24-Hr Composite
UV Dosage ($mWsec/cm^2$)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured

1.4.0 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	2
Latitude	40º 22' 33.08"	Longitude	-76º 17' 18.98"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Tulpehocken Creek (TSF) (upstream of Blue Marsh Lake)	Stream Code	01846
NHD Com ID	25963004	RMI	32.5
Drainage Area	27.8 mi^2	Yield (cfs/mi^2)	0.37
Q_{7-10} Flow (cfs)	6.11	Q_{7-10} Basis	USGS gage
Elevation (ft)	415	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Agriculture, Urban Runoff/Strom Sewers		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Western Berks Water Authority		
PWS Waters		Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	26.5

Changes Since Last Permit Issuance: None

1.4.1 Water Supply Intake

The nearest water supply intake is 26.5 miles downstream at Lower Heidelberg, Sinking Springs on Tulpehocken Creek by the Western Berks Water Authority. No impact is expected from this discharge

2.0 Treatment Facility Summary

Treatment Facility Name: Myerstown STP

WQM Permit No.	Issuance Date
3806406	6/28/2016
3806406	03/22/2007

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Oxidation Ditch	Ultraviolet	2

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
2.92	8,062	Not Overloaded	Aerobic Digestion	Combination of methods

Changes Since Last Permit Issuance: WQM permit was amended on 6/28/2016 to replace existing screening unit

Other Comments:

2.1 Treatment Facility Description

The treatment plant consists of:

1 Mechanical Screen, 1 Bar Screen back-up, 1 grit removal unit, an orbal oxidation ditch process (with three channels and 8 rotors to supply oxygen), 3 Clarifiers,1 UV system with 2 banks, 1 post-aeration tank, 1 sludge (gravity) thickener, a primary sludge digester followed by a secondary in series, both aerated with 3 blowers and coarse bubble diffusers, 1 centrifuge generally operated 2x/week (centrate go to reed beds and cake go to Greater Lebanon Refuse Landfill) and 6 Reed beds, not continually used.(Couple of times in a year sludge added to the reed beds)

Influent is measured prior to the screens/headworks building and two wet wells. 3 influent pumps, pump influent to the oxidation ditch. The outer loop of the oxidation ditch is operated at a DO of close to 0, (anoxic conditions). The middle channel is operated at 0-2 mg/l DO. The inner loop is operated as an aerobic reactor at DO of 2 mg/l or more, for nitrification. Oxidation Ditch storm mode kicks in at flow greater than 3.0 MGD where the outer channel of Oxidation Ditch is by-passed and the 3rd clarifier is used. Oxidation Ditch effluent flow to a splitter box and flow is directed to clarifiers. Parshall flumes and ultrasonic flow meters exist for Influent and Effluent measurement. Effluent composite sampler is located prior to flow meter and after post-aeration tank. The UV system is designed to provide a minimum dose of 26.7 mW-s/cm^2 at a peak hourly flow of 6.0 MGD.

2.2 Chemicals

Sodium aluminate is used for phosphorus precipitation,
Polymer for sludge dewatering in centrifuge

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from March 1, 2019 to February 29, 2020)

Parameter	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19
Flow (MGD) Average Monthly	1.3156	1.2701	1.2042	1.2857	1.1129	1.1162	1.7530	2.4318	2.6825	2.5405	2.0683	2.7344
Flow (MGD) Daily Maximum	1.6056	2.5207	1.5612	2.7513	2.4740	1.6379	2.9949	3.7027	4.6130	4.0615	2.7842	5.1585
pH (S.U.) Instant. Minimum	7.9	7.8	7.9	7.8	8.0	8.1	8.0	7.9	7.6	7.7	7.9	7.9
pH (S.U.) Instant. Maximum	8.2	8.1	8.3	8.3	8.3	8.3	8.3	8.2	8.2	8.2	8.2	8.2
DO (mg/L) Minimum	10.3	10.8	10.9	9.1	9.5	9.5	9.1	9.0	8.7	8.4	10.3	9.1
CBOD5 (lbs/day) Average Monthly	< 23	< 21	< 22	< 24	< 19	< 20	< 31	< 55	< 74	< 73	< 41	< 72
CBOD5 (lbs/day) Weekly Average	< 29	< 28	< 24	< 35	< 23	< 25	< 39	< 90	85	99	49	< 106
CBOD5 (mg/L) Average Monthly	< 2.2	< 2	< 2.1	< 2.2	< 2.1	< 2.1	< 2.1	< 2.8	< 3.3	< 3.1	< 2.4	< 3.5
CBOD5 (mg/L) Weekly Average	< 2.6	< 2.1	< 2.3	< 3	< 2.3	< 2.3	2.3	< 4.6	4.5	3.9	3.1	5.2
BOD5 (lbs/day) Raw Sewage Influent Aver. Monthly	1616	1942	2118	1845	1948	1811	1606	1780	1864	2038	2238	1732
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	2112	2766	3895	2577	2869	3265	2672	3104	3471	3163	3106	2773
BOD5 (mg/L) Raw Sewage Influent Aver. Monthly	148	181	194	181	238	213	137	112	105	111	145	94
TSS (lbs/day) Average Monthly	< 61	< 43	< 41	< 55	< 43	< 42	< 87	< 114	< 170	< 154	136	134
TSS (lbs/day) Raw Sewage Influent Aver. Monthly	1591	2065	1871	1754	2014	2068	2038	2199	2069	2153	2330	2116
TSS (lbs/day) Raw Sewage Influent Daily Maximum	2027	3695	2762	2628	2442	3073	2350	3187	3029	3397	3259	2507
TSS (lbs/day) Weekly Average	87	61	< 47	81	< 51	60	134	149	216	192	163	160

TSS (mg/L) Average Monthly	< 6	< 4	< 4	< 5	< 5	< 4	< 6	< 6	< 8	< 7	8	6
TSS (mg/L) Raw Sewage Influent Aver. Monthly	144	201	176	171	245	240	170	136	116	118	153	113
TSS (mg/L) Weekly Average	8	4	< 4	7	6	5	7	7	10	8	9	7
Total Dissolved Solids (mg/L) Aver. Quarterly			538			526			458			326
Fecal Coliform (CFU/100 ml) Geometric Mean	13	29	53	53	25	15	77	53	105	28	26	25
Fecal Coliform (CFU/100 ml) Instant. Maximum	69	192	144	296	80	68	240	4100	3900	96	47	244
Total Nitrogen (mg/L) Average Quarterly			3.41			5.02			5.23			5.12
Ammonia (lbs/day) Average Monthly	< 1	< 1	< 1	< 2	< 0.9	< 1	< 2	< 2	< 2	< 3	< 2	< 3
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.21	< 0.1	< 0.13	< 0.11	< 0.1	< 0.1	< 0.12	< 0.1	< 0.14
Total Phosphorus (lbs/day) Ave. Monthly	3.8	4.8	3.3	4.9	5.8	< 1.7	6.5	12.2	13.3	14.7	11.7	8.8
Total Phosphorus (mg/L) Ave, Monthly	0.35	0.47	0.32	0.48	0.64	< 0.18	0.41	0.6	0.59	0.64	0.67	0.41
UV Dosage ($mWsec/cm^2$) Daily Minimum	24.56	24.26	25.55	23.34	25.68	27.71	24.14	23.86	23.53	24.14	23.88	23.96

3.2 Effluent Violations for Outfall 001, from: April 1, 2019 To: February 29, 2020

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	07/31/19	IMAX	4100	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	06/30/19	IMAX	3900	CFU/100 ml	1000	CFU/100 ml

Discharge Monitoring Reports (DMRs) review for the facility for the last 12 months of operation, presented on the table above in section 3.1 indicate permit limits have been met most of the time. Two Fecal Coliform effluent violations were noted on DMRs during the period reviewed. The violations are presented on the table above in section 3.2. The violations occurred in June and July 2019 and had been addressed.

3.3 Summary of Inspections:

The facility has been inspected 7 times during last permit cycle. No effluent violations doted during plant inspections. The facility is operated and maintained well.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 2
Latitude 40º 22' 33.08" **Longitude** -76º 17' 18.98"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the Clean Water Act (AWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits

4.1.1 Technology-Based Limitations

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

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: TRC is not applicable to this discharge

4.2 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

4.3 Water Quality-Based Limitations

4.3.1 Receiving Stream

The receiving stream is Tulpehocken Creek. According to 25 PA § 93.9f, this stream is protected for Cold Water Fishes (CWF). It is located in Drainage List F and State Watershed 3-C. It has been assigned stream code 01846. According to the Department's *Integrated Water Quality Monitoring and Assessment Report*, this segment of the stream is impaired and not attaining its designated uses due to siltation from agricultural activities and Urban Runoff/Storm Sewers

4.3.2 Stream flows

Streamflows flows were determined by correlating with the yield of USGS gage station No. 01471000 on Tulpehocken Creek near Reading. The Q_{7-10} and drainage area at the gage is 46.8ft^3/s and 211mi^2 respectively. The resulting yields are as follows:

- Q_{7-10} = (46.8ft^3/s)/211 mi^2 = 0.22 $ft^3/s/ mi^2$
- Q_{30-10} / Q_{7-10} = 1.23
- Q_{1-10} / Q_{7-10} = 0.84

The drainage area at discharge taken from the previous permit= 2.3 mi^2

The Q_{7-10} at discharge = 27.8 mi^2 x 0.22 $ft^3/s/mi^2$ = 6.12 ft^3/s.

4.3.3 NH_3N Calculations

NH_3N calculations will be based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the instream NH_3N criteria used in the attached model result of the stream:

STP pH	=	7.70 (DMR median from July-September.)
STP Temp	=	25°C (Default)
Stream pH	=	7.0 (Default)
Stream Temp	=	20°C (Default)
Background NH_3N	=	0 mg/l (Assumed)

4.3.4 WQM Model

The WQM 7.0 model was run with Jackson Township's STP due to its proximity to the Myerstown Borough's STP. The discharges are on two different stream segments with different stream codes for Tulpehocken Creek and the unnamed tributary. The stream code for Tulpehocken Creek 01846 was used to run the model since the model does not accept 2 stream codes in one run. Myerstown STP is located at 32.5 RMI on Tulpehocken Creek and Jackson Township is assumed at 36.2 RMI on Tulpehocken Creek (35.8 RMI is the confluence of UNT 01974 with Tulpehocken. Creek. + 0.4 RMI on the UNT 01974)

4.3.5 $CBOD_5$

The attached results of WQM 7.0 stream model (attachments B) indicate that a monthly average limit (AML) of 25 mg/l CBOD5 is required to protect the water quality of the stream. This limit is less stringent than the existing summer months AML of 17mg/l, a weekly average limit (AWL) of 27mg/l and instantaneous maximum (IMAX) of 34mg/l. Due to anti-backsliding restrictions, the existing summer limitations will remain in the permit with the winter months AML of 25mg/l, AWL of 40mg/l and IMAX of 50mg/l. Past DMRs and inspection reports show the STP has been consistently complying with the limitations. Therefore, an AML of 17mg/l, a weekly average limit (AWL) of 24mg/l and instantaneous maximum (IMAX) of 34mg/l for summer months and a winter months AML of 25mg/l, AWL of 40mg/l and IMAX of 50mg/l will be applied again for this current permit cycle. Mass limits are calculated for AMLs and AWLs following the formula listed in section 4.2 above.

4.3.6 NH_3-N

The attached results of the WQM 7.0 stream model (attachment B) also indicate that a summer limitation of mg/l 5.53 NH_3-N is necessary to protect the aquatic life from toxicity effects. This limit is slightly less stringent than the existing summer limit of 5.3 mg/l. Due to anti-backsliding restrictions, the existing summer limit 5.3 mg/l and winter limit of 15.9 mg/l will remain in the permit. DMR and inspection reports indicate the facility is meeting the limitations. Associated mass limits are calculated following the formula listed in section 4.2 above.

4.3.7 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O.

criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was run using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement per DEP guidance.

4.3.8 Phosphorus

The Phosphorus limits in the existing permit was as a result of a 1987 PA DEP study of the Blue Marsh Reservoir. It was recommended that a phosphorus limit of 1.0 mg/l be included in all permits for facilities which discharged upstream of the Reservoir. The limit will be continued in the current permit renewal.

4.3.9 Total Residual Chlorine:

The discharge does not have any reasonable potential to cause or contribute to a water quality standards violation for total residual chlorine since the permittee utilizes UV instead of chlorine for wastewater disinfection. Therefore, the proposed permit does not contain effluent limits for total residual chlorine. The permittee may use chlorine-based chemicals for cleaning and is required to optimize chlorine usage to prevent negative impacts on receiving stream. Daily UV dosage requirement will be continued in the permit to ensure efficiency of the UV unit.

4.3.10 Total Suspended Solids (TSS):

There is no water quality criterion for TSS. A limit of 30 mg/l AML will be required based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/l per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2) with associated mass limit.

4.3.11 Toxics

A reasonable potential (RP) analysis was done for pollutant Groups 1 to 6 submitted with the application. All pollutants were entered into a Toxics Screening Analysis spreadsheet to determine if any pollutants are parameters of concern that require PENTOXSD modeling. All pollutant above the most stringent Chapter 93 criteria are considered parameters of concern. This also includes samples that resulted in non-detect, but the method detection limit that was used was higher than DEP's target quantitation limit (QL). All pollutants that were determined to be candidates for PENTOXSD modeling were entered into the PENTOXSD model. The most stringent WQBELs recommended by the PENTOXSD model were then entered into the same Toxics Screening Analysis spreadsheet in order to determine which parameters of concern need limitation or monitoring. Based on the initial results submitted with the application, limitation was required for Total Aluminum, Total Antimony, Total Cadmium, Total Arsenic, Total Lead, Total Mercury, Total Thallium, 4,6-Dinitro-o-Cresol , 2.4-Dinitrophenol, p-Chloro-m-Cresol, Pentachlorophenol, 2,4,6-Trichlorophenol, 3,3-Dichlorobenzidine and Hexachloroethane, and monitoring was required for Total Copper and Free Available Cyanide.

The permittee was offered an opportunity to re-sample the following pollutants using the most sensitive methods to confirm if these pollutants are indeed present or not: Total Cadmium, Total Mercury, 4,6-Dinitro-o-Cresol,2.4-Dinitrophenol, p-Chloro-m-Cresol, Pentachlorophenol, 2,4,6-Trichlorophenol, 3,3-Dichlorobenzidine and Hexachloroethane. The permittee listed these pollutants as non-detect but used a less sensitive method for analysis. The permittee was also offered an opportunity to re-sample Bis(2-Ethylhexyl)Phthalate using glass bottles instead of plastic bottles which may be impacting the results negatively. Also, the permittee was advised to submit 10 or more sample results each for Total Copper, Free Cyanide and any other pollutants that warranted further analysis. Total Aluminum, Total Thallium and Total Antimony samples were reported incorrectly and were corrected and were no longer pollutants of concern.

The permittee submitted 3 samples collected weekly for Total Cadmium, Total Lead, Total Mercury, Total Thallium, Free available Cyanide, 4,6-Dinitro-o-Cresol, 2.4-Dinitrophenol, p-Chloro-m-Cresol, Pentachlorophenol, 2,4,6-Trichlorophenol, 3,3-Dichlorobenzidine and Hexachloroethane using DEP's QL for analysis. The pollutants except Free available Cyanide were no longer considered pollutants of concern. The permittee also submitted 12 samples for Total Copper and Total Arsenic which were analyzed using TOXCON to determine Average Monthly Effluent Concentration (Amec) of 0.0089 mg/l and a daily coefficient of variation(CV) of 0.3 for Total Copper and 0.030 mg/l Amec and a CV of 1.1 for Total Arsenic. The calculated Amec was added to the Toxic screening spreadsheet presented in attachment D. Total Copper was no longer pollutant of concern but Total Arsenic and was added to PENTOXSD model and analyzed with other pollutants of concern and the results are presented in attachment C. The results of the PENTOXSD model were added to the Toxics screening

spreadsheet for recommendation on the need for limitation or monitoring. A monthly average limit of 0.03mg/l was recommended for Total Arsenic and monitoring was required for Free Available Cyanide.

The recommended limit follows the logic presented in DEPs SOP, to establish limits in the permit where the maximum reported concentration exceeds 50% of the WQBEL, or for non-conservative pollutants to establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL, or to establish monitoring requirements for conservative pollutants where the maximum reported concentration is between 10% - 50% of the WQBEL

4.3.12 Nutrient Monitoring

Quarterly monitoring of Total Nitrogen is included in the current permit to obtain data for discharges to Delaware River watershed. The discharge is located outside of the Chesapeake Bay watershed, therefore no Chesapeake Bay TMDL requirement was considered.

4.3.13 Delaware River Basin Commission (DRBC) Requirements

DRBC regulations and policies are applicable to all NPDES permits for facilities within the Delaware River basin. The requirements of the most recent Docket No. D-1974-176 CP-4 for this facility which was approved on March 15, 2017 with expiration date of June 30, 2024, will be applied to the permit. All parameters required in the Docket were included in the existing permit and will continue during the current permit renewal. The facility is not a direct discharger to the Schuylkill River: PCB monitoring is not required. A copy of the draft permit will be forwarded to DRBC.

4.3.14 TDS, Chloride, Sulfate, Bromide, and 1,4-dioxane

Under the authority of §92a.61, DEP has determined it should implement increased monitoring in NPDES permits for TDS, sulfate, chloride, bromide, and 1,4-dioxane. The following approach will be implemented for point source discharges upon issuance or reissuance of an individual NPDES permit:

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

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

- Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for 1,4-dioxane. Discharges of 0.1 MGD or less should monitor and report for 1,4-dioxane if the concentration of 1,4-dioxane in the discharge exceeds 100 µg/L.

The maximum daily TDS discharge results submitted with the application is 566 mg/L which is equivalent to 9447 lbs/day based on the permitted flow of 2.0 MGD. The discharge level for TDS is below the minimum 1000 mg/l and 20,000lbs/day, to require monitoring based on this guidance, therefore no monitoring of TDS, Chloride, Sulfate, and Bromide should have been required in the permit. However, the existing quarterly TDS monitoring requirement in the permit required by DRBC will remain in the permit. 1,4-dioxane results are below 0.1mg/l, therefore no monitoring is required for 1,4-dioxane at this time.

4.3.15 Influent BOD and TSS Monitoring

The permit will include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements, per DEP policy.

4.3.16 Industrial Users

There are 5 significant industrial users (SIUs) who send wastewater to this plant: 4 Categorical Industrial Users (CIUs) and 1 Significant Noncategorical Industrial User(SNIU)

1. Bayer Healthcare Plants 1 (CIUs) flows: sanitary & process wastewater -14,877GPD in 2017 (subject to ELGs 40 CFR Part 439 for Pharmaceuticals, Subpart D)/sanitary wastewater/cooling tower blowdown
2. Bayer Healthcare Plants 2 (CIUs) flows: sanitary & process wastewater - 18,313GPD in 2017(subject to ELGs 40 CFR Part 439 for Pharmaceuticals, Subpart D)/sanitary wastewater/cooling tower blowdown
3. GAF/Elk Corp. (CIUs)– flows: sanitary & process wastewater -381GPD in 2017 (subject to ELGs 40 CFR Part 443, Paving and Roofing, Subpart C)
4. Test Cast Inc. (CIUs) - flows: sanitary & process wastewater - 6,110GPD in 2017 (subject to ELGs 40 CFR Part 464, Metal Molding and Casting, Subpart C)
5. Trigon Plastics (SNIU)– flows: sanitary & process wastewater - 470GPD in 2017to ELG 40 CFR Part 463, Plastics Molding and Forming)

The POTW's effluent sampling results provided in the renewal application include all parameters required for the above SIU's: Pharmaceutical process wastewater-Groups I, III, IV and V; Metal Molding and Casting process wastewater: Groups I-V; Paving and Roofing process wastewater – Groups I-V; Plastics Molding and Forming process wastewater: Groups I & III.

4.3.17 Pretreatment Requirements

The design annual average flow of the treatment plant is 2 MGD but the facility receives flow from 5 SIUs and is required to develop and implement a pre-treatment program. The facility currently maintains and operates an EPA-approved pretreatment program. Consequently, the Department will continue to include permit conditions that dictate the operation and implementation of a pretreatment program in the permit.

5.0 Other Requirements

5.1 The permit contains the following special conditions:

Stormwater Prohibition, Approval Contingencies, Proper Waste/solids Management, Restriction on receipt of hauled in waste under certain conditions, WET testing requirements and Stormwater conditions

5.2 Stormwater

There is no stormwater outfall identified in the permit. However, stormwater from the treatment plant site is directed to a lower end of the site and discharged to the stream via a pipe. This location will be identified in the permit at outfall 002 (40°22'32.5"/ -76°17'17.6") since the facility meet the requirement for stormwater monitoring requirement located in 40CFR 122.26(b)(14)(ix). This new stormwater outfall will be added to the permit with BMP conditions in Part C. BMPs and conditions includes: a Preparedness, Prevention and Contingency (PPC) Plan, annual visual inspection at a minimum, and the completion of DEP's Annual Inspection Form

5.3 Biosolids Management

Wasted sludge flow by gravity to the gravity thickener, and then to the primary aerobic sludge digester followed by a secondary aerobic digester in series for digestion. Digested sludge from the secondary digester is dewatered utilizing centrifuge, generally operated 2x/week. The centrate go to reed beds and the dewatered cake is hauled off-site to the Greater Lebanon Refuse Authority Landfill. Couple of times in a year liquid sludge is added to the reed beds.

5.4 Anti-backsliding

Not applicable to this permit

5.5 Antidegradation (93.4):

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

5.6 Class A Wild Trout Fisheries:

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

5.7 303d listed stream

The discharge is located on a 303d listed stream segment. The stream is impaired for aquatic life due to Siltation and nutrients form agricultural activities and Urban Runoff/Storm Sewers. TMDL development is pending. A total phosphorus limit of 1mg/l has been established to protect Blue Mash reservoir until TMDL is developed. The facility has been complying with the phosphorus limitation. The Secondary Receiving Water: Schuylkill River, WWF, has a TMDL for PCBs but the TMDL is only applicable to direct discharges only.

5.8 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.9 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 Whole Effluent Toxicity (WET)

Whole Effluent Toxicity (WET) is a term used to describe the aggregate toxic effect of an aqueous sample (i.e whole effluent wastewater discharge) as measured by an organism's response upon exposure to the sample (lethality, impaired growth or reproduction). WET tests replicate, to the greatest extent possible, the total effect and actual environmental exposure of aquatic life to toxic pollutants in an effluent without requiring the identification of the specific pollutants. WET testing is a vital component of the water quality standards implementation through the NPDES permitting process. EPA's promulgated WET test methods include acute and chronic tests.

6.1 For Outfall 001, ☐ Acute ☒ Chronic WET Testing was completed:

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 62%, 23%, 12%, and 6%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 23%.

6.2 Summary of Four Most Recent Test Results

6.2.1 TST Data Analysis

See attachment E for DEP WET Analysis Spreadsheet

6.3 Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **0.618** Chronic Partial Mix Factor (PMFc): **1**

6.3.1. Determine IWC – Acute (IWCa):

$(Q_d \times 1.547) / ((Q_{7\text{-}10} \times PMFa) + (Q_d \times 1.547))$

[(2.0 MGD x 1.547) / ((6.11cfs x 1) + (2.0 MGD x 1.547))] x 100 = **34%**

Is IWCa < 1%? ☐ **YES** ☒ **NO (YES - Acute Tests Required OR NO - Chronic Tests Required)**

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

Type of Test for Permit Renewal: **Chronic**

6.3.2a. Determine Target IWCa (If Acute Tests Required)

TIWCa = IWCa / 0.3 = N/A**%**

6.3.2b. Determine Target IWCc (If Chronic Tests Required)

$(Q_d \times 1.547) / (Q_{7\text{-}10} \times PMFc) + (Q_d \times 1.547)$

[(2.0 MGD x 1.547) / ((6.11cfs x 1) + (2.0 MGD x 1.547))] x 100 = **34%**

6.3.3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = 100%, 67%, 34%, 17%, and 9%.

6.4 WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

There was one endpoint failure in four consecutive tests, however, a re-test within 45 days passed and 3 subsequent annual WETT test passed. Also, there is no history of endpoint failures in the five years prior to the WET tests under review, and no significant changes have occurred at the facility.

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

N/A

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

There was one endpoint failure in four consecutive tests, however, a re-test within 45 days passed and 3 subsequent annual WETT test passed. Also, there is no history of endpoint failures in the five years prior to the WET tests under review, and no significant changes have occurred at the facility. Therefore, no WETT limits will be established in the permit.

7.0 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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	417	667	XXX	25	40	50	2/week	24-Hr Composite
CBOD5 May 1 - Oct 31	283	450	XXX	17	27	34	2/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TSS	500	750	XXX	30	45	60	2/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Ammonia Nov 1 - Apr 30	265	XXX	XXX	15.9	XXX	31.8	2/week	24-Hr Composite
Ammonia May 1 - Oct 31	88	XXX	XXX	5.3	XXX	10.6	2/week	24-Hr Composite

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	16.7	XXX	XXX	1.0	XXX	2	2/week	24-Hr Composite
UV Dosage (mWsec/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Arsenic	0.5	XXX	XXX	0.03	XXX	0.06	2/week	24-Hr Composite
Free Available Cyanide	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite

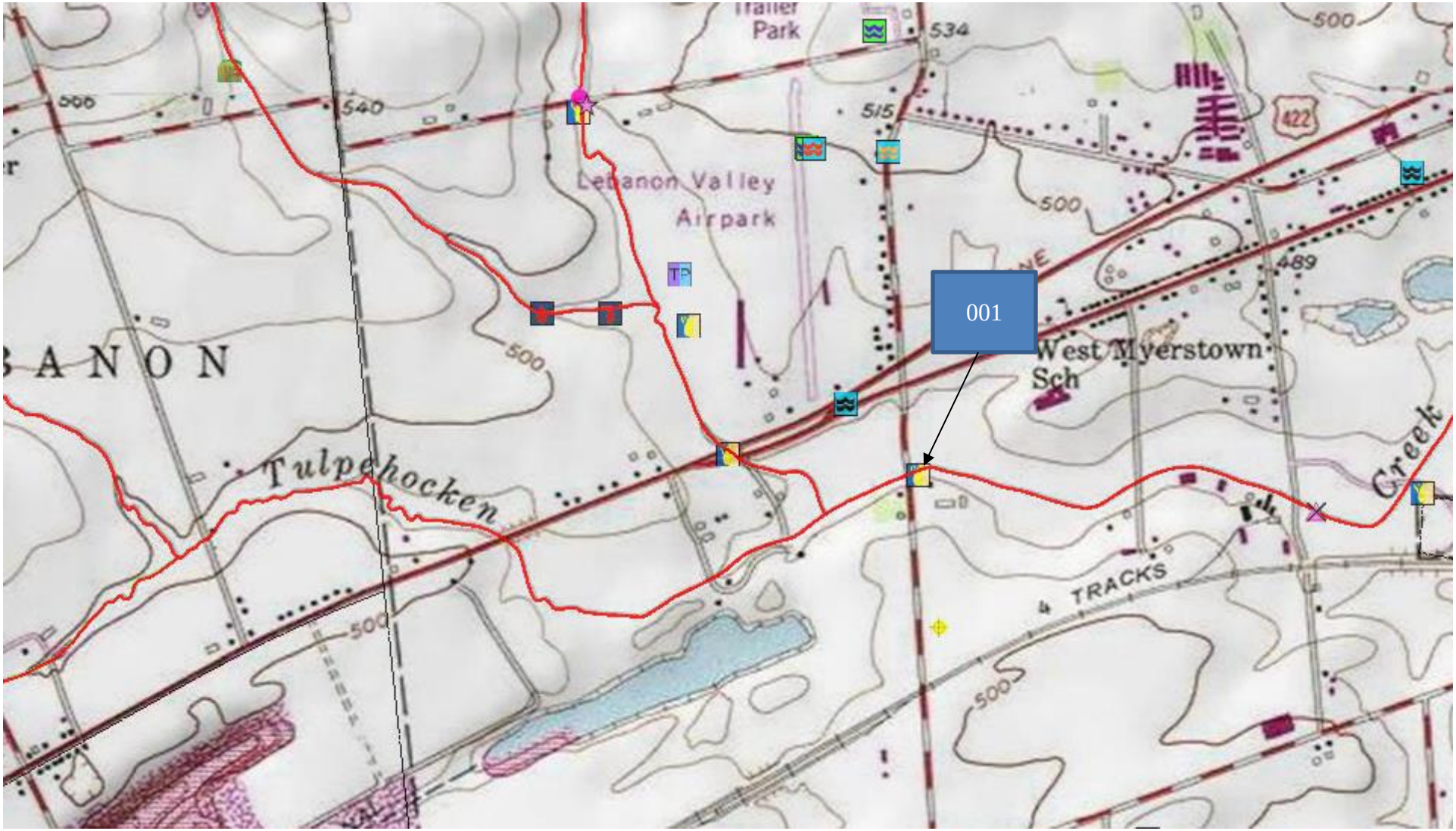
Compliance Sampling Location: Outfall 001

Other Comments: Total Nitrogen is the sum of Total Kjeldahl-N (TKN) plus Nitrite-Nitrate as N (NO_2+NO_3-N), where TKN and NO_2+NO_3-N are measured in the same sample

8.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	PENTOXSD for Windows Model (see Attachment **C**)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment **D**)
☒	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: Establishing effluent limitation for individual sewage permit
☐	Other:

Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03C	1846	TULPEHOCKEN CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
36.200	Jackson Twp	PA0248185	0.500	CBOD5	16.09		
				NH3-N	2.84	5.68	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
32.500	Myerstown Boro	PA0021075	2.000	CBOD5	25		
				NH3-N	5.53	11.06	
				Dissolved Oxygen			5

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	**36.200**	465.00	2.31	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jackson Twp	PA0248185	0.5000	0.5000	0.5000	0.000	25.00	7.00

Parameter Data

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

Permit No. PA0021075

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	**32.500**	415.00	27.80	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Myerstown Boro	PA0021075	2.0000	2.0000	2.0000	0.000	25.00	7.70

Parameter Data

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

Permit No. PA0021075

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03C	1846	TULPEHOCKEN CREEK	**25.200**	354.00	62.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.220	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Permit No. PA0021075

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03C	1846	TULPEHOCKEN CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
36.200	0.51	0.00	0.51	.7735	0.00256	.531	12.71	23.96	0.19	1.190	23.02	7.00
32.500	6.12	0.00	6.12	3.8675	0.00158	.731	40.98	56.06	0.33	1.338	21.94	7.12
Q1-10 Flow												
36.200	0.43	0.00	0.43	.7735	0.00256	NA	NA	NA	0.18	1.235	23.22	7.00
32.500	5.14	0.00	5.14	3.8675	0.00158	NA	NA	NA	0.31	1.418	22.15	7.14
Q30-10 Flow												
36.200	0.63	0.00	0.63	.7735	0.00256	NA	NA	NA	0.20	1.134	22.77	7.00
32.500	7.52	0.00	7.52	3.8675	0.00158	NA	NA	NA	0.36	1.243	21.70	7.11

Permit No. PA0021075

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.84	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.23	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Permit No. PA0021075

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03C	1846	TULPEHOCKEN CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	7.67	11.9	7.67	11.9	0	0
32.500	Myerstown Boro	7.49	19.92	7.45	19.92	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
36.200	Jackson Twp	1.57	2.84	1.57	2.84	0	0
32.500	Myerstown Boro	1.61	5.53	1.59	5.53	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
36.20	Jackson Twp	16.09	16.09	2.84	2.84	5	5	0	0
32.50	Myerstown Boro	25	25	5.53	5.53	5	5	0	0

Permit No. PA0021075

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
03C	1846	TULPEHOCKEN CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
36.200	0.500	23.017	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.714	0.531	23.958	0.190
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
10.50	0.827	1.71	0.883
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.286	4.962	Tsivoglou	5
Reach Travel Time (days)			
1.190			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.119	9.38	1.54	5.50
0.238	8.37	1.39	5.25
0.357	7.48	1.25	5.29
0.476	6.68	1.13	5.47
0.595	5.96	1.01	5.71
0.714	5.33	0.91	5.96
0.833	4.76	0.82	6.22
0.952	4.25	0.74	6.46
1.071	3.79	0.67	6.68
1.190	3.39	0.60	6.88

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
32.500	2.500	21.937	7.124
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
40.975	0.731	56.055	0.333
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.31	0.972	1.79	0.813
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.063	5.248	Tsivoglou	5
Reach Travel Time (days)			
1.338			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.134	8.07	1.61	6.04
0.268	7.00	1.44	5.77
0.402	6.07	1.29	5.84
0.535	5.27	1.16	6.06
0.669	4.57	1.04	6.32
0.803	3.96	0.93	6.60
0.937	3.44	0.84	6.85
1.071	2.98	0.75	7.09
1.205	2.59	0.67	7.30
1.338	2.24	0.60	7.48

Permit No. PA0021075

C. PENTOXSD Model Results

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
03C	1846	TULPEHOCKEN CREEK

RMI	Name	Permit Number	Disc Flow (mgd)
32.50	Myerstown Boro	PA0021075	2.0000

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
2,4-DICHLOROPHENOL	229.208	THH	415.374	229.208	THH
4-NITROPHENOL	1204.474	CFC	2182.763	1204.474	CFC
ARSENIC	29.767	THH	53.945	29.767	THH
CYANIDE, FREE	13.326	CFC	24.15	13.326	CFC
PHENOLICS (PWS)	100000	INPUT	181221.2	NA	NA

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PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
1846	32.50	415.00	27.80	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.22	0	0	0	0	0	0	0	100	7	100	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
Myerstown Boro	PA0021075	2	2	2	0	0	0	0	0	291.3	7.7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
2,4-DICHLOROPHENOL	1000000	0	0.5	0.5	0	0	0	0	1	0
4-NITROPHENOL	1000000	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	1000000	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	1000000	0	0.5	0.5	0	0	0	0	1	0
PHENOLICS (PWS)	1000000	0	0.5	0.5	0	0	0	0	1	0

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Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
1846	25.20	354.00	62.00	0.00000	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.22	0	0	0	0	0	0	0	100	7	100	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
		0	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Stream Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
2,4-DICHLOROPHENOL	0	0	0.5	0.5	0	0	0	0	1	0
4-NITROPHENOL	0	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	0	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	0	0	0.5	0.5	0	0	0	0	1	0
PHENOLICS (PWS)	0	0	0.5	0.5	0	0	0	0	1	0

Permit No. PA0021075

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
03C	1846	TULPEHOCKEN CREEK

RM	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
Q7-10 Hydrodynamics											
32.600	6.116	0	6.116	3.094	0.0016	0.7244	39.904	55.084	0.3186	1.1002	39.237
25.200	13.64	0	13.64	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
32.600	26.171	0	26.171	3.094	0.0016	1.3712	39.904	29.103	0.7178	0.6218	28.997
25.200	72.915	0	72.915	NA	0	0	0	0	0	0	NA

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Permit No. PA0021075

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
32.50	Myerstown Boro	PA0021075

AFC

Q7-10: CCT (min) 15 **PMF** 0.618 **Analysis pH** 7.193 **Analysis Hardness** 186.085

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
2,4-DICHLOROPHENOL	0	0	0	0	1700	1700	3777.744
4-NITROPHENOL	0	0	0	0	2300	2300	5111.066
CYANIDE, FREE	0	0	0	0	22	22	48.888
ARSENIC	0	0	0	0	340	340	755.549
	Dissolved WQC. Chemical translator of 1 applied.						
PHENOLICS (PWS)	0	0	0	0	NA	NA	NA

CFC

Q7-10: CCT (min) 39.237 **PMF** 1 **Analysis pH** 7.136 **Analysis Hardness** 164.265

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
2,4-DICHLOROPHENOL	0	0	0	0	340	340	1012.088
4-NITROPHENOL	0	0	0	0	470	470	1399.063
CYANIDE, FREE	0	0	0	0	5.2	5.2	15.479
ARSENIC	0	0	0	0	150	150	446.509
	Dissolved WQC. Chemical translator of 1 applied.						
PHENOLICS (PWS)	0	0	0	0	NA	NA	NA

THH

Q7-10: CCT (min) 39.237 **PMF** 1 **Analysis pH** NA **Analysis Hardness** NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
2,4-DICHLOROPHENOL	0	0	0	0	77	77	229.208
4-NITROPHENOL	0	0	0	0	NA	NA	NA
CYANIDE, FREE	0	0	0	0	140	140	416.742
ARSENIC	0	0	0	0	10	10	29.767

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PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
32.50	**Myerstown Boro**	**PA0021075**						
	PHENOLICS (PWS)	0	0	0	0	5	5	NA

CRL

Qh: **CCT (min)** 28.997 **PMF** 1

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
2,4-DICHLOROPHENOL	0	0	0	0	NA	NA	NA
4-NITROPHENOL	0	0	0	0	NA	NA	NA
CYANIDE, FREE	0	0	0	0	NA	NA	NA
ARSENIC	0	0	0	0	NA	NA	NA
PHENOLICS (PWS)	0	0	0	0	NA	NA	NA

Permit No. PA0021075

D. Toxics Screening Analysis

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.7

Facility: **Myerstown Borough STP** NPDES Permit No.: **PA0021075** Outfall: **001**

Analysis Hardness (mg/L): **291.3** Discharge Flow (MGD): **2** Analysis pH (SU): **7.12**

Stream Flow, Q_{7-10} (cfs): **6.12**

	Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Group 1	Total Dissolved Solids		566000	500000	Yes		
	Chloride		106000	250000	No		
	Bromide	<	1	N/A	No		
	Sulfate		29200	250000	No		
Group 2	Total Aluminum		114	750	No		
	Total Antimony	<	0.4	5.6	No (Value < QL)		
	Total Arsenic		30	10	Yes	30	Establish Limits
	Total Barium		26	2400	No		
	Total Beryllium	<	0.4	N/A	No		
	Total Boron		113	1600	No		
	Total Cadmium	<	0.08	0.598	No (Value < QL)		
	Total Chromium		5	N/A	No		
	Hexavalent Chromium		0.1	10.4	No		
	Total Cobalt		1	19	No		
	Total Copper		8.9	23.3	No		
	Free Available Cyanide	<	5	5.2	Yes	15	Monitor
	Total Cyanide		7	N/A	No		
	Dissolved Iron		13	300	No		
	Total Iron		100	1500	No		
	Total Lead	<	4.8	12.4	No		
	Total Manganese		19	1000	No		
	Total Mercury	<	0.05	0.05	No (Value < QL)		
	Total Nickel	<	5	128.9	No		
	Total Phenols (Phenolics)	<	50	5	Yes	100000	No Limits/Monitoring
	Total Selenium		2.1	5.0	No		
	Total Silver	<	5	23.8	No		
	Total Thallium	<	0.4	0.24	No (Value < QL)		
	Total Zinc		71	296.5	No		
	Total Molybdenum	<	10	N/A	No		

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Group 3	Acrolein	<	1	3	No (Value < QL)		
	Acrylonitrile	<	0.5	0.051	No (Value < QL)		
	Benzene	<	0.5	1.2	No (Value < QL)		
	Bromoform	<	0.5	4.3	No (Value < QL)		
	Carbon Tetrachloride	<	0.5	0.23	No (Value < QL)		
	Chlorobenzene	<	0.5	130	No (Value < QL)		
	Chlorodibromomethane	<	0.5	0.4	No (Value < QL)		
	Chloroethane	<	0.5	N/A	No		
	2-Chloroethyl Vinyl Ether	<	0.5	3500	No (Value < QL)		
	Chloroform	<	0.5	5.7	No (Value < QL)		
	Dichlorobromomethane	<	0.5	0.55	No (Value < QL)		
	1,1-Dichloroethane	<	0.5	N/A	No		
	1,2-Dichloroethane	<	0.5	0.38	No (Value < QL)		
	1,1-Dichloroethylene	<	0.5	33	No (Value < QL)		
	1,2-Dichloropropane	<	0.5	2200	No (Value < QL)		
	1,3-Dichloropropylene	<	0.5	0.34	No (Value < QL)		
	1,4-Dioxane	<	0.5	N/A	No		
	Ethylbenzene	<	0.5	530	No (Value < QL)		
	Methyl Bromide	<	0.5	47	No (Value < QL)		
	Methyl Chloride	<	0.5	5500	No (Value < QL)		
	Methylene Chloride	<	0.5	4.6	No (Value < QL)		
	1,1,2,2-Tetrachloroethane	<	0.5	0.17	No (Value < QL)		
	Tetrachloroethylene	<	0.5	0.69	No (Value < QL)		
	Toluene	<	0.9	330	No		
	1,2-trans-Dichloroethylene	<	0.5	140	No (Value < QL)		
	1,1,1-Trichloroethane	<	0.5	610	No (Value < QL)		
	1,1,2-Trichloroethane	<	0.5	0.59	No (Value < QL)		
	Trichloroethylene	<	0.5	2.5	No (Value < QL)		
	Vinyl Chloride	<	0.5	0.025	No (Value < QL)		
Group 4	2-Chlorophenol	<	1	81	No (Value < QL)		
	2,4-Dichlorophenol	<	50	77	Yes	229	No Limits/Monitoring
	2,4-Dimethylphenol	<	50	130	No		
	4,6-Dinitro-o-Cresol	<	0.117	13	No (Value < QL)		
	2,4-Dinitrophenol	<	2.99	69	No (Value < QL)		
	2-Nitrophenol	<	50	1600	No		
	4-Nitrophenol	<	250	470	Yes	1204	No Limits/Monitoring
	p-Chloro-m-Cresol	<	0.0985	30	No (Value < QL)		
	Pentachlorophenol	<	0.103	0.27	No (Value < QL)		
	Phenol	<	50	10400	No		
	2,4,6-Trichlorophenol	<	0.0985	1.4	No (Value < QL)		

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Group 5	Acenaphthene	<	1	17	No (Value < QL)		
	Acenaphthylene	<	1	N/A	No		
	Anthracene	<	1	8300	No (Value < QL)		
	Benzidine	<	5	0.000086	No (Value < QL)		
	Benzo(a)Anthracene	<	1	0.0038	No (Value < QL)		
	Benzo(a)Pyrene	<	1	0.0038	No (Value < QL)		
	3,4-Benzofluoranthene	<	1	0.0038	No (Value < QL)		
	Benzo(ghi)Perylene	<	1	N/A	No		
	Benzo(k)Fluoranthene	<	1	0.0038	No (Value < QL)		
	Bis(2-Chloroethoxy)Methane	<	1	N/A	No		
	Bis(2-Chloroethyl)Ether	<	1	0.03	No (Value < QL)		
	Bis(2-Chloroisopropyl)Ether	<	1	1400	No (Value < QL)		
	Bis(2-Ethylhexyl)Phthalate	<	1.09	1.2	No (Value < QL)		
	4-Bromophenyl Phenyl Ether	<	1	54	No (Value < QL)		
	Butyl Benzyl Phthalate	<	1	35	No (Value < QL)		
	2-Chloronaphthalene	<	1	1000	No (Value < QL)		
	4-Chlorophenyl Phenyl Ether	<	1	N/A	No		
	Chrysene	<	1	0.0038	No (Value < QL)		
	Dibenzo(a,h)Anthrancene	<	1	0.0038	No (Value < QL)		
	1,2-Dichlorobenzene	<	0.5	160	No (Value < QL)		
	1,3-Dichlorobenzene	<	0.5	69	No (Value < QL)		
	1,4-Dichlorobenzene	<	0.5	150	No (Value < QL)		
	3,3-Dichlorobenzidine	<	0.139	0.021	No (Value < QL)		
	Diethyl Phthalate	<	1	800	No (Value < QL)		
	Dimethyl Phthalate	<	1	500	No (Value < QL)		
	Di-n-Butyl Phthalate	<	3	21	No (Value < QL)		
	2,4-Dinitrotoluene	<	3	0.05	No (Value < QL)		
	2,6-Dinitrotoluene	<	1	0.05	No (Value < QL)		
	Di-n-Octyl Phthalate	<	1	N/A	No		
	1,2-Diphenylhydrazine	<	3	0.036	No (Value < QL)		
	Fluoranthene	<	1	40	No (Value < QL)		
	Fluorene	<	1	1100	No (Value < QL)		
	Hexachlorobenzene	<	1	0.00028	No (Value < QL)		
	Hexachlorobutadiene	<	1	0.44	Yes		
	Hexachlorocyclopentadiene	<	1	1	No (Value < QL)		
	Hexachloroethane	<	0.0687	1.4	No (Value < QL)		
	Indeno(1,2,3-cd)Pyrene	<	1	0.0038	No (Value < QL)		
	Isophorone	<	1	35	No (Value < QL)		
	Naphthalene	<	1	43	No		
	Nitrobenzene	<	1	17	No (Value < QL)		
	n-Nitrosodimethylamine	<	1	0.00069	No (Value < QL)		
	n-Nitrosodi-n-Propylamine	<	1	0.005	No (Value < QL)		
	n-Nitrosodiphenylamine	<	1	3.3	No (Value < QL)		
	Phenanthrene	<	1	1	No (Value < QL)		
	Pyrene	<	1	830	No (Value < QL)		
	1,2,4-Trichlorobenzene	<	1	26	No		
Group 6	Aldrin	<	0.02	0.000049	No (Value < QL)		
	alpha-BHC	<	0.02	0.0026	No (Value < QL)		
	beta-BHC	<	0.02	0.0091	No (Value < QL)		
	gamma-BHC	<	0.02	0.098	No (Value < QL)		
	delta BHC	<	0.02	N/A	No		
	Chlordane	<	0.02	0.0008	No (Value < QL)		
	4,4-DDT	<	0.02	0.00022	No (Value < QL)		
	4,4-DDE	<	0.02	0.00022	No (Value < QL)		
	4,4-DDD	<	0.02	0.00031	No (Value < QL)		
	Dieldrin	<	0.02	0.000052	No (Value < QL)		
	alpha-Endosulfan	<	0.02	0.056	No (Value < QL)		
	beta-Endosulfan	<	0.02	0.056	No (Value < QL)		
	Endosulfan Sulfate	<	0.02	N/A	No		
	Endrin	<	0.02	0.036	No (Value < QL)		
	Endrin Aldehyde	<	0.02	0.29	No (Value < QL)		
	Heptachlor	<	0.02	0.000079	No (Value < QL)		
	Heptachlor Epoxide	<	0.02	0.000039	No (Value < QL)		
	Toxaphene	<	0.02	0.0002	No (Value < QL)		
	2,3,7,8-TCDD	<		0.000000005			

Permit No. PA0021075

E. WETT Tests Results

WET Summary and Evaluation

Facility Name	Myerstown Borough STP
Permit No.	PA0021075
Design Flow (MGD)	2
Q_{7-10} Flow (cfs)	6.11
PMF_a	0.618
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	6/27/17	8/28/18
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	6/27/17	8/28/18
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	8/1/16	6/26/17
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	8/1/16	6/26/17
Ceriodaphnia	Reproduction	PASS	**FAIL**	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**34** % Effluent
Dilution Series	**9, 17, 34, 67, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	

Permit No. PA0021075

WET Summary and Evaluation

Facility Name	Myerstown Borough STP
Permit No.	PA0021075
Design Flow (MGD)	2
Q_{7-10} Flow (cfs)	6.11
PMF_a	0.618
PMF_c	1

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	6/27/17	8/28/18
Pimephales	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	6/27/17	8/28/18
Pimephales	Growth	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	7/5/16	8/1/16	6/26/17
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

		Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
Species	**Endpoint**	10/6/15	8/1/16	6/26/17	8/28/18
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type	**Chronic**
TIWC	**34** % Effluent
Dilution Series	**9, 17, 34, 67, 100** % Effluent
Permit Limit	**None**
Permit Limit Species	