pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0051560**
Facility Type	**Industrial**	APS ID	**889940**
Major / Minor	**Minor**	Authorization ID	**1345033**

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

Applicant and Facility Information

Applicant Name	**Western Berks Water Authority**	Facility Name	**Western Berks Water Authority**
Applicant Address	91 Water Road	Facility Address	91 Water Road
	Sinking Spring, PA 19608-9632		Sinking Spring, PA 19608-9633
Applicant Contact	Leonard Bilger	Facility Contact	Leonard Bilger
Applicant Phone	(610) 678-4400	Facility Phone	(610) 678-4400
Client ID	51913	Site ID	152310
SIC Code	4941	Municipality	Lower Heidelberg Township
SIC Description	Trans. & Utilities - Water Supply	County	Berks
Date Application Received	March 4, 2021	EPA Waived?	Yes
Date Application Accepted	March 10, 2021	If No, Reason	

Purpose of Application: This is an application for NPDES renewal

Approve	Deny	Signatures	Date
X		Nicholas Hong, P.E. / Environmental Engineer Nick Hong (via electronic signature)	March 15, 2022
x		Daniel W. Martin, P.E. / Environmental Engineer Manager Maria D. Bebenek for	March 17, 2022
x		Maria D. Bebenek, P.E. / Environmental Program Manager Maria D. Bebenek	March 17, 2022

Summary of Review

The application submitted by the applicant requests a NPDES renewal permit for the Western Berks Water Treatment Plant located at 91 Water Road, Sinking Spring, PA 19608 in Berks County, municipality of Lower Heidelberg. The existing permit became effective on September 1, 2016 and expired on August 31, 2021. The application for renewal was received by DEP Southcentral Regional Office (SCRO) on March 9, 2021.

The purpose of this Fact Sheet is to present the basis of information used for establishing the proposed NPDES permit effluent limitations. The Fact Sheet includes a description of the facility, a description of the facility's receiving waters, a description of the facility's receiving waters attainment/non-attainment assessment status, and a description of any changes to the proposed monitoring/sampling frequency. Section 6 provides the justification for the proposed NPDES effluent limits derived from technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), total maximum daily loading (TMDL), antidegradation, anti-backsliding, and/or whole effluent toxicity (WET). A brief summary of the outlined descriptions has been included in the Summary of Review section.

The subject facility is a 0.27 MGD treatment facility. The applicant does not anticipate any proposed upgrades to the treatment facility in the next five years. The NPDES application has been processed as an Industrial Wastewater Facility due to the type of wastewater and the design flow rate for the facility. The applicant disclosed the Act 14 requirement to Berks County Commissioners Office and Lower Heidelberg Township and the notice was received by the parties on Feb 8, 2021 and Feb 10, 2021.

Utilizing the DEP's web-based Emap-PA information system, the receiving waters has been determined to be Tulpehocken Creek. The sequence of receiving streams that Tulpehocken Creek discharges into are the Schuylkill River and the Delaware River. The receiving water has protected water usage for cold water fishes (CWF) and migratory fishes (MF). No Class A Wild Trout fisheries are impacted by this discharge. The absence of high quality and/or exceptional value surface waters removes the need for an additional evaluation of anti-degradation requirements.

The Tulpehocken Creek is a Category 2 and 5 stream listed in the 2022 Integrated List of All Waters (formerly 303d Listed Streams). This stream is an attaining stream for recreational purposes, fish consumption, and potable water supply. The receiving stream is impaired for aquatic life due to nutrients from agriculture. The receiving waters is subject to the Schuylkill River PCB total maximum daily load (TMDL) plan to improve water quality in the subject facility's watershed.

The existing permit and proposed permit differ as follows:

- **There are no changes to the monitoring frequency or effluent limits.**

Sludge use and disposal description and location(s): Sludge disposal is hauled by Denali Water Solutions to a landfill in Maryland.

The proposed permit will expire five (5) years from the effective date.

Based on the review in this report, it is recommended that the permit be drafted. 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.

Any additional information or public review of documents associated with the discharge or facility may be available at PA DEP Southcentral Regional Office (SCRO), 909 Elmerton Avenue, Harrisburg, PA 17110. To make an appointment for file review, contact the SCRO File Review Coordinator at 717.705.4700.

1.0 Applicant

1.1 General Information

This fact sheet summarizes PA Department of Environmental Protection's review for the NPDES renewal for the following subject facility.

Facility Name:	Western Berks Water Authority
NPDES Permit #	PA0051560
Physical Address:	91 Water Road Sinking Spring, PA 19608
Mailing Address:	91 Water Road Sinking Spring, PA 19608
Contact:	Leonard Bilger Executive Director cbilger@wbwa.org (610) 678-4400
Consultant:	Jamie Lorah, PE Manager, Process Engineering SSM Group, Inc. Jamie.lorah@ssmgroup.com

1.2 Permit History

Description of Facility

Western Berks Water Treatment Plant treats water from an intake structure within the Blue Marsh Lake. The facility provides potable water for customers in the Western Berks Water Authority.

A conference call was conducted on September 9, 2020 with Bonnie Boylan and Maria Bebenek of DEP and staff from Fish and Boat. The inquiry was raised if periodic blowoffs should be included in NPDES permit. The call decided that periodic blowoffs will not need to be included in the NPDES permit. The March 1, 2021 letter from SSM stated that the facility is working with the US Corps of Engineers to execute an agreement that would allow the US Corps of Engineers to assume responsibility for the operation of the flushing connections on the new intake line and provide maintenance as needed. The agreement is to be sent to DEP once it has been finalized.

The NPDES application indicated the stream is classified as a high-quality stream. The Fact Sheet from February 4, 2016 reported the receiving stream as cold water fishes and migratory fishes. In March 2022, eMap indicates the receiving waters is a cold water fish (CWF) stream. There was no information to confirm that the receiving stream is high-quality.

Permit submittal included the following information.

- NPDES Application
- Flow Diagrams
- Influent Sample Data
- Effluent Sample Data

2.0 Treatment Facility Summary

2.1.1 Site location

The physical address for the facility is 91 Water Road, Sinking Spring, PA 19608. A topographical and an aerial photograph of the facility are depicted as Figure 1 and Figure 2.

Figure 1: Topographical map of the subject facility

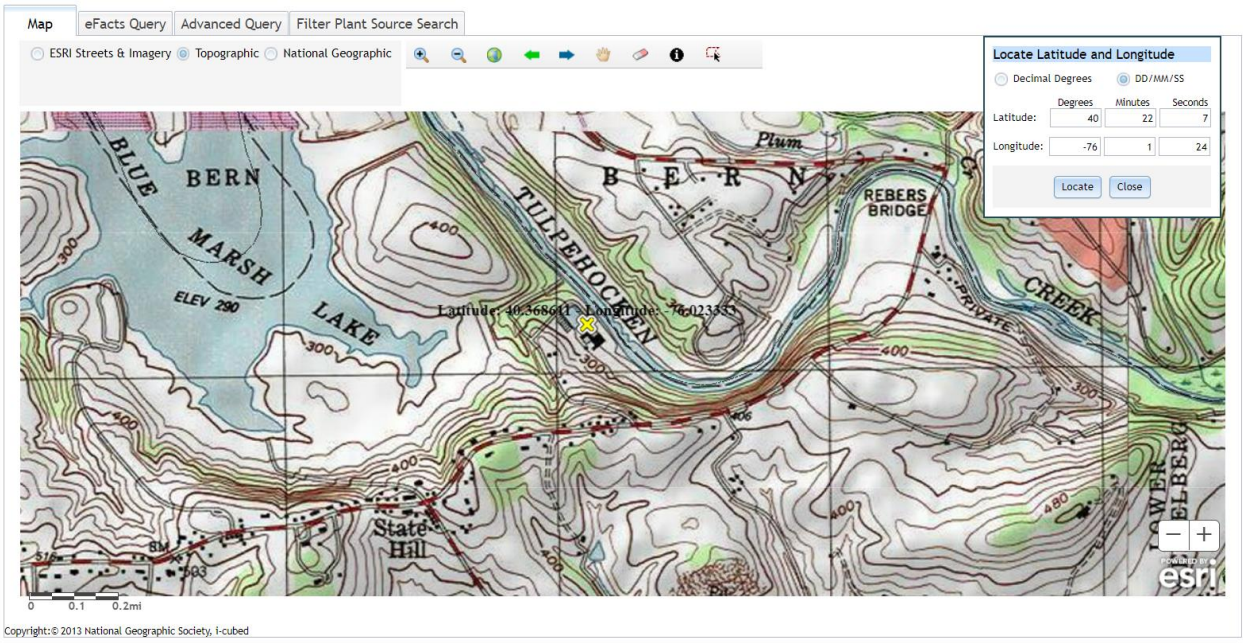
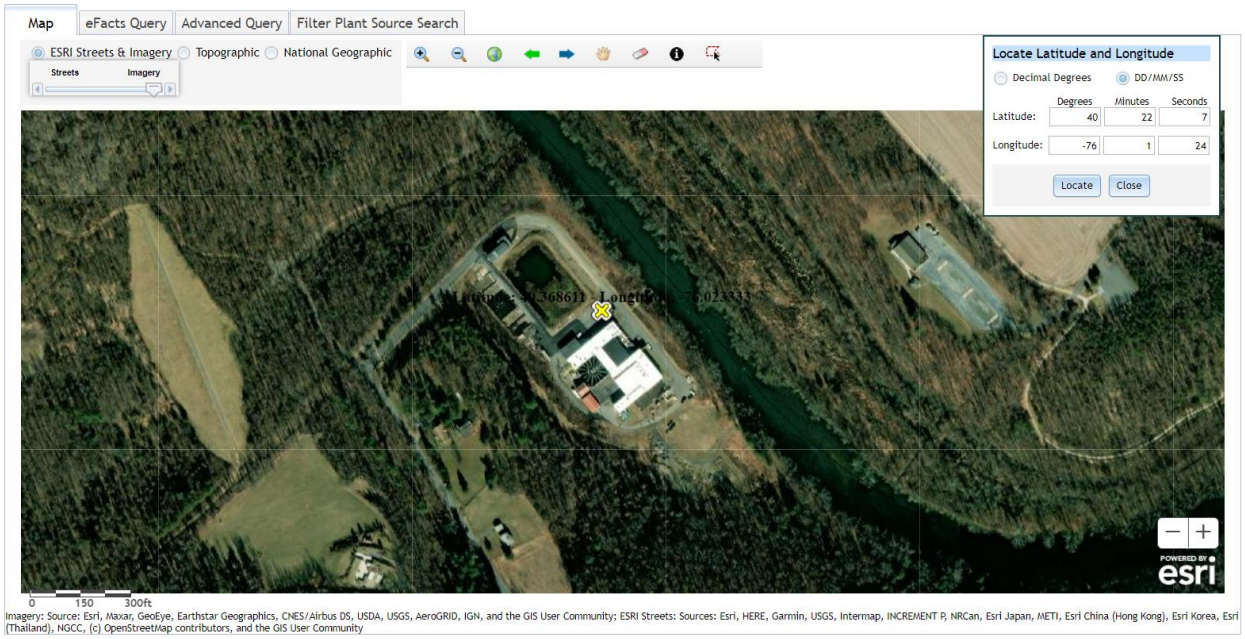


Figure 2: Aerial Photograph of the subject facility



2.2 Description of Wastewater Treatment Process

The subject facility is a 0.27 MGD design flow facility. The subject facility generates backwash wastewater. The media filter backwash is directed through a clarifier and then recycled for treatment before the mixers. Chlorinated potable water is used for the filter backwashes. The skimmed material from the DAF's is collected in sludge sumps and then pumped to 6 sludge drying beds. The supernatant from the drying beds is directed to the lagoon. The lagoon also collects untreated floor drainage from the facility and has a capacity of approximately 1 million gallons, as reported by the applicant. The lagoon supernatant is intermittently discharged to the receiving water through Outfall 001. The lagoon's settled sludge is periodically hauled for off-site disposal.

The discharge at Outfall 002 only occurs in an emergency situation. Discharges have not occurred in the recent past.

The facility is being evaluated for flow, pH, TRC, TSS, aluminum, iron, and manganese, and phosphorus. The existing permits limits for the facility is summarized in Section 2.4.

The treatment process is summarized in the table.

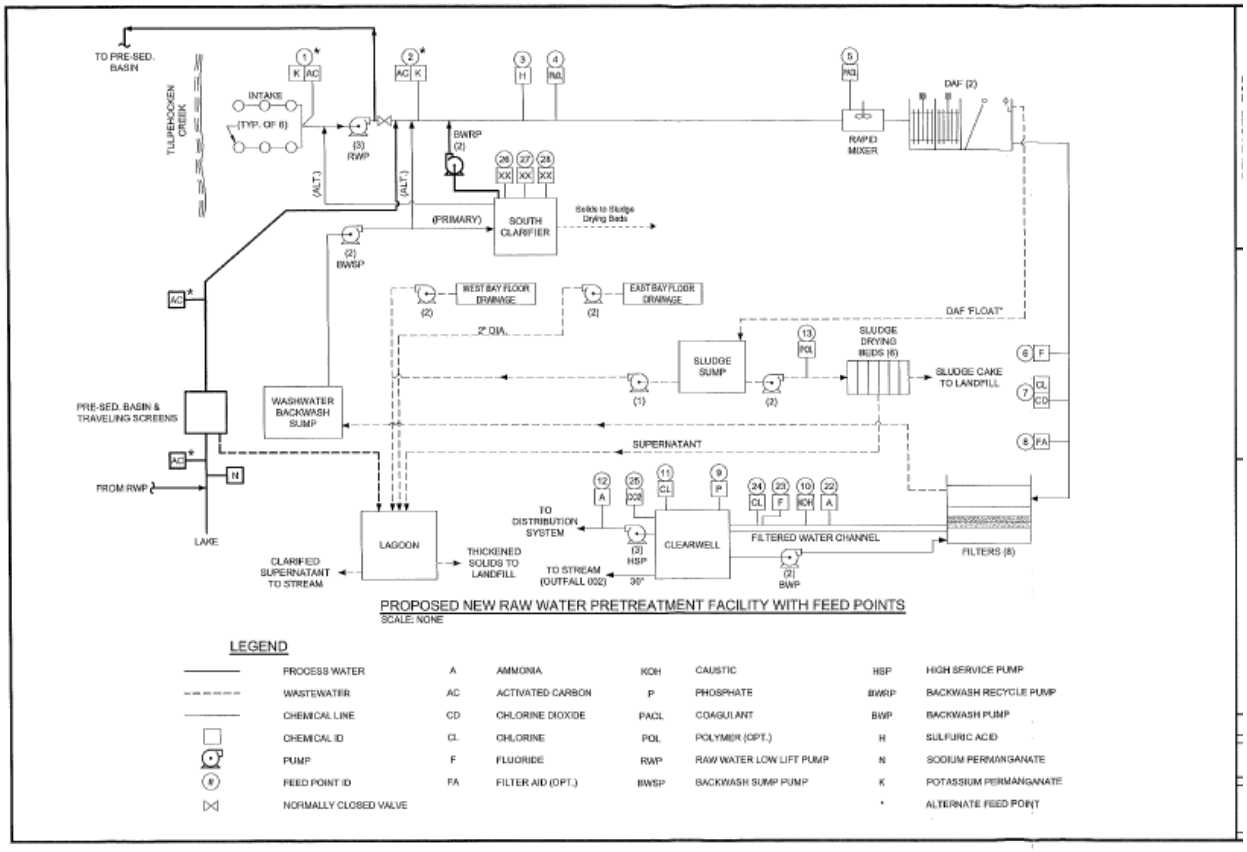
Treatment Facility Summary				
Treatment Facility Name: Western Berks Water Authority TP				
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial			No Disinfection	0.006
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
		Not Overloaded		

DRBC regulation stipulate, "If the discharge from an industrial wastewater treatment plant is not covered by Effluent Limitations Guidelines (ELG) promulgated by the U.S. EPA, is mixed with stormwater or cooling water, or production data are not available, the effluent design flow shall be the average daily flow associated with: 1) the month with the highest monthly flow rate of the previous twelve months, or if greater, 2) the year having the highest annual flow rate of the previous five years." (**DRBC** Water Quality Regulations at 18 CFR Part 410 section 4.30.7.A.8.b)

The effluent limitations for discharge Outfalls 001 and 002 were determined using effluent discharge rates of 0.27 MGD and 0.028 MGD, respectively. The flow of 0.27 MGD for Outfall 001 represents the 95th percentile of daily maximum flows when discharging. The average flow for Outfall 001 is much less, and the discharge is intermittent.

The discharge at Outfall 002 only occurs in an emergency situation. Discharges have not occurred in the recent past.

A schematic of the treatment process is depicted.



2.3 Facility Outfall Information

The facility has the following outfall information for wastewater.

Outfall No.	001	**Design Flow (MGD)**	.27
Latitude	40º 22' 7.00"	**Longitude**	-76º 1' 25.00"
Wastewater Description:	Intermittent Discharge		

Outfall No.	002	**Design Flow (MGD)**	.028
Latitude	40º 22' 5.00"	**Longitude**	-76º 1' 20.00"
Wastewater Description:	Emergency Overflow (IW)		

2.3.1 Operational Considerations- Chemical Additives

Chemical additives are chemical products introduced into a waste stream that is used for cleaning, disinfecting, or maintenance and which may be detected in effluent discharged to waters of the Commonwealth. Chemicals excluded are those used for neutralization of waste streams, the production of goods, and treatment of wastewater.

The subject facility utilizes the following chemicals as part of their treatment process.

- Pollu-Treat CL-735 for sludge thickening and dewatering in the sludge drying beds.

- CARUSOL sodium permanganate for taste and odors, remove color, control biological growth in treatment plants, and remove iron and manganese.
- Calgon Activated Carbon for controlling iron, manganese, sulfides, and color.
- Delta-Floc 801 aluminum chloride hydroxide sulfate as a coagulant for settling in the treatment lagoons
- DelPAC 2020 aluminum chloride hydroxide sulfate (alternate) as a coagulant for settling in the treatment lagoons
- Pollu-Treat CL-735 for sludge thickening and dewatering in the sludge drying beds
- Liquid chlorine for disinfection in the potable water distribution system
- Fluosilicic acid for fluoridated water in potable water distribution
- Caustic Potash liquid (potassium hydroxide) for pH adjustment in the final water product
- Shannon Chemical SLI-5250. Blended phosphate solution for corrosion inhibitor for piping, etc.

The chemicals above are utilized for the production of water and wastewater with the exception of Shannon Chemical SLI-5250 which is used for corrosion inhibitor.

Consistent with the Fact Sheet from February 2016, Shannon Chemical SLI-5250 was identified as a phosphate blend used for the purpose of corrosion inhibitor. Historical objection from the facility was summoned by DEP's procedure/protocol to require the chemical to be reviewed as a chemical additive.

The MSDS's submitted in the application addendum for Shannon SLI-5250 and Sterling CP 720 do not show any ingredients other than phosphates and water. They also do not show eco-toxicity data which is needed to determine effect levels on aquatic life in streams and rivers. NSF-certification of water supply chemicals only relates to human health effects, not effects to aquatic life.

DEP recognizes (a) the importance of corrosion inhibitors in the drinking water distribution system for the sake of public health (b) acknowledges that the Public Water Supply permit also imposes requirements on these additives (c) the review of the MSDS's for the two phosphate blends (d) and further acknowledges that the phosphate blends may be present in the discharge (Fact Sheet dated February 2016).

Because finished water is used for filter backwashes and for strainer backwashes, the phosphate blends could be in the discharge of outfall 001 and 002 although in dilute quantities. The past two renewal cycles (i.e. 2007 permit application and the 2016 permit) have monitored the additive by sampling for phosphorus. Monitoring was completed to monitor the use of the additive and in anticipation of a pending TMDL for nutrients.

A December 15, 2015 letter from SSM to DEP supports the uses of phosphate blends based upon minimal impacts to the receiving stream. The consultant suggested that as the demand for water increases, more water will be treated with blended phosphate chemical leading to an increase in total mass loading. However, the concentration of phosphorus is not expected to increase.

A June 2, 2016 letter from DEP to Western Berks Water System granted approval for the use of phosphate blends- Shannon SLI-5250 and Coyne Sterling CP 720.

The standard language for Chemical Additives added to industrial wastewater permits' NPDES permits in Part C Conditions has not been altered but a paragraph has been added in Part C exempting the phosphate blends the facility shall use.

2.4 Existing NPDES Permits Limits

The existing NPDES permit limits are summarized in the table.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001 , **Latitude** 40° 22' 7" , **Longitude** 76° 1' 25" , **River Mile Index** 6.0 , **Stream Code** 01846

Receiving Waters: Tulpehocken Creek

Type of Effluent: Intermittent Discharge of lagoon supernatant

1. The permittee is authorized to discharge during the period from September 1, 2016 through August 31, 2021 .
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine	XXX	XXX	XXX	0.5	1.0	1.6	1/day	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/month	Grab
Total Aluminum	Report	Report	XXX	4.0	8.0	10	1/month	Grab
Total Iron	Report	Report	XXX	2.0	4.0	5	1/month	Grab
Total Manganese	Report	Report	XXX	1.0	2.0	2.5	1/month	Grab
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at discharge from lagoon

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 002 , **Latitude** 40° 22' 5" , **Longitude** 76° 1' 20" , **River Mile Index** 6.0 , **Stream Code** 01846

Receiving Waters: Tulpehocken Creek

Type of Effluent: Emergency Overflow of potable water from clear well

1. The permittee is authorized to discharge during the period from September 1, 2016 through August 31, 2021 .
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/discharge	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/discharge	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/discharge	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/discharge	Grab
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/discharge	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at discharge from clear well overflow

3.0 Facility NPDES Compliance History

3.1 Summary of Inspections

A summary of the most recent inspections during the existing permit review cycle is as follows.

The DEP inspector noted the following during the inspection.

06/08/2017:

- Water treatment sludge was leaking from a connection near the sludge drying beds. The facility was advised to use BMPs to prevent discharge to the lagoon.
- Backwash clarifier was aerated except during winter.

05/13/2021:

- PA DEP Emergency Response was called as a result of a release of approximately 1 MG of chlorinated water on the ground surface and into UNT of Wyomissing Creek. Approximately 150 dead fish were observed including minnows, trout, and suckers.

3.2 Summary of DMR Data

A review of approximately 1-year of DMR data shows that the monthly average flow data for the facility below the design capacity of the treatment system. The maximum average flow data for the DMR reviewed was 0.097 MGD in September 2021. The design capacity of the treatment system is 0.27 MGD.

The off-site laboratory used for the analysis of the parameters was Suburban Labs located at 1037F MacArthur Road, Reading, PA 19605.

DMR Data for Outfall 001 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Flow (MGD) Average Monthly		0.042		0.097					0.035			
Flow (MGD) Daily Maximum		0.079		0.150					0.065			
pH (S.U.) Minimum		7.2		7.1					7.4			
pH (S.U.) Instantaneous Maximum		7.6		7.3					7.7			
TRC (mg/L) Average Monthly		< 0.001		0.001					< 0.001			
TRC (mg/L) Daily Maximum		< 0.001		0.001					< 0.001			
TSS (lbs/day) Average Monthly		1.40		< 4.0					1.61			
TSS (lbs/day) Daily Maximum		2.64		< 4.0					2.98			
TSS (mg/L) Average Monthly		4.0		< 3.24					5.5			
TSS (mg/L) Daily Maximum		4.0		< 5.00					5.5			
Total Phosphorus (lbs/day) Daily Maximum		0.51		0.29					0.114			
Total Phosphorus (mg/L) Daily Maximum		0.78		0.23					0.21			
Total Aluminum (lbs/day) Average Monthly		< 0.035		< 0.081					< 0.0292			
Total Aluminum (lbs/day) Daily Maximum		< 0.066		< 0.125					< 0.0542			
Total Aluminum (mg/L) Average Monthly		< 0.100		< 0.100					< 0.100			
Total Aluminum (mg/L) Daily Maximum		< 0.100		< 0.100					< 0.100			
Total Iron (lbs/day) Average Monthly		< 0.035		< 0.081					< 0.0292			

Total Iron (lbs/day) Daily Maximum		< 0.066		< 0.125					< 0.0542			
Total Iron (mg/L) Average Monthly		< 0.100		< 0.100					< 0.100			
Total Iron (mg/L) Daily Maximum		< 0.100		< 0.100					< 0.100			
Total Manganese (lbs/day) Average Monthly		0.068		0.51					0.017			
Total Manganese (lbs/day) Daily Maximum		0.128		0.79					0.032			
Total Manganese (mg/L) Average Monthly		0.194		0.630					0.059			
Total Manganese (mg/L) Daily Maximum		0.194		0.630					0.059			

3.3 Non-Compliance

3.3.1 Non-Compliance- NPDES Effluent

A summary of the non-compliance to the permit limits for the existing permit cycle is as follows.

From the DMR data beginning in September 1, 2016 to February 15, 2022, the following were observed effluent non-compliances.

NON_COMPLIANCE_DATE	NON_COMPL_TYPE_DESC	NON_COMPL_CATEGORY_DESC	PARAMETER	SAMPLE_VALUE	VIOLATION_CONDITION	PERMIT_VALUE	UNIT_OF_MEASURE	STAT_BASE_CODE
5/3/2018	Sample type not in accordance with permit	Other Violations	Flow					
7/2/2018	Sample type not in accordance with permit	Other Violations	Flow					
9/6/2018	Violation of permit condition	Effluent	Manganese, Total	1.05	>	1.0	mg/L	Average Monthly
8/5/2019	Violation of permit condition	Effluent	Manganese, Total	2.72	>	1.0	mg/L	Average Monthly
8/5/2019	Violation of permit condition	Effluent	Manganese, Total	2.72	>	2.0	mg/L	Daily Maximum
8/5/2019	Violation of permit condition	Effluent	Total Suspended Solids	78.6	>	30.0	mg/L	Average Monthly
8/5/2019	Violation of permit condition	Effluent	Total Suspended Solids	78.6	>	60.0	mg/L	Daily Maximum
9/2/2020	Sample type not in accordance with permit	Other Violations	Flow					

3.3.2 Non-Compliance- Enforcement Actions

A summary of the non-compliance enforcement actions for the current permit cycle is as follows:

Beginning in September 1, 2016 to February 15, 2022, the following were observed enforcement actions.

Summary of Enforcement Actions
Beginning September 1, 2016 to February 15, 2022

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE	INSP ID	INSP CATEGORY	INSPECTED DATE	INSP TYPE
917948	05/13/2021	CSL401	CSL - Unauthorized, unpermitted discharge of polluting substances to waters of the Commonwealth resulting in pollution	06/25/2021	3194853	PF	05/13/2021	Incident-Response to Accident or Event

3.4 Summary of Biosolids Disposal

A summary of the biosolids disposed of from the facility is as follows.

Residuals produced by the treatment process are removed periodically from the lagoon by Denali Water Solutions and hauled to their landfill located in Maryland. In 2021, 272.18 wet tons of water treatment residuals (sludge) at approximately 15 percent solids was removed and hauled to the landfill.

3.5 Open Violations

No open violations existed as of February 2022.

4.0 Receiving Waters and Water Supply Information Detail Summary

4.1 Receiving Waters

The receiving waters has been determined to be Tulpehocken Creek. The sequence of receiving streams that Tulpehocken Creek discharges into are the Schuylkill River and the Delaware River.

4.2 Public Water Supply (PWS) Intake

The closest PWS to the subject facility is Pottstown Borough Water Authority (PWS ID # 1460037) located approximately 26 miles downstream of the subject facility on the Schuylkill River. Based upon the distance and the flow rate of the facility, the PWS should not be impacted.

4.3 Class A Wild Trout Streams

Class A Wild Trout Streams are waters that support a population of naturally produced trout of sufficient size and abundance to support long-term and rewarding sport fishery. DEP classifies these waters as high-quality coldwater fisheries.

The information obtained from EMAP suggests that no Class A Wild Trout Fishery will be impacted by this discharge.

4.4 2022 Integrated List of All Waters (303d Listed Streams)

Section 303(d) of the Clean Water Act requires States to list all impaired surface waters not supporting uses even after appropriate and required water pollution control technologies have been applied. The 303(d) list includes the reason for impairment which may be one or more point sources (i.e. industrial or sewage discharges) or non-point sources (i.e. abandoned mine lands or agricultural runoff and the pollutant causing the impairment such as metals, pH, mercury or siltation).

States or the U.S. Environmental Protection Agency (EPA) must determine the conditions that would return the water to a condition that meets water quality standards. As a follow-up to listing, the state or EPA must develop a Total Maximum Daily Load (TMDL) for each waterbody on the list. A TMDL identifies allowable pollutant loads to a waterbody from both point and non-point sources that will prevent a violation of water quality standards. A TMDL also includes a margin of safety to ensure protection of the water.

The water quality status of Pennsylvania's waters uses a five-part categorization (lists) of waters per their attainment use status. The categories represent varying levels of attainment, ranging from Category 1, where all designated water uses are met to Category 5 where impairment by pollutants requires a TMDL for water quality protection.

The receiving waters is listed in the 2022 Pennsylvania Integrated Water Quality Monitoring and Assessment Report as a Category 2 and 5 waterbody. The surface waters is an attaining stream that supports recreational purposes, fish consumption, and potable water supply. The receiving waters is also impaired for aquatic life due to nutrients from agriculture. The designated use has been classified as protected waters for cold water fishes (CWF) and migratory fishes (MF).

4.5 Low Flow Stream Conditions

Water quality modeling estimates are based upon conservative data inputs. The data are typically estimated using either a stream gauge or through USGS web based StreamStats program. The NPDES effluent limits are based upon the combined flows from both the stream and the facility discharge.

A conservative approach to estimate the impact of the facility discharge using values which minimize the total combined volume of the stream and the facility discharge. The volumetric flow rate for the stream is based upon the seven-day, 10-year low flow (Q710) which is the lowest estimated flow rate of the stream during a 7 consecutive day period that occurs once in 10 -year time period. The facility discharge is based upon a known design capacity of the subject facility.

The closest WQN station to the subject facility is the Tulpehocken Creek station (WQN117). This WQN station is located approximately 4 miles downstream of the subject facility.

The closest gauge station to the subject facility is the Tulpehocken Creek at Blue Marsh Damsite near Reading station (USGS station number 1470960). This gauge station is located approximately 0.2 miles upstream of the subject facility.

For WQM modeling, pH and stream water temperature data from the water quality network station was used. pH was estimated to be 7.59 and the stream water temperature was estimated to be 20 C.

The hardness of the stream was estimated by collecting a sample upstream of the facility. The sampling result was 167 mg/l $CaCO_3$.

The low flow yield and the Q710 for the subject facility was estimated as shown below.

Gauge Station Data			
USGS Station Number	1470960		
Station Name	Tulpehocken Creek at Blue Marsh Damsite near Reading		
Q710	38.2	ft^3/sec	
Drainage Area (DA)	175	mi^2	
Calculations			
The low flow yield of the gauge station is:			
Low Flow Yield (LFY) = Q710 / DA			
LFY =	(38.2 ft^3/sec / 175 mi^2)		
LFY =	0.2183	$ft^3/sec/mi^2$	
The low flow at the subject site is based upon the DA of		179	mi^2
Q710 = (LFY@gauge station)(DA@Subject Site)			
Q710 = (0.2183 $ft^3/sec/mi^2$)(179 mi^2)			
Q710 =	39.073	ft^3/sec	

4.6.1 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.27
Latitude	40º 21' 40.98"	Longitude	-76º 1' 22.66"
Quad Name		Quad Code	
Wastewater Description:	Intermittent Discharge		
Receiving Waters	Unnamed Tributary to Cacoosing Creek	Stream Code	1846
NHD Com ID	25995876	RMI	1.4200
Drainage Area	179	Yield (cfs/mi^2)	0.2183
Q_{7-10} Flow (cfs)	39.073	Q_{7-10} Basis	StreamStats/StreamGauge
Elevation (ft)	261	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF / MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for aquatic life		
Cause(s) of Impairment	NUTRIENTS, SILTATION		
Source(s) of Impairment	AGRICULTURE, AGRICULTURE		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)	7.59	Median July to Sept; WQN117
Temperature (°C)	20	Median July to Sept; WQN117
Hardness (mg/L)	167	NPDES app dated for Feb 23, 2021
Other:		

Nearest Downstream Public Water Supply Intake		Pottstown Borough Water Authority	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	63	Distance from Outfall (mi)	26

4.6.2 Summary of Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	.028
Latitude	40º 22' 5.69"	Longitude	-76º 1' 19.07"
Quad Name		Quad Code	
Wastewater Description:	Emergency Overflow (IW)		

Receiving Waters	Tulpehocken Creek (CWF, MF)	Stream Code	1846
NHD Com ID	25995836	RMI	5.9000
Drainage Area	179	Yield (cfs/mi^2)	0.2183
Q_{7-10} Flow (cfs)	39.073	Q_{7-10} Basis	StreamStats/StreamGauge
Elevation (ft)	261	Slope (ft/ft)	
Watershed No.	3-C	Chapter 93 Class.	CWF, MF
Existing Use	Same as Chapter 93 class	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired for aquatic life		
Cause(s) of Impairment	NUTRIENTS, NUTRIENTS		
Source(s) of Impairment	AGRICULTURE, AGRICULTURE		
TMDL Status	Final	Name	Schuylkill River PCB TMDL

Background/Ambient Data		Data Source
pH (SU)	7.59	Median July to Sept; WQN117
Temperature (°F)	20	Median July to Sept; WQN117
Hardness (mg/L)	167	NPDES app dated for Feb 23, 2021
Other:		

Nearest Downstream Public Water Supply Intake		Pottstown Borough Water Authority	
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	63	Distance from Outfall (mi)	26

5.0: Overview of Presiding Water Quality Standards

5.1 General

There are at least six (6) different policies which determines the effluent performance limits for the NPDES permit. The policies are technology based effluent limits (TBEL), water quality based effluent limits (WQBEL), antidegradation, total maximum daily loading (TMDL), anti-backsliding, and whole effluent toxicity (WET) The effluent performance limitations enforced are the selected permit limits that is most protective to the designated use of the receiving waters. An overview of each of the policies that are applicable to the subject facility has been presented in Section 6.

5.2.1 Technology-Based Limitations

TBEL treatment requirements under section 301(b) of the Act represent the minimum level of control that must be imposed in a permit issued under section 402 of the Act (40 CFR 125.3. Permit limits for water treatment plant wastes are subject to handling and disposal of water treatment plant (WTP) using Best Practicable Control Technology (BPCT) currently available. Wastewater from treatment of WTP sludges and filter backwash shall have the following permit limits.

Parameter	Monthly Average	Daily Max
	mg/l	mg/l
Suspended Solids	30	60
Iron (total)	2	4
Aluminum (total)	4	8
Manganese (total)	1	2
pH	6 - 9	-----
TRC	0.5	1

Notes:
Source: TECHNOLOGY-BASED CONTROL REQUIREMENTS FOR WATER TREATMENT PLANT WASTES

5.2.2 Mass Based Limits

For publicly owned treatment works (POTW), mass loadings are calculated based upon design flow rate of the facility and the permit limit concentration. The generalized calculation for mass loadings is shown below:

$$Quantity\left(\frac{lb}{day}\right) = (MGD)(Concentration)(8.34)$$

Consistent with the Fact Sheet dated for February 4, 2016, mass loadings have not been imposed because the discharge is not continuous.

5.3 Water Quality-Based Limitations

WQBEL are based on the need to attain or maintain the water quality criteria and to assure protection of designated and existing uses (PA Code 25, Chapter 92a.2). The subject facility that is typically enforced is the more stringent limit of either the TBEL or the WQBEL.

Determination of WQBEL is calculated by spreadsheet analysis or by a computer modeling program developed by DEP. DEP permit engineers utilize the following computing programs for WQBEL permit limitations: (1) MS Excel worksheet for Total Residual Chorine (TRC); (2) WQM 7.0 for Windows Wasteload Allocation Program for Dissolved Oxygen and

Ammonia Nitrogen Version 1.1 (WQM Model) and (3) Toxics using DEP Toxics Management Spreadsheet for Toxics pollutants.

The modeling point nodes utilized for this facility are summarized below.

General Data 1 (Modeling Point #1)	***Input Value***	***Units***
Stream Code	1846	
River Mile Index	5.9	miles
Elevation	261	feet
Latitude	40.368611	
Longitude	-76.023333	
Drainage Area	179	sq miles
Low Flow Yield	0.2183	cfs/sq mile
General Data 2 (Modeling Point #2)	***Input Value***	***Units***
Stream Code	1846	
River Mile Index	4.49	miles
Elevation	224	feet
Latitude	40.369477	
Longitude	-76.00621	
Drainage Area	192	sq miles
Low Flow Yield	0.2183	cfs/sq mile

5.3.1 Water Quality Modeling 7.0

5.3.2 Toxics Modeling

The Toxics Management Spreadsheet model is a computer model that is used to determine effluent limitations for toxics (and other substances) for single discharge wasteload allocations. This computer model uses a mass-balance water quality analysis that includes consideration for mixing, first-order decay, and other factors used to determine recommended water quality-based effluent limits. Toxics Management Spreadsheet does not assume that all discharges completely mix with the stream. The point of compliance with water quality criteria are established using criteria compliance times (CCTs). The available CCTs are either acute fish criterion (AFC), chronic fish criterion (CFC), or human health criteria (THH & CRL).

Acute Fish Criterion (AFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e.15 minutes travel time downstream of the current discharge) or the complete mix time whichever comes first. AFC is evaluated at Q710 conditions.

Chronic Fish Criterion (CFC) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CFC is evaluated at Q710 conditions.

Threshold Human Health (THH) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the estimated travel time downstream to the nearest potable water supply intake whichever comes first. THH is evaluated at Q710 conditions.

Cancer Risk Level (CRL) measures the criteria compliance time as either the maximum criteria compliance time (i.e. 12 hours travel time downstream of the current discharge) or the complete mix time whichever comes first. CRL is evaluated at Qh (harmonic mean or normal flow) conditions.

The Toxics Model requires several input values for calculating output values. The source of data originates from either EMAP, the National Map, or Stream Stats. Data for stream gauge information, if any, was abstracted from USGS Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams authored by Marla H. Stuckey (Scientific Investigations Report 2006-5130).

5.3.2.1 Determining if NPDES Permit Will Require Monitoring/Limits in the Proposed Permit for Toxic Pollutants

To determine if Toxics modeling is necessary, DEP has developed a Toxics Management Spreadsheet to identify toxics of concern. Toxic pollutants whose maximum concentrations as reported in the permit application or on DMRs are greater than the most stringent applicable water quality criterion are pollutants of concern. A Reasonable Potential Analysis was utilized to determine (a) if the toxic parameters modeled would require monitoring or (b) if permit limitations would be required for the parameters. The toxics reviewed for reasonable potential were the pollutants in Groups 1 and 2.

Based upon the SOP- Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants (Revised January 10, 2019), monitoring and/or limits will be established as follows.

(a) When reasonable potential is demonstrated, establish limits where the maximum reported concentration equals or exceeds 50% of the WQBEL.
(b) For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
(c) For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

5.4 Total Maximum Daily Loading (TMDL)

5.4.1 TMDL

The goal of the Clean Water Act (CWA), which governs water pollution, is to ensure that all of the Nation's waters are clean and healthy enough to support aquatic life and recreation. To achieve this goal, the CWA created programs designed to regulate and reduce the amount of pollution entering United States waters. Section 303(d) of the CWA requires states to assess their waterbodies to identify those not meeting water quality standards. If a waterbody is not meeting standards, it is listed as impaired and reported to the U.S. Environmental Protection Agency. The state then develops a plan to clean up the impaired waterbody. This plan includes the development of a Total Maximum Daily Load (TMDL) for the pollutant(s) that were found to be the cause of the water quality violations. A Total Maximum Daily Load (TMDL) calculates the maximum amount of a specific pollutant that a waterbody can receive and still meet water quality standards.

A TMDL for a given pollutant and waterbody is composed of the sum of individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background levels. In addition, the TMDL must include an implicit or explicit margin of safety (MOS) to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving waterbody. The TMDL components are illustrated using the following equation:

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

Pennsylvania has committed to restoring all impaired waters by developing TMDLs and TMDL alternatives for all impaired waterbodies. The TMDL serves as the starting point or planning tool for restoring water quality.

5.4.1.1 Local TMDL

The subject facility discharges into a local TMDL called the Schuylkill River PCB TMDL. The Schuylkill River, in southeastern Pennsylvania, is the focus of this TMDL study. The Schuylkill River watershed is the largest subwatershed in the Delaware River Basin. Pennsylvania's 2004 section 303(d) list includes multiple mainstem and tributary segments in the Schuylkill River Basin as impaired due to elevated polychlorinated biphenyl (PCB) concentrations. The elevated PCB concentrations were found in fish tissue and sediment samples taken throughout the basin. The impairment listings for stream and reservoir segments in the Schuylkill River Basin are the culmination of various studies and data collected to date.

Western Berks Water Authority is not listed in the Schuylkill River PCB TMDL. As such, no monitoring requirements from the TMDL will be implemented for the facility.

5.5 Anti-Degradation Requirement

Chapter 93.4a of the PA regulations requires that surface water of the Commonwealth of Pennsylvania may not be degraded below levels that protect the existing uses. The regulations specifically state that *Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected*. Antidegradation requirements are

implemented through DEP's guidance manual entitled Water Quality Antidegradation Implementation Guidance (Document #391-0300-02).

The policy requires DEP to protect the existing uses of all surface waters and the existing quality of High Quality (HQ) and Exceptional Value (EV) Waters. Existing uses are protected when DEP makes a final decision on any permit or approval for an activity that may affect a protected use. Existing uses are protected based upon DEP's evaluation of the best available information (which satisfies DEP protocols and Quality Assurance/Quality Control (QA/QC) procedures) that indicates the protected use of the waterbody.

For a new, additional, or increased point source discharge to an HQ or EV water, the person proposing the discharge is required to utilize a nondischarge alternative that is cost-effective and environmentally sound when compared with the cost of the proposed discharge. If a nondischarge alternative is not cost-effective and environmentally sound, the person must use the best available combination of treatment, pollution prevention, and wastewater reuse technologies and assure that any discharge is nondegrading. In the case of HQ waters, DEP may find that after satisfaction of intergovernmental coordination and public participation requirements lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In addition, DEP will assure that cost-effective and reasonable best management practices for nonpoint source control in HQ and EV waters are achieved.

The subject facility's discharge will be to a non-special protection waters and the permit conditions are imposed to protect existing instream water quality and uses. Neither HQ waters or EV waters is impacted by this discharge.

5.6 Anti-Backsliding

Anti-backsliding is a federal regulation which prohibits a permit from being renewed, reissued, or modified containing effluent limitations which are less stringent than the comparable effluent limitations in the previous permit (40 CFR 122.l.1 and 40 CFR 122.l.2). A review of the existing permit limitations with the proposed permit limitations confirm that the facility is consistent with anti-backsliding requirements. The facility has proposed effluent limitations that are as stringent as the existing permit.

6.0 NPDES Parameter Details

The basis for the proposed sampling and their monitoring frequency that will appear in the permit for each individual parameter are itemized in this Section. The final limits are the more stringent of technology based effluent treatment (TBEL) requirements, water quality based (WQBEL) limits, TMDL, antidegradation, anti-degradation, or WET.

The reader will find in this section:

a) a justification of recommended permit monitoring requirements and limitations for each parameter in the proposed NPDES permit;
b) a summary of changes from the existing NPDES permit to the proposed permit; and
c) a summary of the proposed NPDES effluent limits.

6.1 Recommended Monitoring Requirements and Effluent Limitations

A summary of the recommended monitoring requirements and effluent limitations are itemized in the tables. The tables are categorized by (a) Conventional Pollutants and Disinfection, (b) Nitrogen Species and Phosphorus, and (c) Toxics.

6.1.1 Conventional Pollutants and Disinfection- Outfall 001

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection			
Western Berks Water Authority; PA0051560; Outfall 001			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be daily as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by Chapter 95.2(1).
TSS	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	The average monthly limit should not exceed 30 mg/l as an average monthly and 60 mg/l as a daily maximum
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by DEP Guidance Document-Water Treatment Plant Wastes.
TRC	DEP Guidance Document-Water Treatment Plant Wastes/TBEL	Monitoring:	The monitoring frequency shall be on a daily basis as a grab sample (Table 6-4).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l, 1.0 mg/l as a daily maximum, and.1.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the TBEL is more stringent than the WQBEL. The monitoring frequency has been assigned in accordance with best professional judgement and the effluent limits assigned by Chapter 92a.48(b)(2)	
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.27 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.2 Nitrogen Species and Phosphorus- Outfall 001

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus			
Western Berks Water Authority; PA0051560; Outfall 001			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
Total Phosphorus	TMDL/Chemical Additive Monitoring	Monitoring:	The monitoring frequency shall be 1x/mo as a grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to a pending TMDL for the receiving stream and to monitor impacts from blended phosphates from chemical additives, monitoring shall be 1x/month.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.27 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.1.3 Toxics- Outfall 001

Summary of Proposed NPDES Parameter Details for Toxics

Western Berks Water Authority; PA0051560; Outfall 001

Parameter	Permit Limitation Required by[1]:	Recommendation	
Iron	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 2 mg/l as a monthly average and 4 mg/l as a daily maximum.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Aluminum	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 4 mg/l as a monthly average and 8 mg/l as a daily maximum.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash
Manganese	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/month as a grab sample (Table 6-4).
		Effluent Limit:	The performance effluent limit shall not exceed 1 mg/l as a monthly average and 2 mg/l as a daily maximum.
		Rationale:	Effluent limits are defined by DEP Guidance Document- Technology-Based Control Requirements for Water Treatment Plant Wastes- Waste Water from Treatment of WTP Sludges and Filter Backwash

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.27 MGD.

3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.4 Conventional Pollutants and Disinfection- Outfall 002

Summary of Proposed NPDES Parameter Details for Conventional Pollutants and Disinfection
Western Berks Water Authority; PA0051560; Outfall 002

Parameter	Permit Limitation Required by[1]:	Recommendation	
pH (S.U.)	TBEL	Monitoring:	The monitoring frequency shall be 1x/discharge basis as a grab sample (Table 6-4).
		Effluent Limit:	Effluent limits may range from pH = 6.0 to 9.0
		Rationale:	The monitoring frequency has been assigned in accordance with best professional judgement and the effluent limits assigned by Chapter 95.2(1).
TSS	DEP Guidance Document-Water Treatment Plant Wastes	Monitoring:	The monitoring frequency shall be 1x/discharge basis as a grab sample (Table 6-4).
		Effluent Limit:	The average monthly limit should not exceed 30 mg/l as an average monthly and 60 mg/l as a daily maximum
		Rationale:	The monitoring frequency has been assigned in accordance with Table 6-4 and the effluent limits assigned by DEP Guidance Document-Water Treatment Plant Wastes.
TRC	DEP Guidance Document-Water Treatment Plant Wastes/TBEL	Monitoring:	The monitoring frequency shall be on a 1x/discharge basis as a grab sample (Table 6-4).
		Effluent Limit:	The average monthly limit should not exceed 0.5 mg/l and 1.6 mg/l as an instantaneous maximum.
		Rationale: Chlorine in both combined (chloramine) and free form is extremely toxic to freshwater fish and other forms of aquatic life (Implementation Guidance Total Residual Chlorine 1). The TRC effluent limitations to be imposed on a discharger shall be the more stringent of either the WQBEL or TBEL requirements and shall be expressed in the NPDES permit as an average monthly and instantaneous maximum effluent concentration (Implementation Guidance Total Residual Chlorine 4). Based on the stream flow rate (lowest 7-day flow rate in 10 years) and the design flow rate of the subject facility calculated by the TRC Evaluation worksheet, the TBEL is more stringent than the WQBEL. The monitoring frequency has been assigned in accordance with best professional judgement and the effluent limits assigned by Chapter 92a.48(b)(2)	

Notes:

1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other

2 Monitoring frequency based on flow rate of 0.028 MGD.

3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97

4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)

5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021

6.1.2 Nitrogen Species and Phosphorus- Outfall 002

Summary of Proposed NPDES Parameter Details for Nitrogen Species and Phosphorus			
Western Berks Water Authority; PA0051560; Outfall 002			
Parameter	**Permit Limitation Required by[1]:**	**Recommendation**	
Total Phosphorus	TMDL/Chemical Additive Monitoring	Monitoring:	The monitoring frequency shall be 1x/discharge basis as a grab sample
		Effluent Limit:	No effluent requirements.
		Rationale:	Due to a pending TMDL for the receiving stream and to monitor impacts from blended phosphates from chemical additives, monitoring shall be 1x/month.
Notes:			
1 The NPDES permit was limited by (a) anti-Backsliding, (b) Anti-Degradation, (c) SOP, (d) TBEL, (e) TMDL, (f) WQBEL, (g) WET, or (h) Other			
2 Monitoring frequency based on flow rate of 0.028 MGD.			
3 Table 6-4 (Self Monitoring Requirements for Industrial Discharges) in Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits) (Document # 362-0400-001) Revised 10/97			
4 Water Quality Antidegradation Implementaton Guidance (Document # 391-0300-002)			
5 Chesapeake Bay Phase 3 Watershed Implementation Plan Wastewater Supplement, Revised September 13, 2021			

6.2 Summary of Changes From Existing Permit to Proposed Permit

A summary of how the proposed NPDES permit differs from the existing NPDES permit is summarized as follows.

- No changes in monitoring or effluent limits.

6.3.1 Summary of Proposed NPDES Effluent Limits

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.

The proposed NPDES effluent limitations are summarized in the table below.

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. A. For Outfall 001, **Latitude** 40° 22' 7.00", **Longitude** 76° 1' 25.00", **River Mile Index** 5.9, **Stream Code** 1846

Receiving Waters: Tulpehocken Creek (CWF, MF)

Type of Effluent: Intermittent Discharge

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.
2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/day	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	1.0	1.6	1/day	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/month	Grab
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/month	Grab
Aluminum, Total	Report	Report	XXX	4.0	8.0	10	1/month	Grab
Iron, Total	Report	Report	XXX	2.0	4.0	5	1/month	Grab
Manganese, Total	Report	Report	XXX	1.0	2.0	2.5	1/month	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING AND REPORTING REQUIREMENTS

I. B. For Outfall 002 , **Latitude** 40° 22' 5.00" , **Longitude** 76° 1' 20.00" , **River Mile Index** 5.9 , **Stream Code** 1846

Receiving Waters: Tulpehocken Creek (CWF, MF)

Type of Effluent: Emergency Overflow (IW)

1. The permittee is authorized to discharge during the period from **Permit Effective Date** through **Permit Expiration Date**.

2. Based on the anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply (see also Additional Requirements and Footnotes).

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/discharge	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/discharge	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/discharge	Grab
Total Suspended Solids	Report	Report	XXX	30.0	60.0	75	1/discharge	Grab
Total Phosphorus	XXX	Report	XXX	XXX	Report	XXX	1/discharge	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 002

6.3.2 Summary of Proposed Permit Part C Conditions

The subject facility has the following Part C conditions.

- Chlorine Minimization
- Water Treatment Plant Basin Cleaning
- Chemical Additives exemption for blended phosphates
- Chemical Additives

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater, Revised, October 11, 2013
☐	Other:

Attachment A
Stream Stats/Gauge Data

10 Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01465780	Poquessing Creek above Byberry Creek at Phila., Pa.	40.070	-74.975	13.2	N
01465798	Poquessing Creek at Grant Ave. at Philadelphia, Pa.	40.057	-74.985	21.4	N
01465850	South Branch Rancocas Creek at Vincentown, N.J.	39.94	-74.763	64.5	N
01466500	McDonalds Branch in Byrne State Forest, N.J.	39.885	-74.505	2.35	N
01467000	North Branch Rancocas Creek at Pemberton, N.J.	39.97	-74.684	118	N
01467042	Pennypack Creek at Pine Road, at Philadelphia, Pa.	40.090	-75.069	37.9	N
01467048	Pennypack Creek at Lower Rhawn St Bdg, Phila., Pa.	40.050	-75.033	49.8	N
01467050	Wooden Bridge Run at Philadelphia, Pa.	40.055	-75.022	3.35	N
01467081	South Branch Pennsauken Creek at Cherry Hill, N.J.	39.942	-75.001	8.98	N
01467086	Tacony Creek ab Adams Avenue, Philadelphia, Pa.	40.047	-75.111	16.7	N
01467087	Frankford Creek at Castor Ave, Philadelphia, Pa.	40.016	-75.097	30.4	N
01467089	Frankford Creek at Torresdale Ave., Phila., Pa.	40.007	-75.092	33.8	N
01467150	Cooper River at Haddonfield, N.J.	39.903	-75.021	17.0	N
01467500	Schuylkill River at Pottsville, Pa.	40.684	-76.186	53.4	N
01468500	Schuylkill River at Landingville, Pa.	40.629	-76.125	133	N
01469500	Little Schuylkill River at Tamaqua, Pa.	40.807	-75.972	42.9	N
01470500	Schuylkill River at Berne, Pa.	40.523	-75.998	355	N
01470756	Maiden Creek at Virginville, Pa.	40.514	-75.883	159	N
01470779	Tulpehocken Creek near Bernville, Pa.	40.413	-76.172	66.5	N
01470853	Furnace Creek at Robesonia, Pa.	40.340	-76.143	4.18	N
01470960	Tulpehocken Creek at Blue Marsh Damsite near Reading, Pa.	40.371	-76.025	175	Y
01471000	Tulpehocken Creek near Reading, Pa.	40.369	-75.979	211	Y
01471510	Schuylkill River at Reading, Pa.	40.335	-75.936	880	Y
01471875	Manatawny Creek near Spangsville, Pa.	40.340	-75.742	56.9	N
01471980	Manatawny Creek near Pottstown, Pa.	40.273	-75.680	85.5	N
01472000	Schuylkill River at Pottstown, Pa.	40.242	-75.652	1,147	Y
01472157	French Creek near Phoenixville, Pa.	40.151	-75.601	59.1	N
01472174	Pickering Creek near Chester Springs, Pa.	40.090	-75.630	5.98	N
01472198	Perkiomen Creek at East Greenville, Pa.	40.394	-75.515	38.0	N
01472199	West Branch Perkiomen Creek at Hillegass, Pa.	40.374	-75.522	23.0	N
01472500	Perkiomen Creek near Frederick, Pa.	40.275	-75.455	152	N
01472620	East Branch Perkiomen Creek near Dublin, Pa.	40.404	-75.234	4.05	LF
01472810	East Branch Perkiomen Creek near Schwenksville, Pa.	40.259	-75.429	58.7	LF
01473000	Perkiomen Creek at Graterford, Pa.	40.230	-75.452	279	LF
01473120	Skippack Creek near Collegeville, Pa.	40.165	-75.433	53.7	N
01473169	Valley Creek at Pa. Turnpike Br near Valley Forge, Pa.	40.079	-75.461	20.8	N
01473500	Schuylkill River at Norristown, Pa.	40.111	-75.347	1,760	N
01473900	Wissahickon Creek at Fort Washington, Pa.	40.124	-75.220	40.8	N
01473950	Wissahickon Creek at Bells Mill Rd, Phila., Pa.	40.080	-75.226	53.6	N
01473980	Wissahickon Creek at Livezey Lane, Phila., Pa.	40.050	-75.214	59.2	N
01474000	Wissahickon Creek at Mouth, Philadelphia, Pa.	40.015	-75.207	64.0	N
01474500	Schuylkill River at Philadelphia, Pa.	39.968	-75.189	1,893	N
01475000	Mantua Creek at Pitman, N.J.	39.737	-75.113	6.05	N
01475300	Darby Creek at Waterloo Mills near Devon, Pa.	40.023	-75.422	5.15	N
01475510	Darby Creek near Darby, Pa.	39.929	-75.272	37.4	N

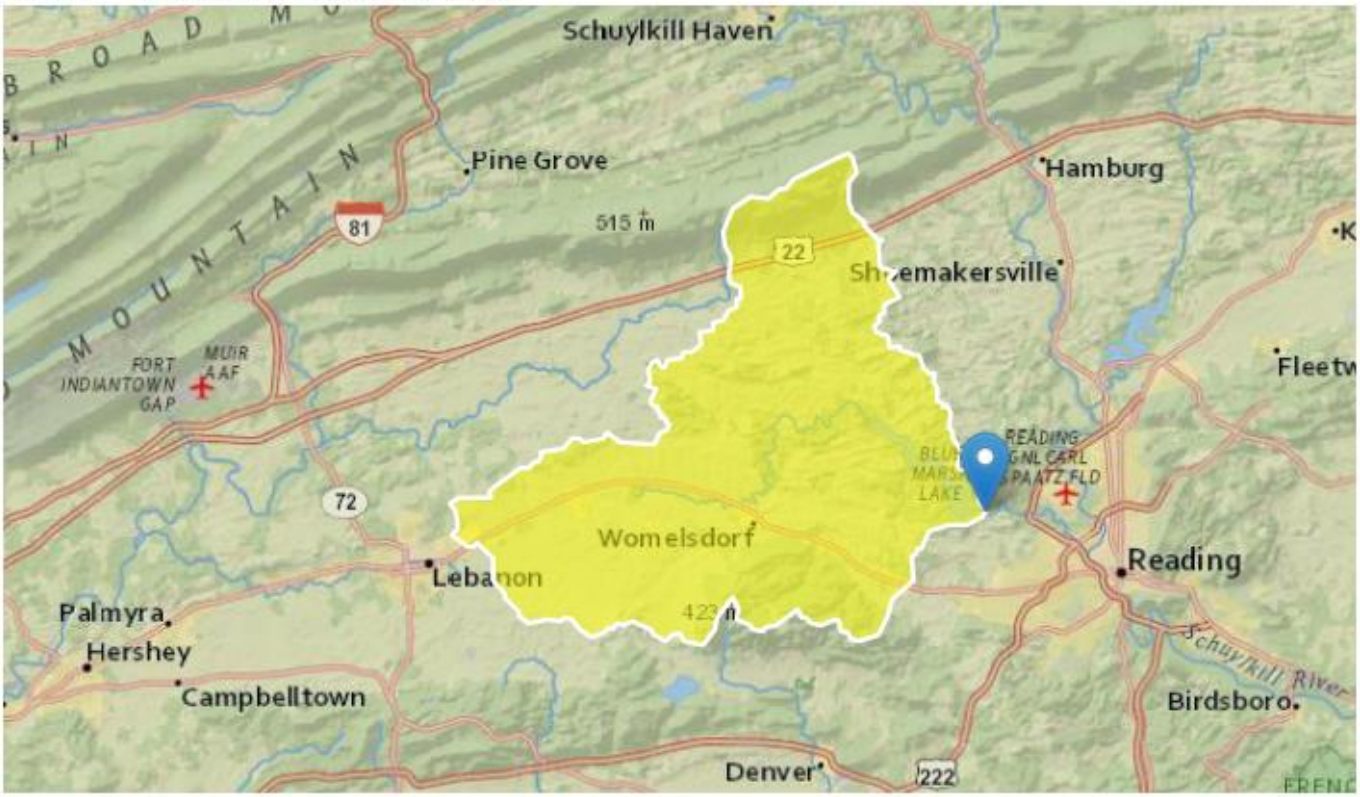
Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s; cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01453000	[3]1904–1927	18	237	312	447	378	546	472
01454700	1968–2005	38	471	510	745	600	902	760
01455500	1930–2008	52	0	.4	7.8	—	—	6.0
01457000	1905–2008	89	40.6	45.6	70.5	52.2	81.7	62.5
01459500	[2]1975–2008	34	1.9	2.1	4.1	2.9	7.1	5.7
01459500	[3]1937–1973	37	.4	.9	2.1	1.3	3.6	2.9
01463500	1914–2008	95	1,540	1,720	2,700	1,960	3,120	2,430
01463620	1974–2008	19	2.4	2.7	7.6	4.8	10.6	8.6
01464000	1925–2008	84	9.4	14.2	25.7	18.7	34.2	29.3
01464500	1942–2008	65	16.4	18.9	34.0	24.4	42.3	37.3
01464645	1987–2008	22	3.3	3.6	12.3	4.4	13.6	5.4
01464720	1992–2008	17	3.0	3.6	5.8	4.5	7.3	6.2
01465000	1886–1934	28	—	3.4	10.1	4.9	15.0	12.9
01465500	1936–2008	73	9.0	12.7	26.4	17.3	37.4	28.6
01465770	1966–1982	16	.3	.4	1.2	.8	1.7	1.7
01465798	1967–2008	42	1.0	1.2	3.6	3.0	6.8	7.9
01465850	1963–2008	19	5.2	8.5	13.2	12.1	19.5	17.1
01466500	1955–2008	54	.8	.8	1.1	.9	1.2	.9
01467000	1923–2008	86	26.2	34.2	51.8	41.6	63.2	53.2
01467042	1966–1981	16	8.6	9.3	16.8	11.3	21.5	17.0
01467048	1967–2008	42	10.7	12.1	18.9	16.6	27.2	26.6
01467050	1967–1981	15	.3	.4	.8	.7	1.3	1.6
01467081	1969–2008	38	2.4	2.9	4.1	3.9	6.0	6.3
01467086	1967–1988	23	3.3	4.4	6.9	6.6	9.9	10.4
01467087	1984–2008	25	1.6	2.1	6.1	4.8	10.1	12.0
01467089	1968–1982	15	4.8	6.6	9.6	10.3	16.0	20.1
01467150	1965–2008	44	3.9	5.4	10.1	7.3	13.2	11.5
01467500	1945–1969	25	14.6	17.2	24.5	19.8	28.5	23.4
01468500	1949–2008	40	40.8	44.5	70.6	52.1	82.4	65.0
01469500	1921–2008	88	4.8	5.5	10.9	7.3	14.4	10.1
01470500	1949–2008	60	69.2	82.3	137	102	164	133
01470756	1974–1995	22	14.8	16.7	30.5	23.4	43.9	35.5
01470779	1976–2008	33	21.9	24.6	39.3	29.4	45.2	34.8
01470853	1984–2005	22	.2	.4	1.2	.8	1.6	1.1
01470960	[2]1980–2008	29	29.4	31.8	52.4	47.0	74.7	66.3
01470960	[3]1967–1978	12	32.7	38.2	74.0	47.6	88.3	59.5
01471000	[2]1980–2008	29	36.9	43.4	69.4	58.9	93.9	81.0
01471000	[3]1952–1978	27	41.8	47.6	77.1	55.3	91.2	68.6
01471510	[2]1980–2008	29	222	244	347	274	422	340
01471510	[3]1916–1930	10	142	173	279	206	337	245
01471875	1995–2008	14	10.9	11.8	21.2	14.1	25.3	19.0
01471980	1976–2004	29	16.5	17.8	29.2	21.7	34.9	29.7
01472000	[2]1980–2008	29	276	301	432	349	527	453
01472000	[3]1929–1978	50	228	258	411	298	486	374
01472157	1970–2008	39	9.5	10.2	17.2	12.5	21.8	17.0

StreamStats Report

Region ID: PA
Workspace ID: PA20220225173209103000
Clicked Point (Latitude, Longitude): 40.36888, -76.02273
Time: 2022-02-25 12:32:29 -0500



Western Berks PA0051560 Modeling Point #1 February 2022

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	179	square miles
PRECIP	Mean Annual Precipitation	45	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.29	miles per square mile
ROCKDEP	Depth to rock	4.3	feet
CARBON	Percentage of area of carbonate rock	41.66	percent

Low-Flow Statistics Parameters [100.0 Percent (179 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	179	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
STRDEN	Stream Density	1.29	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	41.66	percent	0	99

Low-Flow Statistics Flow Report [100.0 Percent (179 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	70.8	ft^3/s	38	38
30 Day 2 Year Low Flow	83.3	ft^3/s	33	33
7 Day 10 Year Low Flow	42.3	ft^3/s	51	51
30 Day 10 Year Low Flow	50.9	ft^3/s	46	46
90 Day 10 Year Low Flow	62.2	ft^3/s	36	36

Low-Flow Statistics Citations

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

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Application Version: 4.7.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20220225173548624000
Clicked Point (Latitude, Longitude): 40.36953, -76.00610
Time: 2022-02-25 12:36:08 -0500

Western Berks PA0051560 Modeling Point #2 February 2022

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	192	square miles
PRECIP	Mean Annual Precipitation	45	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.3	miles per square mile
ROCKDEP	Depth to rock	4.3	feet
CARBON	Percentage of area of carbonate rock	39.78	percent

Low-Flow Statistics Parameters [99.9 Percent (192 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	192	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	45	inches	35	50.4
STRDEN	Stream Density	1.3	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	39.78	percent	0	99

Low-Flow Statistics Flow Report [99.9 Percent (192 square miles) Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	74.5	ft^3/s	38	38
30 Day 2 Year Low Flow	87.9	ft^3/s	33	33
7 Day 10 Year Low Flow	44.5	ft^3/s	51	51
30 Day 10 Year Low Flow	53.6	ft^3/s	46	46
90 Day 10 Year Low Flow	65.8	ft^3/s	36	36

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/)

Attachment B

Toxics Management Spreadsheet Output Values

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Western Berks Water Authority** NPDES Permit No.: **PA0051560** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Wastewater 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
0.27	177	7.38						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	0 if left blank: Stream Conc	0.6 if left blank: Daily CV	0.6 if left blank: Hourly CV	0 if left blank: Stream CV	0 if left blank: Fate Coeff	0 if left blank: FOS	1 if left blank: Criteria Mod	1 if left blank: Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		250									
	Chloride (PWS)	mg/L		50.4									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		24.6									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L		146									
	Total Antimony	µg/L	<	0.4									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		48									
	Total Beryllium	µg/L	<	0.4									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.4									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.1									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		2									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		5									
	Dissolved Iron	µg/L		11									
	Total Iron	µg/L	<	100									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L		151									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Western Berks Water Authority, NPDES Permit No. PA0051560, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: Tulpehocken 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	001846	5.9	261	179			Yes
End of Reach 1	001846	4.49	224	192			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.9	0.2183										154	7.59		
End of Reach 1	4.49	0.2183										154	7.59		

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	5.9														
End of Reach 1	4.49														

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: Western Berks Water Authority NPDES Permit No.: PA0051560 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Emergency overflow

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
0.028	218	7						

					0 if left blank		0.6 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		238									
	Chloride (PWS)	mg/L		29.6									
	Bromide	mg/L	<	1									
	Sulfate (PWS)	mg/L		21.6									
	Fluoride (PWS)	mg/L		0.53									
Group 2	Total Aluminum	µg/L	<	100									
	Total Antimony	µg/L	<	0.4									
	Total Arsenic	µg/L	<	1									
	Total Barium	µg/L		35									
	Total Beryllium	µg/L	<	0.4									
	Total Boron	µg/L	<	50									
	Total Cadmium	µg/L	<	0.4									
	Total Chromium (III)	µg/L	<	1									
	Hexavalent Chromium	µg/L	<	0.1									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L	<	2									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	5									
	Dissolved Iron	µg/L	<	10									
	Total Iron	µg/L	<	100									
	Total Lead	µg/L	<	1									
	Total Manganese	µg/L	<	10									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L	<	1									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	2									
	Total Silver	µg/L	<	1									
	Total Thallium	µg/L	<	0.4									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L	<	1									
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

Western Berks Water Authority, NPDES Permit No. PA0051560, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Tulpehocken 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	001846	5.9	261	179			Yes
End of Reach 1	001846	4.49	224	192			Yes

Q_{7-10}

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	5.9	0.2183										154	7.59		
End of Reach 1	4.49	0.2183										154	7.59		

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	5.9														
End of Reach 1	4.49														

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

Attachment C

TRC Evaluation

Western Berks WTP March 2022
PA0051560
Outfall 001

2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	39.07314286	= Q stream (cfs)		0.5	= CV Daily	
5	0.27	= 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 = 29.860		1.3.2.iii	WLA cfc = 29.104
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 11.127		5.1d	LTA_cfc = 16.920
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)

Western Berks WTP March 2022
PA0051560
Outfall 002

	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	39.07314286	= Q stream (cfs)		0.5	= CV Daily	
5	0.028	= 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 = 287.773		1.3.2.iii	WLA cfc = 280.548
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 107.231		5.1d	LTA_cfc = 163.098
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)

Attachment D- Correspondence

Spotts, Stevens and McCoy
1047 N. Park Road > Reading PA 19610-1339
610.621.2000 > F. 610.621.2001 > SSMGROUP.COM

SSM

February 25, 2022

Mr. Nick Hong
PA Department of Environmental Protection
Southcentral Regional Office
Clean Water Program
909 Elmerton Avenue
Harrisburg, PA 17110
[via email: nhong@pa.gov]

RE: **Western Berks Water Authority WTP**
NPDES Permit Renewal – Supplemental Information
NPDES Permit No. PA 0051560
SSM File 101012.0050

Dear Mr. Hong:

On behalf of the applicant, the Western Berks Water Authority, we are writing relative to the March 2021 *NPDES Permit Renewal Application* for the Western Berks Water Authority's Water Treatment Plant. We appreciate the Department's continued review of the *NPDES Permit Renewal Application*.

We have reviewed the questions and concerns relative to the *Permit*, as presented in your February 16, 2022 correspondence, and we are writing in order to provide the following responses to your comments:

1. **On the summary tables for pollutant groups, a result of ND is not acceptable. If the laboratory result in non-detect, use the maximum non-detect value in the table.**
   See ***Attachment A*** for updated summary tables for Outfall 001, Outfall 002, and Treatment Plant Influent.

2. **Summarize biosolids disposal for 2021. We are interested in the volume, the percentage solids, and dry tons disposed. Also indicate the location for solids disposal.**
   Residuals produced by the treatment process are removed periodically from the lagoon by Denali Water Solutions and hauled to their landfill located in Maryland. In 2021, 272.18 wet tons of water treatment residuals (sludge) at approximately 15 percent solids was removed and hauled to the landfill.

3. **Provide a narrative on the design flow rate for the facility and annual design flow rate.**
   The existing water treatment plant is designed to treat 8.0 MGD of water. The effluent limitations for discharge Outfalls 001 and 002 were determined using effluent discharge rates of 0.27 MGD and 0.028 MGD, respectively. The flow of 0.27 MGD for Outfall 001 represents the 95th percentile of daily maximum flows when discharging. The average flow for Outfall 001 is much less, and the discharge is intermittent. The discharge at Outfall 002 would only occur in an emergency situation, and discharges have not occurred in the recent past.

Between 2019 and 2022, there were only seven (7) months where the plant had discharge flows. The average monthly flows ranged from 0.021 MGD to 0.159 MGD at Outfall 001.

We thank you for the opportunity to present our responses relative to this ***Permit Application***, and we would greatly appreciate your consideration in this matter. Please contact us should you have any questions or require any additional information.

Sincerely,
Spotts, Stevens and McCoy

Sydney L. Jernigan, EIT
Graduate Engineer
sydney.jernigan@ssmgroup.com

Enclosures

cc: Western Berks Water Authority (Encl.)

Hong, Nicholas

From: lorah, jamie <jamie.Lorah@ssmgroup.com>
Sent: Tuesday, March 15, 2022 10:00 AM
To: Hong, Nicholas
Cc: jernigan, sydney; rodino, lyn
Subject: RE: [External] RE: PA0051560 / Western Berks Water Authority
Attachments: L_DEP_Pt_and_NonPt_Source_wAttachments.pdf; June2016_NPDES_Permit(Draft)_REV.PDF

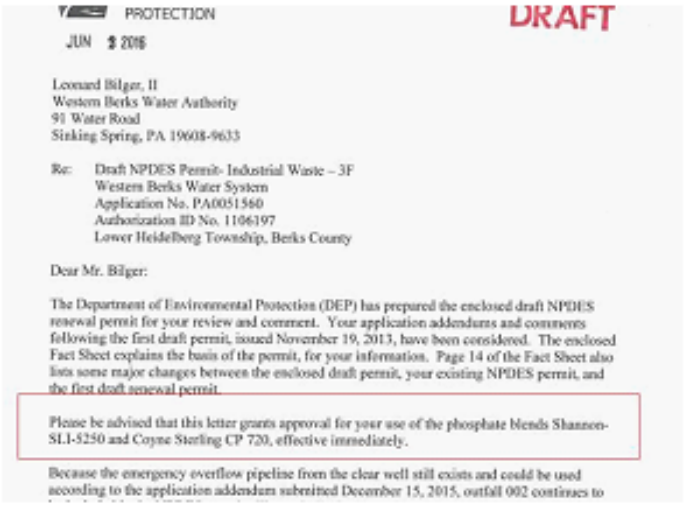
Good Morning, Nick:

I hope you are doing well!

Regarding the **Blended Phosphate Chemical, Shannon SLI-5250**, this chemical was approved during the previous ***NPDES Permit Renewal*** process for the **Western Berks Water Authority (WBWA)**.

Please find attached our response letter to the Department in December 2015 with MSDS information on the chemical and a letter from the chemical supplier. Also, please find attached the draft ***NPDES Permit*** from the Department from June 2016 containing the approval for the use of this chemical (excerpt below).

Please let us know if you have any additional questions. Thank you so much for your time!
Take Care!



PROTECTION

JUN 2 2016

DRAFT

Leonard Bilger, II
Western Berks Water Authority
91 Water Road
Sinking Spring, PA 19608-9633

Re: Draft NPDES Permit- Industrial Waste – 3F
Western Berks Water System
Application No. PA0051560
Authorization ID No. 1106197
Lower Heidelberg Township, Berks County

Dear Mr. Bilger:

The Department of Environmental Protection (DEP) has prepared the enclosed draft NPDES renewal permit for your review and comment. Your application addendums and comments following the first draft permit, issued November 19, 2013, have been considered. The enclosed Fact Sheet explains the basis of the permit, for your information. Page 14 of the Fact Sheet also lists some major changes between the enclosed draft permit, your existing NPDES permit, and the first draft renewal permit.

Please be advised that this letter grants approval for your use of the phosphate blends Shannon-SLI-5250 and Coyne Sterling CP 720, effective immediately.

Because the emergency overflow pipeline from the clear well still exists and could be used according to the application addendum submitted December 15, 2015, outfall 002 continues to

Jamie D. Lorah, P.E.
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P. 610.621.2000 > F. 610.621.2001 > SSMGROUP.COM

[Via email: maschumack@pa.gov]

December 15, 2015

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Maria Schumack
PA Department of Environmental Protection
Bureau of Point and Non-Point Source Management
Division of Water Quality Standards
Rachel Carson State Office Building
P.O. Box 8774
Harrisburg, PA 17105-8774

RE: **Western Berks Water Authority WTP**
NPDES Permit Renewal
Permit No. PA 0051560
SSM File 101012.0010.13

Dear Ms. Schumack:

In follow-up to our telephone conversation on December 4, 2015, and on behalf of our client, the Western Berks Water Authority (WBWA), we are writing regarding an amendment to the *NPDES Permit Application* for Permit No. PA 0051560. We have issued letters to the Department relative to our concerns following review of the WBWA's draft *NPDES Permit* and several new *Permit* conditions set forth therein, mainly relative to the new "Chemical Additives" requirements. A teleconference was then held between the WBWA, SSM, and the DEP's Permits section on September 30, 2014 in order to review the WBWA's concerns. Copies of previous correspondence with the DEP, as well as a copy of the current water treatment plant process flow diagram, are attached for your reference (please see **Attachment A**).

As discussed in our telephone conversation, the WBWA's Water Treatment Plant ("Treatment Plant") currently has two (2) permitted outfalls at its facility: Outfall 001, the Outfall from the Sludge Lagoon; and Outfall 002, which is the "Emergency" Outfall for the Chlorine Contact Tank. Outfall 001, the Lagoon discharge, is intermittent and only occurs roughly 30 times per year. The Lagoons have a total capacity of approximately 1 million gallons (MG). "Emergency" Outfall 002 is <u>not</u> operated unless it is an extreme emergency situation, and many safeguards are in place in order to prevent this from occurring, including strict Standard Operating Procedures and SCADA protocols. Outfall 002 has not been utilized for at least the last ten (10) years of Treatment Plant operation. In previous discussions and correspondence with the Department, we had reviewed the option of decommissioning Outfall 002 and/or removing this Outfall from the NPDES Permit entirely, due to the fact that it has not been utilized in many years; SCADA controls are utilized to prevent high water levels from occurring in the Chlorine Contact Tank and to prevent failure of necessary equipment. We had also discussed the option of re-routing the overflow from the Chlorine Contact Tank to the head of the Treatment Plant. Supplementary information on Outfalls 001 and 002, including photographs and schematics of Lagoon Outfall 001, and Chlorine Contact Tank and Sludge Lagoon SOP's, can be found in **Attachment B**.

SSM

Ms. Maria Schumack | PA Department of Environmental Protection
SSM File 101012.0010.13
December 15, 2015
Page 2

As stated in our previous correspondence with the Department, the WBWA is currently in the design phase for a new transmission pipe to pipe raw water from Blue Marsh Lake to the WBWA's Treatment Plant, creating a new raw water intake for the Treatment Plant. The NPDES Permit Application was updated with this information, causing a delay in the permitting process. However, this intake is expected to include new, in-line mechanical strainers, which are to be backwashed periodically to prevent fouling and clogging, and the backwash water and screened materials removed during this process will be piped to the existing Treatment Plant Sludge Lagoon. The new intake construction and source water is not expected to change the makeup or constituents of the wastewater discharged from the Sludge Lagoon, and the backwash water being discharged to the Lagoon is expected to have an almost negligible effect on the amount of water discharged from the Lagoon (i.e. the discharge flow rate). Currently, the WBWA is proposing to backwash the strainers two (2) to three (3) times per day at the most, discharging a total maximum flow of about 440 to 900 gallons per day (gpd) to the Sludge Lagoon. Out of this volume, the backwash is expected to contain a total of about 100 to 150 gpd of finished water. This finished water could potentially contain a minimal amount of the corrosion control (blended phosphate) chemical, Shannon Chemical SLI-5250 (please see the attached MSDS, **Attachment C**). **Attachment C** also contains a letter from Shannon Chemical and additional information pertaining to this chemical.

As you are likely aware, the Department has deemed Shannon Chemical SLI-5250 a "Chemical Additive," as well as any other similarly-derived, blended phosphate chemicals used for the purposes of corrosion control. It is also important to note that this is a chemical which is bid-out every few years in order for the WBWA to remain cost-efficient and offer its customers the best water quality and water rates. To this end, the WBWA has recently signed a contract with Coyne Chemical for utilizing Coyne's (Sterling) CP 720 (see attached MSDS, **Attachment C**). The WBWA is required, by Contract, to begin purchasing and using this chemical beginning next month, January 2016. This is expected to be a 1-year contract. Therefore, this is time-sensitive, and we are writing to try to seek a resolution to these issues.

On behalf of the WBWA, we are respectfully requesting relief to this specific NPDES Permit "Chemical Additives" requirement, for several reasons. This requirement greatly limits the WBWA's flexibility to optimize its chemical treatment based on the changing complexity of its raw water source, as different chemicals are fed in varying quantities based on raw water quality. As stated, this chemical is bid-out on a regular basis and, if these requirements are too onerous on chemical suppliers, the WBWA will not obtain competitive, reasonable bids for the purchase of the chemical. The selected corrosion control chemical must be NSF-certified, and the WBWA must adhere to its Public Water Supply Permit requirements, which are very clear as to which chemicals can be used for public water supply. The selected chemical(s) are tailored to the WBWA's specific water chemistry and, if the wrong chemical were to be utilized for corrosion control, it would cause a build-up of biofilm, which could slough-off into the drinking water, causing a major upset within the distribution system, as well as other *major* drinking water quality issues.

SSM

Additionally, as the demand for water increases, and more water is treated at the WBWA's Treatment Plant, more of the Shannon Chemical (or other blended phosphate chemical) could be used in terms of mass loading (lbs/day). We have attempted to make the point to the Department that, although the total mass loading of the Shannon Chemical (or other blended phosphate chemical) may vary, and may increase over time (due to potential development and the expansion of water supply service area), the concentration of the chemical in the Clearwell (and finished water) is not expected to change. The concentration of phosphorus (as P) in the Clearwell is not expected to be increased in the near future, in the extremely rare event that there is an emergency overflow at Outfall 002. Also, as long as a similar blended phosphate chemical is used, this should have a negligible impact on the Tulpehocken Creek, due to the relatively high $Q_{7\text{-}10}$ (low) flow for the Creek.

There is also concern by the Department about the use of finished (i.e. "drinking") water in other parts of the treatment process. There are areas within the Treatment Plant which utilize finished water (containing the corrosion control additive, or blended phosphate), but the volume of finished water being utilized is again minimal. Please reference the flow schematic (**Attachment A**). *From the 3.15 MGD of finished water entering the Clearwell for eventual distribution to customers, only 0.186 MGD is introduced into the plant waste stream by virtue of backwashing the filters; the filter backwash then enters the backwash sump and is then recycled back to the head of the Treatment Plant.* The WBWA currently feeds the Shannon Chemical at a constant dose of 0.50 mg/l to the Chlorine Contact Tank. Based on this flow distribution and finished water use, approximately 0.80 pounds of the Shannon Chemical product has the potential to be discharged into the wastewater stream. This is the worst case scenario, due to the fact that the abundant organic matter and reeds in the Lagoon (see attached photographs, **Attachment B**) will likely uptake and degrade the majority of the residual phosphorus during detention in the Lagoon, before any discharge would occur from the Lagoon. This is evidenced by the fact that the concentration of Phosphorus in the Lagoon ranges from undetected levels (<0.05 mg/l) to 0.21 mg/l phosphorus (as P, see **Attachment D**). Moreover, the intermittent nature of the discharge further mitigates the amount that might actually be discharged on any given day. Since this decant *only* occurs a few times per month, the drying bed supernatant is typically stored in the Lagoon for several days prior to discharge.

In summary, due to the intermittent nature of the only functioning outfall, Lagoon Outfall 001, and the fact that the concentration of phosphorus in the Lagoon ranges from non-detect to 0.21 mg/L of total phosphorus (less than the current feed rate of the blended phosphate corrosion control chemical), the amount of phosphorus in the discharge from this Outfall is almost negligible. The WBWA is bound by NSF requirements and its own Public Water Supply permit to utilize specific chemicals for the purposes of Water Treatment and to maintain the quality of the drinking water supply. The use of the Shannon Chemical, or other blended phosphate chemical utilized for corrosion control, is necessary for the treatment of water and to maintain the quality of the drinking water; it is not a true "additive," as it is used for treatment purposes. In the Department's SOP for Chemical Additives, this term is defined as a "chemical product that is used for cleaning, disinfecting, or maintenance" and "the term generally excludes chemicals used for neutralization of waste streams, the production of goods, and the treatment of wastewater." In this particular case, the WBWA utilizes a blended phosphate chemical to produce quality drinking water and to protect the water supply from the sloughing off of biofilm, etc. Therefore, we feel that this chemical is not a true Chemical Additive and, in this particular case, this regulation should not apply to the WBWA Water Treatment Plant. If phosphorus is the Department's concern, the WBWA would be willing to monitor for phosphorus in its intermittent discharge at Outfall 001.

SSM

Ms. Maria Schumack | PA Department of Environmental Protection
SSM File 101012.0010.13
December 15, 2015
Page 4

We thank you for the opportunity to present our concerns relative to the Authority's draft *Permit*, and the "Chemical Additives" requirements, and we would greatly appreciate your consideration in this matter. Please contact us should you have any questions or require any additional information. Thank you for your time.

Sincerely,
SSM Group, Inc.

Jamie D. Lorah

Jamie D. Lorah, P.E.
Project Engineer
jamie.lorah@ssmgroup.com

Attachments

cc: Western Berks Water Authority
Bonnie Boylan, PA DEP Permits Section
Lee McDonnell, PA DEP (Central Office)

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DRAFT

JUN 2 2016

Leonard Bilger, II
Western Berks Water Authority
91 Water Road
Sinking Spring, PA 19608-9633

Re: Draft NPDES Permit- Industrial Waste – 3F
Western Berks Water System
Application No. PA0051560
Authorization ID No. 1106197
Lower Heidelberg Township, Berks County

Dear Mr. Bilger:

The Department of Environmental Protection (DEP) has prepared the enclosed draft NPDES renewal permit for your review and comment. Your application addendums and comments following the first draft permit, issued November 19, 2013, have been considered. The enclosed Fact Sheet explains the basis of the permit, for your information. Page 14 of the Fact Sheet also lists some major changes between the enclosed draft permit, your existing NPDES permit, and the first draft renewal permit.

Please be advised that this letter grants approval for your use of the phosphate blends Shannon-SLI-5250 and Coyne Sterling CP 720, effective immediately.

Because the emergency overflow pipeline from the clear well still exists and could be used according to the application addendum submitted December 15, 2015, outfall 002 continues to be included in the NPDES permit. The periodic flushing of lake water from the new intake line--per the correspondence from SSM Group to the DEP dated May 17, 2016--will be handled separately by DEP: it is not included in the enclosed draft NPDES permit.

Also enclosed is a copy of a public notice that, in accordance with DEP regulations at 25 Pa. Code § 92a.82(b), you are required to post near the entrance to your premises and, if the facility or discharge location is remote from these premises, at the entrance to the facility or at the discharge location. These postings shall remain for 30 days.

DEP will publish notice of the draft permit in the Pennsylvania Bulletin in the near future. You may provide written comments on the draft permit up to 30 days following publication of this notice. Following the 30-day public comment period (which may be extended by 15 days at DEP's discretion), DEP will consider any comments received and make a decision on whether to issue a final permit. The Discharge Monitoring Reports (DMRs) and Supplemental DMR forms will be attached to the final permit.

Please note that on October 9, 2010, new NPDES regulations at 25 Pa. Code Chapter 92a became effective. These regulations represent an extensive reorganization of Chapter 92 such

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