pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0011274**
Facility Type	**Industrial**	APS ID	**997872**
Major / Minor	**Minor**	Authorization ID	**1281188**

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

Applicant and Facility Information

Applicant Name	**Aqua Pennsylvania, Inc.**	Facility Name	**Neshaminy Falls Water Treatment Plant**
Applicant Address	762 W Lancaster Avenue	Facility Address	2520 W Lincoln Highway
	Bryn Mawr, PA 19010-3402		Oakford, PA 19047
Applicant Contact	Curt R. Steffy	Facility Contact	Charles Walton
Applicant Phone	(610) 645-1122	Facility Phone	(215) 757-7565
Client ID	309251	Site ID	446375
SIC Code	4941	Municipality	Middletown Township
SIC Description	Trans. & Utilities - Water Supply	County	Bucks
Date Application Received	June 3, 2019	EPA Waived?	Yes
Date Application Accepted	July 29, 2019	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

The PA Department of Environmental Protection (PADEP/Department) received the NPDES permit renewal application from GHD (consultant) on behalf of Aqua Pennsylvania, Inc. (permittee/Aqua) on June 3, 2019 for Aqua's Neshaminy Falls Water Treatment Plant (facility). This is a Minor IW facility without ELG (MIIW1) located in Middletown Township, Bucks County. The discharges are in Neshaminy Creek, a WWF/MF, in state watershed 2-F. The existing permit was expired on November 30, 2019. The terms and conditions of the permit were automatically extended since the renewal application was received at least 180 days prior to the permit expiration date. Renewal NPDES permit applications under Clean Water program are not covered by DEP's PDG, per 021-2100-001.

This fact sheet is prepared per 40 CFR §124.56.

Changes in this renewal:
Total Iron concentration limits will be applied for Outfall 001

Public Participation

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

Approve	Deny	Signatures	Date
√		Reza H. Chowdhury, E.I.T. / Project Manager	April 17, 2020
X		Pravin Patel Pravin C. Patel, P.E. / Environmental Engineer Manager	04/22/2020

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0.425
Latitude	40º 8' 45"	Longitude	-74º 57' 9"
Quad Name	Langhorne	Quad Code	1746
Wastewater Description:	Treated filter backwash water from lagoons and belt filter presses (Maintenance and Emergency only)		

Receiving Waters	Neshaminy Creek (WWF, MF)	Stream Code	02484
NHD Com ID	25480850	RMI	8.4700
Drainage Area	214 mi^2	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	12.84	Q_{7-10} Basis	Please see below
Elevation (ft)	25.44	Slope (ft/ft)	
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
Existing Use	**WWF, MF**	Existing Use Qualifier	Ch. 93
Exceptions to Use	WWF, MF	Exceptions to Criteria	Add Tur_1
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, ORGANIC ENRICHMENT, PATHOGENS, SILTATION		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final, 04/09/2003	Name	Neshaminy Creek

Background/Ambient Data		Data Source
pH (SU)	8.1	WQN0121, median Jul-Sep, 1999-2019
Temperature (°C)	24	WQN0121, median Jul-Sep, 1999-2018
Hardness (mg/L)	140.5	WQN0121, median Jul-Sep, 1999-2019

Nearest Downstream Public Water Supply Intake		Philadelphia Water Department	
PWS Waters	Delaware River	Flow at Intake (cfs)	
PWS RMI	35.36	Distance from Outfall (mi)	14.68

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0.216
Latitude	40º 8' 53"	Longitude	-74º 57' 22"
Quad Name	Langhorne	Quad Code	1746
Wastewater Description:	Wastewater discharge from leaf screen at Neshaminy Creek Intake (Chlorinated drinking water)		

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40º 8' 53"	Longitude	-74º 57' 22"
Quad Name	Langhorne	Quad Code	1746
Wastewater Description:	Stormwater/leachate from Residual Waste storage (Monofill Land)		

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.519
Latitude	40º 8' 47"	Longitude	-74º 56' 57"
Quad Name	Langhorne	Quad Code	1746
Wastewater Description:	Treated filter backwash water from lagoons and belt filter presses		
Receiving Waters	Neshaminy Creek (WWF, MF)	Stream Code	02484
NHD Com ID	25480850	RMI	8.29
Drainage Area	214 mi^2	Yield (cfs/mi^2)	0.06
Q_{7-10} Flow (cfs)	12.84	Q_{7-10} Basis	Please see below
Elevation (ft)	23.79	Slope (ft/ft)	
Watershed No.	2-F	Chapter 93 Class.	WWF, MF
Existing Use	**WWF, MF**	Existing Use Qualifier	Ch. 93
Exceptions to Use	WWF, MF	Exceptions to Criteria	Add Tur_1
Assessment Status	Impaired		
Cause(s) of Impairment	NUTRIENTS, ORGANIC ENRICHMENT, PATHOGENS, SILTATION		
Source(s) of Impairment	MUNICIPAL POINT SOURCE DISCHARGES, MUNICIPAL POINT SOURCE DISCHARGES, SOURCE UNKNOWN, SOURCE UNKNOWN		
TMDL Status	Final, 04/09/2003	Name	Neshaminy Creek

Background/Ambient Data		Data Source
pH (SU)	8.1	WQN0121, median Jul-Sep, 1999-2019
Temperature (°C)	24	WQN0121, median Jul-Sep, 1999-2018
Hardness (mg/L)	140.5	WQN0121, median Jul-Sep, 1999-2019
Other:		

Nearest Downstream Public Water Supply Intake	Philadelphia Water Department		
PWS Waters	Delaware River	Flow at Intake (cfs)	
PWS RMI	35.36	Distance from Outfall (mi)	14.27

Changes Since Last Permit Issuance: None

Drainage Area:
The discharge from Outfalls 001 and 002 are into Neshaminy Creek at RMI 8.29 and 8.7, respectively. The drainage area upstream of the points of discharge is 214 mi^2 according to USGS PA StreamStats, accessible at https://streamstats.usgs.gov/ss/

Stream Flow:
The nearest USGS Streamgage is 01465500 on Neshaminy Creek near Langhorne, PA which is approximately 2.77 miles upstream of Outfall 001 at RMI 11.06. Recent stream flow retrievals resulted in a Q_{7-10}, Q_{1-10}, and Q_{30-10} of 12.7 cfs, 9.0 cfs, and 17.3 cfs, respectively, at this gage for record period of 1936-2008. These values were obtained from the latest USGS streamflow report (1). The drainage area is reported to be 210 mi^2 at the gage station. The drainage area at Outfall 001 is found to be 214 mi^2 from USGS StreamStats Version 3.0, accessed on January 23, 2020. The flow calculations are shown below:

Q_{7-10} runoff rate (yield) = 12.7/210 = 0.06 cfs/mi^2.
Q_{30-10}: Q_{7-10} = 17.3/12.7 = 1.362:1
Q_{1-10}: Q_{7-10} = 9.0/12.7 = 0.709:1
Q_{7-10} = 0.06*214 = 12.84 cfs

(1) Stuckey, M.H., Roland, M.A., 2011, Selected streamflow statistics for streamgage locations in and near Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2011-1070, 9p, 22p.

PWS Intake:
The nearest downstream public water supply is Philadelphia Water Department on Delaware River at RMI 35.36. It is approximately 14.27 miles downstream of Outfall 001. Due to the distance, dilution, and effluent limits the discharge is not expected to impact the water supply. The distance is calculated as below:

+ Discharge Point RMI at Neshaminy Creek (02484) ---------- 8.29 mile
+ RMI at Delaware River (00002) at confluence with Neshaminy Creek ---------- 41.34 mile
- RMI at PWS intake ---------- 35.36 mile

Total = 14.27 mile

Wastewater Characteristics:
A median pH of 7.11 S.U. during July through September for the reporting years 2018-2019 from daily eDMR, a default discharge temperature of 20^0C, and total hardness of 147 mg/l from application will be used for modeling, if needed.

Background/Ambient Stream Data:
The Water Quality Network station WQN0121 is located approximately 2.77 miles upstream of Outfall 001. Historical data were analyzed for Stream Temperature, pH, and Total Hardness for July through September for the years 1999-2018/2019. The analysis indicated a median temperature, pH, and total hardness of 24 °C, 8.1 S.U. and 140.5 mg/l, respectively.

303d Listed Streams:
The discharge from this facility is in Neshaminy Creek at 8.29 RMI in state watershed 2-F which is aquatic life impaired for Organic Enrichment/Low D.O., Siltation, Nutrients from Municipal Point Source. It is also Recreational Use impaired due to Pathogens from unknown source while attaining its fish consumption use. The permit limits, terms, and conditions were developed in such a way that the discharge from this facility is expected not to contribute to the existing impairment of the receiving stream or the watershed.

Neshaminy Creek Watershed Total Maximum Daily Load (TMDL):
A TMDL for Neshaminy Creek Watershed was finalized on April 9, 2003 which was revised on December 2003. The Neshaminy Creek is located in state watershed 2-F, in Bucks and Montgomery Counties. It has approximately 418.3 miles of streams. Since 1996, 203.3 miles of these streams have been included on Pennsylvania's 303(d) list of streams having aquatic life use impairments. The watershed as a whole is very much a point source-dominated system. On an annual basis, the municipal wastewater treatment plants in the watershed contribute about 25% of the total phosphorus load. During critical low-flow periods, effluent discharges comprise over 90% of the total stream flow in many reaches. Upland erosion from developing areas and agriculture, and streambank erosion are other major sources of phosphorus, as well as sediment. However, in September 6, 2007, the nutrients portion of the TMDL was withdrawn by PADEP and approved by USEPA on January 31, 2008. No sediment WLA was assigned for this facility other than urban BMPs.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

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

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

Changes Since Last Permit Issuance: None

Other Comments:
Aqua owns and operates a Water Treatment Plant named Neshaminy Falls Water Treatment Plant (Plant) located in Middletown Township, Bucks County which discharges under the NPDES permit number PA0011274. Aqua requests renewal of the NPDES permit for a discharge of 0.519 MGD of treated filter backwash water from lagoons and belt presses, through Outfall 001. The plant also discharges through Outfall 002 (maintenance and emergency only), 003 (chlorinated wastewater discharge from leaf screen at Neshaminy Creek intake), and 004 (Stormwater/leachate from residual waste storage/Monofill land.) According to the permit renewal application, filter backwash water from the water treatment plant is clarified in two onsite lagoons and then discharged through Outfall 001. Sludge from the plate settler unit in the flocculators is thickened and then dewatered using two belt filter presses. Filtrate from the belt filter presses can also be discharged through Outfall 001. Average flow during production/operation is 0.178 MGD and maximum flow during production/operation 0.309 MGD. There was no flow from Outfalls 002, 003, or 004 since December 2014, per the application.

Water is drawn from Neshaminy Creek into the plant's intake chamber through two 24-inch influent lines. The influent flows through the debris screens and into Raw Well. The debris screen/traveling screens are periodically backwashed and the backwash water flows to the existing retention basin. Effluent from traveling screen chamber is sent to raw well which has 3 pumps. Alum, chlorine, sulfuric acid, lime, and PAC are added at the discharge pipe from pumps that goes to the flocculation tank. The flocculation tanks are two stage flocculators. The effluent from the second stage flows to the up-flow clarifiers. The up-flow clarifiers have a plate settler at an angle to settle out the floc particles. There are a chain and flight auger screw sludge collectors that remove the sludge from the bottom. Sludge is wasted to the residuals pump pit for approximately 2 hours per day from each up-flow clarifier. Sludge is pumped to the 2 sludge thickeners from the sludge pump pit. Polymer is injected to the sludge before it enters the thickeners. Thickened sludge from clarifiers are sent to sludge equalization basins, which will also receive sludge from Bristol WTP in future, and pumped through sludge pumps to belt filter presses after polymer is added. Pressed sludges are lifted through screw conveyors and dumped into dump truck. Supernatant from the thickeners and belt filter presses are sent to recycle pump station from where it is pumped to head of the water plant or recycle to wastewater transfer pit and discharge through Outfall 001. Supernatant from plate settlers are sent to gravity filters after polymer, PAC, lime, chlorine, sulfur dioxide, and ammonia addition. Filtrates from gravity filter goes to clear well. Filter backwash water is sent to wash water transfer pit. Wastewater from transfer pit is pumped to the lagoons through two pumps, from where it is discharged through Outfall 001 and 002 (emergency/maintenance only.)

Per the PADEP's inspection report dated September 28, 2016, the facility consists of the following treatment units:

1. Up-flow clarifiers
2. Eight filters
3. Two sludge thickeners
4. Two belt filter presses
5. Two wastewater lagoons
6. Two influent screens
7. One screen lagoon

Chemicals Used: Per application data, Sulfur Dioxide (dechlorination) at 65 lbs./day and Magnafloc LT340 Polymer (flocculation) at 2.5 lbs./day rate.

There are no proposed upgrades to this facility within the next five years.

Compliance History

DMR Data for Outfall 001 (from December 1, 2018 to November 30, 2019)

Parameter	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18
Flow (MGD) Average Monthly	0.184	0.182	0.18	0.179	0.182	0.178	0.177	0.175	0.172	0.172	0.182	0.201
Flow (MGD) Daily Maximum	0.219	0.23	0.225	0.224	0.229	0.225	0.224	0.223	0.216	0.216	0.238	0.265
pH (S.U.) Instantaneous Minimum	6.61	6.61	6.98	6.78	6.82	6.81	6.62	6.62	6.74	6.69	6.74	6.54
pH (S.U.) Instantaneous Maximum	7.23	7.36	7.52	7.42	7.28	7.25	7.24	7.3	7.11	7.16	7.17	7.48
TRC (mg/L) Average Monthly	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.002	< 0.01	< 0.01	< 0.01	< 0.01
TRC (mg/L) Instantaneous Maximum	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.07	< 0.01	< 0.01	< 0.01	< 0.01
TSS (lbs/day) Average Monthly	4	5	< 5	4	5	5	7	5	3	6	4	6
TSS (lbs/day) Daily Maximum	10	12	8	5	7	5	9	13	6	11	5	10
TSS (mg/L) Average Monthly	3	4	< 3	2	4	4	5	4	2	4	3	3
TSS (mg/L) Daily Maximum	5.3	8.4	6.4	3.6	5.2	4	7	11	3.3	6.7	3.6	5.2
Total Dissolved Solids (mg/L) Daily Maximum			344			238			394			264
Total Phosphorus (lbs/day) Average Monthly	0.1	0.1	0.1	< 0.1	0.1	0.1	0.1	0.09	0.08	0.07	0.06	0.04
Total Phosphorus (lbs/day) Daily Maximum	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.09	0.1	0.09	0.2
Total Phosphorus (mg/L) Average Monthly	0.1	0.1	0.1	< 0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.04	0.02
Total Phosphorus (mg/L) Daily Maximum	0.08	0.17	0.09	0.1	0.09	0.09	0.11	0.08	0.07	0.07	0.05	0.09
Total Aluminum (lbs/day) Average Monthly	0.7	0.6	0.5	0.4	0.4	0.4	0.6	0.2	0.3	0.7	0.6	0.8
Total Aluminum (lbs/day) Daily Maximum	1.2	1.0	0.6	0.4	0.6	0.5	0.8	0.3	0.4	1.1	0.7	1.4
Total Aluminum (mg/L) Average Monthly	0.41	0.44	0.34	0.22	0.31	0.31	0.36	0.18	0.23	0.42	0.37	0.51
Total Aluminum (mg/L) Daily Maximum	0.66	0.74	0.47	0.25	0.45	0.40	0.52	0.21	0.25	0.64	0.46	0.79
Total Manganese (lbs/day) Average Monthly	0.3	0.5	0.5	0.2	0.2	0.1	0.3	0.1	0.1	0.2	0.2	0.2
Total Manganese (lbs/day) Daily Maximum	0.5	0.8	1.1	0.3	0.4	0.2	0.5	0.2	0.1	0.13	0.3	0.2
Total Manganese (mg/L) Average Monthly	0.2	0.3	0.3	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1

Total Manganese (mg/L) Daily Maximum	0.36	0.47	0.63	0.22	0.27	0.15	0.42	0.19	0.11	0.13	0.19	0.14

DMR Data for Outfall 003 (from December 1, 2018 to November 30, 2019)

Parameter	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18
TRC (mg/L) Average Monthly	< 0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01	0.03	< 0.01	0.04	< 0.01	0.04	0.03
TRC (mg/L) Instantaneous Maximum	< 0.01	< 0.01	< 0.01	0.1	< 0.01	< 0.01	0.15	< 0.01	0.15	< 0.01	0.1	0.1

Other comments: No eDMR violation was noted from the review of last 12 months data.

Compliance History	
Summary of Inspections:	**09/28/2016:** CEI conducted. No violation observed during the inspection. The effluent appeared clear.

Existing Effluent Limitations and Monitoring Requirements

For Outfall 001:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
TRC	XXX	XXX	XXX	0.11	XXX	0.34	1/day	Grab
TSS	58	117	XXX	30	60	75	1/week	8-Hr Composite
Total Phosphorus	1.9	3.9	XXX	1.0	2.0	2.5	1/week	8-Hr Composite
Total Aluminum	1.6	3.2	XXX	0.82	1.64	2.05	1/week	8-Hr Composite
Total Manganese	1.9	3.9	XXX	1.0	2.0	2.5	1/week	8-Hr Composite
TDS	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite

For Outfall 002:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Daily when Discharging	Grab
TRC	XXX	XXX	XXX	0.11	XXX	0.34	Daily when Discharging	Grab
TSS	58	117	XXX	30	60	75	Daily when Discharging	8-Hr Composite
Total Phosphorus	1.9	3.9	XXX	1.0	2.0	2.5	Daily when Discharging	8-Hr Composite
Total Aluminum	1.6	3.2	XXX	0.82	1.64	2.05	Daily when Discharging	8-Hr Composite
Total Manganese	1.9	3.9	XXX	1.0	2.0	2.5	Daily when Discharging	8-Hr Composite

For Outfall 003:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly		Minimum	Average Monthly		Instant. Maximum		
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.0	1/week	Grab

For Outfall 004:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)					
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Monthly When Discharging	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Monthly When Discharging	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	Monthly When Discharging	Grab
TSS	XXX	XXX	XXX	30	60	75	Monthly When Discharging	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	Report	XXX	Monthly When Discharging	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	4.0	8.0	10.0	Monthly When Discharging	8-Hr Composite
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5	Monthly When Discharging	8-Hr Composite
Total Iron	XXX	XXX	XXX	2.0	4.0	5.0	Monthly When Discharging	8-Hr Composite

Other Comments: An email from the permittee's consultant on dated February 10, 2020 indicated that the outfall 002 is not in use, outfall doesn't see any flow, and flows through Outfall 003 is dechlorinated prior to discharge. This renewed permit will keep all existing outfalls.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.519
Latitude 40º 8' 47" **Longitude** -74º 56' 57"
Wastewater Description: Filter backwash water from lagoons and belt presses

Technology-Based Limitations

The industrial wastewaters discharged through Outfall 001 is generated from Filter backwash and belt filter press filtrate. DEP's technical guidance no. 362-2183-003 addresses technology-based control requirements along with the following recommended Best Practicable Control Technology Currently Available (BPT) effluent requirements for WTP sludge and filter backwash:

Parameter	Limit (mg/l)	SBC
Suspended Solids	30	Average Monthly
	60	Daily Maximum
Iron, Total	2.0	Average Monthly
	4.0	Daily Maximum
Aluminum, Total	4.0	Average Monthly
	8.0	Daily Maximum
Manganese, Total	1.0	Average Monthly
	2.0	Daily Maximum
Flow	Monitor	Average Monthly
pH	6.0	Minimum
	9.0	Maximum
Total Residual Chlorine	0.5	Average Monthly
	1.0	Daily Maximum

Water Quality-Based Limitations

DEP's SOP no. BCW-PMT-037 recommends the average monthly flow during production or operation as a design flow in water quality modeling unless a different flow is determined to be more representative of site-specific conditions. The volume of effluent discharged from facilities such as water treatment plants is heavily depended upon the quality of source water as more backwashing is needed to maintain acceptable filter performance if the intake water quality is poor. Past five-year effluent flow data were analyzed. The average of the data was 0.1744 MGD with the 90th percentile of 0.1859 MGD and daily maximum of 0.316 MGD. The existing permit indicated the effluent limitations for Outfall 001 was determined using effluent discharge rate of 0.519 MGD. However, that flow is not representative of site-specific condition. Therefore, the long-term average flow value of 0.1744 MGD will be used in the water quality modeling.

WQM 7.0

Since the facility injects ammonia prior to filtration, the WQM 7.0 was utilized. The following data were used in the attached computer model of the stream:

- Discharge pH 7.11 (median July-Sep, 2018-2019, daily eDMR data)
- Discharge Temperature 20°C (Default data)
- Discharge Hardness 147 mg/l (Application data)
- Stream pH 8.1 (WQN0121, median Jul-Sep, 1999-2019)
- Stream Temperature 24°C (WQN0121, median Jul-Sep, 1999-2018)
- Stream Hardness 140.5 mg/l (WQN0121, median Jul-Sep, 1999-2019)

The following three nodes were used in modeling:

Node 1: Outfall 001 at Neshaminy Creek (02484)
Elevation: 25.44 ft (USGS TNM viewer, 02/25/2020)
Drainage Area: 214 mi^2 (StreamStat Version 3.0, 01/23/2020)
River Mile Index: 08.28 mile (PA DEP eMapPA)
Low Flow Yield: 0.06 cfs/mi^2
Discharge Flow: 0.1744 MGD

Node 2: At the confluence with UNT 02508
Elevation: 20.6 ft (USGS TNM 2.0 viewer, 02/25/2020)
Drainage Area: 217 mi^2 (StreamStat Version 3.0, 01/23/2020)
River Mile Index: 7.175 (PA DEP eMapPA)
Low Flow Yield: 0.06 cfs/mi^2
Discharge Flow: 0.00 MGD

NH_3-N
The WQM 7.0 suggested NH_3-N limit of 25 mg/l as average monthly and 50 mg/l as instantaneous maximum limit during summer to protect water quality standards. The existing permit doesn't have NH3-N limits. The application data indicated an average discharge concentration of 0.22 mg/l which is much lower compared to model suggested value. Therefore, it is determined that NH3-N is not a pollutant of concern and no limits/monitoring requirements will be placed in this permit term. This determination will be re-evaluated during the next permit term.

$CBOD_5$:
The WQM 7.0 model suggests a monthly average $CBOD_5$ limit of 25 mg/l. The existing permit doesn't have CBOD5 limits. The application data indicated an average BOD5 discharge concentration of <2.0 mg/l which is much lower than the suggested value by the model. Therefore, it is determined that CBOD5 is not a pollutant of concern and no limits/monitoring requirements will be applied in this renewal. This determination will be re-evaluated during the next permit term.

Total Residual Chlorine
Chlorine is used for source water disinfection, injected at the headworks, after flocculation, and after filtration. Since chlorine is introduced prior to flocculation/sedimentation and filtration, residual chlorine is expected to be present in the effluent discharged via Outfall 001. Accordingly, Total Residual Chlorine (TRC) effluent concentrations must be monitored and regulated per 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet was utilized to determine if existing TBELs are still appropriate at discharge flow of 0.1744 MGD. The spreadsheet indicated an average monthly and IMAX limit of 0.5 mg/l and 1.6 mg/l. The BPT IMAX limit is 1.0 mg/l which is more stringent compared to WQBEL. The existing permit has an average monthly and IMAX limit of 0.11 mg/l and 0.34 mg/l, respectively. Since none of the exceptions are applicable, backsliding is not allowed, and the existing limits will be carried over in this renewal.

Toxics
Based on the monitoring data (maximum concentrations) reported on the application, DEP utilizes Toxics Screening Analysis and PENTOXSD to (1) evaluate reasonable potential for toxic pollutants to cause or contribute to an excursion above the water quality standards and (2) develop WQBELs for those such toxic pollutants (i.e., 40 CFR § 122.44(d)(1)(i)). The model then recommended the most stringent WQBELs for these pollutants (see Table 1).

Table 1. PENTOXSD ver. 2.0d

Pollutant	Effluent Limit, *µg/L*	Governing Criterion	Max. Daily Limit, *µg/L*	Most Stringent WQBEL, *µg/L*	Most Stringent WQBEL Criterion
Aluminum, Total	6206.086	AFC	9682.492	6206.086	AFC
Cadmium, Total	13.244	CFC	20.663	13.244	CFC
Copper, Total	119.809	AFC	186.921	119.809	AFC

CFC: Chronic Fish Criteria, AFC: Acute Fish Criteria

Following PENTOXSD modeling, the most stringent WQBELs for each pollutant listed on Table 1 were then entered into Toxic Screening Analysis. As shown on Table 2, the analysis then recommends an appropriate action for each pollutant in the permit (i.e., No Limits/Monitoring, Establish Limits, or Monitor) based on the following logic specified in DEP's Standard Operating Procedure (SOP) (1):

Table 2. Toxic Screening Analysis Recommendation

Pollutant	Reported Value, *µg/L*	Target QL, *µg/L*	Most Stringent WQBEL, *µg/L*	Screening Recommendation
Aluminum, Total	1200	10	6206.086	Monitor
Cadmium, Total	<1	0.2	13.244	No Limits/Monitoring
Copper, Total	<40	4	119.809	Monitor

(1) Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, SOP No. BCW-PMT-037, revised April 24, 2019

1. In general, establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL (i.e., RP is demonstrated). Use the average monthly and maximum daily limits for the permit as recommended by PENTOXSD (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit). Establish an instantaneous maximum (IMAX) limit at 2.5 times the average monthly limit.

***NOTE 7** – The discharge concentration in PENTOXSD may need to be increased in order to determine the appropriate WQBEL if PENTOXSD determines that the discharge concentration is the limit.*

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

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

Total Aluminum: Model suggested monitoring for Total Aluminum. The current permit has concentration based average monthly, daily maximum, and IMAX limit of 0.82 mg/l, 1.64 mg/l, and 2.05 mg/l, respectively. The mass-based limits were calculated based on a flow of 0.232 MGD. The existing limits will be carried over in this renewal.

Total Copper: The permittee submitted three sample results for Total Copper, with a maximum concentration of <40 µg/l. The laboratory QL used for the testing was 30 µg/l which was higher than DEP's Target QL of 4 µg/l. Since the maximum sample result came as non-detect and QL>TQL, it is still unclear if Total Copper is still a pollutant of concern. Accordingly, per DEP's SOP (DEP document ID: BPNPSM-PMT-032), the permittee was given an opportunity to provide additional three sample results using DEP's TQL of 4 µg/l. The permittee submitted the sample results via email on April 17, 2020. The summary is provided below:

Sample date	Parameter	Result (µg/l)	TQL (µg/l)
March 26, 2020	Copper	1	4
April 2, 2020	Copper	1	4
April 8, 2020	Copper	1	4

The maximum value was re-entered into the screening analysis. As recommended by the Toxic Screening Analysis, Total Copper is not a candidate for PENTOXSD modeling. The screening recommendation is attached in the Appendix. No effluent limitations/monitoring requirement will be applied for Total Copper in this renewal.

Total Iron: Total Iron was not identified as a pollutant of concern by screening spreadsheet. However, since there is a BPT limits requirement for Total Iron, BPT limits of 2.0 mg/l as average monthly, 4.0 mg/l as daily maximum, and 5.0 mg/l as IMAX will be applied in this renewal with the same minimum monitoring frequencies as other toxics. Mass based monitoring only requirements will be placed in the permit per 362-0400-001 table 5-2.

Total Manganese: Total Manganese was not identified as pollutant of concern by screening spreadsheet. The existing permit has BPT limits of 1.0 mg/l as average monthly, 2.0 mg/l as daily max, and 2.5 mg/l as IMAX. The application data indicated maximum discharge concentration of 0.34 mg/l and long-term average discharge concentration of 0.14 mg/l. The existing limits will be carried over in this renewal.

Additional Considerations

Flow Monitoring

Flow monitoring will remain in the permit and is required by 40 CFR § 122.44(i)(1)(ii).

Total Dissolved Solids (TDS)

TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following recommendation from SOP (BCW-PMT-032):

1. Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs./day, and the discharge flow exceeds 0.1 MGD, establish a monitoring requirement for TDS, sulfate, chloride, and bromide. For discharges of 0.1 MGD or less establish a monitoring requirement for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

2. Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD or where concentration of bromide exceeds 10 mg/L for discharges of 0.1 MGD or less, establish a monitoring requirement for bromide.

3. Where the concentration of 1,4-dioxane (CAS 123-91-1) in a discharge exceeds 10 µg/L and the discharge flow exceeds 0.1 MGD or where the concentration exceeds 100 µg/L for a discharge of 0.1 MGD or less, establish a monitoring requirement for 1,4-dioxane.

The application reported the maximum effluent TDS concentration of 418 mg/L, average concentration of 352 mg/l, maximum mass load of 514 lbs./day, Bromide of < 2.5 mg/L. The concentration value is less than criteria. Existing annual monitoring requirement for TDS will be adequate to check compliance with DRBC's basin-wide effluent limit of 1,000 mg/l. The maximum Bromide concentration is higher than the criteria, however, the QL used for analysis was higher than TQL and all three results were reported as non-detect. Therefore, the permittee was asked to conduct additional tests for Bromide. The permittee submitted additional three sample results for Bromide via email on April 17, 2020. Re-sample results are provided below

Sample date	Parameter	Result (mg/l)	TQL (µg/l)
March 26, 2020	Bromide	<0.07	0.2
April 2, 2020	Bromide	<0.07	0.2
April 8, 2020	Bromide	0.3	0.2

The maximum value of 0.3 mg/l was entered into the screening and resulted in no modeling is required. Therefore, no limits or monitoring requirements will be applied for Bromide in this renewal. The permit application form for Minor IW facilities (MIIW1) doesn't require to sample for 1,4-dioxane. In absence of any data, no RP analysis was performed for 1,4-dioxane.

Total Phosphorus:
The maximum reported Total Phosphorus concentration was 0.15 mg/l and mass was 0.2 lbs./day. The long term monthly average concentration is 0.03 mg/l. Therefore, the existing limits of 1.0 mg/l as average monthly, 2.0 mg/l as daily maximum, and 2.5 mg/l as IMAX will be carried over in this renewal.

Total Nitrogen:
The maximum reported Total Nitrogen (calculated as sum of TKN and Nitrate-Nitrite-Nitrogen) was <4.47 lbs./day which is less than the threshold value as specified in BCW-PMT-032. Therefore, no TN limit or monitoring requirement will be added in this permit term.

Anti-Degradation requirements
The effluent limits for this discharge have been developed to ensure the existing in-stream uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality stream is impacted by this discharge. No Exceptional-Value stream is impacted by this discharge.

Anti-Backsliding Requirements
Unless stated otherwise in this fact sheet, all proposed effluent limits have developed for this permit renewal are at least as stringent as effluent limits developed for the previous permit renewal. Therefore, anti-backsliding provision is not applicable.

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0.0
Latitude 40º 8' 45" **Longitude** -74º 57' 9"
Wastewater Description: Treated filter backwash water from lagoons and belt presses (maintenance and emergency only)

Other comments: The average flow through Outfall 002 is 0.425 MGD which combines the flow from belt filter press (0.155 MGD) and filter backwash water (0.27 MGD). It is recommended that the existing limitations will be carried over in this renewal, since the characteristics of the waste stream is the same as for Outfall 001.

Development of Effluent Limitations

Outfall No. 003 **Design Flow (MGD)** 0.0
Latitude 40º 8' 53" **Longitude** -74º 57' 22"
Wastewater Description: Wastewater discharge from leaf screen at Neshaminy Creek intake (chlorinated drinking water)

Other comments: The backwash water from the leaf screen at Neshaminy Creek intake is first discharged to the existing retention basin from where it overflows to the creek. Treated, chlorinated, potable water is used for backwash. Therefore, the existing BPT limitations for TRC are applicable. The existing limitations are BPT limits which will be carried over in this renewal. Part C Special Condition E related to TRC limits at this outfall will remain in the permit.

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	0.0
Latitude	40º 8' 53"	**Longitude**	-74º 57' 22"

Wastewater Description: Stormwater/leachate from Residual Waste Storage (Monofill land)

Other comments: This outfall receives stormwater and leachate from residual waste storage/Monofill land. The monofill is still active, however, there is no flow reported from this outfall since December 2014. Since the discharge through this outfall has a potential of causing pollution to the receiving stream, the existing limitations will be carried over when such discharge occurs.

Appendix

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/week	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.11	XXX	0.34	1/day	Grab
Total Suspended Solids	58	117	XXX	30	60	75	1/week	8-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/quarter	8-Hr Composite
Total Phosphorus	1.9	3.9	XXX	1.0	2.0	2.5	1/week	8-Hr Composite
Aluminum, Total	1.6	3.2	XXX	0.82	1.64	2.05	1/week	8-Hr Composite
Iron, Total	Report	Report	XXX	2.0	4.0	5	1/week	8-Hr Composite
Manganese, Total	1.9	3.9	XXX	1.0	2.0	2.5	1/week	8-Hr Composite

Compliance Sampling Location: At Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Daily when Discharging	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Daily when Discharging	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.11	XXX	0.34	Daily when Discharging	Grab
Total Suspended Solids	58	117	XXX	30	60	75	Daily when Discharging	8-Hr Composite
Total Phosphorus	1.9	3.9	XXX	1.0	2.0	2.5	Daily when Discharging	8-Hr Composite
Aluminum, Total	1.6	3.2	XXX	0.82	1.64	2.05	Daily when Discharging	8-Hr Composite
Iron, Total	Report	Report	XXX	2.0	4.0	5	Daily when Discharging	8-Hr Composite
Manganese, Total	1.9	3.9	XXX	1.0	2.0	2.5	Daily when Discharging	8-Hr Composite

Compliance Sampling Location: At Outfall 002

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.0	1/week	Grab

Compliance Sampling Location: At Outfall 003

Other Comments: See Part C.E of the permit

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Monthly When Discharging	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Monthly When Discharging	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.2	Monthly When Discharging	Grab
Total Suspended Solids	XXX	XXX	XXX	30	60	75	Monthly When Discharging	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	Report	XXX	Monthly When Discharging	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	4.0	8.0	10	Monthly When Discharging	8-Hr Composite
Iron, Total	XXX	XXX	XXX	2.0	4.0	5	Monthly When Discharging	8-Hr Composite
Manganese, Total	XXX	XXX	XXX	1.0	2.0	2.5	Monthly When Discharging	8-Hr Composite

Compliance Sampling Location: At Outfall 004

Other Comments: None

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☒	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis 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: BCW-PMT-032
☐	Other: