pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0009741**
Facility Type	**Industrial**	APS ID	**343404**
Major / Minor	**Minor**	Authorization ID	**1020570**

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

Applicant and Facility Information

Applicant Name	**Exelon Generation Co. LLC**	Facility Name	**Exelon Muddy Run Pumped Storage Facility**
Applicant Address	300 Exelon Way, Suite 310	Facility Address	Road #1
	Kennett Square, PA 19348		Drumore, PA 17518
Applicant Contact	Angela Ward	Facility Contact	Donna Fabrizio
Applicant Phone	(410) 470-0246	Facility Phone	(410) 457-2516
Client ID	147686	Site ID	252351
SIC Code	4911	Municipality	Drumore Township
SIC Description	Trans. & Utilities - Electric Services	County	Lancaster
Date Application Received	April 3, 2014	EPA Waived?	Yes
Date Application Accepted	May 7, 2014	If No, Reason	

Purpose of Application: NPDES Renewal.

Summary of Review

Exelon Generation Co. LLC (Exelon) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The permit was issued on October 30, 2009 and became effective on November 1, 2009. The permit authorized discharge from three (3) outfalls at the existing facility located in Drumore Township, Lancaster County into the Susquehanna River. The existing permit expiration date was October 31, 2014, and the permit has been administratively extended since that time.

From the previous permit renewal fact sheet, Exelon is a Hydroelectric Power Generating Plant that uses the pump/storage method. Water is pumped from the Susquehanna River during nonpeak hours to an impoundment, and is then released from the impoundment through the electric generating turbines during peak hours with return of the river water back to the Susquehanna River (through sluice gates, not through outfalls covered by the NPDES permit). Hydroelectric power is not subject to any EPA Effluent Limitation Guidelines.

An amendment to the permit was issued on May 30, 2014 regarding the installation of an oil-water separator and a new Outfall 004. A portion of the wastewater which currently discharged through Outfall 001 was diverted through a new oil-water separator, which then discharged to the new outfall. This modification included the possibility of a bypass from Outfall 004 to Outfall 001, in the event that maintenance or repairs were needed for the oil/water separator.

Changes in this renewal: Fecal Coliform instantaneous maximum (IMAX) limits and a monitoring requirement for ammonia-nitrogen were added to the limits for Outfall 401.

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	March 1, 2019
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Summary of Review

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.

Supplemental information for this report is located in an attachment below.

Exelon Generation Company Muddy Ru

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	1.051 (under normal conditions)
Latitude	39º 48' 25"	Longitude	76º 17' 57"
Quad Name	Holtwood	Quad Code	2035
Wastewater Description:	Noncontact Cooling Water (NCCW) plus potential for river water from generating turbines access shaft during maintenance/repairs.		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57471265	RMI	7.4
Drainage Area	26,800 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,376	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	108	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Source Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Chester Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8	Distance from Outfall (mi)	5.6

Changes Since Last Permit Issuance: A drainage area of 26,800 mi^2 and a Q_{7-10} flow of 3,376 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Susquehanna River. The Q_{7-10} and drainage area at the gage are 3,270 cfs and 25,990 mi^2, respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q_{7-10} runoff rate at the gage station was calculated as follows:

Q_{7-10} = (3,270 cfs)/ 25,990 mi^2 = 0.126 cfs/mi^2

The drainage area at the discharge point, taken from USGS PA StreamStats = 26,800 mi^2

The Q_{7-10} at the discharge point = 26,800mi^2 x 0.126 cfs/mi^2 = 3,376 cfs

Due to incomplete mixing in the Susquehanna River, ¼ of the Q_{7-10} was used in modeling, 844 cfs. This is consistent with the existing permit.

Other Comments: The design flow of 1.051 mgd does not include any flow due to the occasional emptying of the shaft of river water in the event the generating turbines need to be accessed for inspections/repairs/maintenance. It also does not include the flow from Outfall 004, in the event of bypass from Outfall 004 to 001. 1.051 mgd is the maximum daily discharge rate for normal design conditions.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	2.16
Latitude	39º 48' 25"	Longitude	76º 17' 57"
Quad Name	Holtwood	Quad Code	2035
Wastewater Description:	Backwash from intake strainers		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57471265	RMI	7.4
Drainage Area	26,800 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,376	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	108	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Chester Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8	Distance from Outfall (mi)	5.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	Variable (stormwater)
Latitude	39º 48' 25"	Longitude	76º 18' 0"
Quad Name	Holtwood	Quad Code	2035
Wastewater Description:	Stormwater, from roof drains		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57471265	RMI	7.4
Drainage Area	26,800 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,376	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	108	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Chester Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8	Distance from Outfall (mi)	5.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	2.16
Latitude	39º 48' 30"	Longitude	76º 17' 57"
Quad Name	Holtwood	Quad Code	2035
Wastewater Description:	Groundwater and river water seepage, floor drains, stormwater from roof decks, treated sanitary wastewater, and potential for compressor condensate		
Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57471265	RMI	7.4
Drainage Area	26,800 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,376	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	108	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Chester Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8	Distance from Outfall (mi)	5.6

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information

Outfall No.	401 (internal monitoring point)	Design Flow (MGD)	0.0069
Latitude	39º 48' 25"	Longitude	76º 17' 57"
Quad Name	Holtwood	Quad Code	2035
Wastewater Description:	Treated sanitary wastewater		

Receiving Waters	Susquehanna River	Stream Code	06685
NHD Com ID	57471265	RMI	7.4
Drainage Area	26,800 mi^2	Yield (cfs/mi^2)	0.126
Q_{7-10} Flow (cfs)	3,376	Q_{7-10} Basis	USGS Gage #01576000
Elevation (ft)	108	Slope (ft/ft)	
Watershed No.	7-K	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs		
Source(s) of Impairment	Unknown		
TMDL Status	N/A	Name	N/A

Nearest Downstream Public Water Supply Intake	Chester Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	1.8	Distance from Outfall (mi)	5.6

Changes Since Last Permit Issuance: None

Other Comments: The design flow was taken from the previous permit renewal fact sheet and PADEP eFacts Avg. Annual Flow

Compliance History	
Summary of DMRs:	A summary of the past 12-month DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	2/26/2014: A routine inspection was conducted by Austin Pardoe, DEP Water Quality Specialist.

Other Comments: There is currently one open violation for this client. On 1/4/19, Exelon Generation Company, LLC received a violation for the Peach Bottom Power Station from Safe Drinking Water regarding a failure to maintain microbial treatment.

Compliance History

DMR Data for Outfall 001 (from January 1, 2018 to December 31, 2018)

Parameter	JAN-18	FEB-18	MAR-18	APR-18	MAY-18	JUN-18	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18
Flow (MGD) Average Monthly	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051
Flow (MGD) Daily Maximum	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051	1.051
pH (S.U.) Minimum	6.8	6.6	8.4	7.0	7.7	7.4	7.4	7.1	7.3	6.8	7.1	7.1
pH (S.U.) Instantaneous Maximum	6.8	6.6	8.4	7.0	7.7	7.4	7.4	7.1	7.7	6.8	7.1	7.1
TRC (mg/L) Average Monthly	0.04	0.11	0.03	0.2	0.06	0.11	0.12	0.07	0.055	0.05	0.26	0.11
TRC (mg/L) Instantaneous Maximum	0.04	0.11	0.03	0.2	0.06	0.11	0.12	0.07	0.055	0.05	0.26	0.11
Temperature (ºF) Daily Average	61	61	49	52	66	70	80	76	76	69	54	49
TSS (mg/L) Daily Maximum	34.4	17	5.6	0.0	7.6	13.6	5.6	26	13	18	13.6	6.8
Oil and Grease (mg/L) Average Monthly	00	< 5	00	< 5.0	00	00	< 5.3	< 5.3	< 5.3	5.4	< 5	< 5.3
Oil and Grease (mg/L) Instantaneous Maximum	00	< 5	00	< 5.0	00	00	< 5.3	< 5.3	< 5.3	5.4	< 5	< 5.3

DMR Data for Outfall 002 (from January 1, 2018 to December 31, 2018)

Parameter	JAN-18	FEB-18	MAR-18	APR-18	MAY-18	JUN-18	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18
Flow (MGD) Average Monthly	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16
Flow (MGD) Daily Maximum	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16

DMR Data for Outfall 004 (from January 1, 2018 to December 31, 2018)

Parameter	JAN-18	FEB-18	MAR-18	APR-18	MAY-18	JUN-18	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18
Flow (MGD) Average Monthly	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584
Flow (MGD) Daily Maximum	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584
pH (S.U.) Minimum	7.6	7.3	7.3	7.0	7.4	7.4	7.2	7.3	7.2	6.9	7.0	7.0
pH (S.U.) Instantaneous Maximum	7.6	7.3	7.3	7.0	7.4	7.4	7.2	7.3	7.2	6.9	7.0	7.0
TRC (mg/L) Average Monthly	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	< 0.02	0.03
TRC (mg/L) Instantaneous Maximum	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	< 0.02	0.03
TSS (mg/L) Daily Maximum	22	5	4	6	6	11	< 4	25	19	19	10.8	12
Oil and Grease (mg/L) Average Monthly	< 5	< 5	00	0.0	00	00	< 5	< 5.3	< 5.1	5	< 5	< 5
Oil and Grease (mg/L) Instantaneous Maximum	< 5	< 5	00	0.0	00	00	< 5	< 5.3	< 5.1	5	< 5	< 5

DMR Data for Outfall 401 (from January 1, 2018 to December 31, 2018)

Parameter	JAN-18	FEB-18	MAR-18	APR-18	MAY-18	JUN-18	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18
Flow (MGD) Average Monthly	0.00055	0.00054	0.00048	0.00052	0.00063	0.00055	0.00057	0.00059	0.00092	0.001	0.00063	0.00060
Flow (MGD) Daily Maximum	0.00093	0.00101	0.00068	0.00089	0.00104	0.00113	0.00107	0.00079	0.00159	0.00145	0.00082	0.00088
CBOD5 (mg/L) Average Monthly	10	< 2	3	2	00	00	< 2	< 2	< 2	< 2	< 2	< 2
CBOD5 (mg/L) Instantaneous Maximum	17	< 2	3	2	00	00	< 2	< 2	< 2	< 2	< 2	< 2
TSS (mg/L) Average Monthly	28	8	7	21	16	18	10.8	7	10	10	7.6	12
TSS (mg/L) Instantaneous Maximum	28	8	7	21	16	18	10.8	7	12	10	7.6	12
Fecal Coliform (CFU/100 ml) Geometric Mean	1	1	1	1	1	47	2	< 1	3	83	< 1	1

Existing Effluent Limits and Monitoring Requirements

The tables below summarize the effluent limits and monitoring requirements implemented in the existing NPDES permit.

Outfall 001

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	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
Temperature (ºF)	XXX	XXX	XXX	110 Daily Avg.	XXX	XXX	1/month	I-S
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
TRC*	XXX	XXX	XXX	0.5*	XXX	1.6*	1/month*	Grab*
Oil and Grease*	XXX	XXX	XXX	15*	XXX	30*	1/month*	Grab*

*Oil and Grease and TRC requirements are ONLY applicable in the event the wastewater from the seepage pit is temporarily re-routed from Outfall 004 to Outfall 001.

Compliance Sampling Location: From sample tap located in pump room off of discharge header

Outfall 002

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		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/month	Estimate

Compliance Sampling Location: At discharge from Outfall 002

Outfall 004

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	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/month	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	XXX	30	1/month	Grab

Compliance Sampling Location: At discharge from the oil/water separator

Outfall 401

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/month	Estimate
$CBOD_5$	XXX	XXX	XXX	25	XXX	50	1/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	1/month	Grab
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	1/month	Grab
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	XXX	1/month	Grab

Compliance Sampling Location: At discharge from the sewage treatment plant

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	1.051 (under normal operating conditions)
Latitude	39º 48' 25"	**Longitude**	76º 17' 57"
Wastewater Description:	Noncontact Cooling Water (NCCW) plus potential for river water from generating turbines access shaft during maintenance/repairs.		

Outfall 004

During normal operation, groundwater and river seepage from the lower floors of the powerhouse, other buildings' seepage, treated sanitary wastewater from the on-site sewage treatment plant (STP), floor drains, stormwater from roof decks, and potentially air compressor condensate are conveyed to Outfall 004. However, if the oil/water separator is bypassed, these flows will be conveyed from the seepage pit to Outfall 001. The previous permit included limits for Total Residual Chlorine (TRC) and Oil and Grease, but these parameters are only required to be monitored if Outfall 004 is being bypassed to Outfall 001. The TRC spreadsheet was run, and it recommends a monthly average limit of 0.5 mg/l and an IMAX limit of 1.6 mg/l, which are consistent with the existing permit limits. These limits will remain in the permit. The permit will also include the technology-based effluent limits for Oil and Grease of a monthly average limit of 15 mg/l and a daily maximum limit of 30 mg/l, which is consistent with the existing permit. The monitoring requirement for Total Suspended Solids (TSS) will remain in the permit.

pH

PA Code §§ 95.2(1) requires effluent pH limits of 6.0 to 9.0 standard units (S.U.) at all times in effluent. The permit will continue to require pH limit of 6.0 to 9.0 S.U.

Temperature Limitations

A reasonable potential (RP) analysis was performed for temperature which is the main pollutant of concern in the NCCW. Effluent limitations for temperature were calculated using the Case 2 Thermal Worksheet with an updated wastewater flow of 1.051 mgd, which is listed as the maximum daily discharge rate in the application. A stream $Q_{7\text{-}10}$ flow of 844 cfs was used in the temperature worksheet. The worksheet recommended permit limits for a discharge to WWF of 110°F, which is the cap for limits generated by the worksheet. This is consistent with the existing Temperature limit for Outfall 001; therefore, it will remain the same. A printout of the worksheet is attached.

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed a Chesapeake Bay industrial waste (IW) monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with little or no potential to introduce nutrients to the receiving stream; therefore, no monitoring for TP and TN series will be required at this time for Outfall 001.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Screening Analysis worksheet to determine reasonable potential. The worksheet shows that none of the pollutants are candidates for PENTOXSD. The worksheet results are attached.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these

pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

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

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

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

Exelon reported the maximum effluent TDS concentration of 200.00 mg/l and believed absent for Bromide and Sulfate. Based upon the data provided in the application, monitoring of TDS and its major constituents will not be included in the permit.

Stormwater

Outfall 001 does not receive stormwater under normal operating conditions, but it has the potential to receive stormwater if Outfall 004 is bypassed to Outfall 001. Exelon is classified under SIC Code 4911 for Electric Services. The facility's stormwater discharge does not fall within the EPA definition of storm water associated with industrial activity per 40 CFR 122.26(b)(14); therefore, monitoring will not be required. Part C requirements for stormwater outfalls will be included in the permit.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB, from an unknown source.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	2.16
Latitude	39º 48' 25"	**Longitude**	76º 17' 57"

Wastewater Description: Backwash from Intake Strainers

Limitations

Exelon withdraws water from the Susquehanna River, and conveys the water through intake strainers. These strainers protect the pumps and turbines from river water debris. The only flow discharged through Outfall 002 is river water containing the debris; therefore, water quality limitations will not be needed. It is recommended that flow be monitored, which is consistent with the existing permit.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB, from an unknown source.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	Variable
Latitude	39º 48' 25"	**Longitude**	76º 18' 0"

Wastewater Description: Stormwater

Limitations

Exelon is classified under SIC Code 4911 for Electric Services. The facility's stormwater discharge does not fall with the EPA definition of storm water associated with industrial activity per 40 CFR 122.26(b)(14); therefore, monitoring will not be required. Part C requirements for stormwater outfalls will be included in the permit.

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	2.16
Latitude	39º 48' 30"	**Longitude**	76º 17' 57"

Wastewater Description: Groundwater and river water seepage, floor drains, stormwater from roof decks, treated sanitary wastewater, potential for compressor condensate

pH

PA Code §§ 95.2(1) requires effluent pH limits of 6.0 to 9.0 S.U. at all times in effluent. The permit will continue to require pH limit of 6.0 to 9.0 S.U.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns. It is recommended that a TRC limit of 0.5 mg/l monthly average and 1.6 mg/l instantaneous maximum be applied this permit cycle, the same as the existing limit.

Total Suspended Solids (TSS)

A monitor requirement for TSS was included for this wastewater when it discharged to Outfall 001. When the wastewater was diverted to the new Outfall 004, this requirement was carried over. A monitor requirement for TSS will be included in the permit, which is consistent with the existing permit.

Oil and Grease

Oil and grease limits were considered appropriate during the previous permit cycle, due to the composition of the wastewater. Limits of 15 mg/l as a monthly average and 30 mg/l as an IMAX were imposed consistent with Title 25 PA Code Chapter 95.2 and the NPDES Permit Writing Guidance Manual (362-0400-001). These limits will remain in the permit.

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed a Chesapeake Bay industrial waste (IW) monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with little or no potential to introduce nutrients to the receiving stream; therefore, no monitoring for TP and TN series will be required at this time for Outfall 004.

Total Dissolved Solids (TDS)

Total Dissolved Solids and its major constituents including Bromide, Chloride, and Sulfate have become statewide pollutants of concern and threats to DEP's mission to prevent violations of water quality standards. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

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

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

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

As this was a new Outfall, Exelon has not provided effluent testing information for these parameters. When the renewal application for this facility is submitted, Exelon will be required to submit sampling results for these metals. The need for any permit requirements will be re-evaluated at that time.

Stormwater

Exelon is classified under SIC Code 4911 for Electric Services. The facility's stormwater discharge does not fall within the EPA definition of storm water associated with industrial activity per 40 CFR 122.26(b)(14); therefore, monitoring will not be required. Part C requirements for stormwater outfalls will be included in the permit.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB, from an unknown source.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

Development of Effluent Limitations

Outfall No. 401 (internal monitoring point) **Design Flow (MGD)** 0.0069
Latitude 39º 48' 25" **Longitude** 76º 17' 57"
Wastewater Description: Treated sanitary wastewater

Technology-Based Limitations

The facility is regulated by standards found in 40 CFR § 133.102 and 25 Pa. Code § 92a.47(a). These standards are shown below:

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

Comments: The abovementioned technology-based limitations (TBELs) apply, subject to water quality analysis and BPJ where applicable. pH limits are not included in the existing permit, since the flow from the STP is negligible and does not discharge directly to the Susquehanna River. A pH limit will not be added to this renewal permit. The IMAX limits for fecal coliform will be included in the permit.

Water Quality-Based Limitations

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.0b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia (NH_3-N) and dissolved oxygen (D.O.) The model simulates two basic processes: In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module, the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3-N and compares calculated instream D.O. concentrations to D.O. water quality criteria. The model then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions. The model was utilized for this permit application. The output indicated a $CBOD_5$ average monthly limit of 25 mg/l, an NH_3-N average monthly limit of 25.0 mg/l, and a D.O. minimum limit of 5 mg/l were protective of water quality.

The flow data used to run the model was acquired from PA StreamStats and USGS Gage #01576000 and is included as an attachment. DEP's Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 (Establishing Effluent Limitations for Individual Sewage Permits) recommends, for existing discharges, if WQM modeling results for summer indicates that an average monthly limit of 25 mg/l is acceptable, a year-round monitoring requirement for ammonia-nitrogen will be established in the permit, at a minimum. Accordingly, a monitoring requirement for NH_3-N will be added to the permit with a measurement frequency of 1/month, to be consistent with the existing limits.

D.O. limits are not included in the existing permit, since the flow from the STP is negligible and does not discharge directly to the Susquehanna River; therefore, it will not be included in this permit.

Total Residual Chlorine

Limits for TRC are included for Outfall 004, instead of the internal monitoring point. The wastewater from Outfall 401 is conveyed to Outfall 004, so an additional TRC limit is not required here. This is consistent with the existing permit.

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the Pennsylvania Chesapeake Watershed Implementation Plan (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a Phase 2 Watershed Implementation Plan Wastewater Supplement (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. The Phase 2 Supplement was most recently revised on September 6, 2017. Industrial discharges have been prioritized by Central Office based on their delivered TN and TP loadings to the Bay. Significant industrial wastewater dischargers are facilities that discharge more than 75 lbs/day of TN or 25 lbs/day of TP on an average annual basis and the rest are classified as non-significant dischargers. DEP developed a Chesapeake Bay industrial waste (IW) monitoring plan for all industrial facilities that discharge to the Chesapeake Bay. This facility is classified as a non-significant discharger with little or no potential to introduce nutrients to the receiving stream; therefore, no monitoring for TP and TN series will be required at this time for Outfall 401.

Anti-Degradation

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

303(d) Listed Streams

The discharge is located on a stream segment that is designated on the 303(d) list as impaired. There is an impairment use for fish consumption due to PCB, from an unknown source.

Class A Wild Trout Fisheries

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

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions addressed by DEP in this fact sheet.

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/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
Temperature (ºF)	XXX	XXX	XXX	110 Daily Average	XXX	XXX	1/month	I-S
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
TRC	XXX	XXX	XXX	0.5*	XXX	1.6*	1/month*	Grab*
Oil and Grease	XXX	XXX	XXX	15*	XXX	30*	1/month*	Grab*

Compliance Sampling Location: From sample tap located in pump room off of discharge header

Other Comments: *Oil and Grease and TRC requirements are ONLY applicable in the event the wastewater from the seepage pit is temporarily re-routed from Outfall 004 to Outfall 001.

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	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/month	Estimate

Compliance Sampling Location: At discharge from 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 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	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	1/month	Estimate
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/month	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/month	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/month	Grab
Oil and Grease	XXX	XXX	XXX	15	XXX	30	1/month	Grab

Compliance Sampling Location: At discharge from the oil/water separator

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 401, 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/month	Estimate
$CBOD_5$	XXX	XXX	XXX	25	XXX	50	1/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	1/month	Grab
Ammonia—N	XXX	XXX	XXX	Report	XXX	XXX	1/month	Grab
Fecal Coliform (No./100 ml) Oct 1 – Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/month	Grab
Fecal Coliform (No./100 ml) May 1 – Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/month	Grab

Compliance Sampling Location: At discharge from the sewage treatment plant

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:
☐	Other: