pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0083691**
Facility Type	**Industrial**	APS ID	**275287**
Major / Minor	**Minor**	Authorization ID	**1141488**

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

Applicant and Facility Information

Applicant Name	**West Earl Township Water Department**	Facility Name	**West Earl Township Water Authority System**
Applicant Address	157 West Metzler Road PO Box 787	Facility Address	161 Turtle Hill Road
	Brownstown, PA 17508		Brownstown, PA 17508
Applicant Contact	Robert Buckwalter	Facility Contact	Walter Buckwalter
Applicant Phone	(717) 859-3201	Facility Phone	(717) 859-3201
Client ID	117402	Site ID	264287
SIC Code	4941	Municipality	West Earl Township
SIC Description	Trans. & Utilities - Water Supply	County	Lancaster
Date Application Received	June 17, 2016	EPA Waived?	Yes
Date Application Accepted	July 22, 2016	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

West Earl Township Water Department 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 December 12, 2011 and became effective on January 1, 2012. The permit authorized discharge from Outfall 002 at the existing facility located in West Earl Township, Lancaster County into an Unnamed Tributary (UNT) of Conestoga River. The existing permit expiration date was December 31, 2016, and the permit has been administratively extended since that time.

From the previous permit renewal fact sheet, the West Earl Water Authority System is an anion exchange system to remove nitrate. Well water is treated by nitrate reduction, pH adjustment and chlorination. During a previous renewal cycle Outfall 001, the water softener discharge, was discontinued. The softener equipment was old and needed replaced; the Authority decided it was more economical to remove the equipment from service. The only outfall evaluated for this permit renewal was Outfall 002. The wastewater flows are held in a tank which is valved to release the flow over a 24-hour period. The UNT starts at the pump house from a spring. At the time of the previous site evaluation, the stream delivered a large amount of flow. The discharge from this facility immediately mixes with the spring overflow and flows into a small pond, which flows underneath a road and then discharges to the Conestoga River.

Changes in this renewal: A Total Thallium monitoring requirement was added to the permit. A Total Residual Chlorine (TRC) limit was added to the permit.

Approve	Deny	Signatures	Date
		Benjamin R. Lockwood / Environmental Engineering Specialist	October 3, 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.

West Earl Water Authority PA008369´

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	.0030
Latitude	40º 7' 51"	Longitude	76º 11' 54"
Quad Name	1736	Quad Code	Ephrata
Wastewater Description:	IW Process Effluent without ELG		
Receiving Waters	UNT of Conestoga River (WWF)	Stream Code	07754
NHD Com ID	57462575	RMI	0.1
Drainage Area	1.43 mi^2	Yield (cfs/mi^2)	0.345
Q_{7-10} Flow (cfs)	0.493	Q_{7-10} Basis	USGS PA StreamStats
Elevation (ft)	295	Slope (ft/ft)	
Watershed No.	7-J	Chapter 93 Class.	WWF, MF
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	Siltation, Pathogens, Pathogens,		
Source(s) of Impairment	Agriculture, Agriculture, Urban Runoff/Storm Sewers		
TMDL Status	N/A	Name	N/A
Nearest Downstream Public Water Supply Intake	Lancaster City Water Bureau		
PWS Waters	Conestoga River	Flow at Intake (cfs)	
PWS RMI	23.6	Distance from Outfall (mi)	11.7

Changes Since Last Permit Issuance: USGS PA StreamStats is showing a drainage area of 1.43 mi^2 and a Q_{7-10} of 0.493 cfs.

Other Comments: None

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:	9/24/2012: A routine inspection was conducted. There was no discharge at the time of inspection; the treatment plant was shut down to replace the holding tank for drinking water. It was noted that the creek was good and clear. 2/6/2015: A routine inspection was conducted. There were some administrative issues; supplemental NPDES forms were not being submitted, and there was a lack of SOPs for plant operations. Outfall 002 was not discharging at the time of inspection. The water was clear up and downstream, and there were some scaling deposits in the outfall. It was noted that the floor drain and sink drain in the plant discharge directly to the stream, which are unpermitted discharges. It was recommended to divert these drains from discharging to the stream. 12/30/2016: DEP was notified of a salt brine tank overflow. The overflow was of an unknown volume and duration. The overflow travelled to a paved stormwater swale and then was conveyed into an UNT of Conestoga River. It was noted that no apparent signs of impact were observed in the UNT.

Other Comments: There are currently no open violations associated with the permittee or the facility.

Compliance History

DMR Data for Outfall 002 (from February 1, 2018 to January 31, 2019)

Parameter	FEB-18	MAR-18	APR-18	MAY-18	JUN-18	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	DEC-18	JAN-19
Flow (MGD) Average Monthly		0.0011	0.0012	0.0012	0.0012	0.0013	0.0010	0.0012	0.0012	0.0014	0.0011	0.0013
Flow (MGD) Daily Maximum		0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
pH (S.U.) Minimum		8.15	7.58	7.59	7.64	7.59	7.89	7.99	7.22	7.12	7.68	7.37
pH (S.U.) Maximum		8.47	8.32	8.31	8.54	8.40	8.47	8.25	8.26	8.29	8.44	8.31
Total Dissolved Solids (mg/L) Daily Maximum		8270			123100			8010			10300	
Osmotic Pressure (mOs/kg) Daily Maximum		329	329	413	407	412	325	325	350	468	566	516
Nitrate-Nitrite (mg/L) Daily Maximum		59.0			208			89.5			102.0	
Nitrate-Nitrite (lbs) Total Monthly		35			124			53			59	
Total Nitrogen (mg/L) Daily Maximum		< 60.0			210			90.5			103.00	
Total Nitrogen (lbs) Total Monthly		< 36			125			54			59	
Total Nitrogen (lbs) Total Annual								395				
Ammonia (mg/L) Daily Maximum		< 0.100			< 0.1			0.244			203	
Ammonia (lbs) Total Monthly		< 0.006			< 0.06			0.1			1.0	
Ammonia (lbs) Total Annual								0.406				
TKN (mg/L) Daily Maximum		< 1.0			1.6			1.0			1.0	
TKN (lbs) Total Monthly		< 0.6			1			0.6			0.6	
Total Phosphorus (mg/L) Daily Maximum		< 0.10			< 0.10			0.12			0.26	
Total Phosphorus (lbs) Total Monthly		< 0.06			< 0.06			0.07			0.1	
Total Phosphorus (lbs) Total Annual								0.268				

Existing Effluent Limitations and Monitoring Requirements

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

Outfall 002

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	Monthly Average	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/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite
Osmotic Pressure (mOs/kg)	XXX	XXX	XXX	XXX	1,500	1,875	2/month	8-Hr Composite

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)			Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Maximum		
Ammonia--N	Report	Report	XXX	XXX	Report	1/quarter	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	XXX	Report	1/quarter	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	XXX	Report	1/quarter	8-Hr Composite
Total Nitrogen	Report	Report	XXX	XXX	Report	1/quarter	Calculation
Total Phosphorus	Report	Report	XXX	XXX	Report	1/quarter	8-Hr Composite

Compliance Sampling Location: Outfall 002

Development of Effluent Limitations

Outfall No.	002	**Design Flow (MGD)**	.0030
Latitude	40º 7' 51"	**Longitude**	76º 11' 54"

Wastewater Description: IW Process Effluent without ELG

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 included in the renewal permit.

Toxics

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Screening Analysis worksheet and PENTOXSD to develop appropriate permit requirements for toxic pollutants of concern. Based on effluent sample results reported on the application; Total Dissolved Solids, Chloride, Sulfate, Total Antimony, Total Cadmium, Total Cobalt, Total Copper, Dissolved Iron, Total Selenium, and Total Thallium are candidates for PENTOXSD modeling as these pollutants are discharged at a level that has the reasonable potential to cause excursions above the state water quality criteria. A stream hardness value of 271 mg/l and pH of 8.4 were used in modeling. These values were based off a 90th percentile analysis of the stream hardness data from the WQN Station ID 273 from October 2004 to May 2018. A discharge hardness of 353 mg/l was used in modeling. The resulting WQBELs from PENTOXSD were as follows: Total Antimony – 600.472 µg/l, Total Cadmium – 60.864 µg/l, Total Cobalt – 2037.315 µg/l, Total Copper – 2350.463 µg/l, Dissolved Iron – 32168.13 µg/l, Total Lead – 1218.083 µg/l, Total Selenium – 534.972 µg/l, Total Silver – 1451.934 µg/l, and Total Thallium – 25.735 µg/l. When the WQBELs produced from PENTOXSD were entered into the Toxics Screening Analysis, the worksheet recommended that monitoring was necessary for Total Thallium. This data was analyzed based on the guidelines found in DEP's Water Quality Toxics Management Strategy (Document No. 361-0100-003) and DEP's SOP No. BPNPSM-PMT-033. PENTOXSD Model Results are attached to this fact sheet. The Toxics Screening Analysis uses the following logic:

a. Establish average monthly and instantaneous maximum (IMAX) limits in the draft permit where the maximum reported concentration 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.

Since the reported maximum concentrations for Total Thallium was greater than 10% of its WQBEL, per DEP's SOP No. BPNPSM-PMT-033, monitoring is necessary. A Quantitation Limit (QL) of 3.3 µg/l was used for Total Thallium, which is greater than the Target QL 2.0 µg/l. Additional Total Thallium samples were requested from the permittee at the Target QL to determine if the monitoring requirement was needed. Sampling results were received on September 18, 2019. A maximum Thallium concentration of 3 µg/l was reported. This value is between 10-50% of the WQBEL from PENTOXSD; therefore, a monitoring requirement for Total Thallium will be added to the permit. A measurement frequency of 1/quarter will be sufficient to monitor this parameter.

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. TN and TP monitoring was included into the permit during the last renewal cycle and will remain in the permit.

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.

West Earl Water Authority reported a maximum effluent TDS concentration of 18,700 mg/l, and a maximum effluent Bromide concentration of 0.55 mg/l. Based upon the data provided in the application, TDS, sulfate, chloride, and bromide monitoring are necessary. These monitoring parameters will be included in the renewal permit.

Osmotic Pressure

According to 25 Pa. Code § 93.7(a), the in-stream osmotic pressure criteria is a maximum of 50 mOs/kg. The previous permit writer assumed a background osmotic pressure of 11 mOs/kg.

Using a mass balance equation with the below values, the osmotic pressure limit may be calculated as follows:

Osmotic pressure criteria: 50 mOs/kg
Background osmotic pressure: 11 mOs/kg
Discharge flow: 0.003 MGD * 1.547 cfs/MGD = 0.0046 cfs
Stream flow: 0.493 cfs

Q_{stream} (11 mOs/kg) + $Q_{discharge}$ (Max. Daily Limit) = Q_{total} (50 mOs/kg)

Max. Daily Limit = [Q_{total} (50 mOs/kg) - Q_{stream} (11 mOs/kg)] / $Q_{discharge}$
Max. Daily Limit = [(0.493 cfs + 0.0046 cfs)(50 mOs/kg) – (0.493 cfs)(11 mOs/kg)] / 0.0046 cfs
Max. Daily Limit = 4,230 mOs/kg

This limit is less stringent than the existing limit. Per anti-backsliding policy, the existing daily maximum limit of 1,500 mOs/kg will remain in the permit. The permittee has been consistently achieving concentrations well below this limit.

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 aquatic life impairment for siltation due to agriculture. There is a recreational impairment for pathogens due to agriculture and urban runoff / storm sewers. This discharge will not significantly contribute to these impairments.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum 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/week	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/week	Grab
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite
Sulfate	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite
Chloride	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite
Bromide	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	8-Hr Composite
Osmotic Pressure (mOs/kg)	XXX	XXX	XXX	XXX	1,500	1,875	2/month	8-Hr Composite
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Total Thallium	XXX	XXX	XXX	Report	XXX	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location: Outfall 002

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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

Parameter	Effluent Limitations					Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)			Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Minimum	Monthly Average	Instant. Maximum		
Ammonia--N	Report	Report	XXX	XXX	Report	1/quarter	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	XXX	Report	1/quarter	8-Hr Composite
Nitrite-Nitrate as N	Report	XXX	XXX	XXX	Report	1/quarter	8-Hr Composite
Total Nitrogen	Report	Report	XXX	XXX	Report	1/quarter	Calculation
Total Phosphorus	Report	Report	XXX	XXX	Report	1/quarter	8-Hr Composite

Compliance Sampling Location: Outfall 002

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: