pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0088978**
Facility Type	**Municipal**	APS ID	**798512**
Major / Minor	**Minor**	Authorization ID	**1279744**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**West Pennsboro Township Municipal Authority**	Facility Name	**West Pennsboro STP**
Applicant Address	2150 Newville Road	Facility Address	20 Bears Road
	Carlisle, PA 17015-7747		Carlisle, PA 17015-8958
Applicant Contact	Wayne Myers	Facility Contact	Wayne Myers
Applicant Phone	(717) 243-8220	Facility Phone	(717) 243-8220
Client ID	159752	Site ID	551070
Ch 94 Load Status	Not Overloaded	Municipality	West Pennsboro Township
Connection Status	No Limitations	County	Cumberland
Date Application Received	July 2, 2019	EPA Waived?	Yes
Date Application Accepted	July 10, 2019	If No, Reason	
Purpose of Application	NPDES Renewal		

Summary of Review

West Pennsboro Township Municipal Authority (WPTMA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on December 11, 2014 and became effective on January 1, 2015. The permit expired on December 31, 2019 but the terms and conditions of the permit have been extended since that time.

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

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

Approve	Deny	Signatures	Date
		Jinsu Kim / Environmental Engineering Specialist	April 10, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Program Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0835
Latitude	40° 12’ 52.00”	Longitude	77° 17’ 34.00”
Quad Name	Plainfield	Quad Code	1727
Wastewater Description:	Treated sewage		
Receiving Waters	Conodoguinet Creek	Stream Code	10194
NHD Com ID	56406747	RMI	46.04
Drainage Area	340	Yield (cfs/mi^2)	0.105
Q_{7-10} Flow (cfs)	35.8	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-B	Chapter 93 Class.	WWF, MF
Existing Use	WWF, MF	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Carlisle Borough		
PWS Waters	Conodoguinet Creek	Flow at Intake (cfs)	62
PWS RMI	35.95	Distance from Outfall (mi)	10

Drainage Area
The discharge is to Conodoguinet Creek at RM 46.04. A drainage area upstream of the point of discharge is estimated to be 340 sq.mi. using USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow
USGS StreamStats produced a Q7-10 flow of 35.8 cfs at the point of discharge, resulting a low flow yield of 35.8 cfs / 340 sq.mi. = 0.105 cfs/sq.mi.

Conodoguinet Creek
Under 25 Pa Code §93.9o, Conodoguinet Creek from PA 997 at Roxbury to Mouth is designated as warm water fishes and supports migratory fishes. Conodoguinet Creek is a tributary of Susquehanna River which is also designated as warm water fishes. No special protection water is therefore impacted by this discharge. DEP’s latest integrated water quality report prepared in 2018 shows that sections of the Conodoguinet Creek near the discharge location is impaired for organic enrichment and low dissolved oxygen as a result of unknown sources. This impairment was identified as Category 5 by DEP in 2018 which requires the development of a Total Maximum Daily Load (TMDL). The TMDL development date is not yet defined as of the date of this fact sheet.

Public Water Supply Intake
The fact sheet prepared for the last permit renewal indicates that the nearest downstream public water supply intake is Carlisle Borough located on the Conodoguinet Creek approximately 10 miles from the discharge. Given the distance and nature, the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: West Pennsboro STP				
WQM Permit No.	**Issuance Date**			
2101409	12/13/2002			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Phosphorus Reduction	Extended Aeration	Ultraviolet	0.0835
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.1	208	Not Overloaded	Aerobic Digestion	Other WWTP

WPTMA owns and operates a municipal wastewater treatment plant serving the area of the West Pennsboro Township only (about 550 population). All sewer systems are 100% separated. The facility utilizes an extended aeration activated sludge treatment process consisting of a bar screen, aeration lagoon, clarifier, UV disinfection, and outfall structure.

Alum is used for settlement. Sludge is held in a sludge holding tank prior to being hauled off site via a local septic hauler. About 0.04 MGD of influent is generated from PA Turnpike Service Plaza. No industrial users are connected to the sewer system.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	01/16/2020: Mike Benham, DEP Water Quality Specialist, conducted a routine inspection. No violations were noted at the time of inspection. 05/23/2018: Mike Benham conducted a routine inspection and noted that the plant appeared in good condition and well maintained. No violations were noted at the time of inspection.
Other Comments:	DEP's database revealed that there is no open violation associated with this facility or permittee. Since the last permit reissuance, two (2) effluent violations occurred: September 2018 (average monthly TP 1.06 v. 1.0 mg/L); July 2019 (average monthly TP 1.10 v. 1.0 mg/L).

Effluent Data

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

Parameter	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19
Flow (MGD) Average Monthly	0.02788	0.03329	0.03636	0.03882	0.03715	0.03740	0.04166	0.04818	0.04226	0.03831	0.03815	0.03628
Flow (MGD) Daily Maximum	0.03550	0.04774	0.04709	0.04919	0.04731	0.05121	0.05431	0.05679	0.05986	0.06949	0.05074	0.04885
pH (S.U.) Minimum	7.35	7.30	7.20	7.24	7.27	7.25	7.07	7.05	6.98	6.90	7.02	7.14
pH (S.U.) Instantaneous Maximum	7.55	7.58	7.44	7.49	7.78	7.70	7.85	7.49	7.29	7.35	7.54	7.83
DO (mg/L) Minimum	7.59	7.37	6.61	6.92	6.38	5.78	5.55	5.54	5.70	5.51	6.69	7.43
CBOD5 (lbs/day) Average Monthly	0.64	0.05	0.79	0.79	1.66	0.88	0.06	1.17	1.37	1.19	0.83	0.98
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	5.45	< 3.0	< 3.0	3.0	3.85	3.0	2.50	3.30
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	59.10	70.94	44.17	123.55	84.77	87.69	64.84	117.46	71.09	68.32	106.22	84.92
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	66.00	86.631	44.29	161.36	105.28	96.35	66.68	140.98	79.02	81.00	134.50	123.49
BOD5 (mg/L) Raw Sewage Influent Average Monthly	280.5	292.5	160	454	280	307	217	326.5	202.5	235.5	321.5	253
TSS (lbs/day) Average Monthly	0.42	0.04	0.53	0.53	0.60	0.58	0.60	0.05	0.70	0.86	0.80	1.59
TSS (lbs/day) Raw Sewage Influent Average Monthly	38.45	20.36	22.0	99.68	43.51	46.61	102.9	42.49	40.06	54.64	84.44	40.00
TSS (lbs/day) Raw Sewage Influent Daily Maximum	41.03	61.450	23.59	149.02	61.31	92.42	138.6	45.059	44.93	65.23	128.44	58.34
TSS (mg/L) Average Monthly	< 2.0	< 2.0	< 2.0	< 2.0	2.0	< 2.0	< 2.0	0.78	< 2.0	2.15	2.50	4.90
TSS (mg/L) Raw Sewage Influent Average Monthly	184	171	80	370	143	210	359	117	114	189	249	119

Fecal Coliform (CFU/100 ml) Geometric Mean	1	1	1	1.0	1.414	4.472	4.414	7.07	1	1	1	1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	1	1	1	1.0	1	10	2	50	1	1	1	1
UV Intensity (mW/cm²) Minimum	1.2	0.90	1.0	1.0	1.5	1.8	1.9	2.0	1.7	1.5	2.1	1.7
Nitrate-Nitrite (mg/L) Average Quarterly			34.5			46.4			49.6			26.4
Total Nitrogen (mg/L) Average Quarterly			< 0.01			< 1			< 1			33.5
TKN (mg/L) Average Quarterly			< 0.01			< 1			< 1			7.1
Total Phosphorus (lbs/day) Average Monthly	0.056	0.004	0.0595	0.0959	0.166	0.124	0.203	0.418	0.282	0.314	0.40	0.065
Total Phosphorus (mg/L) Average Monthly	0.27	0.29	0.37	0.32	0.56	0.43	0.68	1.10	0.82	0.79	0.131	0.23

Existing Effluent Limits and Monitoring Requirements

The table below summarizes effluent limitations and monitoring requirements implemented in the existing NPDES permit.

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		Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	17	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	20	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Nitrate-Nitrite as N	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Phosphorus	0.7	XXX	XXX	1.0	XXX	2.0	2/month	8-Hr Composite

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .0835
Latitude 40º 12' 52.00" **Longitude** -77º 17' 34.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Comments: Since the facility utilizes UV disinfection, the total residual chlorine standard is not applicable. During the last permit renewal, weekly average effluent limits for CBOD5 and TSS were not included in the permit. It is unclear as to why these limits were not included but the permit should include TBELs of 40 mg/L for CBOD5 and 45 mg/L for TSS in accordance with 25 Pa Code §92a.47(a)(2).

Water Quality-Based Limitations

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. When the discharge is to a large stream and there has not been any changes to the water quality criteria and discharge, DEP generally reviews the results of previous modeling efforts and uses those results, if appropriate performed, for the upcoming permit renewal. This permitting approach is consistent with DEP's SOP no. BPNPSM-PMT-033. The modeling efforts from the last permit were appropriately performed; therefore, no WQM modeling will be performed for this permit renewal. The results of the prior modeling effort are attached to this fact sheet. The SOP recommends a year-round monitoring of ammonia-nitrogen (NH3-N) if WQM modeling results for summer indicates that an average monthly limit of 25 mg/L is acceptable. Accordingly, a year-round monitoring requirement will be included in the permit for NH3-N.

Toxics
DEP's minor sewage facility permit application does not require sampling of toxic pollutants for facilities less than 0.1 MGD. No toxic pollutants have therefore been taken into consideration as pollutants of concern at this time.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for DO is an existing effluent limit and is a current state water quality criterion found in 25 Pa. Code § 93.7(a). This effluent limit will remain unchanged for the upcoming permit renewal to ensure the protection of water quality standards. This approach is also consistent with DEP's SOP no. BPNPSM-PMT-033. This requirement has also been assigned to other facilities throughout the state.

Total Phosphorus
The facility will also continue to control Total Phosphorus effluent levels by average monthly and instantaneous maximum (IMAX) limits of 1.0 mg/L and 2.0 mg/L, respectively. This was previously developed based on the previous regional biologist's determination that phosphorus loadings from this facility need to be controlled during the growing season for any newer facilities on the Conodoguinet Creek watershed.

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Influent BOD & TSS Monitoring
As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

Ultraviolet (UV) Monitoring
DEP's Standard Operating Procedure (SOP no. BPNPSM-PMT-033) recommends a routine monitoring of Ultraviolet (UV) transmittance or intensity when the facility is utilizing an UV disinfection system in lieu of chlorination. This is a reasonable approach and has been assigned to other facilities equipped with similar technology. Accordingly, existing UV monitoring requirement will remain in the permit.

Chesapeake Bay TMDL & TN/TP SOP Monitoring Requirement
The discharge is located within the Chesapeake Bay watershed and is considered under the Supplement to Phase III Watershed Implementation Plan (WIP) a Phase 5 facility designed to treat between 0.002 MGD and 0.2 MGD. The facility has been monitored for nutrients on a quarterly basis. The results are as follows:

Nutrient DMR Data (May 2015 – April 2020; 19 data for TN & TN Species; 70 Data for TP)				
	Nitrate-Nitrite	TKN	TN	TP
Maximum	60.50	38.40	33.50	1.10
Average	38.75	3.44	2.75	0.46
Minimum	4.80	0.01	0.01	0.02
Median	38.40	1.00	1.00	0.39

While the WIP does not recommend further monitoring for these nutrients when the monitoring was performed at least for 2 years, the SOP recommends that a routine monitoring for Total Phosphorous and Total Nitrogen regardless for any sewage facilities. It is important to collect ample datasets for DEP to understand impacts of all point source discharges to the Chesapeake Bay watershed. It is therefore recommended to maintain existing nutrient monitoring requirements.

Monitoring Frequency and Sample Type
Unless stated otherwise in this fact sheet, all existing monitoring frequencies and sample types will remain unchanged in the permit and are consistent with recommended requirements specified in DEP's technical guidance no. 362-0400-001.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

Class A Wild Trout Fishery
A Class A Wild Trout Fishery is not impacted by this discharge.

Anti-Degradation Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as permit requirements specified in the existing permit renewal in accordance with 40 CFR §122.44(l)(1).

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	Instant. Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	17	27	XXX	25	40	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Suspended Solids	20	31	XXX	30	45	60	2/month	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
UV Intensity (mW/cm^2)	XXX	XXX	Report Daily Min	XXX	XXX	XXX	1/day	Metered
Nitrate-Nitrite as N	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Total Kjeldahl Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	8-Hr Composite
Total Phosphorus	0.7	XXX	XXX	1.0	XXX	2.0	2/month	8-Hr Composite

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: