pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0021644**
Facility Type	**Municipal**	APS ID	**276410**
Major / Minor	**Minor**	Authorization ID	**1310842**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Dover Borough York County**	Facility Name	**Dover Borough STP**
Applicant Address	46 Butter Road	Facility Address	46 Butter Road
	Dover, PA 17315-1225		Dover, PA 17315-1225
Applicant Contact	Duane Grim	Facility Contact	Duane Grim
Applicant Phone	(717) 292-6530	Facility Phone	(717) 292-6530
Client ID	74330	Site ID	252942
Ch 94 Load Status	Not Overloaded	Municipality	Dover Borough
Connection Status	Dept. Imposed Connection Prohibitions	County	York
Date Application Received	March 26, 2020	EPA Waived?	No
Date Application Accepted	June 2, 2020	If No, Reason	Significant CB Discharge

Purpose of Application: NPDES permit Renewal.

Summary of Review

James R. Holley & Associates, Inc., on behalf of the Dover Borough, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. This is a new NPDES permit for the existing facility located at City Hall Drive, Dover, PA. The permit was reissued on September 14, 2015 and became effective on October 1, 2015. The permit expired on September 30, 2020 but the terms and conditions of the permit have been extended since that time.

This facility receives 97% of its flow from Dover Borough and 3% from Dover Township. There are no industrial contributors. The facility has average annual design flow and hydraulic design capacity of 0.5 MGD.

An amendment for WQM Permit No. 6783411 A-1 was issued on March 25, 2009 for an upgrade of the WWTP.

Sludge use and disposal description and location(s): sludge is hauled by Kline's Services.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will add to the proposed permit. The summer average monthly $CBOD_5$ limit in the proposed permit was changed from 23.0 mg/L to 22.0 mg/L (weekly average & IMAX limits changed to 33.0 mg/L & 44.0 mg/L).

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	July 13, 2021
X		*Maria D. Bebenek for Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	July 16, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.5
Latitude	40º 0' 1.56"	Longitude	-76º 50' 44.56"
Quad Name	Dover	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Fox Run (TSF, MF)	Stream Code	08387
NHD Com ID	57467963	RMI	3.7 miles
Drainage Area	4.45 mi.^{2}	Yield (cfs/mi^2)	0.016
Q_{7-10} Flow (cfs)	0.07	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	385.8	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	TSF, MF
Existing Use		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	Wrightsville Water Supply, York County		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.51 miles	Distance from Outfall (mi)	Approximate 32 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharges are to Unnamed Tributary to Fox Run to Conewago Creek at RMI 3.7 miles. A drainage area upstream of the discharge is estimated to be 4.45 mi.^{2}, according to USGS PA StreamStats available at: https://streamstats.usgs.gov/ss/.

Stream Flow
According to StreamStats, the discharge point in the receiving stream has a Q_{7-10} of 0.07 cfs and a drainage area of 4.45 mi^2, which results in a Q_{7-10} low flow yield of 0.016 cfs/mi^2. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 0.07 cfs
Low Flow Yield = 0.07 cfs / 4.45 mi^2 = 0.016 cfs/mi^2
Q_{30-10} = 1.36 * 0.07 cfs = 0.095 cfs
Q_{1-10} = 0.64 * 0.07 cfs = 0.045 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 0.070 cfs / [0.5 MGD * (1.55 cfs/MGD)] = 0.09:1.

Unnamed Tributary to Fox Run to Conewago Creek
25 Pa. Code § 93.9o classifies unnamed tributary to Fox Run to Conewago Creek as Trout Stocking and Migratory Fishes (TSF & MF) surface water. Based on the 2020 Integrated Report, unnamed tributary to Fox Run to Conewago Creek, assessment unit IDs 12754 & 18662, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is the Wrightsville Water Supply Co. on Susquehanna River in York County, approximately 32 miles downstream of this discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Dover Borough STP				
WQM Permit No.	**Issuance Date**			
6783411 A-1	3/25/2009			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Activated Sludge	Ultraviolet	0.5
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.5	1042	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none.

The WWTP train is as follows:

Fine Screen Press (1) ⇒ Equalization Tanks (2) ⇒ Clarifier (1) ⇒ Schreiber Process Aeration Tanks (3) ⇒ Schreiber Process Clarifiers (3) ⇒ Ultraviolet System (1) ⇒ Step Aeration Unit (1) ⇒ Discharge

The system incorporates the chemical addition of alum (for phosphorus removal). A sludge holding tank is on-site.

Compliance History	
Summary of DMRs:	The DMRs reported from May 1, 2020 to April 30, 2021 are summarized in the Table below (Pages # 5, 6, & 7).
Summary of Inspections:	April 2, 2021: Heather Dock, DEP WQS, conducted an administrative review of Dover Borough WWTP's Chesapeake Bay nutrient data for compliance year 2020 (October 1, 2019 – September 30, 2020). There were no violations noted during the inspection. The recommendations were to utilize the Department's Chesapeake Bay Annual Nutrient Monitoring supplemental form for report nutrient results and include with annual DMR submission, to check box sludge which hauled or not in the biosolids supplemental form, and to report the lab results on the day when the flow correlates to the sample collection time when 24-hour composite samples are collected. July 31, 2019: Austen Randecker, DEP WQS, conducted a compliance evaluation inspection. There was no violation noted during the inspection. The recommendation was to replace expired pH buffer solutions. The field test results were within permit limits. February 23, 2017: Sheena Ripple, DEP WQS, conducted a compliance evaluation inspection. There was no violation noted during the inspection. The outfall area was clear and free of solids. February 4, 2016: Sheena Ripple, DEP WQS, conducted a flow up on a report of a manhole overflow at the Delwood lift station. There was a violation due to unauthorized discharge of sewage from a manhole to a storm-drain.
Other Comments:	There are currently no open violations associated to the permittee or the facility.

Other Comments:

Since the last permit renewal, the bypasses or overflows are noted as follows.

- In 2016, manhole 201 (adjacent to the Delwood sewage pumping station) overflowed with 1.4" of rain falling between February 3-4, along with melting snow. The pump station could not keep up with the excessive flow.

- In 2018, manhole 201 again overflowed on July 25, due to over 11" of rain falling between July 21-25. One of the equalization tanks at the treatment plant also overflowed on July 25.
- There were no overflows at the pump station, in the sewer system, or at the treatment plant in 2015, 2017, or 2019.

Over the past five-plus years, a considerable effort has been made to address infiltration/inflow, with an emphasis on the Delwood development, which drains to the Delwood pump station. Laterals have been repaired, replaced, and sewer have been lined, with more such work occurring in 2020.

The table below summarizes the influent/effluent testing results submitted along with the application.

Influent Testing Results			*Effluent Testing Results*		
Parameter	**Min/Max Value**	**Average Value**	**Parameter**	**Min/Max Value**	**Average Value**
BOD_5 (mg/L)	378 mg/L	152.7 mg/L	pH (minimum)	6.73 S.U.	
BOD_5 (lbs/day)	726 lbs/day	310.7 lbs/day	pH (maximum)	7.65 S.U.	
TSS (mg/L)	494 mg/L	113.7 mg/L	D.O (minimum)	5.75 mg/L	8.3 mg/L
TSS (lbs/day)	1018 lbs/day	229.8 lbs/day	TRC	NA mg/L	NA mg/L
TN (mg/L)	42.7 mg/L	42.7 mg/L	Fecal Coliform	454 No./100mL	<14.7No./100mL
TN (lbs/day)	70.9 lbs/day	70.9 lbs/day	$CBOD_5$	7 mg/L	< 3.1 mg/L
TP (mg/L)	4.6 mg/L	4.6 mg/L	TSS	29 mg/L	3.9 mg/L
TP (lbs/day)	7.6 lbs/day	7.6 lbs/day	NH3-N	32 mg/L	<1.25 mg/L
NH_3-N (mg/L)	22 mg/L	22 mg/L	TN	43.8 mg/L	4.22 mg/L
NH_3-N (lbs/day)	36.5 lbs/day	36.5 lbs/day	TP	2.7 mg/L	<0.67 mg/L
TDS (mg/L)	496 mg/L	496 mg/L	Temp	50.9 F	50.9 F
TDS (lbs/day)	823.7 lbs/day	823.7 lbs/day	TKN	43 mg/L	<1.93 mg/L
TKN	41 mg/L	41 mg/L	NO2-N + NO3-N	<8.9 mg/L	<2.25 mg/L
NO_2-N + NO_3-N	1.7 mg/L	1.7 mg/L	TDS	404 mg/L	404 mg/L
			Chloride	87 mg/L	87 mg/L
			Bromide	< 0.5 mg/L	< 0.5 mg/L
			Sulfate	44 mg/L	44 mg/L
			Oil and Grease	< 5.0 mg/L	< 5.0 mg/L
			Total Copper	0.008 mg/L	0.008 mg/L
			Total Lead	< 0.001 mg/L	< 0.001 mg/L
			Total Zinc	0.029 mg/L	0.029 mg/L

Compliance History

DMR Data for Outfall 001 (from May 1, 2020 to April 30, 2021)

Parameter	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20
Flow (MGD) Average Monthly	0.223	0.322	0.357	0.212	0.288	0.178	0.156	0.140	0.188	0.136	0.158	0.220
Flow (MGD) Daily Maximum	0.472	0.994	1.257	0.574	1.412	0.385	0.436	0.245	0.816	0.200	0.304	0.660
pH (S.U.) Minimum	7.17	6.96	7.08	6.96	6.80	6.85	6.96	6.96	6.89	6.97	6.83	6.95
pH (S.U.) Maximum	7.56	7.33	7.34	7.29	7.26	7.16	7.20	7.11	7.13	7.28	7.33	7.24
DO (mg/L) Minimum	7.91	8.51	8.95	9.00	8.40	7.74	6.63	6.69	6.50	6.03	6.82	7.24
CBOD5 (lbs/day) Average Monthly	3.8	6.6	10.2	4.5	5.8	5.3	3.4	3.6	4.6	4.6	3.9	4.8
CBOD5 (lbs/day) Weekly Average	5.1	10.4	22.3	7.3	10.5	9.6	4.2	4.6	8.3	6.7	5.5	8.4
CBOD5 (mg/L) Average Monthly	< 2.4	< 2.42	< 3.3	< 3	< 3	< 3	< 3	< 3.2	< 3	< 3	< 3	< 3
CBOD5 (mg/L) Weekly Average	< 2.4	2.50	4.8	3	< 3	3	3	4	< 3	4	3	3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	378	404	868	278	417	321	260	646	324	298	450	317
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	496	817	2417	403	760	436	404	2062	408	347	668	437
BOD5 (mg/L) Raw Sewage Influent Average Monthly	229	178	305	186	206	244	210	602	207	294	363	245
TSS (lbs/day) Average Monthly	7.7	10.2	40.9	7.7	11.7	10.8	6	5.5	6.5	5.7	13.2	6.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	407	313	859	294	320	334	263	559	267	250	423	272
TSS (lbs/day) Raw Sewage Influent Daily Maximum	730	572	2403	376	413	505	428	1559	332	288	688	342
TSS (lbs/day) Weekly Average	16.9	15.8	102	9.7	34.9	12.8	14.5	10	9.3	12.9	20	12.4
TSS (mg/L) Average Monthly	5	4.4	11.5	6	5.2	7	5.5	5.2	5	4	9.8	5

TSS (mg/L) Raw Sewage Influent Average Monthly	248	147	295	198	168	252	216	518	195	247	339	195
TSS (mg/L) Weekly Average	11	10	22	8	10	10	14	10	10	8	12	12
Fecal Coliform (CFU/100 ml) Geometric Mean	< 2.3	10.9	3.3	< 1	< 1.6	< 8.3	50	< 28	< 1.9	< 22	57	6
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	9	71	14	< 1	6	2420	921	387	7	198	166	84
UV Intensity (mW/cm²) Minimum	5.6	4.6	5.0	5.0	7.0	1.9	2.1	2.1	1.6	2.8	2.4	2.5
UV Intensity (mW/cm²) Average Monthly	6.3	5.8	5.7	6.5	8.8	8	2.3	2.5	2.4	3.2	3.0	2.8
Nitrate-Nitrite (mg/L) Average Monthly	< 1.86	< 3.08	< 3.7	< 4.26	< 3.22	< 5.98	< 3.59	< 1.32	< 0.82	< 0.81	< 0.86	< 1.07
Nitrate-Nitrite (lbs) Total Monthly	103	268	269	179	180	246	164	46	36	32	33	52
Total Nitrogen (mg/L) Average Monthly	2.92	6.27	9.6	5.28	4.17	5.45	4.44	2.19	1.85	2.00	1.82	1.72
Total Nitrogen (lbs) Effluent Net Total Monthly	155	538	653	220	243	279	201	78	83	78	68	82
Total Nitrogen (lbs) Total Monthly	155	538	653	220	243	279	201	78	83	78	68	82
Total Nitrogen (lbs) Effluent Net Total Annual								2435				
Total Nitrogen (lbs) Total Annual								2435				
Ammonia (lbs/day) Average Monthly	0.92	7.60	12.3	0.92	0.31	0.32	0.16	0.12	0.14	0.19	0.14	0.15
Ammonia (mg/L) Average Monthly	0.57	2.71	5.3	0.77	< 0.16	< 0.17	< 0.11	< 0.10	< 0.10	< 0.16	< 0.11	< 0.10
Ammonia (lbs) Total Monthly	28	236	344	29	9.6	10	5	3.6	4	6	4	4.7
Ammonia (lbs) Total Annual								713				
TKN (mg/L) Average Monthly	< 1.07	3.19	5.9	< 1.02	< 0.95	< 0.72	< 0.85	0.87	1.03	1.19	0.96	0.65
TKN (lbs) Total Monthly	53	270	384	41	63	33	37	32	47	46	36	30

Total Phosphorus (lbs/day) Average Monthly	1.25	1.67	2.7	1.16	1.92	2.15	2.46	2.45	1.85	1.93	1.68	1.24
Total Phosphorus (mg/L) Average Monthly	0.71	0.68	1.1	0.86	1.00	1.29	1.81	2.0	1.44	1.49	1.33	0.91
Total Phosphorus (lbs) Effluent Net Total Monthly	38	52	76	36	58	65	76	74	57	60	50	38
Total Phosphorus (lbs) Total Monthly	38	52	76	36	58	65	76	74	57	60	50	38
Total Phosphorus (lbs) Effluent Net Total Annual								709				
Total Phosphorus (lbs) Total Annual								709				

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.5
Latitude 40º 0' 0.00" **Longitude** -76º 51' 1.00"
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)
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)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were first based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3N criteria used in the attached computer model of the stream:

- Discharge pH 7.0 (Default per 391-2000-007)
- Discharge Temperature 25°C (Default per 391-2000-007)
- Stream pH 7.0 (Default per 391-2000-006)
- Stream Temperature 20°C (Default per 391-2000-003)
- Background NH_3-N 0 mg/L (Assumed)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 1.59 mg/L as a monthly average (AML) and 3.18 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. However, the existing limits of 1.5 mg/L monthly average & 3.0 mg/L IMAX will remain in the proposed permit. The winter effluent limit will be set at three-times the summer limits. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer average monthly mass limit: 1.5 mg/L x 0.5 MGD x 8.34 = 6.3 lbs/day
Winter average monthly mass limit: 4.5 mg/L x 0.5 MGD x 8.34 = 18.8 lbs/day

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa Code § 95.2(1).

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a monthly average limit of 22.09 (22.0) mg/L, or secondary treatment, is adequate to protect the water quality of the stream. Using the multiplier of 1.5 yields an average weekly limit of 33.0 mg/L. These values are slightly more stringent than the existing limits, and will be in the proposed permit, which were based on secondary treatment standards. The Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Summer average monthly mass limit: 22 mg/L x 0.5 MGD x 8.34 = 91.7 lbs/day
Summer average weekly mass limit: 33 mg/L x 0.5 MGD x 8.34 = 137.6 lbs/day

The existing secondary treatment limit of 25.0 mg/L will remain in the permit for the winter period.

Winter average monthly mass limit: 25 mg/L x 0.5 MGD x 8.34 = 104 lbs/day
Winter average weekly mass limit: 37 mg/L x 0.5 MGD x 8.34 = 154 lbs/day

Total Suspended Solids (TSS):
The existing limits of 30.0 mg/L AML, 45.0 mg/L average weekly, and 60.0 mg/L IMAX will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations well below these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30 mg/L x 0.5 MGD x 8.34 = 125 lbs/day
Average weekly mass limit: 45 mg/L x 0.5 MGD x 8.34 = 188 lbs/day

Fecal Coliform:
The recent coliform guidance in 25 PA code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP no. BPNPSM-PMT-033, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa Code §92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/week is included in the permit to be consistent with the recommendation from this SOP.

UV:
The UV system monitor and report the UV intensity (mW/cm^2) after update to replace chlorine disinfection to UV disinfection system will remain in the proposed permit.

Total Phosphorus:
Previous permit had average monthly concentration monitoring requirement 2.0 mg/l and instantaneous maximum limit of 4.0 mg/l with a minimum monitoring frequency of 2/week. Accordingly, existing TP limits will remain in the proposed permit. See the EPA guidance, Nutrient Criteria Technical Guidance Manual – Rivers and Streams, 07/2000 EPA-822-B-00-002, for more information about nutrient impacts on streams. Mass limits are calculated as follows:

Average monthly mass limit: 2.0 mg/L x 0.5 MGD x 8.34 = 8.3 lbs/day

Chesapeake Bay Strategy:
In the Phase 2 WIP Wastewater Supplement revised on December 17, 2019, Table 5 - Significant Chesapeake Bay Sewage NPDES Permits (pages # 6-14) of this document shows that Dover Borough has been allocated 7,306 lbs/year of TN and 974 lbs/year of TP. This approach is consistent with the Chesapeake Bay TMDL based on the actual performance data previously evaluated by the Department. Since the permittee is easily capable of achieving compliance with these loads, the Department determines that no "compliance schedule" for the requirements associated with the Chesapeake Bay Strategy is necessary. Accordingly, the Chesapeake Bay nutrient (i.e., Ammonia-N, Kjeldahl-N, Nitrate-Nitrite as N, and Total Phosphorus) existing limitations and monitoring frequency of 2/week requirements will remain in the proposed permit.

Biosolids Management:
Sludge is digested on-site, via an aerobic sludge digester, and removed by a certified hauler.

Stormwater:
There is no known stormwater outfall associated with this facility.

Toxics:

Effluent sample results for toxic pollutants reported on the renewal application were entered into DEP's Toxics Management Spreadsheet Version 1.0 to develop appropriate permit requirements for toxic pollutants of concern. The Toxics Management Spreadsheet combines the functions of PENTOXSD and DEP's Toxics Screening Analysis. Based on effluent sample results reported on the application, the Toxics Management Spreadsheet did not recommend any limits or monitoring requirements.

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. Spreadsheet results are attached to this fact sheet. The Toxics Management Spreadsheet uses the following logic:

a. Establish average monthly and 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 facility reported Total Zinc maximum concentrations of outfall 001 was less than 10% of their respective WQBEL, per DEP's SOP No. BPNPSM-PMT-033, therefore, the monitoring and reporting requirements of this parameter are not necessary added to the proposed permit.

Additionally, the Total Copper pollutant have reasonable potential (RP) discharge concentration greater than or equal to 50% WQBEL, and based upon the data provided in the application (Maximum Value 0.008 mg/L (8 µg/L), page # 4) which is below the IMAX Limits of 0.0153 mg/L (15.3 µg/L) in DEP Toxics Management Spreadsheet. Therefore, no limit or monitoring requirement of this parameter is not necessary added to the proposed permit.

TMS
PA0021644-Dover Bc

Antidegradation (93.4):

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

303d Listed Streams:

This discharge is not located on a 303d listed stream segment.

Class A Wild Trout Fisheries:

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

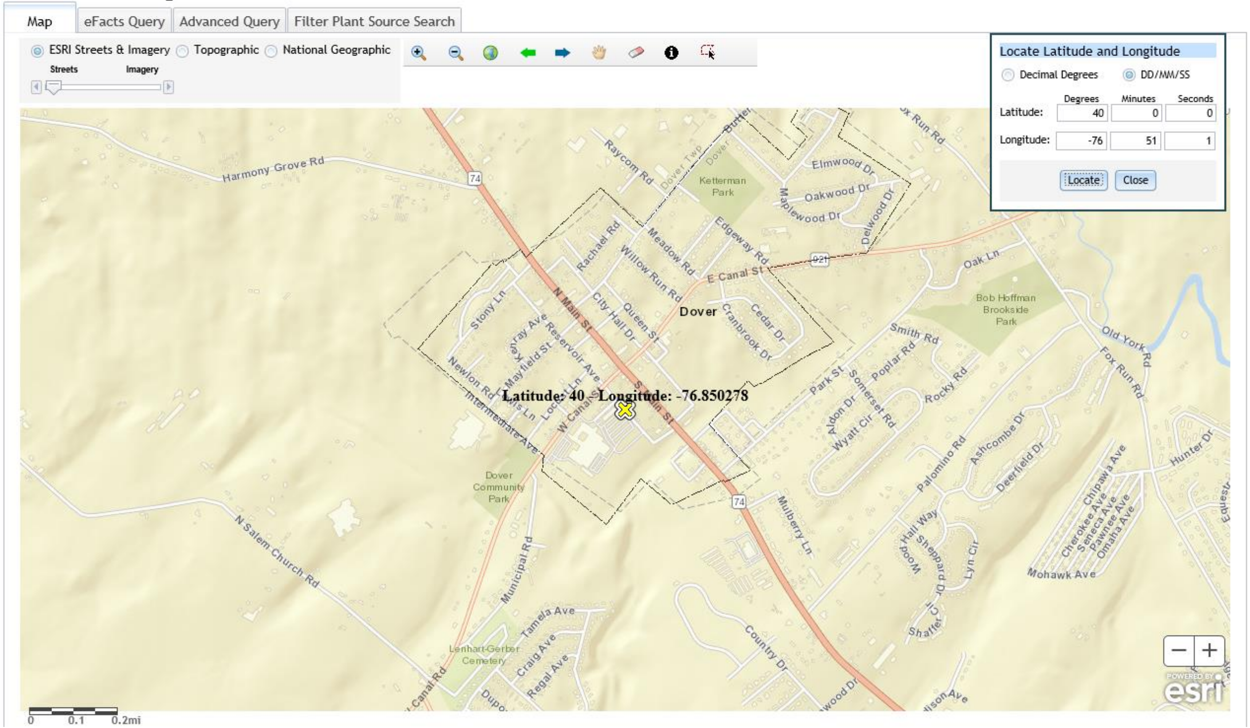
WQM 7.0 Data:

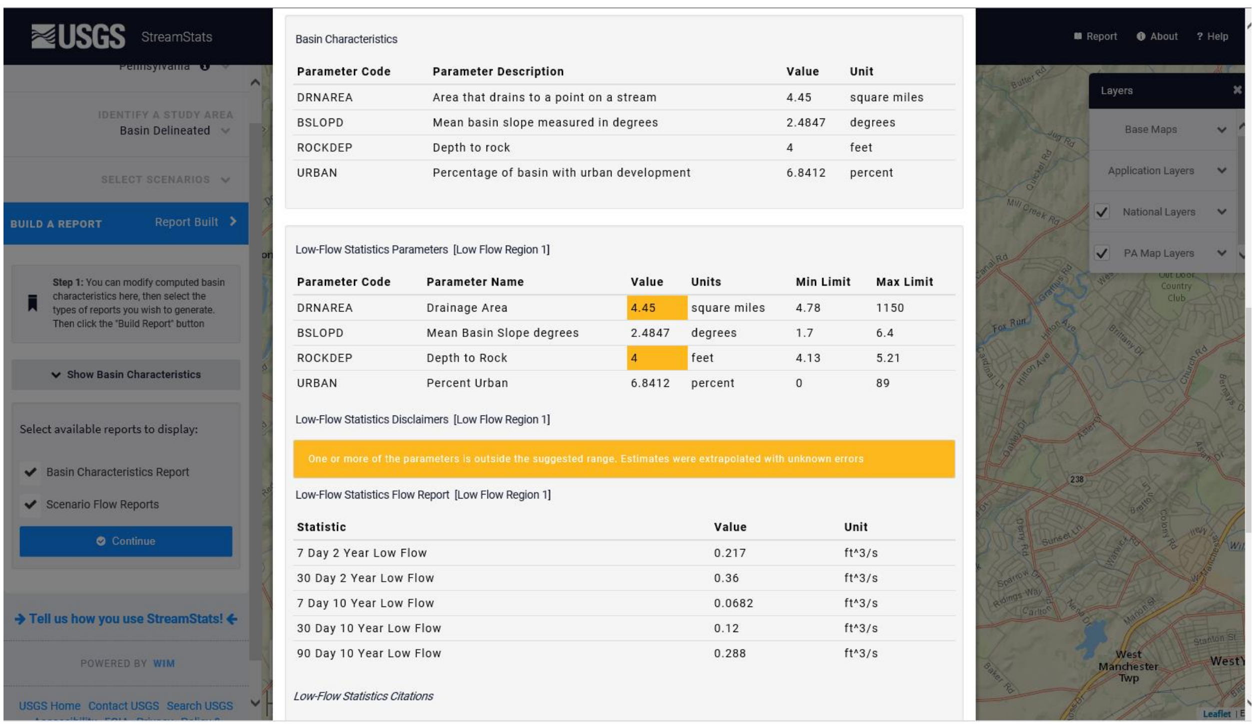
Node 1: Dover Borough STP Outfall 001 on Unnamed Tributary to Fox Run (08387)

Elevation:	385.8 ft (USGS National Map Viewer)
Drainage Area:	4.45 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	3.70 (PA DEP eMapPA)
Low Flow Yield:	0.016 $cfs/mi.^2$
Discharge Flow:	0.5 MGD (NPDES Application)

Node 2: Just before confluence with UNT 08392

Elevation:	374.7 ft (USGS National Map Viewer)
Drainage Area:	5.29 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	2.53 (PA DEP eMapPA)
Low Flow Yield:	0.016 $cfs/mi.^2$
Discharge Flow:	0.000 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.45	square miles
BSLOPD	Mean basin slope measured in degrees	2.4847	degrees
ROCKDEP	Depth to rock	4	feet
URBAN	Percentage of basin with urban development	6.8412	percent

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	4.45	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	2.4847	degrees	1.7	6.4
ROCKDEP	Depth to Rock	4	feet	4.13	5.21
URBAN	Percent Urban	6.8412	percent	0	89

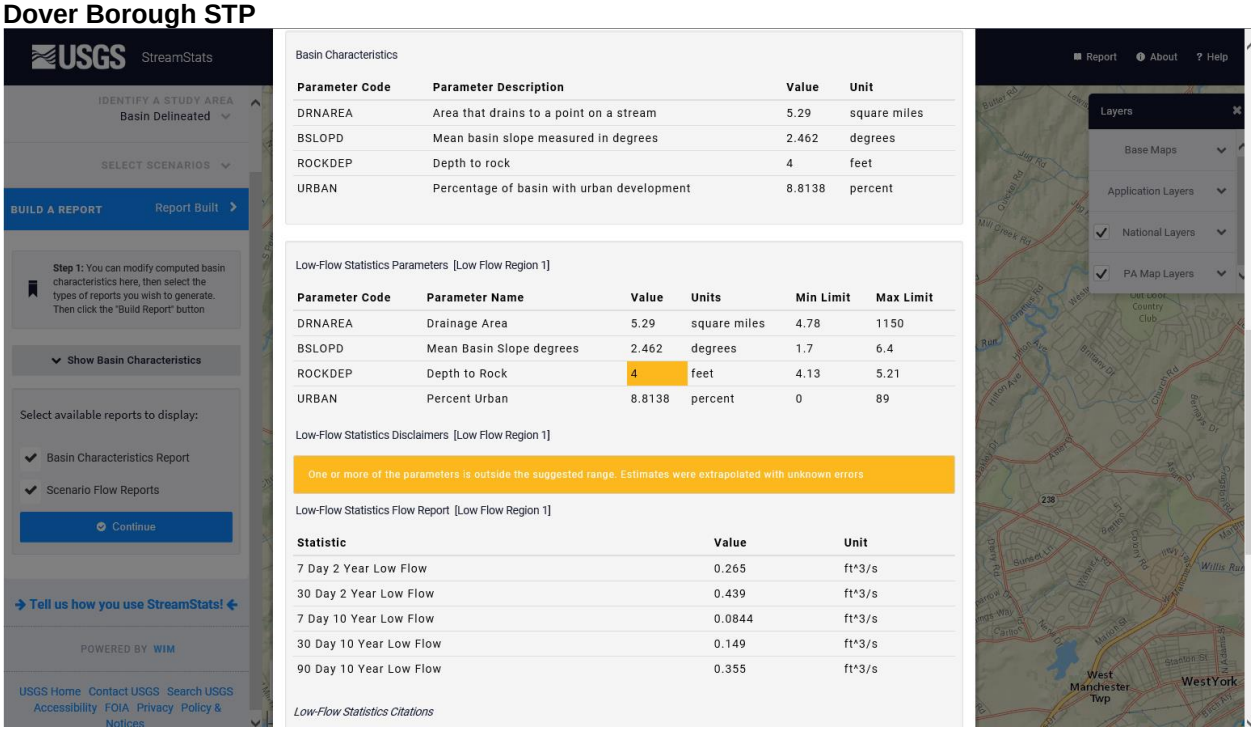
Low-Flow Statistics Disclaimers [Low Flow Region 1]

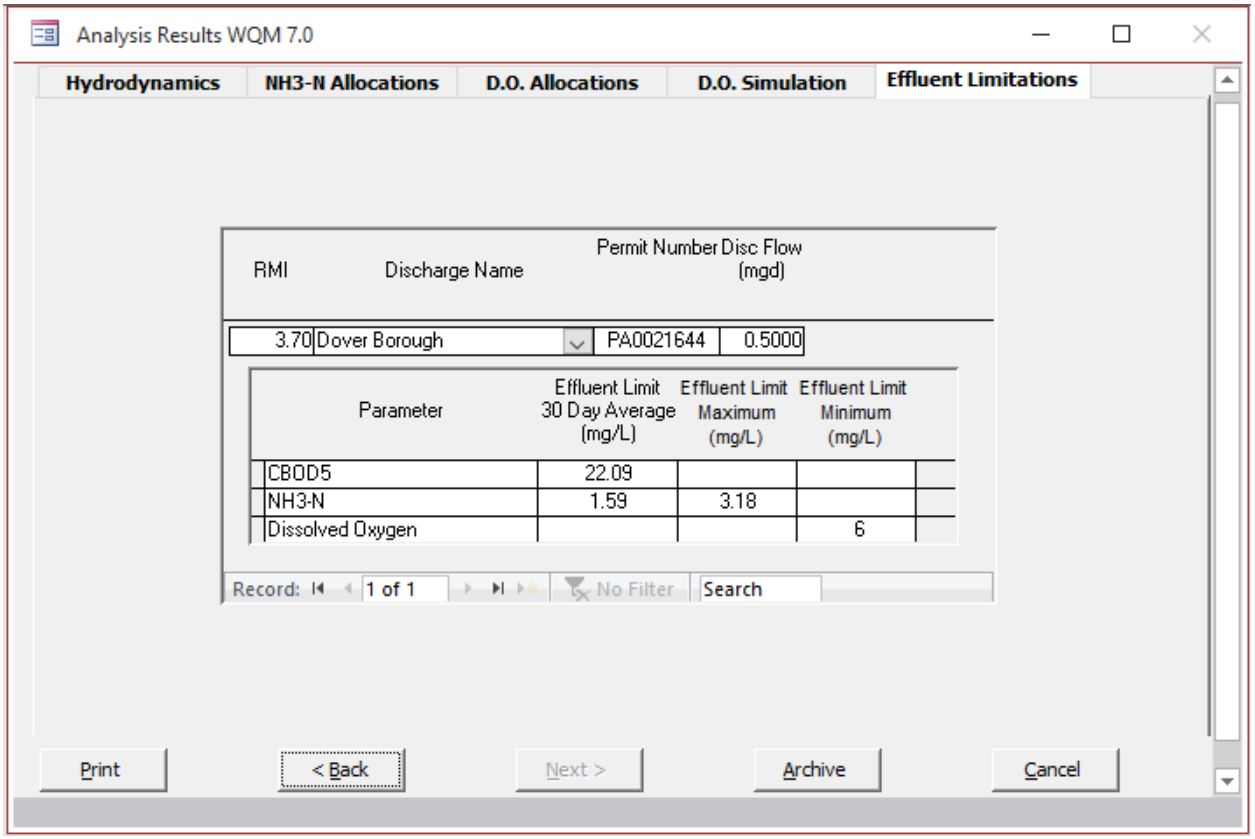
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.217	ft^3/s
30 Day 2 Year Low Flow	0.36	ft^3/s
7 Day 10 Year Low Flow	0.0682	ft^3/s
30 Day 10 Year Low Flow	0.12	ft^3/s
90 Day 10 Year Low Flow	0.288	ft^3/s

Low-Flow Statistics Citations


USGS StreamStats
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Continue
Tell us how you use StreamStats!
POWERED BY WIM
USGS Home Contact USGS Search USGS
Accessibility FOIA Privacy Policy & Notices
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
DRNAREA | Area that drains to a point on a stream | 5.29 | square miles
BSLOPD | Mean basin slope measured in degrees | 2.462 | degrees
ROCKDEP | Depth to rock | 4 | feet
URBAN | Percentage of basin with urban development | 8.8138 | percent
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 5.29 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 2.462 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4 | feet | 4.13 | 5.21
URBAN | Percent Urban | 8.8138 | percent | 0 | 89
Low-Flow Statistics Disclaimers [Low Flow Region 1]
One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors
Low-Flow Statistics Flow Report [Low Flow Region 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 0.265 | ft^3/s
30 Day 2 Year Low Flow | 0.439 | ft^3/s
7 Day 10 Year Low Flow | 0.0844 | ft^3/s
30 Day 10 Year Low Flow | 0.149 | ft^3/s
90 Day 10 Year Low Flow | 0.355 | ft^3/s
Low-Flow Statistics Citations
Report
About
Help
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
West Manchester Twp
WestYork


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
3.70
Dover Borough
PA0021644
0.5000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
22.09
NH3-N
1.59
3.18
Dissolved Oxygen
6
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
Archive
Cancel

Analysis Results WQM 7.0

Hydrodynamics | NH3-N Allocations | D.O. Allocations | D.O. Simulation | Effluent Limitations

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.700	0.500	24.579	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
13.221	0.505	26.161	0.126
Reach C-BOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
20.40	1.307	1.46	0.996
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.189	21.389	Owens	6

Reach Travel Time (days): 0.566

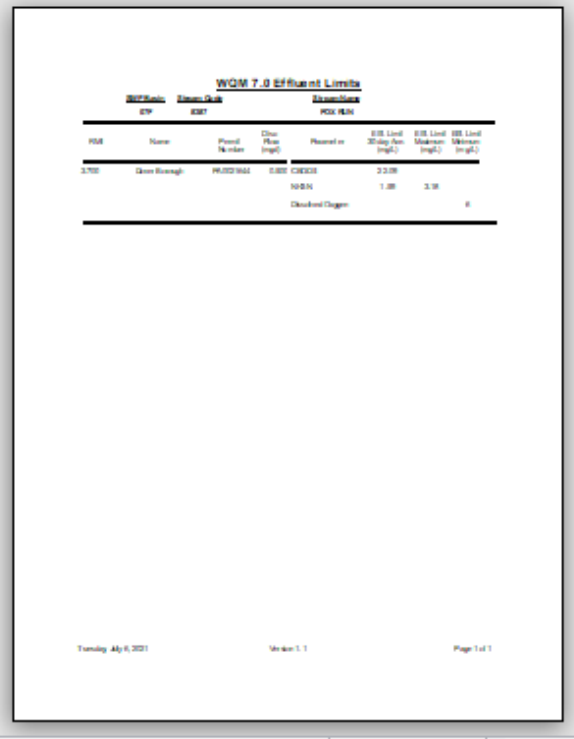
Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.057	18.62	1.38	6.02
0.113	16.99	1.30	6.12
0.170	15.51	1.23	6.28
0.226	14.16	1.17	6.45
0.283	12.92	1.10	6.61
0.339	11.80	1.04	6.76
0.396	10.77	0.98	6.90
0.452	9.83	0.93	7.03
0.509	8.97	0.88	7.14
0.566	8.19	0.83	7.25

Record: 1 of 1 | No Filter | Search

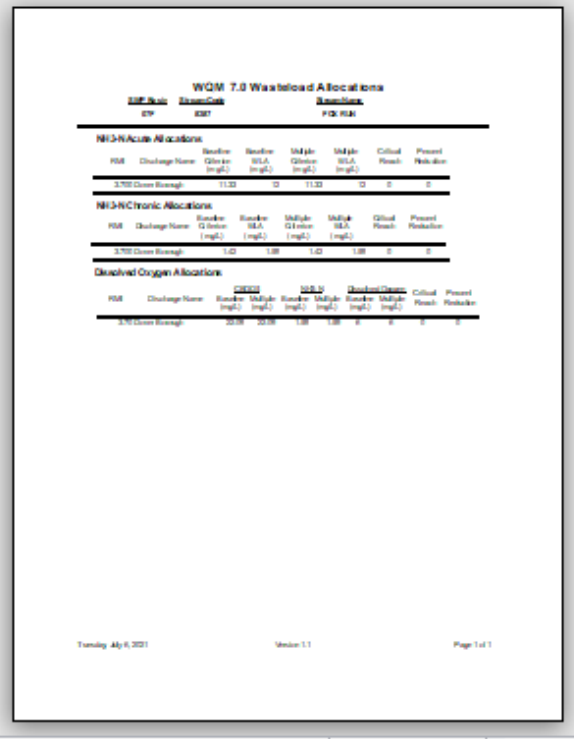
Print | < Back | Next > | Archive | Cancel

rptEffLimits



Page: 1 | No Filter

rpt_WLA



Page: 1 | No Filter

rptDOSim

WQM 7.0 D.O.Simulation

rptModelSpecs

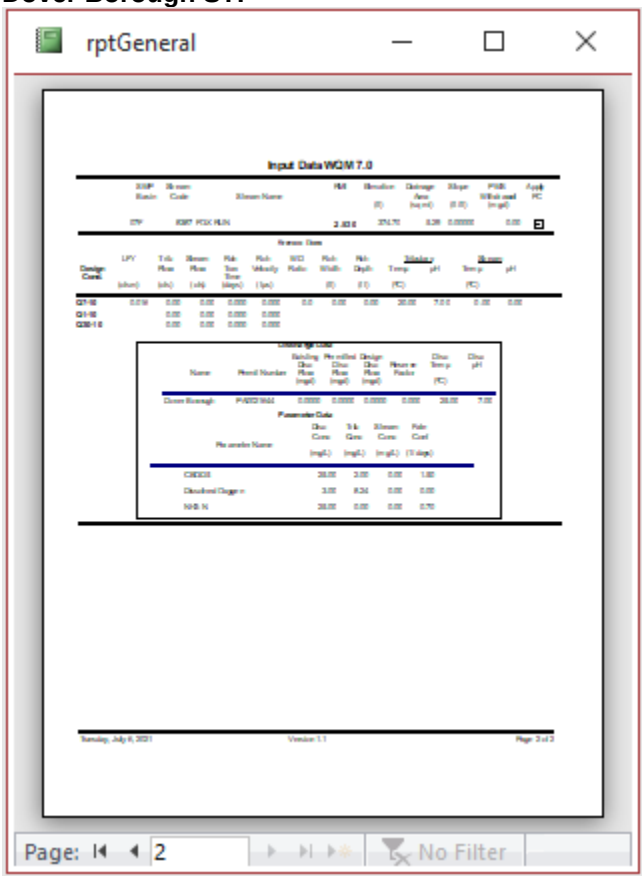
WQM 7.0 Modeling Specifications

rptHydro

WQM 7.0 Hydrodynamic Outputs

rptGeneral

Input Data WQM 7.0


rptGeneral
Input Data WQM 7.0
Page: 2
No Filter

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Instantaneous 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
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	Report	XXX	XXX	1/day	Recorded
$CBOD_5$ Nov 1 - Apr 30	104	154 Wkly Avg	XXX	25	37	50	1/week	8-Hr Composite
$CBOD_5$ May 1 - Oct 31	96	142 Wkly Avg	XXX	23	34	46	1/week	8-Hr Composite
TSS	125	188 Wkly Avg	XXX	30	45	60	1/week	8-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Ammonia May 1 - Oct 31	6.3	XXX	XXX	1.5	XXX	3.0	2/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	18.8	XXX	XXX	4.5	XXX	9.0	2/week	8-Hr Composite
Total Phosphorus	8.3	XXX	XXX	2.0	XXX	4.0	2/week	8-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	8-hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-hr Composite
Total Nitrogen (lbs)	Report	Report	XXX	Report	XXX	XXX	2/week	Calculation
Total Phosphorus (lbs)	Report	Report	XXX	Report	XXX	XXX	2/week	8-hr Composite
Total Nitrogen (lbs) Effluent Net	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs) Effluent Net	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

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	Instantaneous 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
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	Report	XXX	XXX	1/day	Recorded
$CBOD_5$ May 1 - Oct 31	91.7	137.6 Wkly Avg	XXX	22.0	33.0	44.0	1/week	8-Hr Composite
$CBOD_5$ Nov 1 - Apr 30	104.0	154.0 Wkly Avg	XXX	25.0	37.0	50.0	1/week	8-Hr Composite
TSS	125.0	188.0 Wkly Avg	XXX	30.0	45.0	60.0	1/week	8-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab
Ammonia May 1 - Oct 31	6.3	XXX	XXX	1.5	XXX	3.0	2/week	8-Hr Composite
Ammonia Nov 1 - Apr 30	18.8	XXX	XXX	4.5	XXX	9.0	2/week	8-Hr Composite
Total Phosphorus	8.3	XXX	XXX	2.0	XXX	4.0	2/week	8-Hr Composite

Compliance Sampling Location:

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	8-hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-hr Composite
Total Nitrogen (lbs)	Report	Report	XXX	Report	XXX	XXX	2/week	Calculation
Total Phosphorus (lbs)	Report	Report	XXX	Report	XXX	XXX	2/week	8-hr Composite
Total Nitrogen (lbs) Effluent Net	Report	7,306	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus (lbs) Effluent Net	Report	974	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location:

Other Comments:

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