pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0032051**
Facility Type	**Municipal**	APS ID	**892210**
Major / Minor	**Minor**	Authorization ID	**1391025**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Granville Township Mifflin County**	Facility Name	**Granville Township Main STP**
Applicant Address	100 Helen Street	Facility Address	6310 Ssr 103 N
	Lewistown, PA 17044-2437		Lewistown, PA 17044
Applicant Contact	Tim Tressler	Facility Contact	Earl Weaver
Applicant Phone	(717) 242-1838	Facility Phone	(717) 242-1838
Client ID	116575	Site ID	445380
Ch 94 Load Status	Not Overloaded	Municipality	Granville Township
Connection Status	No Limitations	County	Mifflin
Date Application Received	April 4, 2022	EPA Waived?	No
Date Application Accepted	April 15, 2022	If No, Reason	Significant CB Discharge

Purpose of Application: NPDES permit renewal for discharge of treated sewage

Summary of Review

1.0 General Discussion

This fact sheet supports the renewal of an existing NPDES permit for discharge of treated domestic wastewater from Granville Township Main STP. The facility is also known as Granville Township Junction STP. Granville Township owns, operates, and maintains the wastewater treatment plant. The facility is located in Granville Township, Mifflin County and services Granville Township. There is no combined sewers in the collection system and no bypasses or overflows are approved in the collection system. The treatment plant has annual average design capacity of 0.5 MGD and hydraulic design capacity of 0.75 MGD and organic design capacity of 1300 lbs/day-BOD5. The discharge goes to Juniata River which is classified for Warm Water Fishes (WWF) and Migratory Fishes (MF). The existing NPDES permit was issued on September 14, 2017 with an expiration date of September 30, 2022. The permit was amended on May 6, 2020 to reduce monitoring frequency for certain pollutants. The applicant submitted a timely permit renewal application to the Department and is currently operating under the terms and conditions in the existing permit pending Department action on the renewal application. A topographic map showing the discharge location is presented in attachment A.

1.1 Sludge use and disposal description and location(s):

Sludge from the SBRs is pumped to one of two Aerobic Sludge Digesters. The facility also receives hauled-in waste in digesters. Digested sludge is dewatered through a press and then land applied at Bailor Farm and Viscos under land application permit No. PAG-083606.

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Approve	Deny	Signatures	Date
X		*J. Pascal Kwedza* J. Pascal Kwedza, P.E. / Environmental Engineer	April 13, 2023
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	May 19, 2023
X		*Maria D. Bebenek* Maria D. Bebenek, P.E./ Program Manager	May 19, 2023

Summary of Review

1.2 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.

1.3 Changes to the existing Permit

Quarterly E. Coli monitoring has been added.
Monitoring requirement for TDS, Sulfate, Chloride and Bromide has been discontinued.

1.4 Existing Permit and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	100	165	XXX	25.0	40.0	50	1/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Suspended Solids	125	185	XXX	30.0	45.0	60	1/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	Report	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ultraviolet light intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia-Nitrogen	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Sulfate, Total	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite

Summary of Review

1.4.1 Chesapeake Bay Limitation and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	Report	15,196	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	1,899	XXX	XXX	XXX	XXX	1/month	Calculation

1.5 Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.5
Latitude	40º 35' 21"	Longitude	-77º 34' 31"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Juniata River	Stream Code	11414
NHD Com ID	66205685	RMI	46.3
Drainage Area	2,710 mi^2	Yield (cfs/mi^2)	0.204
Q_{7-10} Flow (cfs)	552.84	Q_{7-10} Basis	
Elevation (ft)	448	Slope (ft/ft)	
Watershed No.	12-A	Chapter 93 Class.	WWF, 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	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Mifflintown Water Systems Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	9

Changes Since Last Permit Issuance:

Other Comments:

1.5.1 Water Supply:

The nearest downstream water supply intake is approximately 9 miles downstream by Mifflintown Water Systems Juniata County on Juniata River. The discharge will not impact the intake because of the distance and dilution.

2.0 Treatment Facility Summary

Treatment Facility Name: Junction WWTP

WQM Permit No.	Issuance Date
4400401 A-2	October 14, 2014
4400401 08-1	January 9, 2009
4400401	November 17, 2000

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.5

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.75	1300	Not Overloaded	Dewatering	Landfill

Changes Since Last Permit Issuance: None

2.1 Treatment System.

Raw influent sewage flows into a wet well before being pumped to the headworks of the plant where rags and grit are moved via a screening unit. Screened influent then flows into two (2) Sequential Batch Reactors (SBRs). Each SBR unit goes through a cycle Mixed Fill, React Fill, React, Settle, Decant, and Sludge Wasting. Decant flows into the Ultraviolet Disinfection channel for disinfection prior to discharge to Outfall 001 on Juniata River. Delta Floc is used as coagulant for Phosphorus removal.

3.0 Compliance History

3.1 DMR Data for Outfall 001 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly	0.218	0.351	0.318	0.229	0.335	0.237	0.215	0.172	0.216	0.357	0.308	0.295
Flow (MGD) Daily Maximum	0.326	1.08	1.01	0.473	0.271	0.825	0.691	0.245	0.454	1.493	0.705	0.517
pH (S.U.) Instant. Minimum	6.7	6.8	6.7	6.7	6.6	6.6	6.7	6.8	6.9	6.9	6.9	6.8
pH (S.U.) Instant. Maximum	7.1	7.2	7.4	7.2	7.3	7.3	7.1	7.2	7.9	7.2	7.3	7.3
DO (mg/L) Daily Minimum	8.8	8.5	8.7	8.0	7.7	7.7	7.3	7.5	7.7	8.2	8.2	8.9
CBOD5 (lbs/day) Average Monthly	12.0	45	23.0	17.2	8.6	< 11.2	19.6	9.9	21.7	17.9	< 22.5	18.3
CBOD5 (lbs/day) Weekly Average	13.4	106	30.0	15.4	12	15.8	42.2	15.7	48.7	31.4	30.2	24.2
CBOD5 (mg/L) Average Monthly	7.0	16.0	12.0	9.9	6.2	< 6.3	11.9	5.6	10.9	7.2	8.7	8.3
CBOD5 (mg/L) Weekly Average	9.0	25.8	15.2	14.7	8.01	12.2	13.0	7.7	21.1	10.6	11.7	10.5
BOD5 (lbs/day) Raw Sewage Influent Ave. Monthly	453	623	463	305	295	355	436	422	602	271	582	526
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	506	629	561	422	345	468	470	509	753	484	891	703
BOD5 (mg/L) Raw Sewage Influent Ave. Monthly	261	266	233	190	218	175	275	252	328	124	213	249
TSS (lbs/day) Average Monthly	5.0	38	9.4	21	13	< 11.0	< 6.1	< 4.4	5.9	7.9	14.5	11.8
TSS (lbs/day) Raw Sewage Influent Ave. Monthly	469	267	416	336	270	373	430	570	693	486	552	536
TSS (lbs/day) Raw Sewage Influent Daily Maximum	894	386	484	487	353	509	552	661	804	716	828	691
TSS (lbs/day) Weekly Average	7.4	106	24.0	12.5	20.3	23.3	13.0	7.3	8.1	11.0	21.2	14.7

TSS (mg/L) Average Monthly	< 2.7	12.0	5.0	25.4	9.8	< 8.1	< 4.1	< 2.5	3.2	3.4	5.6	5.2
TSS (mg/L) Raw Sewage Influent Ave. Monthly	250	130	213	216	200	190	273	332	377	218	217	236
TSS (mg/L) Weekly Average	4.4	26.0	12.0	26.8	14.0	18.0	10.0	4.0	3.5	4.0	8.5	6.6
Total Dissolved Solids (lbs/day) Average Monthly	1120	1043	514	410	808	457	600	526	293	609	708	964
Total Dissolved Solids (mg/L) Average Monthly	428	392	308	308	380	338	356	358	204	284	348	436
Fecal Coliform (No./100 ml) Geometric Mean	< 4.7	6.6	< 4.0	< 2.3	3.5	< 1	< 6.5	< 1	< 2.3	< 1.1	< 1.4	< 5.0
Fecal Coliform (No./100 ml) Instant. Maximum	8.0	16.4	4.0	< 4.1	25	1	70	< 1	9.7	2.0	< 4.0	12.4
UV Intensity (mW/cm²) Daily Minimum	6.8	6.3	60	0.3	4.2	4.8	5.8	3.5	6.8	7.3	6.2	6.0
Nitrate-Nitrite (mg/L) Average Monthly	4.15	< 4.229	8.5	9.796	8.1	< 10.0	< 4.0	< 4.2	< 4.5	< 5.3	< 4.5	< 3.0
Nitrate-Nitrite (lbs) Total Monthly	221	< 363	146	516	398	< 526	< 216	< 207	< 229	< 388	< 324	< 190
Total Nitrogen (mg/L) Average Monthly	13.4	< 13.056	11.0	16.407	12.7	< 14.9	< 6.6	< 6.1	< 6.8	< 12	< 10.5	< 11
Total Nitrogen (lbs) Effluent Net Total Monthly	738	< 1154	< 686	905	20	< 753	< 416	< 298	< 350	< 895	< 765	< 749
Total Nitrogen (lbs) Total Monthly	738	< 1154	< 686	905	625	< 753	< 416	< 298	< 350	< 895	< 765	< 749
Total Nitrogen (lbs) Effluent Net Total Annual						< 6456						
Total Nitrogen (lbs) Total Annual						< 6456						
Ammonia (lbs/day) Average Monthly	8	< 19	2.72	< 4	< 104	< 5.0	2	< 0.4	< 0.9	< 3	9	14
Ammonia (mg/L) Average Monthly	4.15	< 6.556	0.56	< 2.046	< 1.9576	< 3.4	0.7	< 0.2	< 0.5	< 0.9	3.6	6.1
Ammonia (lbs) Total Monthly	221	< 595	< 38	< 133	< 104	< 153	65	< 11	< 28	< 87	266	433

Ammonia (lbs) Total Annual						< 1729						
TKN (mg/L) Average Monthly	6.6	8.827	2.31	6.61	4.5	< 4.8	< 2.6	1.9	2.4	6.6	6.0	7.9
TKN (lbs) Total Monthly	353	791	< 153	389	227	< 227	< 200	91	122	507	441	559
Total Phosphorus (mg/L) Average Monthly	1.9	1.036	2.3	2.644	3.37	3.2	2.2	2.3	< 0.8	0.9	0.7	0.8
Total Phosphorus (lbs) Effluent Net Total Monthly	104	93	146	132	5.3	161	156	120	< 43	59	53	54
Total Phosphorus (lbs) Total Monthly	104	93	146	132	166	161	156	120	< 43	59	53	54
Total Phosphorus (lbs) Effluent Net Total Annual						< 841						
Total Phosphorus (lbs) Total Annual						< 841						
Sulfate (lbs/day) Average Monthly	78	78	51	48.04	66	46.0	59	54	45	71	59	71
Sulfate (mg/L) Average Monthly	30.0	29.4	30.7	36.0	31	34.0	35	37	31	33	29	32
Chloride (lbs/day) Average Monthly	427	298	175	169.47	207	114	212	191	175	294	193	248
Chloride (mg/L) Average Monthly	163	112	105	127.00	97.2	84	126	130	122	137	95	112
Bromide (lbs/day) Average Monthly	0.52	5.3	0.33	0.27	0.42	< 0.3	< 0.3	0.3	< 0.3	< 0.04	< 0.4	< 0.4
Bromide (mg/L) Average Monthly	< 2.00	< 2.00	< 0.200	0.2	< 0.200	< 0.2	< 0.2	< 0.2	0.20	< 0.02	< 0.2	< 0.2

3.2 Summary of Discharge Monitoring Reports (DMRs)**:**

DMRs review for the facility for the last 12 months of operation, presented on the table above in section 3.1 indicates permit limits have been met consistently. No effluent violations were noted on DMRs for the period reviewed.

3.3 Summary of Inspections:

The facility has been inspected a couple times during last permit cycle. No effluent violations were found during plant inspections. The facility is operated and maintained well.

4.0 Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .5
Latitude 40º 35' 21.17" **Longitude** -77º 34' 31.05"
Wastewater Description: Sewage Effluent

4.1 Basis for Effluent Limitations

In general, the Clean Water Act(AWA) requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits.

4.2 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)

Comments: TRC limitation is not applicable, the facility uses UV for disinfection.

4.3 Mass-Based Limits

The federal regulation at 40 CFR 122.45(f) requires that effluent limits be expressed in terms of mass, if possible. The regulation at 40 CFR 122.45(b) requires that effluent limitations for POTWs be calculated based on the design flow of the facility. The mass-based limits are expressed in pounds per day and are calculated as follows:

Mass based limit (lb/day) = concentration limit (mg/L) × design flow (mgd) × 8.34

4.3.1 WQM 7.0 Stream Model

WQM 7.0 is a water quality model DEP utilizes to establish appropriate effluent limits for $CBOD_5$, NH_3-N and DO in permits. The model simulates 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 and also simulates mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3N and compares calculated instream D.O. concentrations to D.O. water quality criteria and recommends effluent limits.

4.4 Water Quality-Based Limitations

4.4.1 Receiving Stream

The receiving stream is the Juniata River. According to 25 PA § 93.9n, this stream is protected for Warm Water Fishes (WWF) and Migratory Fishes (MF). It is located in Drainage List n and State Watershed 12-A. It has been assigned stream code 11414. According to eMapPA, this segment of Juniata River is attaining its designated uses.

4.4.2 Streamflow:

Streamflows for the water quality analysis were determined by correlating with the yield of USGS gauging station No 01563500 on Juniata River at Mapleton Depot. The $Q_{7\text{-}10}$, $Q_{1\text{-}10}$ and $Q_{30\text{-}10}$ flows at the gage are 415 ft^3/s, 384 ft^3/s and 440ft^3/s respectively. The drainage area at the gage is 2030 mi^2. The resulting yields are as follows:

- $Q_{7\text{-}10}$ = (415ft^3/s)/2030 mi^2 = 0.204$ft^3/s/ mi^2$
- $Q_{30\text{-}10}$ / $Q_{7\text{-}10}$ = 1.06
- $Q_{1\text{-}10}$ / $Q_{7\text{-}10}$ = 0.925
-

The drainage area at discharge taken from the previous protection report = 2710 mi^2

The $Q_{7\text{-}10}$ at discharge = 2710 mi^2 x 0.204 $ft^3/s/mi^2$ = 552.84 ft^3/s.

4.4.3 NH_3N Calculations

NH_3N calculations are 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 instream NH_3N criteria used in the WQM 7.0 model:

Discharge pH	= 6.8 (July -Sept DMR median)
Discharge Temperature	= 25 ^{o} C (Default)
Stream pH	= 7.6 (WQN#215, median July-Sep)
Stream Temp	= 22^0 C (WQN#215, median July-Sep)
Background Hardness	= 114 (WQN#215, median July-Sep
Background NH_3-N	= 0.0 (default)

4.4.4 $CBOD_5$

Due to the proximity of Borough of Lewistown and Twin Borough discharges, they were modelled together with Grantville Township's discharge. The attached results of the WQM 7.0 stream model (attachment B) indicates that, for the Granville Township's discharge of 0.5MGD, an average monthly limit (AML) of 25mg/l for $CBOD_5$ is required to protect the water quality of the stream. This limit is consistent with the existing permit and the STP has been consistently achieving below this limitation. Therefore, a limit of 25mg/l AML, 40mg/l average weekly limit (AWL) and 50 mg/l IMAX is recommended for this permit cycle. Mass limits are calculated as follows:

Mass based AML (lb/day) = 25 (mg/L) × 0.5(mgd) × 8.34 = 100 (rounded)

Mass based AWL (lb/day) = 40(mg/L) × 0.5(mgd) × 8.34 = 165 (rounded)

4.4.5 NH_3-N

The attached results of the WQM 7.0 stream model (attachment B) also indicates that no limitation on NH_3 as a monthly average is necessary to protect the aquatic life from toxicity effects. However, ammonia monitoring required in the existing permit will continue to ensure treatment efficiency.

4.4.6 Dissolved Oxygen

The existing permit contains a limit of 5 mg/l for Dissolved Oxygen (DO). DEP's Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001, 10/97) suggests that either the adopted minimum stream D.O.

criteria for the receiving stream or the effluent level determined through water quality modeling be used for the limit. Since the WQM 7.0 model was ran using a minimum D.O. of 5.0 mg/l, this limit will be continued in the renewed permit with a daily monitoring requirement.

4.4.7 Total Suspended Solids (TSS):

There is no water quality criteria for TSS. The existing limit of 30 mg/l AML based on the minimum level of effluent quality attainable by secondary treatment as defined in 40 CFR 133.102b(1) and 25 PA § 92a.47(a)(1) and an AWL of 45mg/l per 40CFR 133.102(b)(2) and 25 PA § 92a.47(a)(2) will remain in the permit. Mass limit are calculated as follows:

Mass based AML (lb/day) = 30 (mg/L) × 0.5(mgd) × 8.34 = 125

Mass based AWL (lb/day) = 45(mg/L) × 0.5(mgd) × 8.34 = 185 (rounded)

4.4.8 Total Residual Chlorine (TRC) and Ultraviolet (UV)

The discharge does not have a reasonable potential to cause or contribute to a water quality standards violation for TRC since the permittee no longer utilizes chlorine for disinfection. Therefore, TRC limitation is not necessary. The permittee may use chlorine-based chemicals for cleaning and is required to optimize chlorine usage to prevent negative impacts on receiving stream. UV is used for disinfection. Daily UV intensity monitoring is required in the permit to ensure efficiency of the UV unit.

4.4.9 Toxics

A reasonable potential (RP) analysis was done for pollutants sampled in support of the permit renewal application. All pollutants that were presented in the application sampling data were entered into DEP's Toxics Management Spreadsheet (TMS) to calculate WQBELs. The results of the TMS are presented in attachment C. The results of the TMS indicate discharge levels for all pollutants are well below DEP's target quantitation limits and the calculated WQBELs, therefore, no monitoring or limitation was recommended.

4.4.10 Fecal Coliform and E. Coli

The existing Fecal Coliform limit is consistent with the technology limits recommended in 92a.47(a)(4) and (a)(5) and will remain in the permit. In March of 2021, EPA approved DEP's Triennial Review of Water Quality Standards, which included a new swimming season criterion for E.coli. As a result, DEP is including monitoring requirements for E. Coli in new and renewed sewage permits above 2000gpd. Monitoring frequency is based on annual average flow as follows: 1/month for design flows >= 1 MGD, 1/quarter for design flows >= 0.05 and < 1 MGD and 1/year for design flows of 0.002 – 0.05 MGD. Your discharge of 0.5MGD requires 1/quarter monitoring as included in the permit.

4.4.11 Chesapeake Bay Strategy:

The Department formulated a strategy in April 2007, to comply with the EPA and Chesapeake Bay requirements to reduce point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP) to the Bay. In the Strategy, sewage dischargers have been prioritized by DEP based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers received annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. Phase 4 (0.2 -0.4mgd) and Phase 5(below 0.2mdg) are required to monitor and report TN and TP during permit renewal and any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. EPA published Chesapeake Bay TMDL in December of 2010. In order to address the TMDL, Pennsylvania developed Chesapeake Watershed Implementation Plan (WIP) Phase 1, Phase 2 and currently Phase 3 WIP and a supplement to the WIPs to be implemented with the original Chesapeake Bay Strategy.

Phase 3 WIP and the supplement to the WIP, indicates renewing permits for significant dischargers would follow the same phased approach formulated in the original Bay strategy whilst Phase 4 and Phase 5 will be required to monitor and report TN and TP during permit renewals. This facility falls in phase 2 of the strategy and is required to meet a total maximum annual Total Nitrogen Cap load of 15,196lbs/year based on their 2010 projected flow of 0.624 MGD and 8 mg/l Total Nitrogen and a TP cap load of 1,899lbs/year based on their 2010 projected flow of 0.624 MGD and 1 mg/l Total Phosphorus. The facility is in compliance with the bay cap load requirements.

The Department also approved a total nitrogen offset of 600lbs of nitrogen based on 24EDUs at 25lbs/EDU for Granville Township. The offsets are for 24 EDUs on-lot disposal systems that have been connected to the sewer conveyance system. These on-lot systems were put into use prior to January 1, 2003 and retired after January 1, 2003. The approved offsets are only for compliance purposes and are not available for trading or selling. The permit will show the base cap load on the effluent page and show the offsets as a foot note as follows: "The permittee is authorized to use 600lbs/year as Total Nitrogen (TN) offsets toward compliance with the Annual Net TN mass load limitations (Cap Loads), in accordance with Part C of this permit. These Offsets may be applied throughout the Compliance Year or during the Truing Period. The application of offsets must be reported to DEP as described in Part C. The Offsets are authorized for the following pollutant load reduction activities: Connection of equivalent of 25 on-lot sewage disposal systems to the public sewer system after January 1, 2003, in which 25 lbs/year of TN offsets are granted per connection". A complete list of addresses of the dwellings that were served by the retired on-lot systems that are now connected to the sewage conveyance system is on file.

Additional Offsets are approved for the acceptance of hauled-in septage at the permittee's facility from residential sources within the municipal Act 537 planning area. Three pounds (3 lbs) of TN Offsets per year is approved per 1,000 gallons of septage accepted and processed at the facility. The Offsets approved are applicable to the acceptance of residential septage only. For the purpose of these Offsets, septage is defined as material removed from a septic tank by pumping. No other hauled-in wastes, including but not limited to holding tank wastes, solids and sludge generated at other facilities, may be approved. Such approved Offsets may only be applied in the Compliance Year in which the septage was accepted and are not cumulative.

4.4.12 Influent BOD and TSS Monitoring

The permit include influent BOD5 and TSS monitoring at the same frequency as is done for effluent in order to implement Chapter 94.12 and assess percent removal requirements.

4.4.13 TDS, Chloride, Sulfate, Bromide

The existing monitoring requirement for TDS, Chloride, Sulfate, and Bromide has been discontinued in the permit. Analysis the data collected for the facility during the past permit cycle indicates these pollutants are not pollutant of concern that needed further analysis and the rational for monitoring TDS, Chloride, Sulfate, and Bromide presented below has been discontinued.

Total Dissolved Solids (TDS) and its major constituents including sulfate, chloride, and bromide have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to formation of disinfection byproducts at increased levels in public water systems. In addition, as a consequence of actions associated with Triennial Review 13, the Environmental Quality Board has directed DEP to collect additional data related to sulfate, chloride, and 1,4-dioxane. Furthermore, in an August 2013 letter from Jon Capacasa of the Region III Water Protection Program to DEP, EPA has expressed concern related to bromide and the importance of monitoring all point sources for bromide when it may be present.

Based on these concerns and under the authority of §92a.61, DEP has determined it should implement increased monitoring in NPDES permits for these parameters: TDS, sulfate, chloride, bromide, and 1,4-dioxane.

This monitoring initiative applies to all programs within DEP that have been delegated the responsibilities of implementing the NPDES program. The increased monitoring applies to all point source discharges, except that DEP may determine that certain sources are too small to warrant routine monitoring. All other permit actions related to these pollutants, including any water quality-based effluent limits (WQBELs) or treatment requirements, are unaffected by this initiative.

Analytical costs for TDS, sulfate, chloride, and bromide are nominal. Higher analytical costs may apply for 1,4-dioxane, but relatively few point source discharges will be affected. NPDES permit application forms have been or will be revised to ensure that TDS, sulfate, chloride, bromide, and 1,4-dioxane are sampled and reported to DEP as part of the permit application process where appropriate.

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.

4.4.14 Stormwater

There is no stormwater outfall associated with this facility.

4.4.15 Industrial Users

Granville Township wastewater treatment plant does not receive wastewater from any significant industrial users.

4.4.16 Pretreatment Requirements

The design annual average flow of the treatment plant is 0.5 MGD and the facility receives no flow from significant Industrial users. EPA does not require development of pretreatment program for facilities with design flow less than 5MGD. However, the permit contains standard conditions requiring the permittee to monitor and control industrial users if applicable.

5.0 Other Requirements

5.1 Anti-backsliding

The existing monitoring requirement for TDS, Chloride, Sulfate, and Bromide has been discontinued in the permit. This is consistent with provisions for permit relaxation under CWA section 303(d)(4)(B). The discharge is in a stream segment of Juniata River that is attaining its designated uses. Eliminating the monitoring requirement for TDS, Chlorite Sulfate, and Bromide is not expected to degrade receiving waters and is consistent with PA's antidegradation policy.

5.2 Anti-Degradation (93.4)

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 per Chapter 93.4a(b) of the Department's rules and regulations. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

5.3 Class A Wild Trout Fisheries

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

5.4 303d Listed Streams

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

5.5 Special Permit Conditions

The permit contains the following special conditions:

- Stormwater Prohibition, Approval Contingencies, Solids Management, Restrictions on receipt of hauled in waste under certain conditions, chlorine minimization requirement, notification of designation of responsible operator and batch discharge requirement.

5.6 Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs).

5.7 Effluent Monitoring Frequency

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

6.0 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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
CBOD5	100	165	XXX	25.0	40.0	50	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	125	185	XXX	30.0	45.0	60	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Outfall 001 , Continued (from 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	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Ammonia	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Ammonia (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
TKN (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Phosphorus (lbs)	Report Total Mo	XXX	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: At Outfall 001

6.1 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 001, Effective Period: Permit Effective Date through Permit Expiration Date.

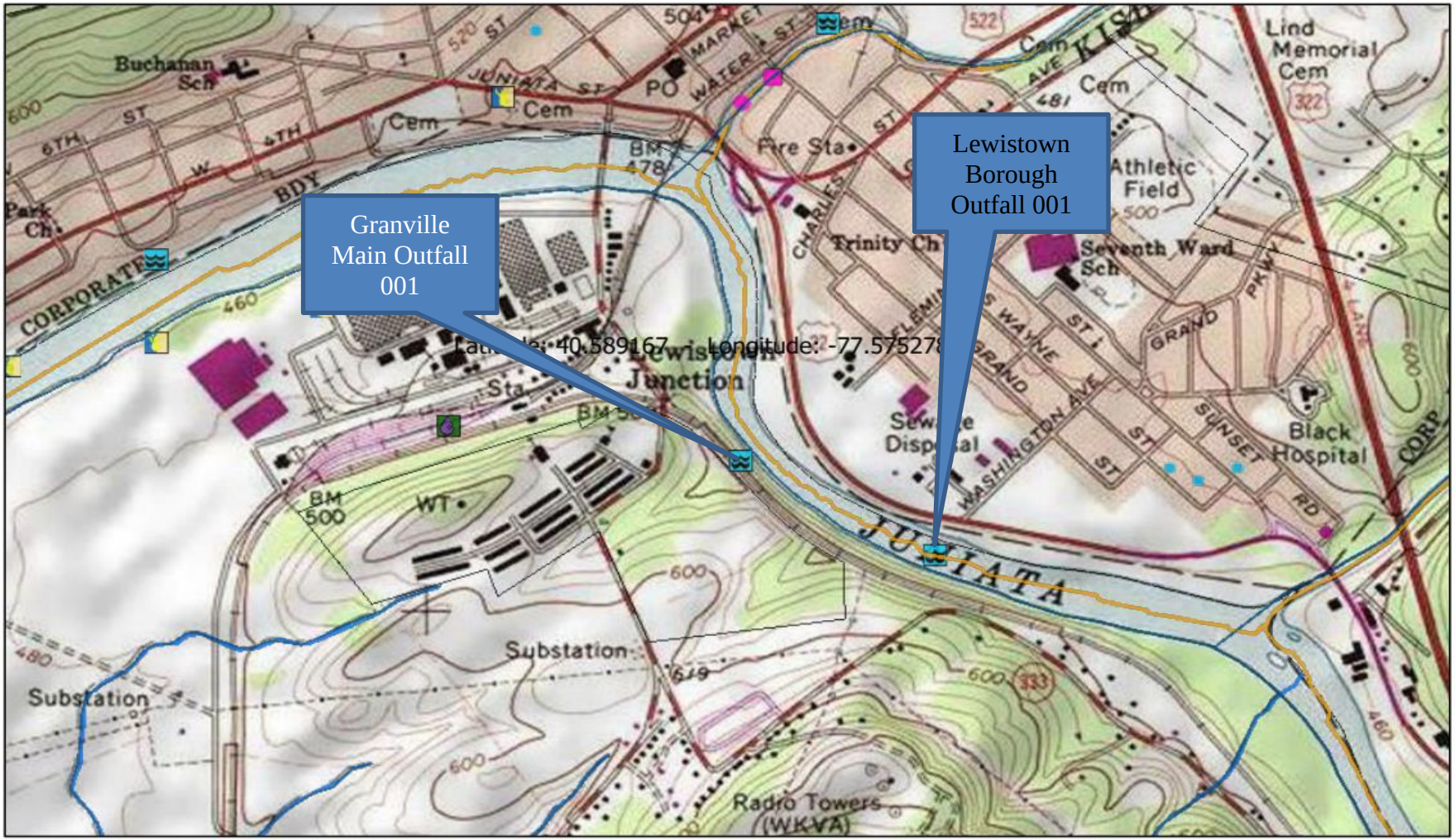
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs) Effluent Net	XXX	15196 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs) Effluent Net	XXX	1899 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: At Outfall 001

7.0 Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment **C**)
☐	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: Establishing effluent limitation for individual sewage permit.
☒	Other: WIP 3 and Supplement

8. Attachments

A. Topographical Map



B. WQM Model Results

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
46.300	Granville STP	PA0032051	0.500	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
46.010	Lewistown STP	PA0026280	2.818	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
33.940	Twin Borough	PA0023264	0.900	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	**46.300**	448.00	2710.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.204	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.00	7.60	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Granville STP	PA0032051	0.5000	0.5000	0.5000	0.000	25.00	6.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	**46.010**	419.00	2710.01	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.204	0.00	0.00	0.000	0.000	0.0	0.00	0.00	22.00	7.60	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Lewistown STP	PA0026280	2.8180	2.8180	2.8180	0.000	25.00	7.80

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	**33.940**	412.00	2840.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.159	0.00	0.00	0.000	0.000	0.0	0.00	0.00	24.00	8.30	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Twin Borough	PA0023264	0.9000	0.9000	0.9000	0.000	25.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12B	11414	JUNIATA RIVER	33.500	411.00	2840.10	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.159	0.00	113.00	0.000	0.000	0.0	0.00	0.00	24.00	8.30	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Empire Kosher P	PA0007552	2.2000	0.0000	0.0000	0.000	25.00	7.30

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
46.300	Granville STP	6.74	50	6.74	50	0	0
46.010	Lewistown STP	6.67	50	6.71	50	0	0
33.940	Twin Borough	6.53	50	6.53	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
46.300	Granville STP	1.12	25	1.12	25	0	0
46.010	Lewistown STP	1.11	25	1.12	25	0	0
33.940	Twin Borough	1.1	25	1.1	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
46.30	Granville STP	25	25	25	25	5	5	0	0
46.01	Lewistown STP	25	25	25	25	5	5	0	0
33.94	Twin Borough	25	25	25	25	5	5	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
46.300	0.500	22.004	7.597
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
249.894	1.634	152.940	1.356
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.03	0.026	0.03	0.817
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.238	125.613	Tsivoglou	5
Reach Travel Time (days)			
0.013			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	2.03	0.03	7.95
0.003	2.03	0.03	7.95
0.004	2.03	0.03	7.95
0.005	2.03	0.03	7.95
0.007	2.03	0.03	7.95
0.008	2.03	0.03	7.95
0.009	2.03	0.03	7.95
0.010	2.03	0.03	7.95
0.012	2.03	0.03	7.95
0.013	2.03	0.03	7.95

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
46.010	3.318	22.028	7.598
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
458.350	1.187	386.269	1.026
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.21	0.095	0.23	0.818
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.922	0.552	Tsivoglou	5
Reach Travel Time (days)			
0.719			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.072	2.19	0.22	7.87
0.144	2.18	0.20	7.83
0.216	2.16	0.19	7.79
0.288	2.15	0.18	7.76
0.359	2.13	0.17	7.73
0.431	2.11	0.16	7.71
0.503	2.10	0.15	7.69
0.575	2.08	0.14	7.67
0.647	2.07	0.14	7.66
0.719	2.05	0.13	7.64

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
33.940	4.218	22.105	7.610
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
449.065	1.151	390.190	1.122
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.11	0.089	0.18	0.823
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.658	2.369	Tsivoglou	5
Reach Travel Time (days)			
0.024			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	2.10	0.18	7.66
0.005	2.10	0.18	7.67
0.007	2.10	0.18	7.67
0.010	2.10	0.18	7.67
0.012	2.10	0.18	7.68
0.014	2.10	0.18	7.68
0.017	2.10	0.18	7.69
0.019	2.10	0.18	7.69
0.022	2.10	0.18	7.69
0.024	2.10	0.18	7.70

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.925	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.06	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
12B	11414	JUNIATA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
46.300	552.84	0.00	552.84	.7735	0.01894	1.634	249.89	152.94	1.36	0.013	22.00	7.60
46.010	552.84	0.00	552.84	5.1329	0.00011	1.187	458.35	386.27	1.03	0.719	22.03	7.60
33.940	573.51	0.00	573.51	6.5252	0.00043	1.151	449.07	390.19	1.12	0.024	22.11	7.61
Q1-10 Flow												
46.300	511.38	0.00	511.38	.7735	0.01894	NA	NA	NA	1.30	0.014	22.00	7.60
46.010	511.38	0.00	511.38	5.1329	0.00011	NA	NA	NA	0.98	0.751	22.03	7.60
33.940	530.50	0.00	530.50	6.5252	0.00043	NA	NA	NA	1.07	0.025	22.11	7.61
Q30-10 Flow												
46.300	586.01	0.00	586.01	.7735	0.01894	NA	NA	NA	1.40	0.013	22.00	7.60
46.010	586.01	0.00	586.01	5.1329	0.00011	NA	NA	NA	1.06	0.696	22.03	7.60
33.940	607.92	0.00	607.92	6.5252	0.00043	NA	NA	NA	1.16	0.023	22.10	7.61

C. Toxics Management Spreadsheet (TMS) Results

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **Granville Township** NPDES Permit No.: **PA0032051** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Sewage**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.5	100	6.8						

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		644									
	Chloride (PWS)	mg/L		243									
	Bromide	mg/L		0.2									
	Sulfate (PWS)	mg/L		48.7									
	Fluoride (PWS)	mg/L											
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L		5.61									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L		0.411									
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L		109									
	Total Molybdenum	µg/L											

Stream / Surface Water Information

Granville Township, NPDES Permit No. PA0032051, Outfall 001

Instructions | Discharge | Stream

Receiving Surface Water Name: **Juniarta River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	011414	46.3	448	2710			Yes
End of Reach 1	011414	46.01	419	2710.01			Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	46.3	0.204										100	7.6		
End of Reach 1	46.01	0.204													

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	46.3														
End of Reach 1	46.01														

Model Results

Granville Township, NPDES Permit No. PA0032051, Outfall 001

Instructions | Results | RETURN TO INPUTS | SAVE AS PDF | PRINT | (•) All ( ) Inputs ( ) Results ( ) Limits

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 15 PMF: 0.225 Analysis Hardness (mg/l): 100 Analysis pH: 7.59

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	13.439	14.0	2,263	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	13,197	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	19,367	Chem Translator of 0.978 applied

☑ *CFC* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): 100 Analysis pH: 7.60

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	8.956	9.33	6,677	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	2,277	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	85,756	Chem Translator of 0.986 applied

☑ *THH* CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	

Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): ###### PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☐ ***Other Pollutants without Limits or Monitoring***