

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0024856
APS ID 1103468
Authorization ID 1466732

Applicant and Facility Information

Applicant Name	<u>Taylor Township</u>	Facility Name	<u>Taylor Township STP</u>
Applicant Address	<u>P.O. Box 489</u> <u>West Pittsburg, PA 16160-0489</u>	Facility Address	<u>Route 168 Sewer Plant Road</u> <u>West Pittsburg, PA 16160-0489</u>
Applicant Contact	<u>Joe Pauletich (Chairman)</u> <u>(724) 535-4627</u> <u>(janholltt@zoominternet.net)</u>	Facility Contact	<u>Ken Caravella (Operator)</u>
Applicant Phone	<u>(724) 535-4627</u> <u>(janholltt@zoominternet.net)</u>	Facility Phone	<u>(724) 535-4627</u>
Client ID	<u>240199</u>	Site ID	<u>518467</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Taylor Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lawrence</u>
Date Application Received	<u>December 14, 2023</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 5, 2024</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of treated sewage</u>		

Summary of Review

This is a municipally owned sewage treatment plant serving Taylor Township, Lawrence County. The STP is not accepting hauled in waste.

The permittee has entered into a consent order and agreement to address hydraulic overloads at the STP. To remedy this the permittee has decided to upgrade the plant to an SBR system and UV disinfection while also increasing the hydraulic capacity of the plant. The hydraulic design capacity of the plant will increase to 0.375 MGD as a result of plant upgrades.

There are currently two open violations listed in EFACTS for this permittee (3/28/2024). Both are for this facility under this program.

Sludge use and disposal description and location(s): Sludge is hauled offsite to New Castle WWTP for processing.

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.

Approve	Deny	Signatures	Date
X		Adam J. Pesek Adam J. Pesek, E.I.T. / Project Manager	March 28, 2024
X		Vacant / Environmental Engineer Manager	Okay to Draft JCD 4/4/2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.2</u>
Latitude	<u>40° 55' 21.70"</u>	Longitude	<u>-80° 22' 0.76"</u>
Quad Name	<u>New Castle South</u>	Quad Code	<u>1103</u>
Wastewater Description: <u>Treated domestic sewage</u>			
Receiving Waters	<u>Beaver River</u>	Stream Code	<u>33953</u>
NHD Com ID	<u>123918827</u>	RMI	<u>18.9</u>
Drainage Area	<u>2220</u>	Yield (cfs/mi ²)	<u>0.2</u>
Q ₇₋₁₀ Flow (cfs)	<u>444*</u>	Q ₇₋₁₀ Basis	<u>USGS 03105500</u>
Elevation (ft)	<u>770</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>20-B</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>CAUSE UNKNOWN, POLYCHLORINATED BIPHENYLS (PCBS)</u>		
Source(s) of Impairment	<u>SOURCE UNKNOWN</u>		
TMDL Status	<u></u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u>7.81</u>		<u>WQN 906 (5/11/2018 sample)</u>
Temperature (°F)	<u>25</u>		<u>Default (WWF)</u>
Hardness (mg/L)	<u></u>		<u></u>
Other:	<u>0.09</u>		<u>WQN 906 Median (June – Sept.)(2010-2016)</u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company – Ellwood District</u>		
PWS Waters	<u>Beaver River</u>	Flow at Intake (cfs)	<u>450</u>
PWS RMI	<u>12.5</u>	Distance from Outfall (mi)	<u>6.4</u>

Changes Since Last Permit Issuance: New, closer PWS intake in operation.

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>002</u>	Design Flow (MGD)	<u>0.375</u>
Latitude	<u>40° 55' 25.9"</u>	Longitude	<u>-80° 22' 2.4"</u>
Quad Name	<u>New Castle South</u>	Quad Code	<u>1103</u>
Wastewater Description: <u>Treated domestic sewage</u>			
Receiving Waters	<u>Beaver River</u>	Stream Code	<u>33953</u>
NHD Com ID	<u>123918827</u>	RMI	<u>18.8</u>
Drainage Area	<u>2220</u>	Yield (cfs/mi ²)	<u>0.2</u>
Q ₇₋₁₀ Flow (cfs)	<u>444</u>	Q ₇₋₁₀ Basis	<u>USGS 03105500</u>
Elevation (ft)	<u>770</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>20-B</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>CAUSE UNKNOWN, POLYCHLORINATED BIPHENYLS (PCBS)</u>		
Source(s) of Impairment	<u>SOURCE UNKNOWN</u>		
TMDL Status	<u></u>	Name	<u></u>
Background/Ambient Data		Data Source	
pH (SU)	<u>7.81</u>	WQN 906 (5/11/2018 sample)	<u></u>
Temperature (°F)	<u>25</u>	Default (WWF)	<u></u>
Hardness (mg/L)	<u></u>		<u></u>
Other:	<u>0.09</u>	WQN 906 Median (June – Sept.)(2010-2016)	<u></u>
Nearest Downstream Public Water Supply Intake	<u>PA American Water Company – Ellwood District</u>		
PWS Waters	<u>Beaver River</u>	Flow at Intake (cfs)	<u>450</u>
PWS RMI	<u>12.5</u>	Distance from Outfall (mi)	<u>6.4</u>

Changes Since Last Permit Issuance: New outfall that will be constructed and discharging once plant upgrades are complete.

Other Comments: When Outfall 002 is completed, it will replace existing Outfall 001

Treatment Facility Summary				
Treatment Facility Name: Taylor Township STP				
WQM Permit No.		Issuance Date		
3799402 T-1		6/21/2010		
3799402 A-1 T-1		5/05/2015		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.2
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.2	340	Not Overloaded	None	Other WWTP

Changes Since Last Permit Issuance:

Other Comments: Plant modifications that were approved in WQM Permit No. 3799402 A-1 T-1 had not been constructed to date due to funding concerns. The current treatment will be replaced with an SBR process with UV disinfection under a WQM Permit amendment that is forthcoming.

Compliance History	
Summary of DMRs:	There have been 15 effluent violations reported since May 2018. Three for TSS and 12 for fecal coliform exceedances.
Summary of Inspections:	The last facility inspection was conducted on 6/15/2023. One violation was noted during the inspection due to an observed build-up of solids below the outfall.

Other Comments: **The second modification to Consent Order and Agreement dated June 13, 2011 was executed on May 7, 2019.**

Compliance History

DMR Data for Outfall 001 (from February 1, 2023 to January 31, 2024)

Parameter	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23	FEB-23
Flow (MGD) Average Monthly	0.13	0.08	0.06	0.04	0.02	0.04	0.05	0.03	0.05	0.09	0.12	0.1
Flow (MGD) Daily Maximum	0.41	0.21	0.1	0.10	0.03	0.07	0.07	0.06	0.11	0.2	0.21	0.12
pH (S.U.) Daily Minimum	7.37	7.33	7.07	7.06	7.18	7.09	6.89	6.94	7.00	6.9	6.9	7.14
pH (S.U.) Daily Maximum	7.78	7.43	7.39	7.59	7.31	7.37	7.39	7.11	7.17	7.2	7.15	7.36
DO (mg/L) Daily Minimum	5.93	6.5	6.5	6.8	6.97	7.0	6.54	6.3	7.0	7.0	7.2	7.14
TRC (mg/L) Average Monthly	0.44	0.36	0.38	0.39	0.38	0.4	0.38	0.39	0.4	0.4	0.31	0.32
TRC (mg/L) Instantaneous Maximum	0.82	0.47	0.41	0.46	0.42	0.59	0.48	1.3	0.46	0.49	0.43	0.36
CBOD5 (lbs/day) Average Monthly	< 3	< 1.0	< 2.0	< 0.6	< 0.5	< 0.4	0.8	0.7	< 1	< 1	< 2	< 2
CBOD5 (lbs/day) Weekly Average	7	< 1.0	< 5.0	< 0.5	< 0.7	0.5	1.0	1	3	2	2	< 2
CBOD5 (mg/L) Average Monthly	< 2.27	< 2.07	< 2.0	< 2.38	< 2.25	< 2.4	2.53	2.5	< 2.24	< 2.41	< 2.23	< 2.0
CBOD5 (mg/L) Weekly Average	3.08	2.26	< 2.0	2.36	2.98	2.84	3.09	3.38	2.44	3.28	2.61	< 2.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	63	24	139	73	80	105	195	67	89	93	75	54
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	163	32	318	170	132	299	494	92	220	116	95	55
BOD5 (mg/L) Raw Sewage Influent Average Monthly	41	43	599	340	322	118	385	197	185	137	98	73
TSS (lbs/day) Average Monthly	< 10	< 3.0	< 4.0	< 2	< 1	< 1	< 2.0	< 2	< 2	< 5	< 5	5.0

**NPDES Permit Fact Sheet
Taylor Township STP**

NPDES Permit No. PA0024856

TSS (lbs/day) Raw Sewage Influent Average Monthly	80	12	157	74	154	196	252	198	127	98	103	24
TSS (lbs/day) Raw Sewage Influent Daily Maximum	250	14	330	81	243	594	660	427	318	110	132	33
TSS (lbs/day) Weekly Average	21	< 3.0	13.0	3	< 2	2	< 5.0	< 3	< 5	10	8	4.0
TSS (mg/L) Average Monthly	< 9.1	< 5.0	< 5.0	< 7.5	< 5.1	< 5.9	< 7.4	< 5.68	< 6.1	< 8.0	< 6.5	5.1
TSS (mg/L) Raw Sewage Influent Average Monthly	41	22	392	306	615	215	505	490	264	142	135	32
TSS (mg/L) Weekly Average	14.8	< 5.0	5.6	16.4	5.2	9.3	11.4	7.73	10.4	16.8	9.2	9.1
Fecal Coliform (No./100 ml) Geometric Mean	33	54	75	17	< 5	< 43	< 17	1818	21	7	54	15
Fecal Coliform (No./100 ml) Instantaneous Maximum	6000	330	570	65	14.0	8200	164	7000	82	14	350	230
Total Nitrogen (mg/L) Daily Maximum		14.6										
Ammonia (lbs/day) Average Monthly	< 0.3	< 0.3	< 0.1	< 0.04	< 0.08	< 0.08	0.1	< 0.04	< 0.05	< 0.03	< 0.5	< 0.4
Ammonia (mg/L) Average Monthly	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Phosphorus (mg/L) Daily Maximum		1.84										

Development of Effluent Limitations

Outfall No. <u>001</u>	Design Flow (MGD) <u>0.2</u>
Latitude <u>40° 55' 21.70"</u>	Longitude <u>-80° 22' 0.76"</u>
Wastewater Description: <u>Sewage Effluent</u>	

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)
E. Coli	Report (No./100 ml)	IMAX	-	92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Water Quality-Based Limitations

The following limitations were determined through water quality modeling:

Parameter	Limit (mg/l)	SBC	Model
None	---	---	---

Comments: No new water quality modeling was conducted for this outfall for this renewal as the plant is upgrading and moving the outfall location, likely during the new permit cycle. Previous modeling determined secondary treatment standards were protective of the receiving stream.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen limit of a minimum of 4 mg/l, a TRC IMAX limit of 1.6 mg/l, and monitoring for ammonia nitrogen, total nitrogen, and total phosphorus are placed in the permit in accordance with the Department's SOP entitled "Establishing Effluent Limitations for Individual Sewage Permits."

Monitoring for influent BOD₅ and influent TSS is being placed in the permit in accordance with the Department's SOP entitled "New and Reissuance Sewage Individual NPDES Permit Applications."

There are no known sources of PCBs at this site historically or present that would be contributing to the stream impairment. Therefore, monitoring for PCBs will not be required as part of the renewal.

Anti-Backsliding

N/A

Development of Effluent Limitations

Outfall No. <u>002</u> Latitude <u>40° 55' 25.9"</u> Wastewater Description: <u>Treated domestic sewage</u>	Design Flow (MGD) <u>0.375</u> Longitude <u>-80° 22' 2.4"</u>
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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)
E. Coli	Report (No./100 ml)	IMAX	-	92a.61

Comments: Monitoring for E. Coli is placed in the permit in accordance with the Department’s SOP entitled “Establishing Effluent Limitations for Individual Sewage Permits.”

Water Quality-Based Limitations

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
None	---	---	---

Comments: WQM 7.0 modeling and the Toxics Management Spreadsheet did not determine the need for any WQBELs.

Best Professional Judgment (BPJ) Limitations

Comments: A dissolved oxygen limit of a minimum of 4 mg/l and monitoring for UV intensity, ammonia nitrogen, total nitrogen, and total phosphorus are placed in the permit in accordance with the Department’s SOP entitled “Establishing Effluent Limitations for Individual Sewage Permits.”

Monitoring for influent BOD₅ and influent TSS is being placed in the permit in accordance with the Department’s SOP entitled “New and Reissuance Sewage Individual NPDES Permit Applications.”

There are no known sources of PCBs at this site historically or present that would be contributing to the stream impairment. Therefore, monitoring for PCBs will not be required as part of the renewal.

Anti-Backsliding

N/A

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" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through May 31, 2029.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ 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	Metered
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	42	65	XXX	25.0	40.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	50	75	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-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
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite
Ammonia	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/year	8-Hr Composite

Compliance Sampling Location: Outfall 001 (after disinfection)

Other Comments: N/A

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" (386-0400-001), SOPs and/or BPJ.

Outfall 002, Effective Period: June 1, 2029 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	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
CBOD5	78	125	XXX	25.0	40.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	93	140	XXX	30.0	45.0	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-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	Report	XXX	XXX	1/day	Measured
Total Nitrogen	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Phosphorus	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location: Outfall 002 (after disinfection)

Other Comments: N/A

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
20B	33953	BEAVER RIVER	18.900	770.00	2220.00	0.00000	0.00	<input checked="" type="checkbox"/>

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		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.200	444.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.81	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
Taylor Twp STP	PA0024856	0.0000	0.0000	0.3750	0.000	20.00	7.00

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	4.00	7.54	0.00	0.00
NH3-N	25.00	0.09	0.00	0.70

X

Vacant / Environmental Engineer Manager

Okay to Draft
JCD 4/4/2024

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
20B	33953	BEAVER RIVER	15.400	760.00	2235.00	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.200	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.81	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
		0.0000	0.0000	0.0000	0.000	0.00	7.00

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	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
20B		33953				BEAVER 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												
18.900	444.00	0.00	444.00	.5801	0.00054	1.158	377.72	326.09	1.02	0.210	24.99	7.81
Q1-10 Flow												
18.900	284.16	0.00	284.16	.5801	0.00054	NA	NA	NA	0.79	0.270	24.99	7.81
Q30-10 Flow												
18.900	603.84	0.00	603.84	.5801	0.00054	NA	NA	NA	1.21	0.177	25.00	7.81

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin **Stream Code** **Stream Name**
20B 33953 BEAVER 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
18.900	Taylor Twp STP	3.69	50	3.69	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
18.900	Taylor Twp STP	.73	25	.73	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
18.90	Taylor Twp STP	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
20B	33953	BEAVER RIVER		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
18.900	0.375	24.993	7.807	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
377.722	1.158	326.088	1.016	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.03	0.020	0.12	1.028	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
7.535	2.887	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.210	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.021	2.03	0.12	7.54
	0.042	2.03	0.12	7.54
	0.063	2.03	0.11	7.54
	0.084	2.03	0.11	7.54
	0.105	2.02	0.11	7.54
	0.126	2.02	0.11	7.54
	0.147	2.02	0.11	7.54
	0.168	2.02	0.10	7.54
	0.189	2.02	0.10	7.54
	0.210	2.02	0.10	7.54

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
20B		33953		BEAVER 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)
18.900	Taylor Twp STP	PA0024856	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4



Discharge Information

Instructions Discharge Stream

Facility: Taylor Township STP NPDES Permit No.: PA0024856 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
0.375	100	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			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	650								
	Chloride (PWS)	mg/L	103								
	Bromide	mg/L	< 0.1								
	Sulfate (PWS)	mg/L	74.1								
	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	< 10								
	Free Cyanide	µg/L									
	Total Cyanide	µg/L									
	Dissolved Iron	µg/L									
	Total Iron	µg/L									
	Total Lead	µg/L	< 10								
	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	60									
Total Molybdenum	µg/L										
Acrolein	µg/L	<									
Acrylamide	µg/L	<									
Acrylonitrile	µg/L	<									
Benzene	µg/L	<									
Bromoform	µg/L	<									

Group 3	Carbon Tetrachloride	µg/L	<																		
	Chlorobenzene	µg/L	<																		
	Chlorodibromomethane	µg/L	<																		
	Chloroethane	µg/L	<																		
	2-Chloroethyl Vinyl Ether	µg/L	<																		
	Chloroform	µg/L	<																		
	Dichlorobromomethane	µg/L	<																		
	1,1-Dichloroethane	µg/L	<																		
	1,2-Dichloroethane	µg/L	<																		
	1,1-Dichloroethylene	µg/L	<																		
	1,2-Dichloropropane	µg/L	<																		
	1,3-Dichloropropylene	µg/L	<																		
	1,4-Dioxane	µg/L	<																		
	Ethylbenzene	µg/L	<																		
	Methyl Bromide	µg/L	<																		
	Methyl Chloride	µg/L	<																		
	Methylene Chloride	µg/L	<																		
	1,1,1,2-Tetrachloroethane	µg/L	<																		
	Tetrachloroethylene	µg/L	<																		
	Toluene	µg/L	<																		
	1,2-trans-Dichloroethylene	µg/L	<																		
1,1,1-Trichloroethane	µg/L	<																			
1,1,2-Trichloroethane	µg/L	<																			
Trichloroethylene	µg/L	<																			
Vinyl Chloride	µg/L	<																			
Group 4	2-Chlorophenol	µg/L	<																		
	2,4-Dichlorophenol	µg/L	<																		
	2,4-Dimethylphenol	µg/L	<																		
	4,6-Dinitro- <i>o</i> -Cresol	µg/L	<																		
	2,4-Dinitrophenol	µg/L	<																		
	2-Nitrophenol	µg/L	<																		
	4-Nitrophenol	µg/L	<																		
	<i>p</i> -Chloro- <i>m</i> -Cresol	µg/L	<																		
	Pentachlorophenol	µg/L	<																		
	Phenol	µg/L	<																		
	2,4,6-Trichlorophenol	µg/L	<																		
Group 5	Acenaphthene	µg/L	<																		
	Acenaphthylene	µg/L	<																		
	Anthracene	µg/L	<																		
	Ben-zidine	µg/L	<																		
	Ben-zo(a)Anthracene	µg/L	<																		
	Ben-zo(a)Pyrene	µg/L	<																		
	3,4-Ben-zofluoranthene	µg/L	<																		
	Ben-zo(ghi)Perylene	µg/L	<																		
	Ben-zo(k)Fluoranthene	µg/L	<																		
	Bis(2-Chloroethoxy)Methane	µg/L	<																		
	Bis(2-Chloroethyl)Ether	µg/L	<																		
	Bis(2-Chloroisopropyl)Ether	µg/L	<																		
	Bis(2-Ethylhexyl)Phthalate	µg/L	<																		
	4-Bromophenyl Phenyl Ether	µg/L	<																		
	Butyl Benzyl Phthalate	µg/L	<																		
	2-Chloronaphthalene	µg/L	<																		
	4-Chlorophenyl Phenyl Ether	µg/L	<																		
	Chrysene	µg/L	<																		
	Diben-zo(a,h)Anthracene	µg/L	<																		
	1,2-Dichlorobenzene	µg/L	<																		
	1,3-Dichlorobenzene	µg/L	<																		
	1,4-Dichlorobenzene	µg/L	<																		
	3,3-Dichlorobenzidine	µg/L	<																		
Diethyl Phthalate	µg/L	<																			
Dimethyl Phthalate	µg/L	<																			
Di-n-Butyl Phthalate	µg/L	<																			
2,4-Dinitrotoluene	µg/L	<																			



Stream / Surface Water Information

Taylor Township STP, NPDES Permit No. PA0024856, Outfall 001

Instructions Discharge Stream

Receiving Surface Water Name: Beaver 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	033953	18.9	770	2220			Yes
End of Reach 1	033953	12.5	752	2250			Yes

Q₇₋₁₀

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	18.9	0.2	444									100	7.81		
End of Reach 1	12.5	0.2	450									100	7.81		

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	18.9														
End of Reach 1	12.5														



Model Results

Taylor Township STP, NPDES Permit No. PA0024856, Outfall 001

Instructions
 Results

 All
 Inputs
 Results
 Limits

Hydrodynamics

Q₇₋₁₀

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
18.9	444		444	0.58	0.00053	1.159	377.966	326.227	1.015	0.385	6785.307
12.5	450		450								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
18.9	1530.39		1530.39	0.58	0.00053	1.996	377.966	189.336	2.029	0.193	3005.687
12.5	1548.448		1548.45								

Wasteload Allocations

AFC
 CCT (min):
 PMF:
 Analysis Hardness (mg/l):
 Analysis pH:

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	518	Chem Translator of 0.96 applied
Total Lead	0	0		0	64.581	81.6	3,020	Chem Translator of 0.791 applied
Total Zinc	0	0		0	117.180	120	4,431	Chem Translator of 0.978 applied

CFC
 CCT (min):
 PMF:
 Analysis Hardness (mg/l):
 Analysis pH:

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	2,335	Chem Translator of 0.96 applied
Total Lead	0	0		0	2.517	3.18	796	Chem Translator of 0.791 applied
Total Zinc	0	0		0	118.139	120	29,991	Chem Translator of 0.986 applied

THH CCT (min): PMF: Analysis Hardness (mg/l): Analysis pH:

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: Analysis Hardness (mg/l): Analysis pH:

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:

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

Other Pollutants without Limits or Monitoring

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS

Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Copper	332	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	796	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	2,840	µg/L	Discharge Conc ≤ 10% WQBEL