pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0114286**
Facility Type	**Municipal**	APS ID	**1001474**
Major / Minor	**Minor**	Authorization ID	**1288002**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**New Albany Borough**	Facility Name	**New Albany Borough Sewer System STP**
Applicant Address	PO Box 67	Facility Address	401 Main Street
	New Albany, PA 18833-0067		New Albany, PA 18833
Applicant Contact	Rhonda McCarty, Secretary	Facility Contact	Shane Walker, Chief Operator
Applicant Phone	(570) 363-2300	Facility Phone	(570) 637-4302
Client ID	35452	Site ID	242240
Ch 94 Load Status	Not Overloaded	Municipality	New Albany Borough
Connection Status	No Limitations	County	Bradford
Date Application Received	September 10, 2019	EPA Waived?	Yes
Date Application Accepted	September 12, 2019	If No, Reason	

Purpose of Application: Renewal of a NPDES permit

Summary of Review

This facility is a municipal wastewater treatment plant serving Albany Borough, Bradford County.

A map of the discharge location is attached.

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		Keith C. Allison / Project Manager	December 16, 2019
		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.04
Latitude	41º 36' 23.45"	Longitude	-76º 26' 31.57"
Quad Name	Dushore, PA	Quad Code	0634
Wastewater Description:	Sewage Effluent		
Receiving Waters	South Branch Towanda Creek (CWF, MF)	Stream Code	30251
NHD Com ID	66407625	RMI	8.5
Drainage Area	22.8	Yield (cfs/mi^2)	0.013
Q_{7-10} Flow (cfs)	0.297	Q_{7-10} Basis	Gage 01532000, Towanda Creek near Monroeton, PA (1915-2008)
Elevation (ft)	1170	Slope (ft/ft)	0.00789
Watershed No.	4-C	Chapter 93 Class.	CWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	6.5 MGD
PWS RMI	122.5	Distance from Outfall (mi)	Approx. 150

Changes Since Last Permit Issuance: The above stream and discharge characteristics were determined in the previous review and remain adequate.

Other Comments: No downstream water supply is expected to be affected by the discharged with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: New Albany Borough Sewerage STP System

WQM Permit No.	Issuance Date	Permit Approved:
0889405	6/7/90	0.04 MGD treatment plant and associated sewers
0893406	4/27/93	0.04 MGD Extended aeration treatment plant. A minor amendment approved in 2008 allowed the replacement of the existing tablet chlorinator with a liquid sodium hypochlorite feed. A minor amendment in 2019 approved the permanent use of a tablet dechlorinator.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.04

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.04	80	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: The use of dechlorination is new since the last NPDES review.

Other Comments: The treatment facility, approved by WQM Permit No. 0893406, consists of a bar screen, influent tank, equalization tank with grinder pumps, three 16,000-gallon aeration tanks, one 8,750-gallon clarifier, tablet chlorinator, 1000-gallon chlorine contact tank, tablet dechlorination, and an 8,000-gallon aerated sludge holding tank. The permittee received three different WQM permit for different proposals for the treatment plant: 0889405, 0892403 and 0893406. Apparently, the option under 0893406 was constructed.

Hauled in Waste

Per the application, the permittee has not received any hauled in waste in the past three years and does not anticipate receiving any over the next permit term.

Sludge/Biosolids Disposal

The facility's sludge is sent to the Towanda Municipal Authority WWTP for further processing.

Compliance History

DMR Data for Outfall 001 (from November 1, 2018 to October 31, 2019)

Parameter	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18
Flow (MGD) Average Monthly	0.014	0.012	0.013	0.016	0.018	0.022	0.016	0.014	0.017	0.018	0.016	0.019
Flow (MGD) Daily Maximum	0.035	0.014	0.022	0.34	0.054	0.071	0.033	0.016	0.022	0.065	0.032	0.0227
pH (S.U.) Minimum	6.0	6.31	6.5	6.3	6.2	6.1	6.0	6.0	6.04	5.51	5.35	6.0
pH (S.U.) Maximum	6.75	7.29	7.1	6.75	8.05	7.0	6.93	6.8	6.77	7.17	7.02	7.08
DO (mg/L) Minimum	1.84	2.79	2.8	2.8	1.12	2.0	2.2	3.0	3.56	2.03	3.23	2.17
TRC (mg/L) Average Monthly	0.5	0.6	0.4	0.5	0.3	0.3	0.4	0.4	0.4	0.6	0.4	0.6
TRC (mg/L) Instantaneous Maximum	1.1	0.8	1.1	1.0	0.93	0.7	1.0	1.0	1.6	0.98	1.06	1.5
CBOD5 (lbs/day) Average Monthly	0.6	< 0.4	< 0.4	< 0.4	< 0.3	< 0.5	< 0.5	< 0.4	< 0.4	< 0.3	< 0.4	< 0.4
CBOD5 (lbs/day) Daily Maximum	0.8	0.5	< 0.4	< 0.4	< 0.4	< 0.6	0.6	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
CBOD5 (mg/L) Average Monthly	6	< 4	< 3	< 3	< 3	< 3	< 4	< 3.0	< 3	< 3	< 3	< 3
CBOD5 (mg/L) Daily Maximum	7.2	5	< 3	< 3	< 3	< 3	5	< 3.0	< 3	< 3	< 3	< 3
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	34	45	50	36	38	35	30	35	33	35	32	28
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	38	59	63	40	49	42	31	39	34	38	35	34
BOD5 (mg/L) Raw Sewage Influent Average Monthly	314	428	391	294	342	226	266	293	266	315	248	195
TSS (lbs/day) Average Monthly	0.9	< 0.3	0.4	0.5	0.5	< 1	0.7	1	< 0.2	< 0.3	0.3	< 0.5
TSS (lbs/day) Raw Sewage Influent Average Monthly	21	33	42	41	93	29	21	37	19	17	39	20

TSS (lbs/day) Daily Maximum	1	0.6	0.5	0.6	0.7	2	0.7	1	0.2	0.5	0.3	0.8
TSS (lbs/day) Raw Sewage Influent Daily Maximum	22	48	68	55	115	36	21	64	20	18	60	28
TSS (mg/L) Average Monthly	8	< 3	3	4	5	< 4	6	12	< 2	< 2	2	< 4
TSS (mg/L) Raw Sewage Influent Average Monthly	199	310	313	350	912	186	190	314	150	155	310	138
TSS (mg/L) Daily Maximum	9	5.2	4	4.4	8	7	7	12.4	2	4	2.4	5.6
Fecal Coliform (No./100 ml) Geometric Mean	3	< 1	< 1	7	1	86	< 1	2	< 30	< 2	5	47
Fecal Coliform (No./100 ml) Instantaneous Maximum	8.5	< 1	1	25	1	157	< 1	< 4	875	3.1	5.2	1120
Total Nitrogen (lbs/day) Average Monthly											0.68	
Total Nitrogen (mg/L) Average Monthly											6.3	
Ammonia (lbs/day) Average Monthly	0.05	0.08	0.06	0.06	0.07	< 0.05	< 0.1	0.03	< 0.02	0.04	0.05	0.03
Ammonia (lbs/day) Daily Maximum	0.06	0.1	0.07	0.07	0.07	0.1	0.2	0.04	0.02	0.05	0.06	0.03
Ammonia (mg/L) Average Monthly	0.5	0.8	0.5	0.5	0.6	< 0.3	< 1.3	0.2	< 0.1	0.3	0.4	0.2
Ammonia (mg/L) Daily Maximum	0.6	1	0.5	0.6	0.73	0.4	2	0.33	0.176	0.42	0.5	0.228
Total Phosphorus (lbs/day) Average Monthly											0.32	
Total Phosphorus (mg/L) Average Monthly											2.99	

Compliance History, Cont'd

Effluent Violations for Outfall 001, from: November 1, 2018 To: October 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
pH	12/31/18	Min	5.35	S.U.	6.0	S.U.
pH	01/31/19	Min	5.51	S.U.	6.0	S.U.
TRC	09/30/19	Avg Mo	0.6	mg/L	0.5	mg/L
TRC	01/31/19	Avg Mo	0.6	mg/L	0.5	mg/L
TRC	02/28/19	IMAX	1.64	mg/L	1.6	mg/L
TRC	11/30/18	IMAX	0.6	mg/L	0.5	mg/L

Compliance History, Cont'd

Summary of Inspections:	The facility has been inspected approximately annually over the past permit term. The most recent inspection on June 26, 2019 by Stephen Puzio, WQS, identified effluent violations but no operational violations were noted at the time of inspection.
Other Comments:	A query in WMS found the following open violation in eFACTS for New Albany Borough from the Safe Drinking Water Program.

New Albany Borough Open Violations:

CLIENT ID	CLIENT	PF ID	FACILITY	PF KIND	INSP PROGRAM	PROGRAM SPECIFIC ID	VIOLATION ID	VIOLATION DATE	VIOLATION
35452	NEW ALBANY BORO BRADFORD CNTY	275369	NEW ALBANY WATER FUND	Community	Safe Drinking Water	2080010	865384	10/17/2019	FAILURE TO SUBMIT OR REVISE A COMPREHENSIVE MONITORING PLAN

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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	8.3	13	XXX	25	40	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	10	15	XXX	30	45	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	4.5	6.7	XXX	13.5	20	27	2/month	8-Hr Composite
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/year	8-Hr Composite

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.04
Latitude 41º 36' 16.20" **Longitude** -76º 26' 26.70"
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)

Comments: The above limitations are applicable, are included in the existing permit, and will remain.

Water Quality-Based Limitations

CBOD5, NH3-N & DO

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed at this time (see Attachment B) for the discharge to South Branch Towanda Creek and indicated that the existing limits for $CBOD_5$ and NH_3-N are adequate to protect the receiving stream.

Total Residual Chlorine

The Department uses a modeling spreadsheet to determine necessary WQBELs for TRC based on chlorine toxicity and available instream dilution. The attached modeling results (see attachment C) show that the BAT limit of 0.5 mg/l is adequate to protect the receiving stream.

Toxics Management

No further “Reasonable Potential Analysis” was conducted for this minor sewage treatment facility with no significant industrial users to determine additional parameters as candidates for limitations or monitoring.

Chesapeake Bay/Nutrient Requirements

According to the Pennsylvania’s Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, this facility is an existing Phase 5 Chesapeake Bay sewage discharger that is not expanding, and as such requires no nutrient loading limits. The monitoring for the past permit term found the average Total Nitrogen concentration and loading to be 14.6 mg/L and 1.8 pounds per day and the average Total Phosphorus concentration and loading to be 3.7 mg/L and 0.48 pounds per day. Therefore, because the level of these nutrients in the discharge have been characterized no additional monitoring for TN and TP will be required at this time.

Best Professional Judgment (BPJ) Limitations

Comments: No additional BPJ limitations are necessary beyond the technology and water quality-based limitations noted above.

Anti-Backsliding

No limitations have been made less stringent consistent with the anti-degradation requirements of the Clean Water Act and 40 CFR 122.44(l).

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	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	8.3	13	XXX	25	40	50	2/month	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TSS	10	15	XXX	30	45	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Ammonia Nov 1 - Apr 30	Report	Report	XXX	Report	Report	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	4.5	6.7	XXX	13.5	20	27	2/month	8-Hr Composite

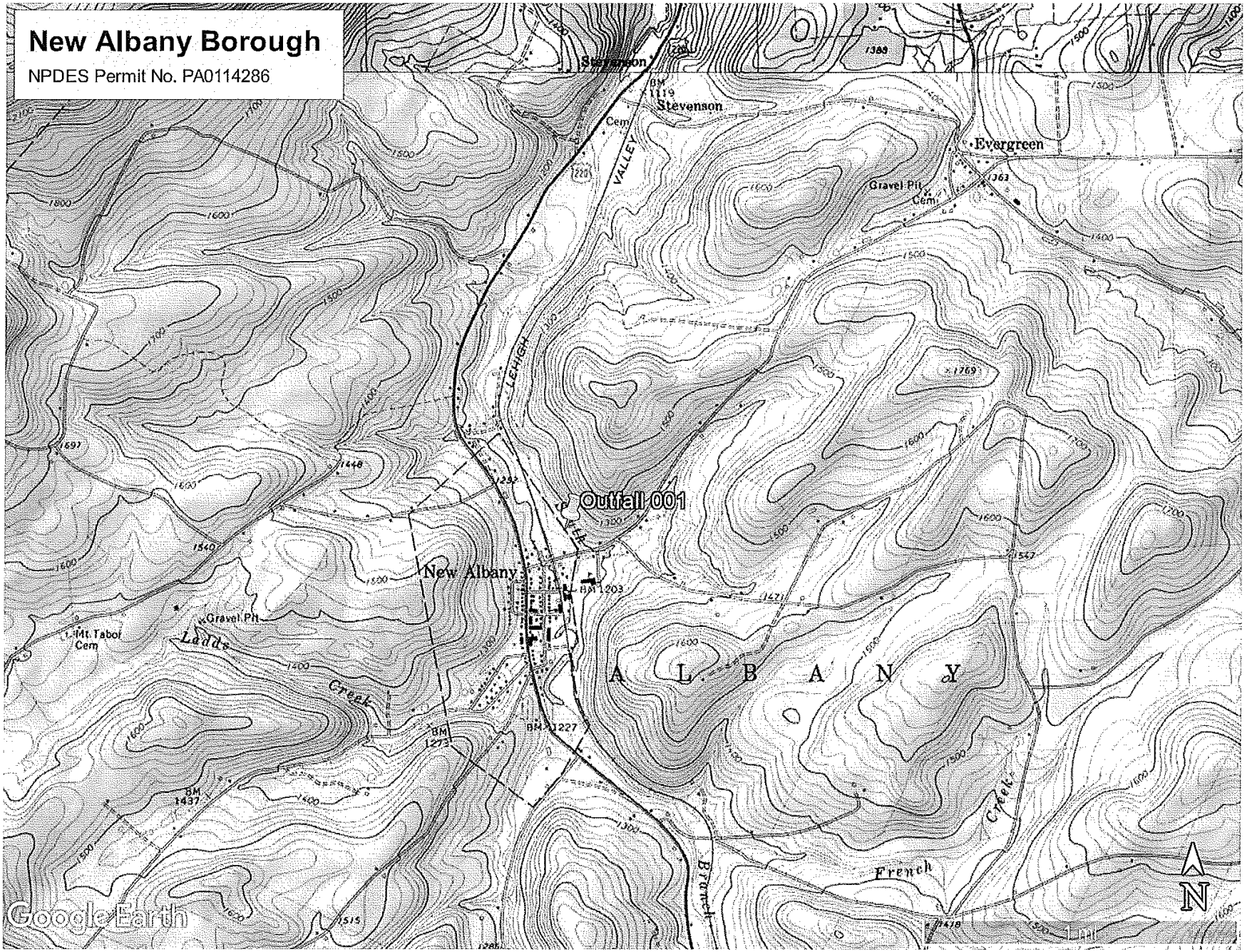
Compliance Sampling Location: Outfall 001

Other Comments: The above limitations and monitoring requirements are unchanged from the existing permit except for the removal of monitoring for total nitrogen and total phosphorus as mentioned above.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 8/23/13
☐	Other:

Attachments:

A. Discharge Location Map
B. WQM7.0 Model
C. TRC Model


New Albany Borough
NPDES Permit No. PA0114286
Outfall 001
New Albany
Stevenson
Evergreen
Gravel Pit
Cem
Mt. Tabor
Cem
Ladds
Creek
French
Creek
LEHIGH
VALLEY
ALBANY
BM 1119
BM 1203
BM 1227
BM 1273
BM 1437
N
Google Earth

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
04C	30251	SOUTH BRANCH TOWANDA CREE	**8.500**	1170.00	22.80	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	0.013	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	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
New Albany	PA0114286	0.0400	0.0000	0.0000	0.000	25.00	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	13.50	0.00	0.00	0.70

Permit No. PA0114286

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
04C	30251	SOUTH BRANCH TOWANDA CREE	7.780	1140.00	25.00	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	0.013	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	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	25.00	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

Permit No. PA0114286

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
04C	30251	SOUTH BRANCH TOWANDA CREEK

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												
8.500	0.30	0.00	0.30	.0619	0.00789	.465	12.48	26.84	0.06	0.713	20.86	7.00
Q1-10 Flow												
8.500	0.19	0.00	0.19	.0619	0.00789	NA	NA	NA	0.05	0.869	21.23	7.00
Q30-10 Flow												
8.500	0.40	0.00	0.40	.0619	0.00789	NA	NA	NA	0.07	0.616	20.67	7.00

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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	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
04C	30251	SOUTH BRANCH TOWANDA CREEK

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
8.500	New Albany	8.85	27	8.85	27	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
8.500	New Albany	1.83	13.5	1.83	13.5	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)		
8.50	New Albany	25	25	13.5	13.5	3	3	0	0

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WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04C	30251	SOUTH BRANCH TOWANDA CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
8.500	0.040	20.864	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.482	0.465	26.841	0.062
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
5.97	0.896	2.33	0.748
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.337	14.131	Owens	6
Reach Travel Time (days)			
0.713			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.071	5.59	2.21	7.69
0.143	5.23	2.10	7.86
0.214	4.89	1.99	7.97
0.285	4.58	1.88	8.04
0.356	4.28	1.79	8.10
0.428	4.01	1.69	8.11
0.499	3.75	1.61	8.11
0.570	3.51	1.52	8.11
0.642	3.29	1.44	8.11
0.713	3.07	1.37	8.11

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04C	30251	SOUTH BRANCH TOWANDA CREEK

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)
8.500	New Albany	PA0114286	0.040	CBOD5	25		
				NH3-N	13.5	27	
				Dissolved Oxygen			3

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TRC EVALUATION

Client			Date		
0.297	**= Q stream (cfs)**		**0.5**	**= CV Daily**	
0.04	**= Q discharge (MGD)**		**0.5**	**= CV Hourly**	
30	**= no. samples**		**1**	**= AFC_Partial Mix Factor**	
0.3	**= Chlorine Demand of Stream**		**1**	**= CFC_Partial Mix Factor**	
0	**= Chlorine Demand of Discharge**		**15**	**= AFC_Criteria Compliance Time (min)**	
0.5	**= BAT/BPJ Value**		**720**	**= CFC_Criteria Compliance Time (min)**	
	= % Factor of Safety (FOS)		**0**	**=Decay Coefficient (K)**	

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	1.550	**1.3.2.iii**	WLA cfc =	1.504
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	0.578	**5.1d**	LTA_cfc =	0.874
		WQBEL_afc=	**0.711**		WQBEL_cfc=	1.076

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**