pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0033910**
Facility Type	**Non-Municipal**	APS ID	**1031738**
Major / Minor	**Minor**	Authorization ID	**1342084**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

APPLICANT AND FACILITY INFORMATION

Applicant Name	**Northeast Bradford School District**	Facility Name	**School District Treatment Plant**
Applicant Address	516 Panther Lane	Facility Address	526 Panther Lane
	Rome, PA 18837-7892		Rome, PA 18837-7892
Applicant Contact	Michael Cragle	Facility Contact	Michael Cragle
Applicant Phone	570-744-2521 X2223	Facility Phone	570-744-2521 X2223
Client ID	64911	Site ID	240918
Ch 94 Load Status	Existing Hydraulic and Organic Overload	Municipality	Orwell Township
Connection Status	Dept. Imposed Connection Prohibitions	County	Bradford
Date Application Received	February 04, 2021	EPA Waived?	Yes
Date Application Accepted	March 22, 2021	If No, Reason	N/A
Purpose of Application	Renewal of NPDES permit		

SUMMARY OF REVIEW

INTRODUCTION

Richard C. Potter, Operator, has applied to renew the existing NPDES permit authorizing the discharge from the wastewater treatment facility (WWTF) serving the Northeast Bradford School District (NEBSD).

APPLICATION

Potter submitted the *NPDES Application for Individual Permit to Discharge Sewage Effluent from Minor Sewage Facilities* (DEP #3800-PM-BCW0342b). This application was received by the Department on February 04, 2022 and considered administratively complete on March 22, 2021. Potter is a (PA) licensed wastewater treatment plant (WWTP) operator and a contract operator for the District, doing business as *Rick's Inspection Service*. His contact information is (phone) 570-637-0421 and (email) ricksinspectionservice@gmail.com. The client and site contact for the District is Michael E. Cragle, Buildings and Grounds Supervisor. His additional contact information is (FAX) 570-744-2933 and (email) mcragle@nebpanthers.com.

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.

The case file, permit application package and draft permit will be available for public review at Department's Northcentral Regional Office. The address for this office is 208 West Third Street, Suite 101, Williamsport, PA 17701. An appointment can be made to review these materials during the comment period by calling the file coordinator at 570-327-3636.

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Approve	Deny	Signatures	Date
X		Jeffrey J. Gocek, EIT — Project Manager	07/28/2022
X		Nicholas W. Hartranft, PE — Environmental Engineer Manager	07/28/2022

DISCHARGE, RECEIVING WATERS AND WATER SUPPLY INFORMATION

Outfall No.	001	Design Flow (MGD)	0.01
Latitude	41° 51' 42.53"	Longitude	-76° 14' 26.20"
Quad Name	LeRaysville	Quad Code	41076
Wastewater Description:	Sewage Effluent		
Receiving Waters	Johnson Creek (CWF)	Stream Code	30063
NHD Com ID	66394755	RMI	8.52
Drainage Area	7.42	Yield (cfs/mi^2)	0.0353
Q_{7-10} Flow (cfs)	0.262	Q_{7-10} Basis	USGS Gage #01532850
Elevation (ft)	1135	Slope (ft/ft)	N/A
Watershed No.	4-D	Chapter 93 Class.	CWF
Existing Use	None	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	N/A		
Source(s) of Impairment	N/A		
TMDL Status	Final	Name	Johnson Creek Watershed TMDL
Nearest Downstream Public Water Supply Intake	Danville Municipal Water Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	140

$Q_{7,10}$ DETERMINATION

The $Q_{7,10}$ is the lowest seven consecutive days of flow in a 10-year period and is used for modeling wastewater treatment plant discharges. 25 PA § 96.1 defines $Q_{7,10}$ as the "actual or estimated lowest seven consecutive day average flow that occurs once in 10 years for a stream with unregulated flow or the estimated minimum flow for a stream with regulated flow".

Basin characteristics, for a watershed based on the discharge location, were obtained from the USGS StreamStats webpage. Based on those characteristics, an appropriate reference gage was selected utilizing the *USGS Pennsylvania Baseline Streamflow Estimator* (BaSE). This reference gage is USGS # 01532850 (MB Wyalusing Creek near Birchardville, PA). $Q_{7,10}$ flow for that gage and drainage area were obtained from *Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania* (USGS Open Files Report 2011-1070). Knowing the drainage area at the discharge (7.42 mi^2) and both the drainage area (5.67 mi^2) and $Q_{7,10}$ (0.2 CFS) at the reference gage, the $Q_{7,10}$ at the discharge was calculated to be 0.262 CFS.

See Attachment 01 for the $Q_{7,10}$ determination.

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TREATMENT FACILITY

This WWTF treats flows from both the elementary school and the high school and consists of a pump station (conveying flows from the high school), a comminutor, a flow equalization tank (10,600 gallons) an anoxic tank (8,212 gallons), an aeration tank (9,215 gallons), an upflow clarifier (2,445 gallons), UV disinfection and a flowmeter prior to the outfall. Remnants of the previous, now decommissioned WWTP are being utilized as aerated sludge holding tanks (3,250 gallons and 12,000 gallons). The combination of the anoxic tank, the aeration tank and the clarifier serves as a Biologically Engineered Single Sludge Treatment (BESST) system. The BESST system was chosen to provide more effective nitrogen removal and comply with the existing ammonia-nitrogen effluent limitations.

See Attachment 02 for a map of the WWTF location.

Treatment characteristics are as follows:

Waste Type	Degree of Treatment	Process Type	Disinfection	Annual Average Design Flow (MGD)
Sewage	Secondary	Activated Sludge	Ultraviolet	0.010
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.010	50	Existing Overloads	N/A	Other WWTF

Sludge is stored (aerated) until transported to the Towanda Borough WWTF for disposal.

The above design was approved by Water Quality Management (WQM) permit #0811402, issued August 07, 2012 to the NEBSD. The upgrade to the treatment plant did not increase the annual average design flow and the hydraulic design flow of 0.01 MGD (10,000 GPD).

See Attachment 03 for the treatment process flow diagram.

COMPLIANCE HISTORY

The WMS Query *Open Violations by Client* revealed no unresolved violations for the NEBSD.

The most recent Department inspection, a Compliance Evaluation Inspection (CEI), was conducted June 28, 2021. No violations were identified during the inspection. All required treatment units appeared online and operational. No discharge was observed. No problems were observed in the receiving stream at the discharge and further downstream. No effluent violations occurred in the 12 months prior to the inspection. It was recommended that the NEBSD clean and recoat any metal walls that are rusted.

The following Discharge Monitoring Report (DMR) data below is from June 2021 to May 2022.

Parameter	MAY-22	APR-22	MAR-22	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21
Flow (MGD) Average Monthly	0.007	0.0056	0.005	0.006	0.0036	0.005	0.0063	0.0061	0.0075	0.004	0.003	0.0043
pH (S.U.) Minimum	6.6	6.8	6.3	6.3	6.4	6.6	6.7	6.8	7.1	6.8	7.2	6.8
pH (S.U.) Instantaneous Maximum	7.4	7.6	7.1	7.1	7.1	7.0	7.3	7.6	7.4	7.8	7.9	7.8
CBOD5 (mg/L) Average Monthly	4.5	< 3.0	< 3.0	< 3.0	< 3.0	6.03	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
TSS (mg/L) Average Monthly	10.6	9.4	5.4	4.0	4.6	16.0	3.8	3.6	7.4	8.6	11.4	6.4
Fecal Coliform (No./100 ml) Geometric Mean	2.0	7.0	< 1.0	< 1.0	< 1.0	1.0	2.0	1.0	< 1.0	< 1.0	9.0	3.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	3.1	25	< 1.0	< 1.0	< 1.0	2.0	3.0	2.0	< 1.0	< 1.0	13.4	8.6
UV Intensity (µw/cm²) Average Monthly	1543	1685	1744	1630	1652	1671	1734	1761	1536	1326	1260	1398
Ammonia (mg/L) Average Monthly	4.85	0.15	< 0.1	0.148	< 0.1	0.1	0.153	0.214	< 0.1	< 0.1	1.9	1.258

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EXISTING LIMITATIONS

The following limitations were established at the last issuance on September 23, 2016.

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L unless noted)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow	Report						1/Week	Metered
pH			6.0			9.0	5/Week	Grab
$CBOD_5$				25		50	2/Month	8 Hour Comp
Total Suspended Solids				30		60	2/Month	8 Hour Comp
Fecal Coliform (No./100mL) 05/01 – 09/30				200 Geo Mean		1,000	2/Month	Grab
Fecal Coliform (No./100mL) 10/01 – 04/30				2,000 Geo Mean		10,000	2/Month	Grab
Ammonia-Nitrogen 06/01-10/31				6.0		12	2/Month	8 Hour Comp
Ammonia-Nitrogen 11/01-05/31				18		36	2/Month	8 Hour Comp
UV Intensity ($\mu W/cm^2$)			Report				Continuous	Metered

DEVELOPMENT OF EFFLUENT LIMITATIONS

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)

Total Residual Chlorine

A TRC limitation is not required for this permit since the NEBSD employs ultraviolet (UV) disinfection at the WWTF.

Water Quality-Based Limitations

$CBOD_5$, NH_3-N and DO

WQM 7.0 for Windows (WQM 7.0) is a DEP computer model used to determine wasteload allocations (WLAs) and effluent limitations for Carbonaceous Biochemical Oxygen Demand ($CBOD_5$), Ammonia-Nitrogen (NH_3-N) and Dissolved Oxygen (DO) for single and multiple point source discharge scenarios. This model simulates two basic processes. The NH3-N module simulates the mixing and degradation of NH3-N in the stream and compares calculated instream NH3-N concentrations to the water quality criteria.

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The DO module simulates mixing and consumption of DO in the stream due to degradation of CBOD5 and NH3-N and compares the calculated instream DO concentrations to the water quality criteria. The model then determines the highest pollutant loading the stream can assimilate and still meet water quality criteria under design conditions.

Modeling was performed and used the existing effluent limitations for $CBOD_5$ and NH_3-N as model inputs. The model recommended the following limitations:

Parameter	Effluent Limitations (mg/L)		
	30 Day Average	Maximum	Minimum
$CBOD_5$	25		
NH_3-N	6	12	
DO			3

The model shows that these existing limitations for $CBOD_5$ and NH_3-N are adequate and will remain in the permit.

See Attachment 04 for the WQM 7.0 model output.

Best Professional Judgment (BPJ) Limitations

In the absence of applicable effluent guidelines for the discharge or pollutant, permit writers must identify and/or develop needed technology-based effluent limitations (TBELs) TBELs on a case-by-case basis, in accordance with the statutory factors specified in the Clean Water Act.

No BPJ limitations have been proposed for this draft.

Anti-Backsliding

To comply with 40 CFR § 122.44(l)(1) (anti-backsliding requirements), the Department must issue a renewed permit with limitations as stringent as that the of the previous permit.

No less stringent limitations have been proposed for this draft.

DEVELOPMENT OF EFFLUENT MONITORING

Ultraviolet Disinfection

Since the NEBSD employs UV disinfection, the Department requires the monitoring of UV Dosage in mjoules/cm^2 (as a minimum). This monitoring assures the Department that the disinfection system is working as designed.

Dissolved Oxygen

The Department is requiring the monitoring of Dissolved Oxygen (DO). The concentration of DO is monitored to ensure adequate operation and maintenance in a WWTF. As a new parameter being introduced into an existing permit, only monitoring will be required for the next permit term.

E.coli

The Department is requiring the monitoring of Eschericia coli (E. coli), a pathogenic bacterium normally found in the intestines of healthy people and animals which is used as a fecal contamination indicator in freshwater ecosystems. Section 303(c)(1) of the Clean Water Act requires that Pennsylvania periodically review and revise water quality standards, if necessary. The 2017 triennial review final form rulemaking, published in 2020, has revised the Chapter 93 water quality standards regulations for bacteria to include E. coli. To further characterize fecal contamination of surface waters during the swimming season, the Department is requiring the annual reporting of effluent E. coli effluent values. In accordance with 25 PA § 92a.61, the Department may impose reasonable monitoring requirements on pollutants which could have impact on the quality of the Commonwealth's waters or the quality of waters in other states.

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CHESAPEAKE BAY TMDL

Because the design flow of this facility is less than 0.2 MGD, the Department considers this an existing Phase 5 sewage facility (for the purposes of implementing the Chesapeake Bay TMDL). This system has a design flow of 0.01 MGD. According to the Department's Supplement to Phase II Watershed Implementation Plan (WIP, revised April 5, 2016), renewed Phase 5 NPDES permits are required to contain monitoring and reporting for Total Nitrogen (TN) and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually in the event that the facility has not conducted at least two years of nutrient monitoring. The nutrient monitoring was conducted from 2006 to 2008, and the associated data was presented in the 2015 Fact Sheet.

RECEIVING STREAM

Characteristics

The receiving stream for this discharge is Johnson Creek, a tributary to the Wysox Creek and the Susquehanna River. According to 25 PA § 93.9L, Johnson Creek is protected for Cold Water Fishes (CWF) and Migratory Fishes (MF). These are the streams Designated Uses, which is defined in 25 PA § 93.1 as "those uses specified in §§ 93.9a – 93.9z for each waterbody or segment whether or not the use is being attained". Designated uses are regulations promulgated by the Environmental Quality Board (EQB) throughout the rulemaking process. This stream currently has no Existing Use, which is defined in 25 PA § 93.1 as "those uses actually attained in the waterbody on or after November 28, 1975 whether or not they are included in the water quality standards".

Johnson Creek, identified by Department stream code 30063, is in Drainage Basin I (Chapter 93) and State Water Plan watershed 4D (Wysox and Wyalusing Creeks). 70% of the Johnson Creek watershed is forested, while the remainder of the watershed consists of agricultural land (26%) and developed areas (4%).

Impairment

According to Department data, Johnson Creek is attaining its designated uses for aquatic life and recreation.

A portion of Johnson Creek downstream was listed on the Department's 2008 303(d) list, with 12.73 miles of the creek impaired for aquatic life (use) by siltation (cause) emanating from agricultural practices (source) and road runoff (source). A Total Maximum Daily Load (TMDL) for the Johnson Creek watershed was prepared and approved by EPA in 2011. Using the West Branch Meshoppen Creek as a reference watershed, the TMDL determined that a total sediment load reduction of 46%, or 14,838 pounds per day, is required to protect the stream's aquatic life. Because the sources of the impairment were listed as agricultural and road runoff, no point sources were considered in the TMDL and therefore no wasteload allocation (WLA) restrictions were assigned to this facility.

ADDITIONAL CONSIDERATIONS

Limit Multipliers

The instantaneous maximum (IMAX) limitations for $CBOD_5$ and TSS are based on the 2.0 sewage multiplier (of the monthly average limit), as specified in the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001). The winter ammonia-nitrogen limit is based on a multiplier of 3.0 (of the monthly average summer limit), as specified in the Department's *Implementation Guidance of Section 93.7 Ammonia Criteria* (#391-2000-013).

Sample Frequencies and Types

The existing sample type and minimum measurement frequencies for Flow, $CBOD_5$, TSS, Fecal Coliforms, and Ammnonia-Nitrogen are in accordance with the Department's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* (#362-0400-001).

Since the school doesn't operate on weekends, the Department previously authorized the monitoring of pH at the minimum frequency of 5/week. Dissolved oxygen monitoring will also follow the minimum frequency of 5/week.

Standard Operating Procedures (SOPs)

The review of this permit application was in accordance with the Department's SOP for New and Reissuance Sewage Individual NPDES Permit Applications (unnumbered) and SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP #BPNPSM-PMT-033).

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Special Permit Conditions (Part C)

Stormwater Prohibition
Approvals
Proper Waste Disposal
Municipal Treatment Availability

Supplemental Discharge Monitoring Reports

Daily Effluent Monitoring Form
Non-Compliance Reporting Form
Lab Accreditation Form

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.

Outfall 001, Effective Period: *Permit Effective Date through Permit Expiration Date*

Discharge Parameter	Mass Limits (lb/day)		Concentration Limits (mg/L unless noted)				Monitoring Requirements	
	Monthly Average	Weekly Average	Minimum	Monthly Average	Weekly Average	Instant. Maximum	Minimum Measurement Frequency	Required Sample Type
Flow	Report						1/Week	Metered
pH			6.0			9.0	5/Week	Grab
Dissolved Oxygen			Report				5/Week	Grab
$CBOD_5$				25		50	2/Month	8 Hour Comp
Total Suspended Solids				30		60	2/Month	8 Hour Comp
Fecal Coliform (No./100mL) 05/01 – 09/30				200 Geo Mean		1,000	2/Month	Grab
Fecal Coliform (No./100mL) 10/01 – 04/30				2,000 Geo Mean		10,000	2/Month	Grab
Ammonia-Nitrogen 06/01-10/31				6.0		12	2/Month	8 Hour Comp
Ammonia-Nitrogen 11/01-05/31				18		36	2/Month	8 Hour Comp
UV Intensity ($\mu W/cm^2$)			Report				Continuous	Metered
E.coli (No./100mL)						Report	1/Year	Grab

END of Fact Sheet.

ATTACHMENT 01

Q_{7-10} Analysis	
Facility:	Northeast Bradford School District
Outfall:	001

NPDES Permit No.:	PA00033910
RMI at Outfall:	8.52

Reference Stream Gage Information	
Stream Name	Johnson Creek
Reference Gage	1532850
Station Name	MB Wyalusing Creek near Birchardville, PA
Gage Drainage Area (sq. mi.)	5.67
Q_{7-10} at gage (cfs)	0.2
Yield Ratio (cfs/mi^2)	0.0353

Q_{7-10} at Outfall	
Drainage Area at site (sq. mi.)	7.42
Q_{7-10} at discharge site (cfs)	0.262
Q_{7-10} at discharge site (mgd)	0.1692

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi², square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi²)	Regulated[1]
01508803	West Branch Tioughnioga River at Homer, N.Y.	42.638	-76.176	71.5	N
01509000	Tioughnioga River at Cortland, N.Y.	42.603	-76.159	292	N
01510000	Otselic River at Cincinnatus, N.Y.	42.541	-75.900	147	N
01512500	Chenango River near Chenango Forks, N.Y.	42.218	-75.848	1,483	N
01515000	Susquehanna River near Waverly, N.Y.	41.985	-76.501	4,773	N
01516350	Tioga River near Mansfield, Pa.	41.797	-77.080	153	N
01516500	Corey Creek near Mainesburg, Pa.	41.791	-77.015	12.2	N
01518000	Tioga River at Tioga, Pa.	41.908	-77.129	282	Y
01518700	Tioga River at Tioga Junction, Pa.	41.953	-77.115	446	Y
01518862	Cowanesque River at Westfield, Pa.	41.923	-77.532	90.6	N
01520000	Cowanesque River near Lawrenceville, Pa.	41.997	-77.140	298	Y
01520500	Tioga River at Lindley, N.Y.	42.029	-77.132	771	Y
01521500	Canisteo River at Arkport, N.Y.	42.396	-77.711	30.6	Y
01523500	Canacadea Creek near Hornell, N.Y.	42.335	-77.683	57.9	Y
01524500	Canisteo River below Canacadea Creek at Hornell, N.Y.	42.314	-77.651	158	Y
01526500	Tioga River near Erwins, N.Y.	42.121	-77.129	1,377	Y
01527000	Cohocton River at Cohocton, N.Y.	42.500	-77.500	52.2	N
01527500	Cohocton River at Avoca, N.Y.	42.398	-77.417	152	N
01528000	Fivemile Creek near Kanona, N.Y.	42.388	-77.358	66.8	N
01529000	Mud Creek near Savona, N.Y.	42.308	-77.197	76.6	Y
01529500	Cohocton River near Campbell, N.Y.	42.253	-77.217	470	N
01529950	Chemung River at Corning, N.Y.	42.146	-77.057	2,006	Y
01530332	Chemung River at Elmira, N.Y.	42.086	-76.801	2,162	Y
01530500	Newtown Creek at Elmira, N.Y.	42.105	-76.798	77.5	Y
01531000	Chemung River at Chemung, N.Y.	42.002	-76.635	2,506	Y
01531500	Susquehanna River at Towanda, Pa.	41.765	-76.441	7,797	Y
01532000	Towanda Creek near Monroeton, Pa.	41.707	-76.485	215	N
01532850	MB Wyalusing Creek near Birchardville, Pa.	41.863	-76.007	5.67	N
0		41.607	-76.050	8,720	Y
0	Pa.	41.531	-76.156	35.2	N
0		41.575	-75.642	12.6	N
0		41.558	-75.895	383	N
0		41.680	-75.472	38.8	Y
0		41.505	-75.542	108	Y
0		41.359	-75.744	332	Y
0		41.251	-75.881	9,960	Y
0		41.281	-75.896	32.4	Y
0		41.228	-75.904	15.7	N
0		41.059	-76.094	43.8	N
0		41.078	-76.431	274	N
0		41.080	-76.511	56.5	N
0		40.853	-76.280	1.77	N
0		40.958	-76.619	11,220	Y
0		40.897	-78.677	315	N
0	ille, Pa.	40.961	-78.519	367	Y

01532850
Wyalusing Creek
near Birchardville, PA

8/3/2016
ReferenceGageSelection Worksheet
C:\Users\jgocek\Documents\Permits\NEBSD\Template

Information related to the reference streamgage.

Streamgage code	Streamgage number	Streamgage name
01532850	01532850	MB Wyalusing Creek near Birchardville, PA

Basin Characteristic	Value for the reference streamgage	Value at the ungaged site	Percent difference from reference gage
Drainage area, in miles squared	5.67	7.42	30.86
Mean annual precipitation, in inches	40.11	36.00	-10.25
Percent of carbonate bedrock in basin	0.00	0.00	0.00
Depth to bedrock, in feet	4.87	5.00	2.67
Drainage runoff number	3.99	4.00	---
Percent of basin that is impervious	0.14	0.00	-0.14
Mean maximum daily temperature in degrees Farenheit	53.76	54.00	0.45
Outlet X-location, in PA Albers, meters	165437.43	146075.00	---
Outlet Y-location, in PA Albers, meters	319748.04	319265.00	---
Longitude, in decimal degrees	76.01	76.24	---

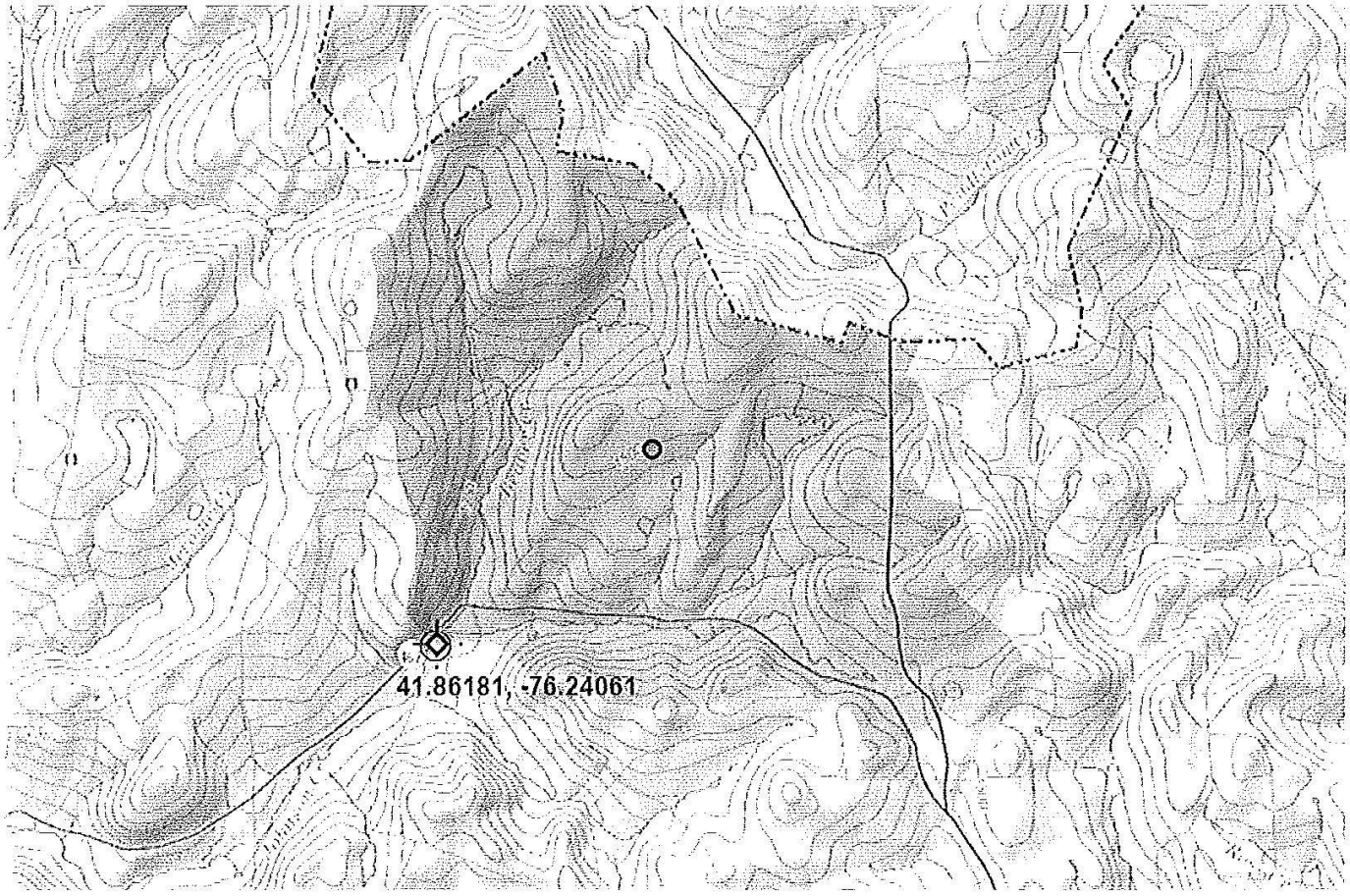
Distance between ungaged site and reference streamgage, in miles	12.03

Correlation of streamflow between ungaged site and reference streamgage	0.94

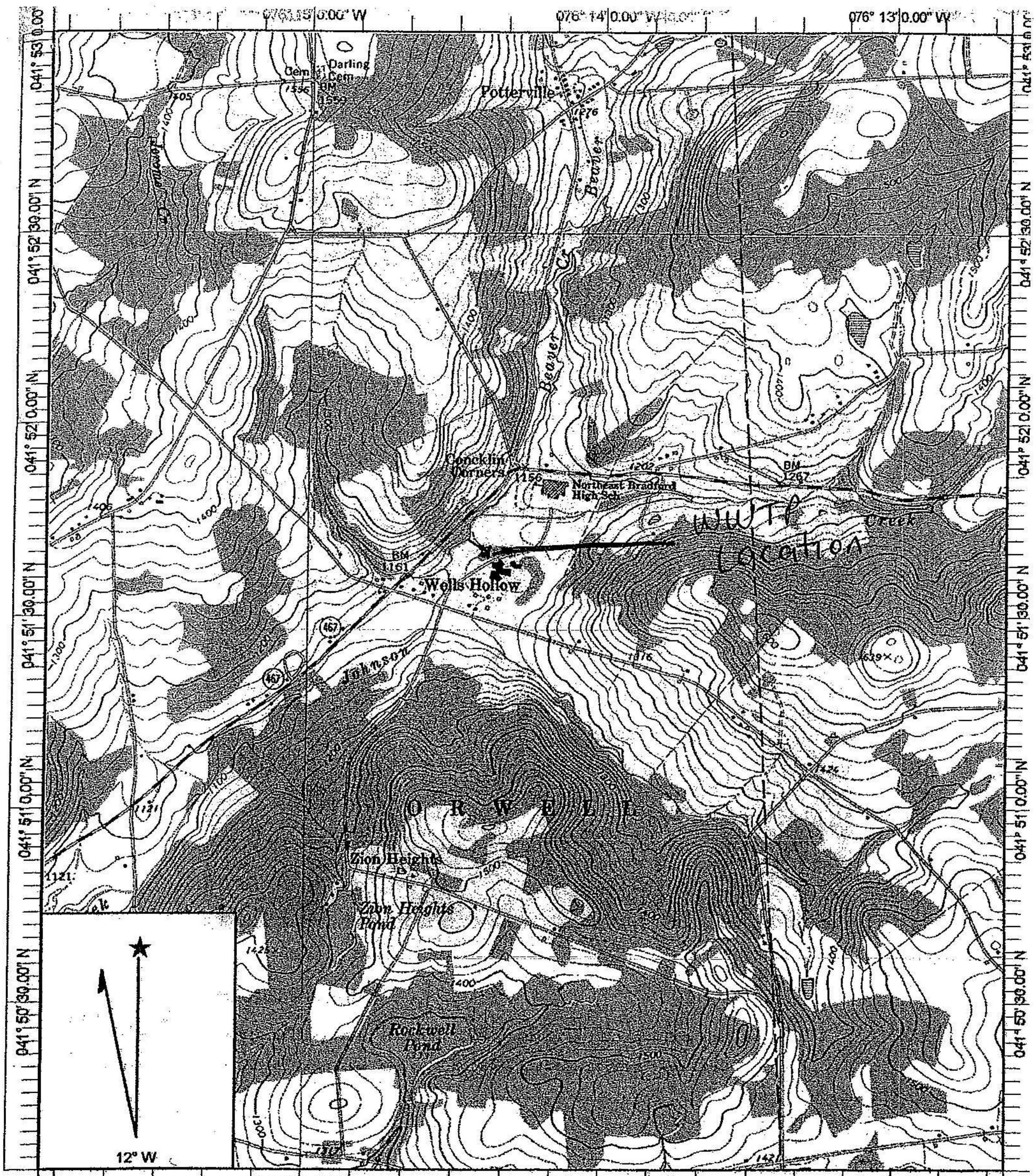
Reference streamgages most-correlated with the ungaged site

Reference streamgages most-correlated with the ungaged site	Correlation	Distance to ungaged site in miles*	Drainage area, in miles squared	Average annual precipitation, in inches	Percent of basin with carbonate rock	Depth to bedrock, in feet	Drainage runoff curve number	Percent of basin that is impervious	Mean daily high temperature in degrees Farenheit	Period of record dates
01532850 MB Wyalusing Creek near Birchardville, PA	0.944	12.03	5.67	40.11	0.00	4.87	3.99	0.14	53.76	1965-1979
0142400103 Trout Creek near Trout Creek, NY	0.896	53.93	20.20	43.18	0.00	4.76	3.63	0.38	53.24	1952-67,1996-1999
01548500 Pine Creek at Cedar Run, PA	0.895	66.71	604.00	36.34	0.00	4.40	3.67	0.23	53.77	1919-2008
01532000 Towanda Creek near Monroeton, PA	0.894	16.55	215.00	36.22	0.00	4.54	4.04	0.30	54.75	1915-2008
01426000 Oquaga Creek at Deposit, NY	0.893	43.98	67.70	44.51	0.00	4.19	3.54	0.39	53.60	1941-73,2004-2005

* Streamflow estimates may not be valid for distances greater than 75 miles


41.86181, -76.24061

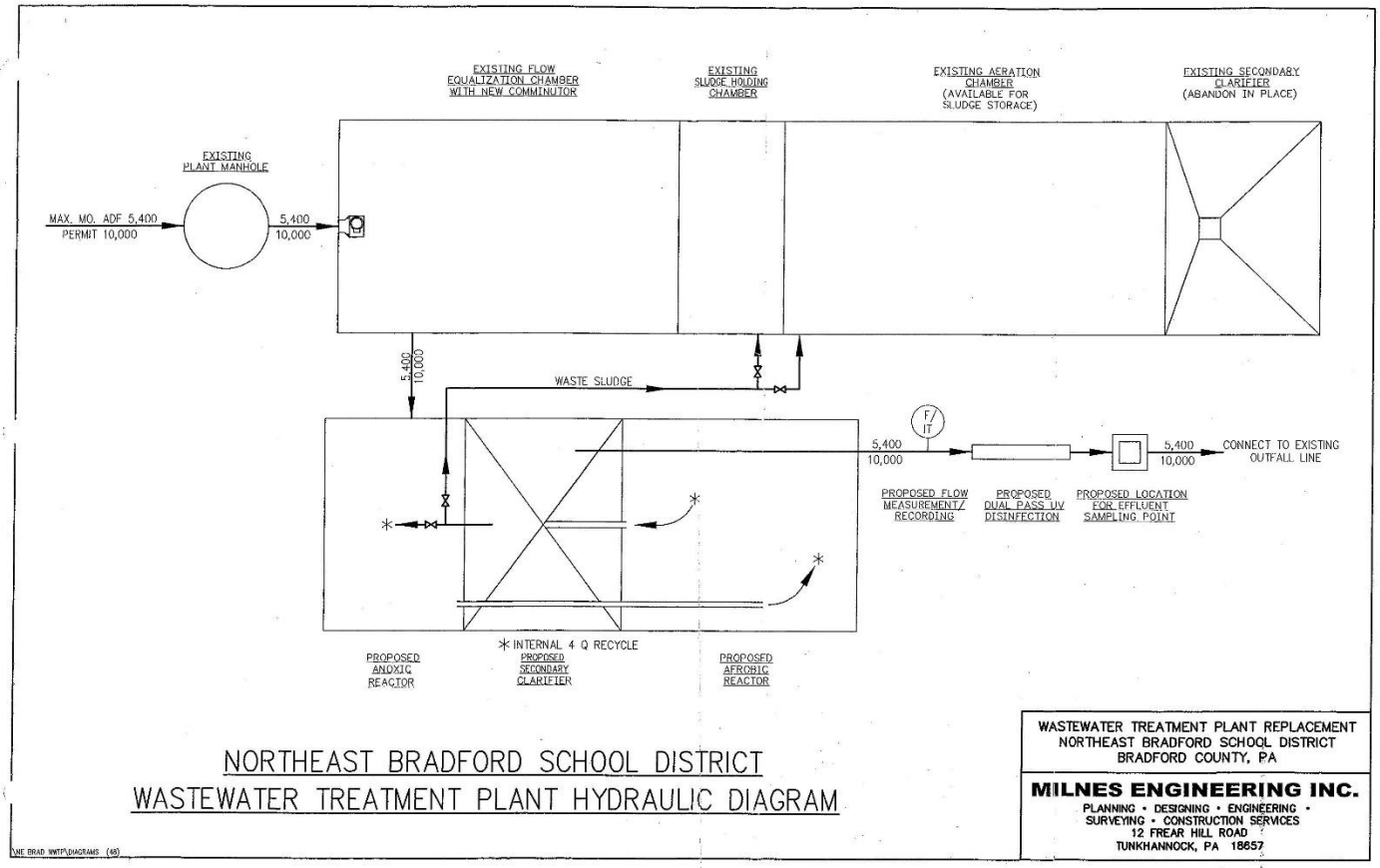
ATTACHMENT 02



Name: LE RAYSVILLE
Date: 10/7/2002
Scale: 1 inch equals 2000 feet

Location: 041° 51' 32.9" N 076° 14' 15.3" W
Caption: NORTHEAST BRADFORD SCHOOL DISTRICT

ATTACHMENT 03


EXISTING FLOW EQUALIZATION CHAMBER WITH NEW COMMINUTOR
EXISTING SLUDGE HOLDING CHAMBER
EXISTING AERATION CHAMBER (AVAILABLE FOR SLUDGE STORAGE)
EXISTING SECONDARY CLARIFIER (ABANDON IN PLACE)
EXISTING PLANT MANHOLE
MAX. MO. ADF 5,400
PERMIT 10,000
5,400
10,000
5,400
10,000
WASTE SLUDGE
F/IT
5,400
10,000
5,400
10,000
CONNECT TO EXISTING OUTFALL LINE
PROPOSED FLOW MEASUREMENT/ RECORDING
PROPOSED DUAL PASS UV DISINFECTION
PROPOSED LOCATION FOR EFFLUENT SAMPLING POINT
* INTERNAL 4 Q RECYCLE
PROPOSED ANOXIC REACTOR
PROPOSED SECONDARY CLARIFIER
PROPOSED AEROBIC REACTOR
NORTHEAST BRADFORD SCHOOL DISTRICT
WASTEWATER TREATMENT PLANT HYDRAULIC DIAGRAM
WASTEWATER TREATMENT PLANT REPLACEMENT
NORTHEAST BRADFORD SCHOOL DISTRICT
BRADFORD COUNTY, PA
MILNES ENGINEERING INC.
PLANNING • DESIGNING • ENGINEERING •
SURVEYING • CONSTRUCTION SERVICES
12 FREAR HILL ROAD
TUNKHANNOCK, PA 18657
\NE BRAD WWTP\DIAGRAMS (48)

ATTACHMENT 04

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04D	30063	JOHNSON 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)
8.218	NE Bradford SD	PA0033910	0.010	CBOD5	25		
				NH3-N	6	12	
				Dissolved Oxygen			3

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
8.218	NE Bradford SD	16.18	12	16.18	12	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
8.218	NE Bradford SD	1.86	6	1.86	6	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)		
8.22	NE Bradford SD	25	25	6	6	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04D	30063	JOHNSON CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
8.218	0.010	20.281	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
10.041	0.427	23.490	0.064
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.29	0.199	0.34	0.715
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.949	16.716	Owens	6
Reach Travel Time (days)			
2.474			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.247	3.13	0.28	8.20
0.495	2.98	0.24	8.20
0.742	2.83	0.20	8.20
0.990	2.70	0.17	8.20
1.237	2.57	0.14	8.20
1.484	2.44	0.12	8.20
1.732	2.32	0.10	8.20
1.979	2.21	0.08	8.20
2.226	2.10	0.07	8.20
2.474	2.00	0.06	8.20

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		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
04D	30063	JOHNSON 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												
8.218	0.26	0.00	0.26	.0155	0.00379	.427	10.04	23.49	0.06	2.474	20.28	7.00
Q1-10 Flow												
8.218	0.17	0.00	0.17	.0155	0.00379	NA	NA	NA	0.05	3.121	20.43	7.00
Q30-10 Flow												
8.218	0.35	0.00	0.35	.0155	0.00379	NA	NA	NA	0.08	2.100	20.21	7.00

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
04D	30063	JOHNSON CREEK	**8.218**	1137.00	7.42	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	0.100	0.00	0.26	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
NE Bradford SD	PA0033910	0.0100	0.0100	0.0100	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	6.00	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
04D	30063	JOHNSON CREEK	**5.620**	1085.00	12.60	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	0.100	0.00	0.36	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