pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northeast Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0064106**
Facility Type	**Municipal**	APS ID	**570584**
Major / Minor	**Minor**	Authorization ID	**1148053**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Benton Nicholson Joint Sewer Authority (BNJSA)**	Facility Name	**Benton Nicholson Joint Sewer Authority WWTP**
Applicant Address	123 Cobb Hill Road	Facility Address	123 Cobb Hill Road
	Nicholson, PA 18446		Nicholson, PA 18446
Applicant Contact	Carole Bauman	Facility Contact	Ryan Detweiler
Applicant Phone	(570) 945-2600	Facility Phone	(570) 341-6738
Client ID	147415	Site ID	542161
Ch 94 Load Status	-	Municipality	Nicholson Township
Connection Status	-	County	Wyoming
Date Application Received	August 11, 2016	EPA Waived?	Yes
Date Application Accepted	July 17, 2019	If No, Reason	-

Purpose of Application: RENEWAL OF EXISTING NPDES PERMIT.

Summary of Review

This is a 0.140 MGD NPDES Permit Renewal Application for a POTW discharging to the UNT #28816 to South Branch Tunkhannock Creek (CWF; Stream# 28816).

Background:

- **Facilities Flows**:
  - **ADF Flows**: The Annual Average flows were 0.026 MGD (2016), 0.045 MGD (2017) and 0.045 MGD (2018). Highest monthly average flow was July 2018 (0.059 MGD). The facility is discharging a fraction of the 0.140 MGD NPDES Permit basis flows.
  - **Low Pressure Sewer (LPS) System Considerations**: LPS Systems use pressurized pipes that generally do not allow significant Inflow & Infiltration (I&I) contributions (i.e. higher strength influent flows).
    - Facility LPS System service area includes Benton and Nicholson Townships.
    - **Former DEP inspector indicated facility appeared oversized for current flows (too many SBRs (1 idle), oversized sludge holding tank, and operational problems due to oversizing issues such as potential septic odors from LPS influent sewage).**
- **Previous Authority Engineer/Operator Issues: They submitted revised application data in 2019, prepared by different engineer/operator. (Previous site operator and engineer was indicted, resulting in suspect original application data.)**

- **Communication Log**:
  - **8/15/2016 and 1/10/2019**: Two previous NPDES Permit Application incompleteness communications (8/15/2016 and 1/10/2019 faxes) were sent to this applicant, with no response. Previous site certified operator was under Federal indictment, rendering sampling data unusable.

Approve	Deny	Signatures	Date
X		James D. Berger, P.E. / Environmental Engineer	February 18, 2020
X		Amy M. Bellanca, P.E. / Environmental Engineer Manager	

Summary of Review

- **5/20/2019**: DEP Letter (third incompleteness communication) mailed to Authority and Entech Engineering (who prepared 2018 Chapter 94 Report). Copy subsequently mailed to Certified Operator (Ryan Detweiler, Environmental Service Corp of PA) after contact information found in available DEP file.
- **5/24/2019**: Operator (Mr. Ryan Reisinger) called. He indicated they have been working on a complete replacement application, that should be submitted within several weeks. I asked them to make sure there was one original and two copies of the revised application. Asked them for a courtesy copy of the ~2000 Part II WQM permit be sent in with the revised application. He agreed to do so.
- **1/14/2020**: Authority (Heather Myers, GHD) Request for NPDES Permit renewal application review status.
- **1/17/2020**: DEP (Berger) E-mail response that the NPDES Permit Renewal application was under technical review.

Part C Special Conditions:
Part C.I.A, B, C: Existing Standard conditions (stormwater prohibition, necessary property rights, residuals management)
Part C.I.D: **Updated** chlorine minimization condition (UV is the approved method of disinfection)
Part C.I.E: New dry stream condition due to potential low flows in the watershed.
Part C.I.F: New SBR discharge condition in event that SBR discharges negatively impact the receiving stream.
Part C.I.G: New Responsible Operator condition due to previous delays in responses to Department permitting communications.
Part C.I.H: Existing changes in stream/effluent condition.
Part C.II: New standard Solids Management conditions.

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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.140
Latitude	41º 35' 40.41"	Longitude	-75º 46' 0.55"
Quad Name	Factoryville	Quad Code	0639 (2.20.2)
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to South Branch Tunkhannock Creek (CWF)	Stream Code	28816
NHD Com ID	66403347	RMI	-
Drainage Area	6.14 square miles	Yield (cfs/mi^2)	0.0258
Q_{7-10} Flow (cfs)	0.1584	Q_{7-10} Basis	See below
Elevation (ft)	1000	Slope (ft/ft)	-
Watershed No.	4-F	Chapter 93 Class.	CWF
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: None available		Data Source
pH (SU)	-	-
Temperature (°F)	-	-
Hardness (mg/L)	-	-
Other:	-	-

Nearest Downstream Public Water Supply Intake		PA AMER WATER CO NESBITT DIV ID# 101800 (West Pittston, Luzerne County) per E-maps	
PWS Waters	Susquehanna River	Flow at Intake (cfs)	-
PWS RMI	-	Distance from Outfall (mi)	>10 miles

Changes Since Last Permit Issuance: None known.

Other Comments:

- **Phase 5 Chesapeake Bay Facility**: Monitoring in this permit term.
- **Upstream Dam and lakes**: Discharge below Lake Sheridan Dam (Dam No. 66-045, Class C-1 High Hazard Dam) and Lake Sheridan, with additional lakes upstream (no dams shown on E-maps). The Lake Sheridan Dam has no minimum release per Dam Inspection Reports.
- **Q7-10 Low Flow**: PAStreamstats-estimated the South Branch Tunkhannock Creek watershed would have 0.208 CFS from an 80.6 square mile drainage area (watershed LFY of 0.0258 CFS/square mile) at approximately the confluence with the receiving UNT.
    - **Dam Minimum Release**: The Lake Sheridan Dam does not have a permit-identified minimum release per the DEP Dam Inspection Reports.
    - **USGS PAStreamstats**: PAStreamstats accuracy is impacted by “stream regulation”. The facility discharge is located immediately downstream of Lake Sheridan Dam discharge, with additional upstream lakes. The very low predicted (~0.01 CFS/square mile) LFY was also somewhat doubtful in an attaining perennial stream.

- **Previous Permitting**: Original NPDES permitting used (no longer recommended and superseded) PA Bulletin No. 12 information pertaining USGS Gage No. 01533950 (S. Branch Tunkhannock Creek near Montdale) which had 0.2 CFS from a 12.6 square mile drainage area (LFY of 0.158 CFS/square mile) for an estimated 0.102 CFS Q7-10 low flow.
- **To address low flow contingencies**:
  - Recommend Biologist re-evaluation of the stream in the new permit term to see if there are any ammonia-N issues during low flow conditions.
  - Dry Stream condition added to Part C of the permit.
  - SBR discharge condition (in event of impacts at low flow conditions on stream).

Treatment Facility Summary

Treatment Facility Name: Benton Nicholson Joint Sewer Authority STP

WQM Permit No.	Issuance Date	Scope
6600401	8/23/2001	For construction of STP and LPS System. Per WQM IRR: LPS flows discharge to manhole at plant, then gravity flow to 53,000-gallon sludge holding tank (apparently subdivided structure), with supernatant flowing to three (3) SBRs, then gravity flow to UV Disinfection System (5 modules in series). WQM Application Module 1 mentioned influent pump station (three (3) 120 GPD pumps) which is also identified in the 2018 Chapter 94 Report description and shown adjacent to the Sludge Holding Tank.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	SBRs	UV disinfection	0.140

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.140*	291.9	Not overloaded	Aerated sludge holding tank	Offsite disposal

*Facility designed for 0.350 MGD peak instantaneous/hourly flow per WQM permit application Module 1. Facility would place SBRs into "storm mode" by increasing cycle times during any high flow event (not likely in an LPS System).

Changes Since Last Permit Issuance: None known.

Other Comments:

- Collection System: Low pressure sewer system per WQM Permit Application Module 1 directing flow to WWTP.
- Sludge Disposal: 10.81 dry tons (2018) Sludge hauled offsite to Greater Hazleton Sewer Authority WWTP for disposal.
- WWTP: Influent Raw Sewage pumping station (a/k/a "equalization tank") after which flow is split between three existing SBRs and UV disinfection. One existing 53,000-gallon aerated sludge holding tank. Soda Ash is used for pH adjustment. 2018 Chapter 94 Report indicates continuous flow SBR process but that would be due to equalization tanks not ICEAS process.
- No hydraulic or organic overloading: Per 2018 Chapter 94 Report data. Original 2018 Chapter 94 Report indicated hydraulic overload, but at incorrect 0.050 MGD hydraulic design capacity. Organic loading data shows heaviest loads during summer months.
- Existing 85% Minimum Monthly Average Reduction Requirement: Met according to available data.
    - Application Influent Sample (1):
        - 247 mg/l BOD5
        - 41.5 mg/l TSS
    - Application Average Effluent Data (104 samples):
        - <2.77 mg/l CBOD5 (ratio of 1.2 BOD5 to CBOD5 effluent)
        - <3.66 mg/l TSS

Compliance History

DMR Data for Outfall 001 (from December 1, 2018 to November 30, 2019)

Parameter	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18
Flow (MGD) Average Monthly	**0.431**	**0.0488**	**0.0550**	**0.0630**	**0.0549**	**0.0517**	**0.0447**	**0.0396**	**0.0350**	**0.0375**	**0.0428**	**0.0435**
Flow (MGD) Daily Maximum	0.060	0.0710	0.0780	0.0840	0.0900	0.0760	0.0690	0.0600	0.058	0.0650	0.0650	0.0710
pH (S.U.) Minimum	7.29	7.06	7.18	7.22	7.23	7.09	7.14	7.04	6.90	6.94	7.03	7.09
pH (S.U.) Maximum	8.76	8.07	7.87	7.67	7.62	7.60	7.69	7.63	7.72	7.94	7.50	7.37
DO (mg/L) Instantaneous Minimum	**7.44**	**5.78**	**5.12**	**5.10**	**5.37**	**6.03**	**5.47**	**6.24**	**6.39**	**7.18**	**7.57**	**7.19**
CBOD5 (lbs/day) Average Monthly	**1.63**	**1.70**	**0.76**	**1.15**	**1.05**	**0.89**	**0.98**	**0.80**	**1.68**	**1.09**	**1.51**	**1.05**
CBOD5 (lbs/day) Weekly Average	2.80	2.25	1.02	1.50	1.35	1.10	1.36	1.13	2.33	1.20	2.10	1.79
CBOD5 (mg/L) Average Monthly	4.75	4.0	2.25	2.4	2.25	2.25	2.8	2.75	5.0	3.5	4.0	3.25
CBOD5 (mg/L) Weekly Average	6.0	5.0	3.0	3.0	3.0	3.0	4.0	4.0	5.0	5.0	4.0	5.0
TSS (lbs/day) Average Monthly	1.71	1.78	1.02	1.47	1.96	1.23	1.13	0.87	1.13	1.10	1.28	1.78
TSS (lbs/day) Weekly Average	2.80	2.25	1.07	2.0	2.36	1.65	1.36	1.02	1.87	1.41	1.79	3.22
TSS (mg/L) Average Monthly	5.0	4.2	3.0	3.0	4.25	3.0	3.2	3.0	3.75	3.5	3.4	5.5
TSS (mg/L) Weekly Average	6.0	5.0	3.0	3.0	5.0	3.0	4.0	3.0	5.0	5.0	5.0	9.0
Fecal Coliform (CFU/100 ml) Geometric Mean	9.23	3.47	4.83	5.39	**212.92**	**421.5**	173.1	48.92	918.18	32.57	117.54	92.69
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	> 2420	28.0	548	32.0	**> 2420**	**866**	613	345	> 2420	816	> 2420	649
Ammonia (lbs/day) Average Monthly	0.03	0.052	0.06	0.27	0.20	0.08	0.07	0.02	0.88	0.035	0.07	0.03

Ammonia (mg/L) Average Monthly	**0.10**	**0.13**	**0.19**	**0.46**	**0.49**	**0.21**	**0.21**	**0.11**	**1.51**	**0.12**	**0.14**	**0.11**

Compliance History

Effluent Violations for Outfall 001, from: May 1, 2018 To: November 30, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	06/30/18	IMAX	> 2480	CFU/100 ml	1000	CFU/100 ml
Fecal Coliform	07/31/19	Geo Mean	212.92	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	06/30/19	Geo Mean	421.5	CFU/100 ml	200	CFU/100 ml
Fecal Coliform	07/31/19	IMAX	> 2420	CFU/100 ml	1000	CFU/100 ml

Summary of Inspections:

SITE NAME	PF STATUS	INSP PROGRAM	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTOR ID	# OF VIOLATIONS
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	09/27/2018	Compliance Evaluation	No Violations Noted	00512922	0
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	04/19/2017	Compliance Evaluation	No Violations Noted	00512922	0
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	11/19/2014	Routine/Complete Inspection	No Violations Noted	00512922	0
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	07/17/2014	Routine/Complete Inspection	No Violations Noted	00512922	0
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	06/22/2012	Complaint Inspection	Violation(s) Noted	00512922	1
BENTON NICHOLSON JT SEW AUTH WWTP	Active	WPCNP	01/27/2012	Administrative/File Review	Violation(s) Noted	00512922	1

Other Comments:

- Previous engineer/certified operator found guilty of Federal crimes, i.e. old facility data suspect. Current operator has been at site since 2017.
- Facility required multiple contacts to correct application incompleteness issues, indicating site contact issue. See communications log.
- Fecal Coliforms exceedances coincided with typical months of highest BOD5 influent loadings per Chapter 94 Report data. No influent TSS data available for those months. 2019 Noncompliance reporting blamed equipment failure (changing bulbs being one corrective action).
- **9/27/2018 DEP Inspection Report noted:**
    - **Raw influent sewage (from LPS System) was septic, causing odors at the "EQ Tank" (i.e. raw sewage influent pump** station".
    - **Effluent samples are time-collected, and need to be flow-proportional.**

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .140
Latitude 41º 35' 40.00" **Longitude** -75º 46' 0.00"
Wastewater Description: Sewage Effluent

Permit Limits and/or Monitoring Requirements: Changes bolded

Parameter	Limit (mg/l unless otherwise specified)	SBC	Model/Basis
CBOD5	29.0 lb/d 47.0 lb/d 25.0 40.0 50.0	Monthly Average Weekly Average Monthly Average Weekly Average IMAX	Existing WQBEL limit supported by 2011 water quality modeling. Application data: 7 mg/l max and <2.77 mg/l average (104 samples)
TSS	35.0 lb/d 53.0 lb/d 30.0 45.0 60.0	Monthly Average Weekly Average Monthly Average Weekly Average IMAX	Existing Technology limit (Chapter 92a.47) Application data: 12 mg/l max and <2.66 mg/l average (104 samples)
pH	6.0 – 9.0 SU	**IMIN** - IMAX	Existing Technology limit (Chapter 92a.47) Application data: 6.74 – 7.94 SU (730 samples)
Total Residual Chlorine (TRC)	**0.16** **0.37**	**Monthly Average** **IMAX**	**New WQBEL for Chlorine Minimization condition (UV is the approved method of disinfection)** Application data: None available
Fecal Coliform (5/1 – 9/30)	200/100 ml 1,000/100 ml	Geo Mean IMAX	Existing Technology limit (Chapter 92a.47). Application data: **9100/100 ml** max and 4/100 ml average (104 samples). See compliance section violations.
Fecal Coliform (10/1 – 4/30)	2,000/100 ml 10,000 ml/100 ml	Geo Mean IMAX	See above
Ammonia-Nitrogen (May 1 - Oct 31)	3.5 lb/d 3.0 **Report** **9.0**	Monthly Average Monthly Average **Daily Max** **IMAX**	**New WQBELs (slightly more stringent will superseded Existing WQBEL limit)** Application data: **24 mg/l max** and <0.81 mg/l average (104 samples)
Ammonia-Nitrogen (Nov 1 - Apr 30)	10.5 lb/d 9.0 **Report** **18.0**	Monthly Average Monthly Average **Daily Max** **IMAX**	See above (with winter multiplier)
Total Phosphorus	**Report lb/d** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**Annual Monitoring requirement** Application data (3 samples): 4.5 mg/l max and 3.93 mg/l average.
Total Nitrogen (Nitrate-Nitrite-N + TKN measured in same sample)	**Report lb/d** **Report** **Report**	**Annual Average** **Annual Average** **Daily Max**	**Annual Monitoring requirement** Application data (3 samples): Total Nitrogen: 28 mg/l max and 25.1 avg. TKN: 3.61 mg/l max and 21.77 avg. Nitrate-Nitrite-N: 24.83 mg/l max and 21.77 mg/l avg.
Dissolved Oxygen (DO)	5.0	**IMIN**	Existing WQBEL. Application data was 5.21 mg/l minimum, 6.66 mg/l average (104 samples).

Total Dissolved Solids (TDS), Chlorides, Sulfates, and Bromide	-	-	Not needed due to Reasonable Potential Analysis and lack of receiving PWS Surface Water Intake within 10 miles. Application data: TDS: 488 mg/l (1 sample) Chlorides: 156 mg/l (1 sample) Sulfates: 25.6 mg/l (1 sample) Bromide: 0.23 mg/l (1 sample)
CBOD5 Minimum Reduction	**85%**	**Minimum Monthly Average**	**Monitoring & reporting for existing permit and regulatory requirement**
TSS Minimum Reduction	**85%**	**Minimum Monthly Average**	**See above.**
Copper, Lead, Zinc	-	-	Not needed per Reasonable Potential Analysis. Application data: Copper: <0.002 mg/l Lead: <0.0001 mg/l Zinc: 0.006 mg/l
UV intensity	**Report (uW/cm^2)**	**IMIN**	**New monitoring requirement due to fecal coliform exceedances.**

Comments:

- **Previous permit omitted Ammonia-N IMAX limits from earlier permits. Restored in this NPDES permit.**
- 2019 revised application included updated effluent sampling data.
- IMINs for grab samples (pH, DO) with minimum limits.
- Daily Max/IMAX limits/reporting added for several parameters (without weekly limits). No additional sampling required.
- **Converted to Flow-proportional 24-hour composite sampling to avoid biasing from time-based 8-hour composite sampling and because application effluent date indicated as 24-hour composite sampling being done. LPS system flows varies across 24-hour period and seasonal usage.**
- **Outfall No. 101 (Internal Monitoring Point) at headworks created to allow for reporting of raw sewage influent CBOD5 and TSS, and calculating minimum monthly average reduction.**

Reasonable Potential Analysis: See Toxic Screening Spreadsheet. The facility does not receive any commercial or industrial flows per Application. No PWS surface water intake prior to Pittston to trigger TDS/Chlorides water quality modeling requirements.

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.7

CLEAR FORM

Facility: **Benton Nicholson JSA WWTP** NPDES Permit No.: **PA0064106** Outfall: **001**
Analysis Hardness (mg/L): **100** Discharge Flow (MGD): **0.14** Analysis pH (SU): **7**
Stream Flow, Q_{7-10} (cfs): **0.1584**

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Total Dissolved Solids		488000	500000	Yes		
Chloride		156000	250000	Yes		
Bromide		230	N/A	No		
Sulfate		25600	250000	No		
1,4-Dioxane			N/A			
Total Copper	<	2	9.33	No (Value < QL)		
Total Lead	<	0.1	3.18	No (Value < QL)		
Total Zinc		6	119.8	No		

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
04F	28816	Trib 28816 to S Br Tunkhannock Cr

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)
0.930	BJGSA TP	PA0064106	0.140	CBOD5	25		
				NH3-N	3	6	
				Dissolved Oxygen			5

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9 — Benton Nicholson JSA

0.1584	= Q stream (cfs)	0.5	= CV Daily
0.14	= Q discharge (MGD)	0.5	= CV Hourly
4	= 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)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.252	1.3.2.iii	WLA cfc = 0.238
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.094	5.1d	LTA_cfc = 0.139

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.162	AFC
		INST MAX LIMIT (mg/l) = 0.378	