Pennsylvania Department of Environmental Protection

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0024538**
Facility Type	**Municipal**	APS ID	**1117263**
Major / Minor	**Minor**	Authorization ID	**1491254**

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Beech Creek Borough Authority**	Facility Name	**Beech Creek Borough Authority Sewer System STP**
Applicant Address	PO Box 216	Facility Address	151 Mill Street
	Beech Creek, PA 16822-0216		Beech Creek, PA 16822
Applicant Contact	Veronica Roan	Facility Contact	Veronica Roan
Applicant Phone	(570) 962-2291	Facility Phone	(570) 962-2291
Client ID	35862	Site ID	246262
Ch 94 Load Status	Not Overloaded	Municipality	Beech Creek Borough
Connection Status	No Limitations	County	Clinton
Date Application Received	July 5, 2024	EPA Waived?	Yes
Date Application Accepted	July 10, 2024	If No, Reason	

Purpose of Application: Application for the renewal of the existing individual NPDES permit.

Summary of Review

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		Jonathan P. Peterman / Project Manager	March 20, 2026
X		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	March 23, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.16
Latitude	41º 4' 17.88"	Longitude	-77º 35' 21.75"
Quad Name	Beech Creek, PA	Quad Code	1025
Wastewater Description:	Sewage Effluent		
Receiving Waters	Beech Creek (CWF, MF)	Stream Code	22596
NHD Com ID	67176466	RMI	1.28
Drainage Area	171 mi^2	Yield (cfs/mi^2)	0.0895
Q_{7-10} Flow (cfs)	15.3	Q_{7-10} Basis	USGS Gage #01547950, Beech Creek @ Monument, PA (1970-2008)
Elevation (ft)	587	Slope (ft/ft)	0.0025
Watershed No.	9-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	Impaired		
Cause(s) of Impairment	Metals, PH		
Source(s) of Impairment	ACID MINE DRAINAGE		
TMDL Status	Final	Name	Beech Creek (Basin)
Nearest Downstream Public Water Supply Intake	PA American Water White Deer		
PWS Waters	West Branch Susquehanna River	Flow at Intake (cfs)	682
PWS RMI	10.5	Distance from Outfall (mi)	Approx. 63

Changes Since Last Permit Issuance: The stream and drainage characteristics determined for the previous renewal remain valid and are unchanged here.

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

TMDL Impairment

The Department's Geographic Information System (GIS) shows that Beech Creek is impaired for Metals and pH. Due to the impairment of Beech Creek by AMD, a previous permit required annual monitoring for the Aluminum, Iron, and Manganese, the metals primarily associated with AMD. In the past, monitoring data from eDMR for these parameters the levels for Aluminum, Iron, and Manganese indicated that Aluminum was the only of these three parameters which exceed the instream criteria. The previous permit removed Iron and Manganese while leaving monitoring for Aluminum. The Criteria Maximum Concentration for Total Aluminum of 750 µg/L and given the eDMR results, monitoring is still appropriate for Aluminum. Therefore, the annual monitoring for Aluminum will remain. The facility consistently meets its pH limits which are identical to the water quality criteria.

Chesapeake Bay Requirements

Since this facility's annual average design flow is 0.16 MGD, the permittee will be required to monitor and report TN and TP throughout the permit term at a frequency no less than annually in accordance with the Phase II WIP Chesapeake Bay Strategy for Phase V facilities (0.002 MGD to 0.2 MGD) unless 1) the facility has already conducted at least two years of nutrient monitoring and 2) a summary of the monitoring results are included in the next permit's fact sheet. Monitoring for these parameters was conducted over a previous permit term and the nutrient monitoring was removed accordingly. No further monitoring is required at this time.

Anti-Backsliding

In accordance with 40 CFR 122.44(l)(1) and (2), this permit does not contain effluent limitations, standards, or conditions that are less stringent than the previous permit.

Biosolids Use/Disposal

Wasted sludge is disposed at the Clinton County Solid Waste Authority's Wayne Township Landfill.

Hauled in Waste

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

Treatment Facility Summary

Treatment Facility Name: Beech Creek Borough

WQM Permit No.	Issuance Date	Comments:
1898401 A-1	3/18/25	The addition of a Duperon Dual Auger System vertical screen with solids separator.
1806402	5/3/06	Dechlorination
1898401	Original- 10/23/98	New construction and rehabilitation of existing facility included new fine screens, recycle pumps for trickling filter, static chlorine mixer, and second chlorine contact tank as well as modification of existing trickling filter and secondary clarifier
	Minor Amendment- 3/25/11	Addition of polymer flocculant and replacement of chlorinator
1895403	10/26/95	Sewer extension
	Amendment No. 1 – 09/18/17	Replacement of Pumps at Keswin Pump Station

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Trickling Filter With Settling	Gas Chlorine	0.16

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.16	334	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: A dual auger screen was added to the facility.

Other Comments: None.

Existing Effluent Limitations and Monitoring Requirements

Existing Limits

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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	33	53	XXX	25	40	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	40	60	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids 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
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite

*The existing effluent limits for Outfall 001 were based on a design flow of 0.16 MGD.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.16
Latitude 41º 4' 17.88" **Longitude** -77º 35' 21.75"
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)

Water Quality-Based Limitations

To establish whether or not water-quality based effluent limitations (WQBELs) are required, the Department models in-stream conditions. In order to determine limitations for CBOD5, ammonia-N and dissolved oxygen, the Department utilizes the WQM 7.0 v1.0b model and in order to determine limitations for toxics, the Department utilizes Toxics Management Spreadsheet (TMS). The TMS was not utilized or this review.

WQM 7.0 for Windows, Version 1.0b, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen

The model was run using the Q7-10 stream flow, background water quality, average annual design flow, and other discharge characteristics. The previously existing technology-based effluent limits for $CBOD_5$ (25 mg/l) and NH3-N (3 mg/l) were used as inputs for the modeling. The DO minimum daily average criterion from §93.7 (6.0 mg/L for CWF) was used for the in-stream objective for the model. The summary of the output is as follows:

Parameter	Effluent Limit		
	30 Day Average	Maximum	Minimum
CBOD5	25	N/A	N/A
Ammonia-N	25	50	N/A
Dissolved Oxygen	N/A	N/A	3

The model does not recommend more stringent water-quality based effluent limitations with regards to CBOD5 and dissolved oxygen, and ammonia-nitrogen. Refer to Appendix B for the WQM 7.0 inputs and results.

Best Professional Judgment (BPJ) Limitations

See Dissolved Oxygen section below.

Additional Considerations

None

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 the abovementioned 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) and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	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 Inst Min	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	33	53	XXX	25	40	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	40	60	XXX	30	45	60	1/week	8-Hr Composite
Total Suspended Solids 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
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report Daily Max	XXX	1/week	8-Hr Composite
Aluminum, Total	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	8-Hr Composite
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

*The proposed effluent limits for Outfall 001 were based on a design flow of 0.16 MGD.

General Information

All of the limits proposed above are consistent with other permits issued for Phase V wastewater treatment plants in the region. The associated mass-based limits (lbs/day) for all parameters were based on the formula: design flow (average annual) (MGD) x concentration limit (mg/L) at design flow x conversion factor (8.34). All effluent limits were then rounded

down in accordance with the rounding rules established in the *Technical Guidance for the Development and Specification of Effluent Limitations (362-0400-001)*, Chapter 5 - Specifying Effluent Limitations in NPDES Permits. The existing monitoring frequencies and sample types for these parameters generally correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain.

Flow
The existing monitoring frequency (Continuous) and sample type (Metered) for Flow correspond with the *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) Table 6-3 and will remain.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)
The results of the WQM 7.0 model showed that the previously applied advanced treatment requirements for $CBOD_5$ were protective of water quality and will remain.

Total Suspended Solids (TSS)
The previously applied advanced treatment requirements for TSS will remain as well.

pH
CFR Title 40 §133.102(c) and 25 PA Code §95.2(1) provide the basis of effluent limitations for pH.

Fecal Coliforms
The existing fecal coliform limits with I-max limits were updated from the previous Chapter 92 code to correspond with what is specified in the updated 25 PA Code § 92a.47 (a)(4)&(5).

TRC
In accordance with 25 Pa. Code 92a.48(b)(2), a best available technology (BAT) value of 0.5 mg/l was used in the TRC Spreadsheet. The attached TRC model indicates that the technology-based effluent limit of 0.5 mg/L (Average Monthly) and 1.56 mg/L (Instantaneous Maximum) are still protective of water quality. The existing limits will remain.

Ammonia-Nitrogen (NH3-N)
The WQM 7.0 model indicated that the existing water monitoring requirement for ammonia was adequate. The existing monitoring requirement will remain.

Dissolved Oxygen (DO)
Given results of the WQM 7.0 model, a discharge of effluent from this facility with a DO concentration of 3 mg/l would not result in an exceedance of water quality requirements for this stream. It is anticipated, that the DO concentration in the effluent would be greater than 3.0 mg/l. Therefore, based on BPJ, only monitoring will be required for this facility.

E. Coli
25 PA Code § 92a.61 provide the basis of monitoring requirements for E. Coli. Yearly monitoring will be required going forward.

Influent BOD_5 and TSS
The Department requires the reporting of raw sewage influent monitoring for BOD_5 and TSS in all POTW permits. This provides the Department with the ability to monitor the percent removal of each parameter as stipulated in section 2 of the Part A conditions and maintain records of the BOD_5 loading as required by 25 Pa. Code Chapter 94. The monitoring frequencies and sample types are identical to the effluent sampling.

Compliance History

Summary of Inspections -The last inspection of the facility was conducted by the Department on 4/29/25. The inspection indicates that the facility is operating normally and no violations were noted.
WMS Query Summary - A WMS Query was run at *Reports - Violations & Enforcements – Open Violations for Client Report* to determine whether there are any unresolved violations associated with the client that will affect issuance of the permit (per CSL Section 609). This query revealed no open violations.
eDMRs Summary - Upon review of the eDMR results, the facility is operating within their effluent limits which are listed below.

Compliance History

DMR Data for Outfall 001 (from February 1, 2025 to January 31, 2026)

Parameter	JAN-26	DEC-25	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25
Flow (MGD) Average Monthly	0.0674	0.0629	0.0599	0.0574	0.0548	0.0531	0.0640	0.0914	0.1068	0.0716	0.0782	0.0733
Flow (MGD) Daily Maximum	0.0880	0.1034	0.0710	0.1501	0.1342	0.0600	0.0883	0.2480	0.3039	0.1174	0.2548	0.1807
pH (S.U.) Instantaneous Minimum	6.9	6.8	6.9	6.9	6.9	6.9	6.8	6.9	7.0	7.0	6.9	6.9
pH (S.U.) Instantaneous Maximum	7.3	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.3	7.4	7.5	7.4
DO (mg/L) Instantaneous Minimum	5.1	4.0	2.0	2.0	1.8	2.0	2.2	3.1	2.6	4.3	5.5	6.5
TRC (mg/L) Average Monthly	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
TRC (mg/L) Instantaneous Maximum	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3
CBOD5 (lbs/day) Average Monthly	13	6	9	3	6	22	5	20	12	5	10	7
CBOD5 (lbs/day) Weekly Average	19	9	17	7	9	10	10	53	26	9	21	11
CBOD5 (mg/L) Average Monthly	23	11	19	6	16	12	10	23	12	10	11	12
CBOD5 (mg/L) Weekly Average	37	16	36	14	26	24	14	44	21	17	16	16
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	106	113	110	106	102	78	89	113	125	105	169	110
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	129	141	132	166	133	100	108	229	184	155	380	165
BOD5 (mg/L) Raw Sewage Influent Average Monthly	191	233	230	229	246	170	171	147	137	207	174	198

TSS (lbs/day) Average Monthly	10	6	9	5	8	9	11	14	20	9	12	8
TSS (lbs/day) Raw Sewage Influent Average Monthly	98	77	49	97	66	33	78	89	129	88	128	105
TSS (lbs/day) Raw Sewage Influent Daily Maximum	174	111	115	139	114	54	186	218	235	113	141	141
TSS (lbs/day) Weekly Average	14	9	11	8	11	17	17	19	44	16	30	11
TSS (mg/L) Average Monthly	18	12	18	12	19	19	22	21	21	17	12	14
TSS (mg/L) Raw Sewage Influent Average Monthly	166	156	103	209	156	71	138	110	150	172	182	194
TSS (mg/L) Weekly Average	26	18	24	20	31	33	39	33	35	29	14	16
Fecal Coliform (No./100 ml) Geometric Mean	3	2	5	3	3	1	3	7	8	4	3	1
Fecal Coliform (No./100 ml) Instantaneous Maximum	12	< 4	12	12	4	4	4	124	16	10	6	1
Ammonia (mg/L) Average Monthly	11.037	10.92	10.50	10.79	7.535	7.937	6.624	5.989	3.202	7.139	8.952	10.342
Ammonia (mg/L) Daily Maximum	12.59	13.69	11.33	19.90	8.868	12.76	8.273	13.56	4.869	10.57	11.20	13.58
Total Aluminum (mg/L) Daily Maximum		2.07										

Compliance History

Effluent Violations for Outfall 001, from: March 1, 2025 To: January 31, 2026

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	06/30/25	Wkly Avg	44	mg/L	40	mg/L

APPENDIX A

PREVIOUS Q7-10 ANALYSIS AND STREAM DATA

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011–1070

U.S. Department of the Interior
U.S. Geological Survey

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]
01541303	West Branch Susquehanna River at Hyde, Pa.	41.005	-78.457	474	Y
01541308	Bradley Run near Ashville, Pa.	40.509	-78.584	6.77	N
01541500	Clearfield Creek at Dimeling, Pa.	40.972	-78.406	371	Y
01542000	Moshannon Creek at Osceola Mills, Pa.	40.850	-78.268	68.8	N
01542500	WB Susquehanna River at Karthaus, Pa.	41.118	-78.109	1,462	Y
01542810	Waldy Run near Emporium, Pa.	41.579	-78.293	5.24	N
01543000	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	41.413	-78.197	272	N
01543500	Sinnemahoning Creek at Sinnemahoning, Pa.	41.317	-78.103	685	N
01544000	First Fork Sinnemahoning Creek near Sinnemahoning, Pa.	41.402	-78.024	245	Y
01544500	Kettle Creek at Cross Fork, Pa.	41.476	-77.826	136	N
01545000	Kettle Creek near Westport, Pa.	41.320	-77.874	233	Y
01545500	West Branch Susquehanna River at Renovo, Pa.	41.325	-77.751	2,975	Y
01545600	Young Womans Creek near Renovo, Pa.	41.390	-77.691	46.2	N
01546000	North Bald Eagle Creek at Milesburg, Pa.	40.942	-77.794	119	N
01546400	Spring Creek at Houserville, Pa.	40.834	-77.828	58.5	N
01546500	Spring Creek near Axemann, Pa.	40.890	-77.794	87.2	N
01547100	Spring Creek at Milesburg, Pa.	40.932	-77.786	142	N
01547200	Bald Eagle Creek below Spring Creek at Milesburg, Pa.	40.943	-77.786	265	N
01547500	Bald Eagle Creek at Blanchard, Pa.	41.052	-77.604	339	Y
01547700	Marsh Creek at Blanchard, Pa.	41.060	-77.606	44.1	N
01547800	South Fork Beech Creek near Snow Shoe, Pa.	41.024	-77.904	12.2	N
01547950	Beech Creek at Monument, Pa.	41.112	-77.702	152	N
01548005	Bald Eagle Creek near Beech Creek Station, Pa.	41.081	-77.549	562	Y
01548500	Pine Creek at Cedar Run, Pa.	41.522	-77.447	604	N
01549000	Pine Creek near Waterville, Pa.	41.313	-77.379	750	N
01549500	Blockhouse Creek near English Center, Pa.	41.474	-77.231	37.7	N
01549700	Pine Creek below Little Pine Creek near Waterville, Pa.	41.274	-77.324	944	Y
01550000	Lycoming Creek near Trout Run, Pa.	41.418	-77.033	173	N
01551500	WB Susquehanna River at Williamsport, Pa.	41.236	-76.997	5,682	Y
01552000	Loyalsock Creek at Loyalsockville, Pa.	41.325	-76.912	435	N
01552500	Muncy Creek near Sonestown, Pa.	41.357	-76.535	23.8	N
01553130	Sand Spring Run near White Deer, Pa.	41.059	-77.077	4.93	N
01553500	West Branch Susquehanna River at Lewisburg, Pa.	40.968	-76.876	6,847	Y
01553700	Chillisquaque Creek at Washingtonville, Pa.	41.062	-76.680	51.3	N
01554000	Susquehanna River at Sunbury, Pa.	40.835	-76.827	18,300	Y
01554500	Shamokin Creek near Shamokin, Pa.	40.810	-76.584	54.2	N
01555000	Penns Creek at Penns Creek, Pa.	40.867	-77.048	301	N
01555500	East Mahantango Creek near Dalmatia, Pa.	40.611	-76.912	162	N
01556000	Frankstown Branch Juniata River at Williamsburg, Pa.	40.463	-78.200	291	N
01557500	Bald Eagle Creek at Tyrone, Pa.	40.684	-78.234	44.1	N
01558000	Little Juniata River at Spruce Creek, Pa.	40.613	-78.141	220	N
01559000	Juniata River at Huntingdon, Pa.	40.485	-78.019	816	LF
01559500	Standing Stone Creek near Huntingdon, Pa.	40.524	-77.971	128	N
01559700	Sulphur Springs Creek near Manns Choice, Pa.	39.978	-78.619	5.28	N
01560000	Dunning Creek at Belden, Pa.	40.072	-78.493	172	N

Table 2. Selected low-flow statistics for streamgage locations in and near Pennsylvania.—Continued

[ft³/s, cubic feet per second; —, statistic not computed; <, less than]

Streamgage number	Period of record used in analysis[1]	Number of years used in analysis	1-day, 10-year (ft³/s)	7-day, 10-year (ft³/s)	7-day, 2-year (ft³/s)	30-day, 10-year (ft³/s)	30-day, 2-year (ft³/s)	90-day, 10-year (ft³/s)
01546000	1912–1934	17	1.8	2.2	6.8	3.7	12.1	11.2
01546400	1986–2008	23	13.5	14.0	19.6	15.4	22.3	18.7
01546500	1942–2008	67	26.8	29.0	41.3	31.2	44.2	33.7
01547100	1969–2008	40	102	105	128	111	133	117
01547200	1957–2008	52	99.4	101	132	106	142	115
01547500	[2]1971–2008	38	28.2	109	151	131	172	153
01547500	[3]1956–1969	14	90.0	94.9	123	98.1	131	105
01547700	1957–2008	52	.5	.6	2.7	1.1	3.9	2.2
01547800	1971–1981	11	1.6	1.8	2.4	2.1	2.9	3.5
01547950	1970–2008	39	12.1	13.6	28.2	17.3	36.4	23.8
01548005	[2]1971–2000	25	142	151	206	178	241	223
01548005	[3]1912–1969	58	105	114	147	125	165	140
01548500	1920–2008	89	21.2	24.2	50.1	33.6	68.6	49.3
01549000	1910–1920	11	26.0	32.9	78.0	46.4	106	89.8
01549500	1942–2008	67	.6	.8	2.5	1.4	3.9	2.6
01549700	1959–2008	50	33.3	37.2	83.8	51.2	117	78.4
01550000	1915–2008	94	6.6	7.6	16.8	11.2	24.6	18.6
01551500	[2]1963–2008	46	520	578	1,020	678	1,330	919
01551500	[3]1901–1961	61	400	439	742	523	943	752
01552000	1927–2008	80	20.5	22.2	49.5	29.2	69.8	49.6
01552500	1942–2008	67	.9	1.2	3.1	1.7	4.4	3.3
01553130	1969–1981	13	1.0	1.1	1.5	1.3	1.8	1.7
01553500	[2]1968–2008	41	760	838	1,440	1,000	1,850	1,470
01553500	[3]1941–1966	26	562	619	880	690	1,090	881
01553700	1981–2008	28	9.1	10.9	15.0	12.6	17.1	15.2
01554000	[2]1981–2008	28	1,830	1,990	3,270	2,320	4,210	3,160
01554000	[3]1939–1979	41	1,560	1,630	2,870	1,880	3,620	2,570
01554500	1941–1993	53	16.2	22.0	31.2	25.9	35.7	31.4
01555000	1931–2008	78	33.5	37.6	58.8	43.4	69.6	54.6
01555500	1931–2008	78	4.9	6.5	18.0	9.4	24.3	16.6
01556000	1918–2008	91	43.3	47.8	66.0	55.1	75.0	63.7
01557500	1946–2008	63	2.8	3.2	6.3	4.2	8.1	5.8
01558000	1940–2008	69	56.3	59.0	79.8	65.7	86.2	73.7
01559000	1943–2008	66	104	177	249	198	279	227
01559500	1931–1958	28	9.3	10.5	15.0	12.4	17.8	15.8
01559700	1963–1978	16	.1	.1	.2	.1	.3	.2
01560000	1941–2008	68	8.5	9.4	15.6	12.0	20.2	16.2
01561000	1932–1958	27	.4	.5	1.6	.8	2.5	1.7
01562000	1913–2008	96	64.1	67.1	106	77.4	122	94.5
01562500	1931–1957	27	1.1	1.6	3.8	2.3	5.4	3.7
01563200	[2]1974–2008	35	—	—	—	112	266	129
01563200	[3]1948–1972	25	10.3	28.2	86.1	64.5	113	95.5
01563500	[2]1974–2008	35	384	415	519	441	580	493
01563500	[3]1939–1972	34	153	242	343	278	399	333
01564500	1940–2008	69	3.6	4.2	10.0	6.2	14.4	10.6

APPENDIX B

WQM 7.0 MODEL INPUT/OUTPUT

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
09C	22596	BEECH CREEK	1.280	587.00	171.00	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	0.090	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
Beech Creek	PA0024538	0.1600	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

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
09C	22596	BEECH CREEK	0.001	570.00	172.00	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	0.090	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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
09C	22596	BEECH 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												
1.280	15.30	0.00	15.30	.2475	0.00252	.836	62.49	74.76	0.30	0.263	20.08	7.00
Q1-10 Flow												
1.280	9.79	0.00	9.79	.2475	0.00252	NA	NA	NA	0.23	0.335	20.12	7.00
Q30-10 Flow												
1.280	20.81	0.00	20.81	.2475	0.00252	NA	NA	NA	0.35	0.222	20.06	7.00

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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
09C	22596	BEECH 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
1.280	Beech Creek	9.59	50	9.59	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
1.280	Beech Creek	1.91	25	1.91	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.28	Beech Creek	25	25	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
09C	22596	BEECH CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.280	0.160	20.080	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
62.491	0.836	74.761	0.298
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.37	0.214	0.40	0.704
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.160	5.124	Tsivoglou	6
Reach Travel Time (days)			
0.263			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.026	2.35	0.39	8.23
0.053	2.34	0.38	8.23
0.079	2.33	0.38	8.23
0.105	2.31	0.37	8.23
0.131	2.30	0.36	8.23
0.158	2.29	0.36	8.23
0.184	2.27	0.35	8.23
0.210	2.26	0.34	8.23
0.236	2.25	0.34	8.23
0.263	2.24	0.33	8.23

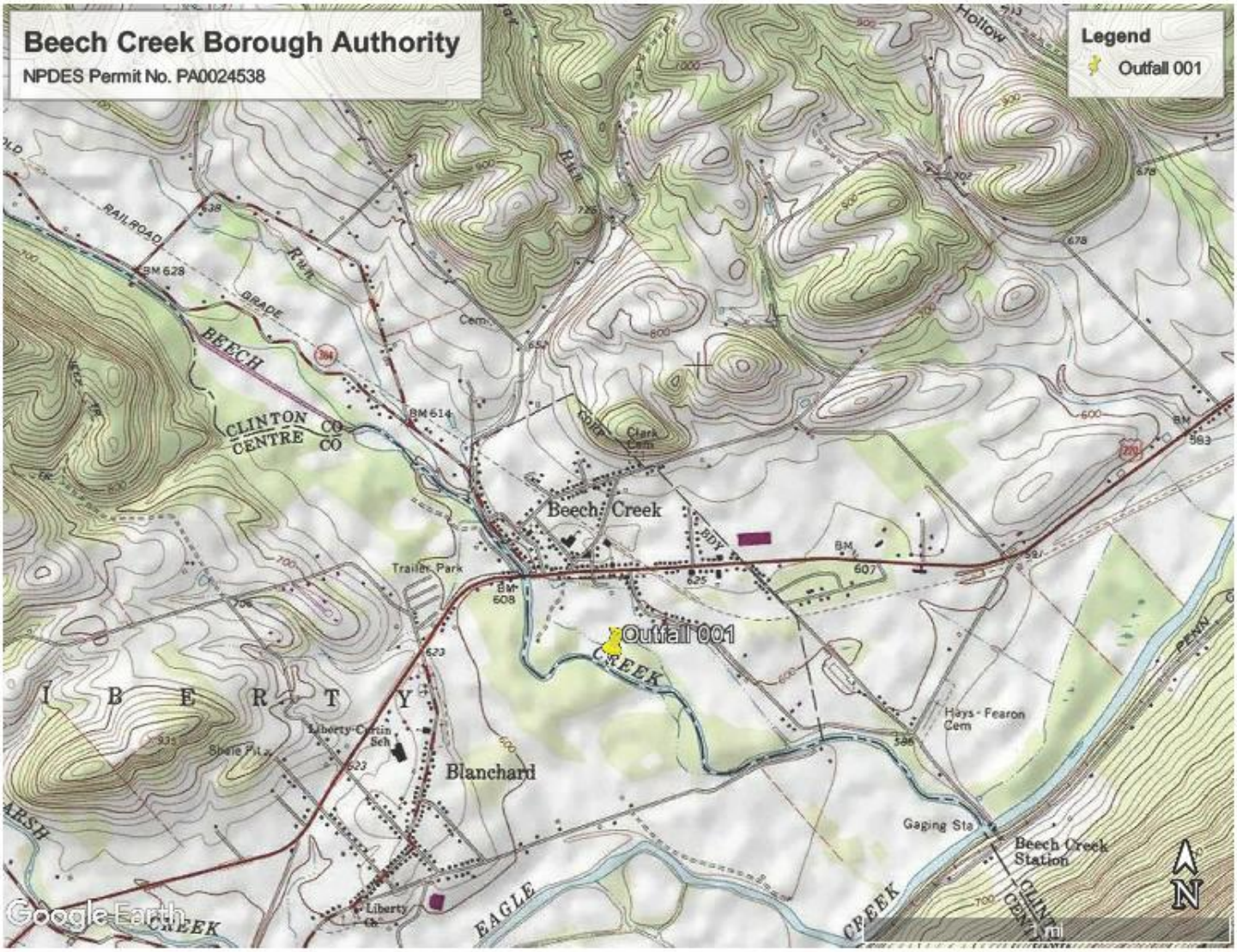
WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
09C	22596	BEECH 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)
1.280	Beech Creek	PA0024538	0.160	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

APPENDIX C

FACILITY MAP


Beech Creek Borough Authority
NPDES Permit No. PA0024538
Legend
Outfall 001
Beech Creek
Outfall 001
Blanchard
Trailer Park
Liberty-Curtin Sch
Liberty Ch
Hays - Fearon Cem
Gaging Sta
Beech Creek Station
BEECH CREEK
EAGLE CREEK
CLINTON CO
CENTRE CO
RAILROAD
BM 628
BM 614
BM 608
BM 607
BM 583
Google Earth
N

APPENDIX D

TRC MODEL

TRC EVALUATION						
Client			Date			
15.3	**= Q stream (cfs)**		**0.5**	**= CV Daily**		
0.16	**= Q discharge (MGD)**		**0.5**	**= CV Hourly**		
30	**= no. samples**		**0.333**	**= 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 =	6.585	**1.3.2.iii**	WLA cfc =	19.235
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	2.454	**5.1d**	LTA_cfc =	11.182
		WQBEL_afc=	**3.020**		WQBEL_cfc=	13.764

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)**

TRC Evalutation