Pennsylvania Department of Environmental Protection

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0222984**
Facility Type	**Municipal**	APS ID	**1124880**
Major / Minor	**Minor**	Authorization ID	**1504931**

Applicant and Facility Information

Applicant Name	**Spartansburg Borough Crawford County**	Facility Name	**Spartansburg Borough STP**
Applicant Address	PO Box 222	Facility Address	Grade Road
	Spartansburg, PA 16434-0222		Spartansburg, PA 16434
Applicant Contact	Teresa Kent	Facility Contact	Teresa Kent
Applicant Phone	(814) 654-7451	Facility Phone	(814) 654-7451
Client ID	66457	Site ID	527232
Ch 94 Load Status	Not Overloaded	Municipality	Spartansburg Borough
Connection Status	No Limitations	County	Crawford
Date Application Received	October 28, 2024	EPA Waived?	Yes
Date Application Accepted		If No, Reason	--

Purpose of Application: Renewal application for a Minor Sewage Facility

Summary of Review

On October 28, 2024, the Department received a renewal application for Individual Permit No. PA0222984 which expired on April 20, 2025. The facility serves a population of 277 and has one outfall (Outfall 001) which discharges to the East Branch of Oil Creek (CWF).

Act 14 notifications were submitted and received.

The facility is currently in the eDMR system.

The last inspection took place on July 17, 2025. No violations were noted.

There are no open violations in WMS for the subject Client ID (66457) as of November 14, 2025.

Proposed Changes:

- Addition of E. Coli monitoring

Approve	Deny	Signatures	Date
X		Carlee Wilson Carlee Wilson / Environmental Engineering Trainee	November 20, 2025
X		Adam Olesnanik Adam Olesnanik, P.E. / Environmental Engineer Manager	April 3, 2026

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.06
Latitude	41º 49' 5.33"	Longitude	-79º 41' 15.76"
Quad Name	Spartansburg	Quad Code	0408
Wastewater Description:	Sewage Effluent		
Receiving Waters	East Branch Oil Creek (CWF)	Stream Code	54496
NHD Com ID	100467633	RMI	11.3300
Drainage Area	13.9	Yield (cfs/mi^2)	0.068
Q_{7-10} Flow (cfs)	0.952	Q_{7-10} Basis	USGS-StreamStats
Elevation (ft)	1423	Slope (ft/ft)	-
Watershed No.	16-E	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		Data Source
pH (SU)	7.0	Default
Temperature (°F)	68	Default
Hardness (mg/L)	100	Default
Other:	-	-

Nearest Downstream Public Water Supply Intake		Aqua PA - Emlenton	
PWS Waters	Allegheny River	Flow at Intake (cfs)	
PWS RMI	90.0	Distance from Outfall (mi)	66

Changes Since Last Permit Issuance: Q_{7-10} Flow was adjusted using StreamStats data from USGS. Elevation was adjusted using Google Earth.

Other Comments:

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.

Treatment Facility Summary				
Treatment Facility Name: Spartansburg Borough				
WQM Permit No.	**Issuance Date**			
2099414 A-1	11/02/2006			
2099414	2/18/2000			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Chlorine With Dechlorination	0.06
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.06	108	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

WQM Permit No. 2099414 A-1

The influent is split between two equalization tanks, which are piped to three aeration tanks that operate in series. Flows are then conveyed through the chlorine contact tank, metering manhole, effluent pump station and to the outfall. Dechlorination takes place in the metering manhole.

Compliance History

DMR Data for Outfall 001 (from October 1, 2024, to September 30, 2025)

Parameter	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24
Flow (MGD) Average Monthly	0.0169	0.0088	0.0102	0.0193	0.017	0.0171	0.0183	0.0187	0.0160	0.0217	0.0113	0.0097
Flow (MGD) Daily Maximum	0.0697	0.0136	0.0166	0.0459	0.034	0.0268	0.0247	0.0571	0.0257	0.0459	0.0223	0.0150
pH (S.U.) Daily Minimum	6.5	6.6	6.8	6.5	6.7	6.8	6.5	6.6	6.7	6.9	6.9	6.8
pH (S.U.) Daily Maximum	7.3	7.2	7.3	7.2	7.3	7.1	7.1	7.0	7.4	7.7	7.5	7.4
DO (mg/L) Daily Minimum	6.6	6.3	6.3	6.5	6.7	7.0	5.2	7.1	6.8	7.2	6.9	7.1
TRC (mg/L) Average Monthly	0.05	0.04	0.04	0.04	0.06	0.04	0.04	0.05	0.05	0.04	0.05	0.04
TRC (mg/L) Instantaneous Maximum	0.08	0.08	0.09	0.09	0.14	0.06	0.08	0.09	0.09	0.07	0.09	0.09
CBOD5 (lbs/day) Average Monthly	< 0.4	< 0.2	< 0.3	< 0.4	< 0.4	< 0.4	< 0.5	< 0.4	< 0.4	< 0.4	< 0.1	< 0.2
CBOD5 (lbs/day) Weekly Average	< 0.6	< 0.2	< 0.4	< 0.4	< 0.5	< 0.4	0.5	< 0.5	< 0.5	< 0.5	< 0.1	< 0.3
CBOD5 (mg/L) Average Monthly	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 4.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
CBOD5 (mg/L) Weekly Average	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	5.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	27	11	19	23	12	20	18	25	17	23	6	11
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	46	11	29	24	16	22	18	32	24	26	6	17
BOD5 (mg/L) Raw Sewage Influent Average Monthly	212	177	173	187	122	149	152	188	119	168	145	147
TSS (lbs/day) Average Monthly	< 0.6	< 0.3	< 0.5	0.7	1.0	1.0	0.8	1.0	1	1.0	0.5	< 1.0

TSS (lbs/day) Raw Sewage Influent Average Monthly	24	11	24	22	17	24	20	38	16	26	9	16
TSS (lbs/day) Raw Sewage Influent Daily Maximum	44	12	35	32	23	31	22	58	26	31	9	26
TSS (lbs/day) Weekly Average	< 0.9	< 0.3	< 0.7	0.7	1.9	1.2	1.1	1.4	1.7	1.1	0.8	2.1
TSS (mg/L) Average Monthly	< 6.0	< 5.0	< 5.0	6.0	10	8.0	7.0	8.0	12	8.0	12	< 13
TSS (mg/L) Raw Sewage Influent Average Monthly	232	181	226	184	175	179	168	268	99	192	227	199
TSS (mg/L) Weekly Average	7.0	< 5.0	< 5.0	6.0	13	8.0	7.0	9.0	17	9.0	16	21
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	3.0	< 1.0
Total Nitrogen (lbs/day) Average Quarterly	< 0.8			2			< 1.0			< 1.0		
Total Nitrogen (mg/L) Average Quarterly	< 4.27			15.075			< 8.37			< 9.87		
Ammonia (lbs/day) Average Quarterly	< 0.06			< 0.04			< 0.05			< 0.04		
Ammonia (mg/L) Average Quarterly	< 0.30			< 0.3			< 0.30			< 0.30		
Total Phosphorus (lbs/day) Average Quarterly	0.2			0.1			0.30			0.2		
Total Phosphorus (mg/L) Average Quarterly	1.19			1.1			1.69			1.6		

Compliance History

Table 1. 5-Year Inspection Summary for Spartansburg Borough STP

Site Name	Inspection Program	Inspection Date	Inspection Type	Inspection Result	Inspector
SPARTANSBURG BORO STP	WPCNP	03/16/2021	Chapter 94 Inspection	No Violations Noted	CARVER, MELISSA
SPARTANSBURG BORO STP	WPCNP	07/03/2025	Chapter 94 Inspection	No Violations Noted	CARVER, MELISSA
SPARTANSBURG BORO STP	WPCNP	03/09/2021	Compliance Evaluation	No Violations Noted	CARVER, MELISSA
SPARTANSBURG BORO STP	WPCNP	05/02/2023	Chapter 94 Inspection	No Violations Noted	CARVER, MELISSA
SPARTANSBURG BORO STP	WPCNP	07/17/2025	Compliance Evaluation	No Violations Noted	CARVER, MELISSA

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .06
Latitude 41º 49' 6.10" **Longitude** -79º 41' 17.30"
Wastewater Description: Sewage Effluent

1. Technology-Based Limitations

Table 2. Minimum Technology-Based Standards for Individual Sewage Permits

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)
E. Coli	Report	IMAX	-	92a.61
Total Phosphorous	Report	Average Monthly	-	92a.61
Total Nitrogen	Report	Average Monthly	-	92a.61

The above limits are minimum technology-based and BPJ standards for individual sewage permits which are found in the Department's "*Establishing Effluent Limitations for Individual Sewage Permits"* document (SOP. No. BCW-PMT-033). The limits for pH are technology-based on Chapter 93.7. The limits for Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for E. Coli, Total Nitrogen, and Total Phosphorus are based on Chapter 92a.61.

2. Water Quality-Based Limitations

Table 3. Water-Quality Modeling Results

Parameter	Limit (mg/l)	SBC	Model
CBOD5	25	Average Monthly	WQM 7
	50	IMAX	
NH3-N	25	Average Monthly	
	50	IMAX	
DO	4	Daily Minimum	
TRC	0.5	Average Monthly	TRC Spreadsheet
	1.2	IMAX	

The TRC Spreadsheet and WQM 7 models were used to establish or verify WQBELs. The Department's Toxics Management Spreadsheet (TMS) is not used because no other sampling than sewage-related parameters is required with the renewal application. The table above displays the modeling outputs. All the above limits are less stringent or equal to the current permit limits and therefore no new WQBELs are proposed in this renewal (Attachments 5 & 6). Since BPJ limits are recommended by WQM 7 for ammonia-nitrogen, quarterly monitoring can be retained into this renewal.

3. Anti-Backsliding

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	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
CBOD5	12.5	20	XXX	25	40	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	15	22.5	XXX	30	45	60	2/month	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Ammonia	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Phosphorus	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Comments: All permit limitations, monitoring requirements, and conditions will be retained into the next permit with the addition of E. Coli monitoring.

Proposed Effluent Limitations and Monitoring Requirements

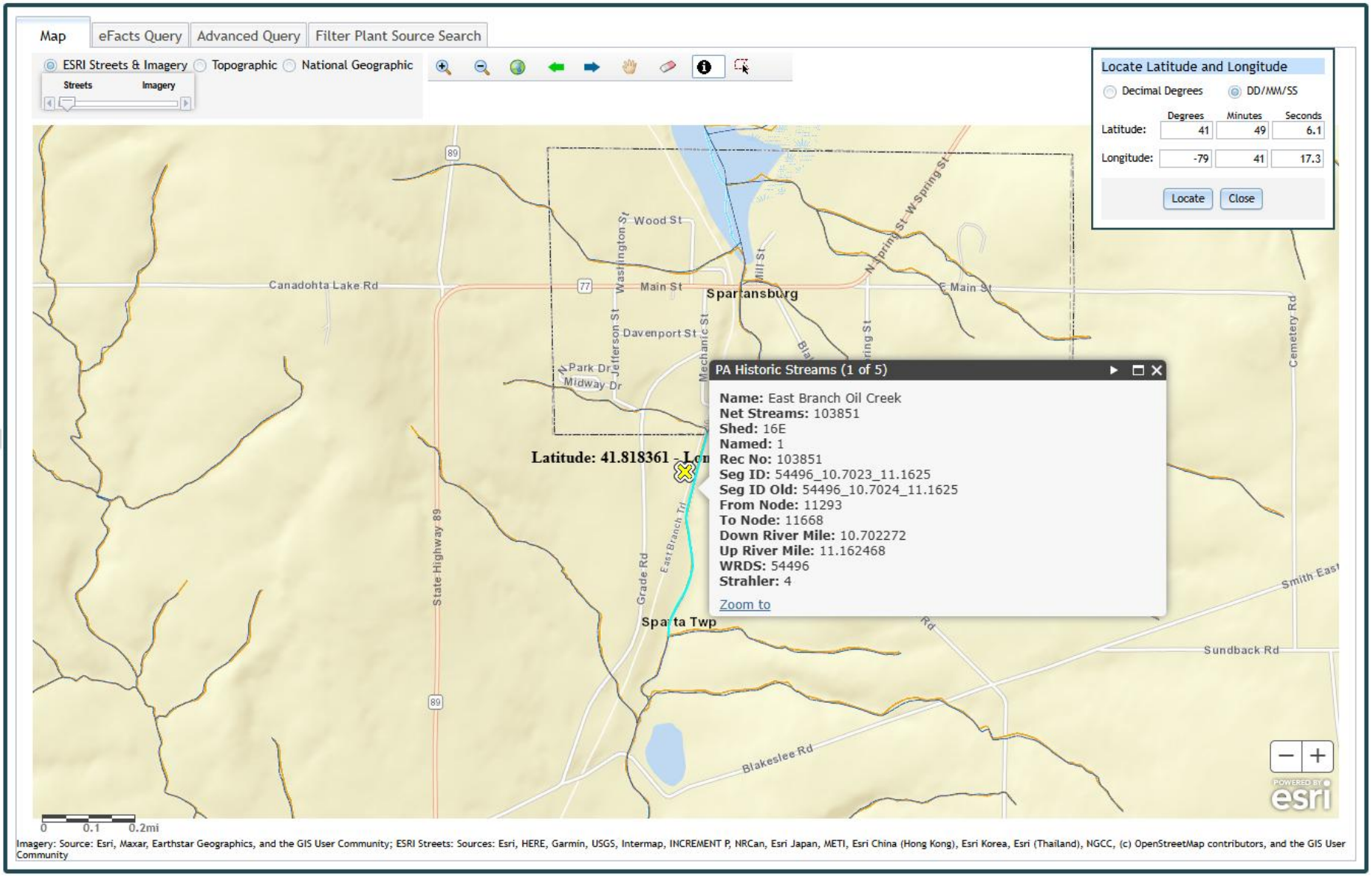
The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through 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	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.2	1/day	Grab
CBOD5	12.5	20	XXX	25	40	50	2/month	24-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	15	22.5	XXX	30	45	60	2/month	24-Hr Composite
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Ammonia	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
Total Phosphorus	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab

Compliance Sampling Location: Outfall 001 – after disinfection

Attachment 1
eMapPA – Receiving Stream Details

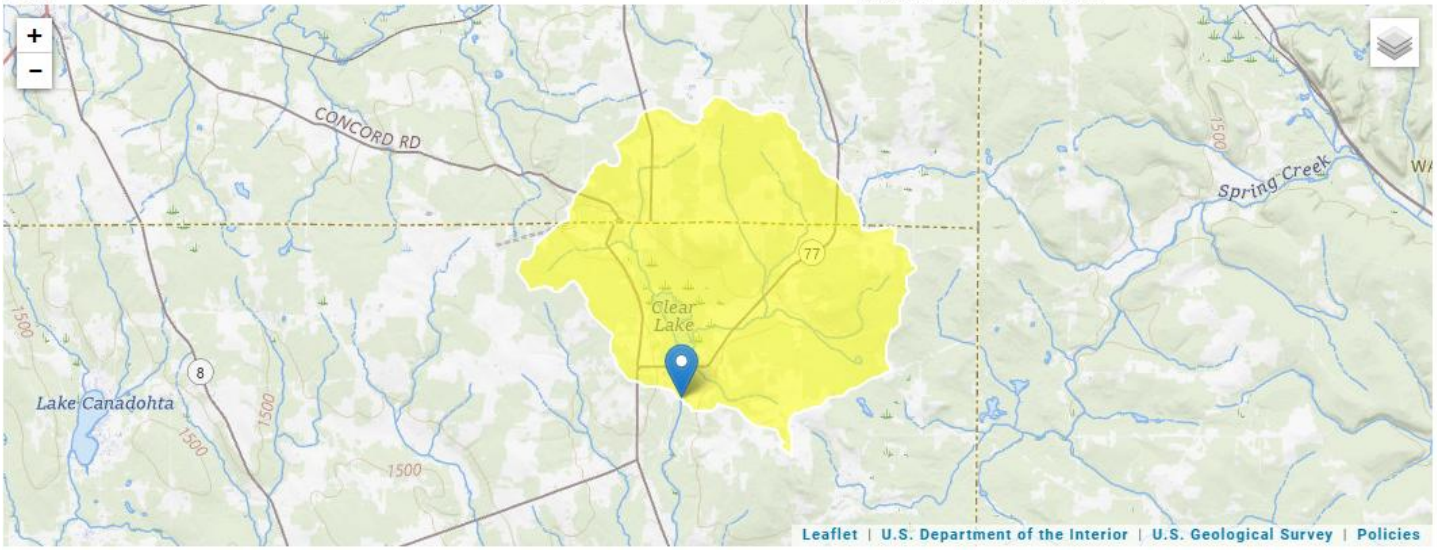


Attachment 2
Google Earth – Aerial Site View

Attachment 3
StreamStats Report (Outfall 001)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251114152214103000
Clicked Point (Latitude, Longitude):	41.81826, -79.68772
Time:	2025-11-14 10:22:41 -0500



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	13.9	square miles	2.33	1720
ELEV	Mean Basin Elevation	1621	feet	898	2700
PRECIP	Mean Annual Precipitation	47	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.87	ft^3/s	43	43
30 Day 2 Year Low Flow	2.71	ft^3/s	38	38
7 Day 10 Year Low Flow	0.952	ft^3/s	54	54
30 Day 10 Year Low Flow	1.28	ft^3/s	49	49
90 Day 10 Year Low Flow	1.83	ft^3/s	41	41

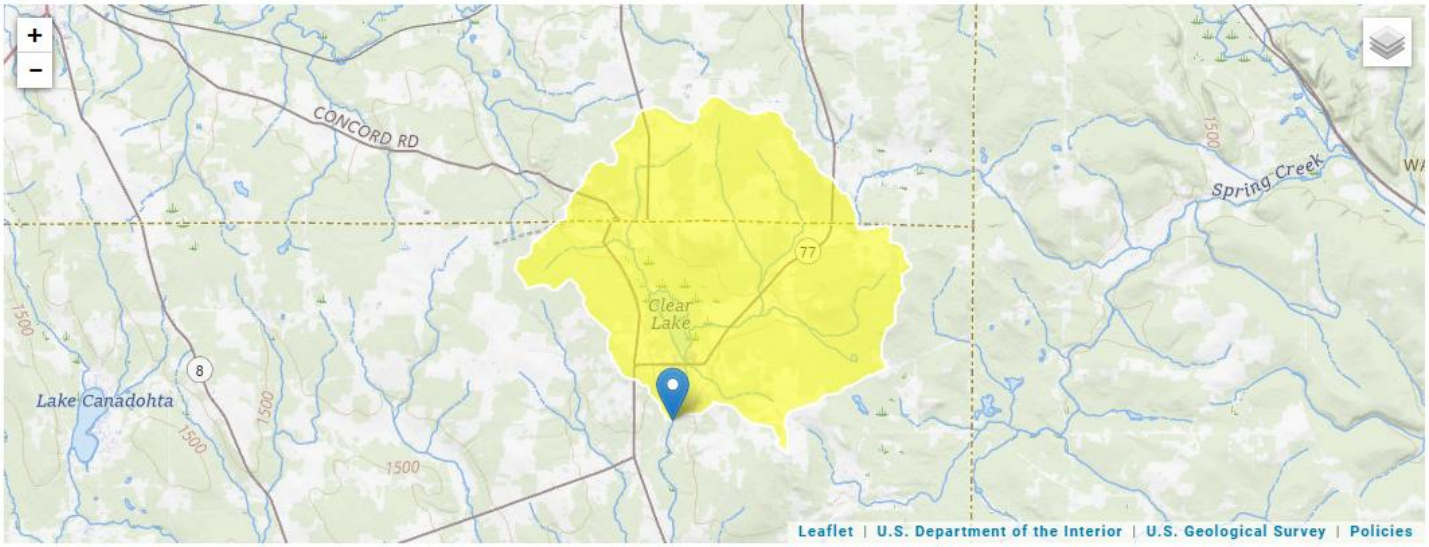
Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Attachment 4
StreamStats Report (Endpoint)

StreamStats Report

Region ID:	PA
Workspace ID:	PA20251141534211640000
Clicked Point (Latitude, Longitude):	41.81340, -79.68886
Time:	2025-11-14 10:34:42 -0500



Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	14.1	square miles	2.33	1720
ELEV	Mean Basin Elevation	1619	feet	898	2700
PRECIP	Mean Annual Precipitation	47	inches	38.7	47.9

Low-Flow Statistics Flow Report [Low Flow Region 3]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	1.9	ft^3/s	43	43
30 Day 2 Year Low Flow	2.75	ft^3/s	38	38
7 Day 10 Year Low Flow	0.965	ft^3/s	54	54
30 Day 10 Year Low Flow	1.29	ft^3/s	49	49
90 Day 10 Year Low Flow	1.85	ft^3/s	41	41

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p.

Attachment 5
WQM Modeling Results

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
	16E	54496	EAST BRANCH OIL CREEK	**11.000**	1423.00	13.90	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	0.068	0.00	0.95	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
Spartansburg	PA0222984	0.0600	0.0600	0.0600	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	4.00	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
16E	54496	EAST BRANCH OIL CREEK	**10.700**	1410.00	14.10	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	0.068	0.00	0.96	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
16E	54496	EAST BRANCH OIL 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												
11.000	0.95	0.00	0.95	.0928	0.00821	.524	15.87	30.31	0.13	0.146	20.44	7.00
Q1-10 Flow												
11.000	0.61	0.00	0.61	.0928	0.00821	NA	NA	NA	0.10	0.182	20.66	7.00
Q30-10 Flow												
11.000	1.29	0.00	1.29	.0928	0.00821	NA	NA	NA	0.15	0.124	20.33	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
16E	54496	EAST BRANCH OIL 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
11.000	Spartansburg	15.87	50	15.87	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
11.000	Spartansburg	1.85	25	1.85	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)		
11.00	Spartansburg	25	25	25	25	4	4	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
16E	54496	EAST BRANCH OIL CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
11.000	0.060	20.444	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
15.870	0.524	30.311	0.126
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
4.04	0.782	2.22	0.724
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.866	9.909	Tsivoglou	6
Reach Travel Time (days)			
0.146			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.015	4.00	2.20	7.87
0.029	3.95	2.17	7.87
0.044	3.90	2.15	7.87
0.058	3.86	2.13	7.87
0.073	3.81	2.11	7.88
0.087	3.77	2.08	7.88
0.102	3.73	2.06	7.89
0.117	3.68	2.04	7.90
0.131	3.64	2.02	7.91
0.146	3.60	2.00	7.92

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
16E	54496	EAST BRANCH OIL 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)
11.000	Spartansburg	PA0222984	0.060	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

Attachment 6
TRC Spreadsheet

TRC EVALUATION

0.952	= Q stream (cfs)	0.5	= CV Daily
0.06	= 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)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	3.291	1.3.2.iii	WLA cfc =	3.201
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	1.226	5.1d	LTA_cfc =	1.861

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)**

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other: