pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0029947**
Facility Type	**Non-Municipal**	APS ID	**2372**
Major / Minor	**Minor**	Authorization ID	**1427630**

Applicant and Facility Information

Applicant Name	**Southern Huntingdon County School District**	Facility Name	**Spring Farms Elementary School**
Applicant Address	10339 Pogue Road	Facility Address	12075 Old Plank Road
	Three Springs, PA 17264-8537		Three Springs, PA 17264-8013
Applicant Contact	Stanley Hall	Facility Contact	Stanley Hall
Applicant Phone	(814) 447-5529	Facility Phone	(814) 447-5529
Client ID	42725	Site ID	450363
Ch 94 Load Status	Not Overloaded	Municipality	Clay Township
Connection Status		County	Huntingdon
Date Application Received	February 10, 2023	EPA Waived?	Yes
Date Application Accepted	February 22, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal.

Summary of Review

Southern Huntingdon County School District (Permittee) has applied to the Pennsylvania Department of Environmental Protection (DEP or Department) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit for Spring Farms Elementary School STP. This permit renewal application was received on February 10, 2022. The permit was last reissued on June 15, 2018, authorizing discharge of treated sewage from the existing treatment plant located in Clay Township, Huntingdon County into UNT to Spring Creek. The permit will expire on June 30, 2023.

The facility has average annual design flow and hydraulic design capacity of 0.00533 MGD. The flow contribution to the treatment plant is 100% from the elementary school. The school is closed during the summer months so flow to the plant is significantly less except for summer sports and activities.

Sludge use and disposal description and location(s): N/A due to disposed at other facilities such as Shade Gap WWTP.

Changes in this renewal: The E. Coli. monitoring and report requirements will add to the proposed permit.

Based on the review outlined in this report, it is recommended that the permit be drafted and published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	April 21, 2023
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	May 22, 2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.00533
Latitude	40º 11' 47.46"	Longitude	-78º 0' 30.91"
Quad Name	Saltillo	Quad Code	1721
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Spring Creek	Stream Code	12882
NHD Com ID	66212073	RMI	0.28 mile
Drainage Area	0.83 mi.^{2}	Yield (cfs/mi^2)	See comment below
Q_{7-10} Flow (cfs)	See comment below	Q_{7-10} Basis	See comment below
Elevation (ft)	775.86	Slope (ft/ft)	
Watershed No.	12-C	Chapter 93 Class.	CWF & MF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Nutrients, Siltation		
Source(s) of Impairment	Crop Production (Crop Related Agriculture)		
TMDL Status	Name		
Nearest Downstream Public Water Supply Intake	Mifflintown Water System, Juniata County		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	37.32 miles	Distance from Outfall (mi)	Approximate 63.0 miles

Changes Since Last Permit Issuance: none

Drainage Area
The discharges are to Unnamed Tributary to Spring Creek at RMI 0.28 miles. A drainage area upstream of the discharge is estimated to be 0.83 mi.^{2}, according to USGS PA StreamStats available at: https://streamstats.usgs.gov/ss/.

Streamflow
Streamflow data was collected from the nearest upstream USGS stream gage 01564500 located in Aughwick Creek Three Springs, PA. Q_{7-10} values at this gage are 5.81 cfs respectively for the reporting. The drainage area was found to be 172 mi.^{2}.

Low Flow Yield = 5.81 cfs / 172 mi.^{2} = 0.03 cfs/mi.^{2}
Q_{7-10} at discharge = 0.03 cfs/mi.^{2} * 0.83 mi.^{2} = 0.025 cfs

303d Listed Streams
The discharge from this facility is to UNT to Spring Creek which is assessed impaired for Aquatic Life due to nutrients and siltation from crop related agriculture. Two aquatic surveys were conducted in 1986 and 2002. In April 2013, another survey took place for the whole watershed. The first two survey indicated a low flow status in the stream with approximately 2 to 3 inches of water depth. A review of 2013 survey report by Regional Water Pollution Biologist indicated that the stream is a perennial stream with apparently no distinguishable contribution of pollutants to the existing impairment. No TMDL is proposed for the watershed.

PWS Intake
The nearest downstream public water supply intake is the Mifflintown Borough Municipal Authority Juniata County on Juniata River. It is approximately 63.0 miles downstream of the discharge. Due to the distance, dilution, and effluent limits the discharge is not expected to impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Spring Farms Elementary School				
WQM Permit No.	**Issuance Date**			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Hypochlorite	0.00533
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.00533		Not Overloaded	Anaerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: none

Other Comments:

Per DEP's recent visit to the site on May 4, 2022, the treatment facility consists of the following units:

- One comminutor
- One aeration tank
- One settling tank
- Two sand filters
- One chlorine contact tank
- Two blowers

The plant uses liquid chlorine and soda ash as needed. The stream to design flow ratio is 3.03:1 (0.025 cfs / [0.00533 MGD * (1.547 cfs/MGD)]) which qualifies the treatment plant to receive dry stream limits. However, since the facility is not a new or expanding, the dry stream limits are not applicable.

Industrial/Commercial Users:
There are no industrial/commercial users contributing to this treatment plant.

Biosolids Management:
The treatment plant doesn't have a sludge wasting tank. Solids are usually removed by septic hauler.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on page 4 & 5.
Summary of Inspections:	**5/04/2022:** Mr. Clark, DEP's WQS, conducted a compliance evaluation inspection. No violation identified during inspection. Recommendation was to submit a NPDES permit renewal application by January 1, 2023. The effluent was clear, and all field test results were within the permit limits.
Other Comments:	There are no open violations against the permittee or applicant.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from March 1, 2022 to February 28, 2023)

Parameter	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22
Flow (MGD) Average Monthly		0.0008	0.0009	0.001	0.0013	0.0012	0.0007	0.0004	0.0006	0.0011	0.0011	0.0013
Flow (MGD) Daily Maximum		0.00223	0.00265	0.00452	0.00381	0.00287	0.00236	0.00201	0.00159	0.00267	0.00242	0.00267
pH (S.U.) Daily Minimum		7.0	7.0	7.0	7.0	6.9	7.0	7.0	7.0	7.2	6.9	6.9
pH (S.U.) Instantaneous Maximum		7.3	7.4	7.4	7.3	7.5	7.6	7.4	7.7	7.9	7.2	8.3
DO (mg/L) Daily Minimum		7.3	7.3	7.1	7.3	7.3	7.7	8.0	8.0	7.1	7.7	7.7
TRC (mg/L) Average Monthly		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
TRC (mg/L) Instantaneous Maximum		0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
CBOD5 (mg/L) Average Monthly		< 3.00	7.85	3.87	5.89	< 3.00	4.125	< 3.00	< 3.00	< 3.00	3.88	< 3.00
TSS (mg/L) Average Monthly		< 1.60	2.2	< 1.60	< 1.60	2.0	< 1.60	4.6	21.8	< 1.6	2.4	< 1.60
Fecal Coliform (No./100 ml) Geometric Mean		< 1.000	2.024846	< 1.000	1.414214	5.422177	1.760682	< 1.00	< 1.00	15.28234	2.024846	2.50998
Fecal Coliform (No./100 ml) IMAX		< 1.000	4.1	< 1.000	2.0	9.8	3.1	< 1.00	< 1.00	17.3	4.1	6.3
Nitrate-Nitrite (mg/L) Average Monthly		8.572	10.06	9.7535	8.1	6.069	7.396	14.9245	8.8525	9.272	10.121	7.563
Nitrate-Nitrite (lbs) Total Monthly		2.860835	6.057927	4.6755	5.614534	3.07881	3.388176	3.092963	2.85552	5.193089	4.11102	3.087569
Total Nitrogen (mg/L) Average Monthly		9.072	10.56	10.2535	8.6	6.402333	7.896	15.4245	9.3525	9.772	10.621	8.063
Total Nitrogen (lbs) Total Monthly		3.028886	6.362998	4.91508	5.962261	3.2427	3.624086	3.203478	3.01752	5.472306	4.31742	3.289875
Total Nitrogen (lbs) Total Annual						< 52						
Ammonia (mg/L) Average Monthly		< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000	< 0.1000
Ammonia (lbs) Total Monthly		0.0341	0.062	0.048	0.0682	0.048	0.0465	0.217	0.033	0.558	0.042	0.0403

Ammonia (lbs) Total Annual						< 2						
TKN (mg/L) Average Monthly		< 0.5000	< 0.5000	< 0.5000	< 0.5000	< 0.5000	< 0.5000	< 0.5000	< 0.500	< 0.5000	< 0.5000	< 0.5000
TKN (lbs) Total Monthly		0.168051	0.305071	0.23958	0.347727	0.16389	0.23591	0.110515	0.162	0.279217	0.20643	0.202306
Total Phosphorus (mg/L) Average Monthly		0.3365	0.4635	0.4565	0.382	0.5375	0.395	1.1825	0.551	0.548	0.494	0.229
Total Phosphorus (lbs) Total Monthly		0.111445	0.277667	0.21885	0.26195	0.2796	0.172949	0.22971	0.17823	0.318153	0.18429	0.096038
Total Phosphorus (lbs) Total Annual						2						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.00533
Latitude 40º 11' 47.25" **Longitude** -78º 0' 30.99"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

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

Comments: These standards apply, subject to Water Quality Analysis and BPJ where applicable.

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3-N calculations were based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached computer model of the stream:

*	Discharge pH	7.0	(Default)
*	Discharge Temperature	20°C	(Default)
*	Stream pH	7.0	(Default)
*	Stream Temperature	20°C	(Default)
*	Background NH_3-N	0 mg/L	(Assumed since no nearby upstream WWTPs)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 9.68 mg/L NH_3-N as a monthly average (AML) and 19.36 mg/L NH_3-N instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects. However, the existing limits of 7.5 mg/L AML & 15.0 mg/L IMAX were more stringent and will remain in the proposed permit. The AML and IMAX winter limit will be 22.5 mg/L and 45.0 mg/L, respectively which is derived by multiplying the summer limits by a factor of 3. Winter season IMAX limit is not needed since it is more than 25.0 mg/L. Recent DMRs and inspection reports indicate that the facility has been consistently achieving these limits.

$CBOD_5$:
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit (AML) of 25.0 mg/L, & 50.0 mg/L will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has typically been achieving concentrations below this limit. The minimum monitoring frequency will remain the same as 2/month.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Dissolved Oxygen (D.O.):
The D.O. goal is 6.0 mg/L. However, a minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 1.9 revised March 22, 2021, and has been applied to other point source dischargers throughout the state.

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021, a routine monitoring for E. Coli will be included in the permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/year will be included in the permit to be consistent with the recommendation from this SOP.

Total Suspended Solids (TSS):
The existing limits of 30.0 mg/L average monthly (AML), and 60.0 mg/L instantaneous maximum (IMAX) will remain in the permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Past DMRs and inspection reports show that the facility has been consistently achieving these limits.

Total Residual Chlorine (TRC):
The attached computer printout utilizes the equation and calculations as presented in the Department's 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID#391-2000-015) for developing chlorine limitations. The attached printout indicates that a water quality limit of 0.45 mg/L would be needed to prevent toxicity concerns at the discharge point. The Instantaneous Maximum (IMAX) limit is 1.5 mg/L. However, the existing limits of 0.3 mg/L AML & 1.0 mg/L IMAX were more stringent and will remain in the proposed permit. Minimum monitoring frequency will be 1/day.

Toxics:
There is no toxicity concern from this facility. Minor facilities are not required to report toxics if there is no industrial or commercial contribution per DEP's application form 3800-PM-BCW0342b revised 10/2017.

Total Phosphorus:
This facility is not located in Lower Susquehanna Sub-basin and the receiving stream doesn't have phosphorus related impairment. Local phosphorus limit is not warranted at this time. The facility, however, will be monitoring Total Phosphorus as part of Chesapeake Bay Tributary Strategy.

Stormwater:
There is no known stormwater outfall associated with this facility.

Chesapeake Bay Strategy:
According to DEP's Chesapeake Bay Phase II Watershed Implementation Plan (WIP) Wastewater Supplement, this facility is considered a phase 5 non-significant sewage discharger with design flow less than 0.2 MGD but greater than 0.002 MGD. In general, DEP will issue permits for all phase 5 facilities with monitoring and reporting for Total Nitrogen (TN) and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually. Furthermore, DEP's SOP No. BPNPSM-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 GPD. At this time, the Department is not requiring a total maximum annual nitrogen or phosphorus loading cap. Ammonia-Nitrogen, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, TN, and TP monitoring is already included in the existing permit and will remain in the proposed renewal.

The monthly "Monitor & Report" requirements for Ammonia-Nitrogen, Nitrate-Nitrite as N, and Total Kjeldahl Nitrogen; and quarterly calculation "Monitor & Report" for TN will remain in the proposed permit. The yearly calculation "report" for TP & TN will remain in the proposed permit.

Total Dissolved Solids (TDS):
Minor facilities with design flow of <0.1 MGD are not required to report effluent TDS concentration/load.

WETT:
Minor facilities and facilities without a formal EPA approved pretreatment program are exempted from WETT.

Anti-Backsliding:
The proposed limits are at least as stringent as are in existing permit; therefore, anti-backsliding is not applicable.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High-Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

Class A Wild Trout Fisheries:
No Class A Wild Trout Fisheries are impacted by this discharge.

WQM 7.0:

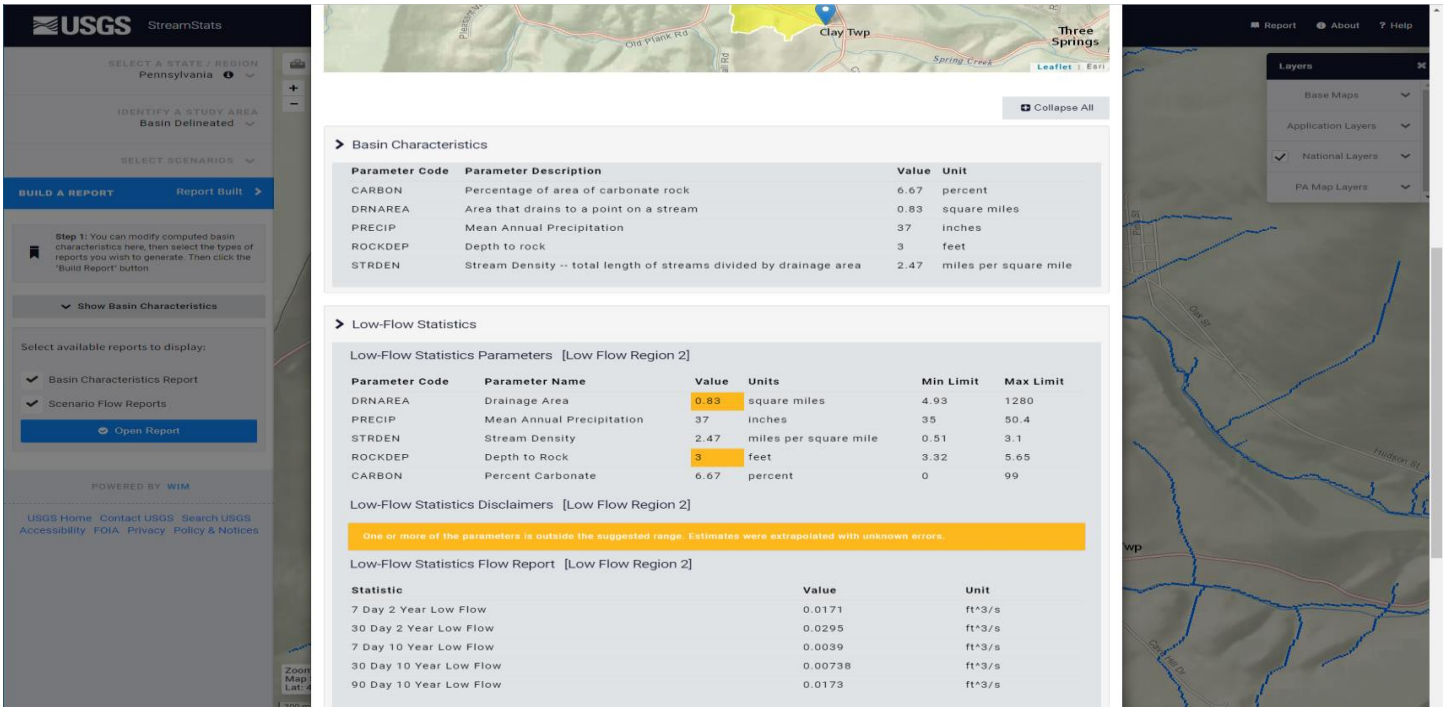
The following data were used in the attached computer model (WQM 7.0) of the stream:

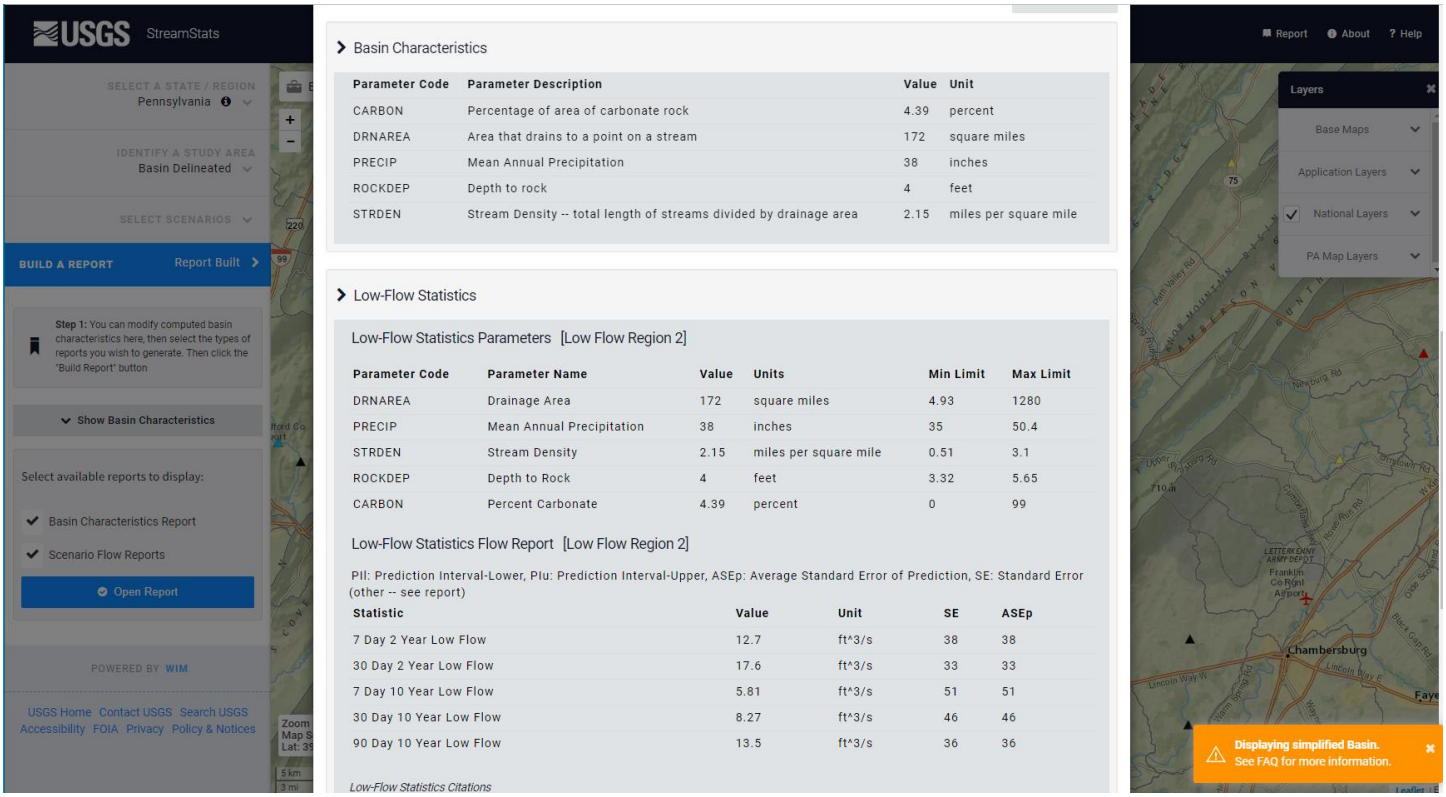
• Discharge pH	7.0	(Default)
• Discharge Temperature	20°C	(Default per 391-2000-013)
• Stream pH	7.0	(Default per 391-2000-013)
• Stream Temperature	20°C	(Default per 391-2000-013)

The following two nodes were used in modeling:

Node 1: Outfall 001 at UNT to Spring Creek (12882)
- Elevation: 775.86 ft (USGS)
- Drainage Area: 0.83 mi^2 (USGS StreamStats)
- River Mile Index: 0.28 (PA DEP eMapPA)
- Low Flow Yield: 0.03 cfs/mi^2 (calculated)
- Discharge Flow: 0.00533 MGD

Node 2: At the confluence with Spring Creek (12879)
- Elevation: 752.57 ft (USGS)
- Drainage Area: 7.15 mi^2 (StreamStats)
- River Mile Index: 0.001 (PA DEP eMapPA)
- Low Flow Yield: 0.03 cfs/mi^2
- Discharge Flow: 0.00 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	4.39	percent
DRNAREA	Area that drains to a point on a stream	172	square miles
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.15	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

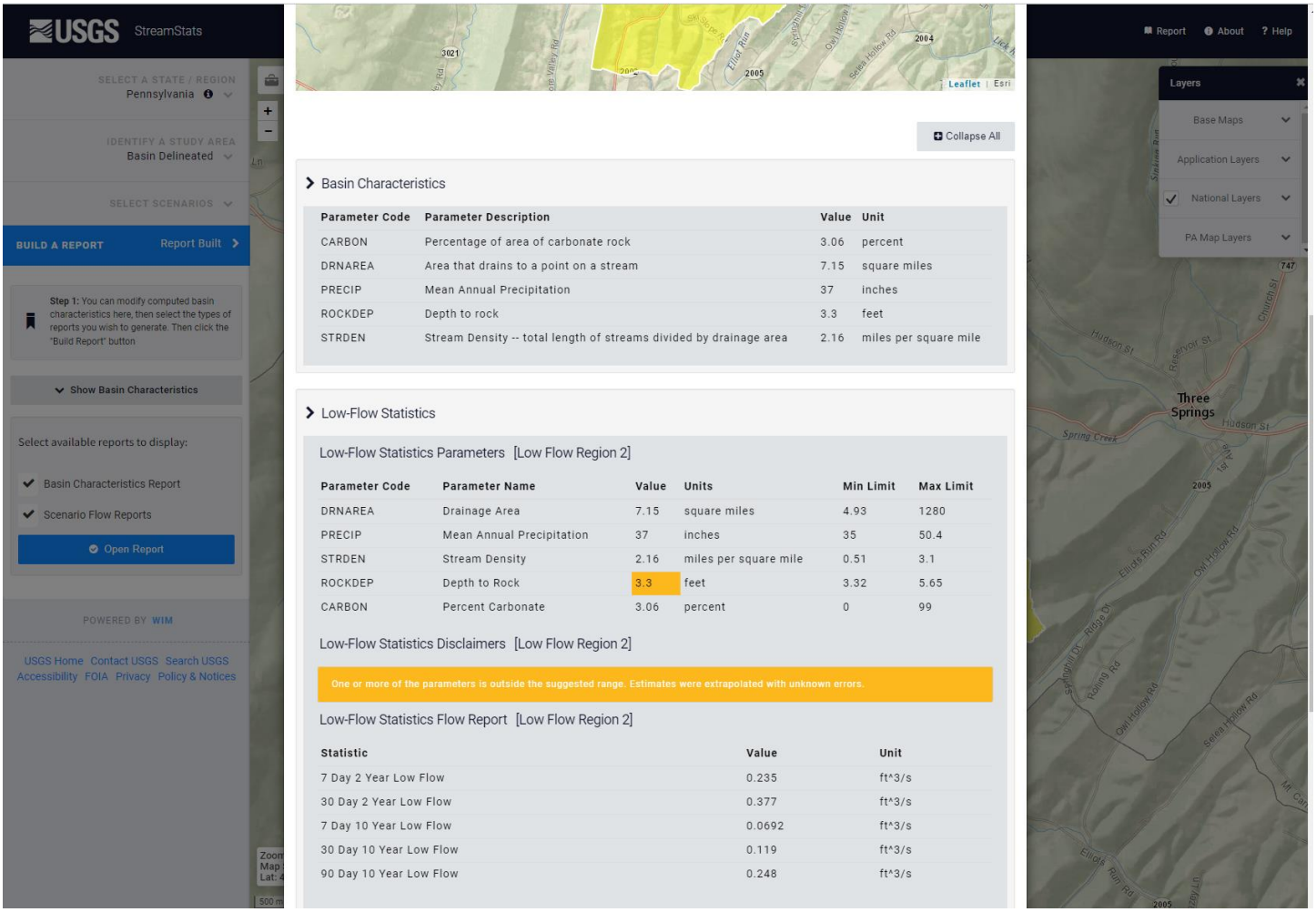
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	172	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.15	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4	feet	3.32	5.65
CARBON	Percent Carbonate	4.39	percent	0	99

Low-Flow Statistics Flow Report [Low Flow Region 2]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	12.7	ft^3/s	38	38
30 Day 2 Year Low Flow	17.6	ft^3/s	33	33
7 Day 10 Year Low Flow	5.81	ft^3/s	51	51
30 Day 10 Year Low Flow	8.27	ft^3/s	46	46
90 Day 10 Year Low Flow	13.5	ft^3/s	36	36

Low-Flow Statistics Citations



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CARBON	Percentage of area of carbonate rock	3.06	percent
DRNAREA	Area that drains to a point on a stream	7.15	square miles
PRECIP	Mean Annual Precipitation	37	inches
ROCKDEP	Depth to rock	3.3	feet
STRDEN	Stream Density -- total length of streams divided by drainage area	2.16	miles per square mile

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 2]

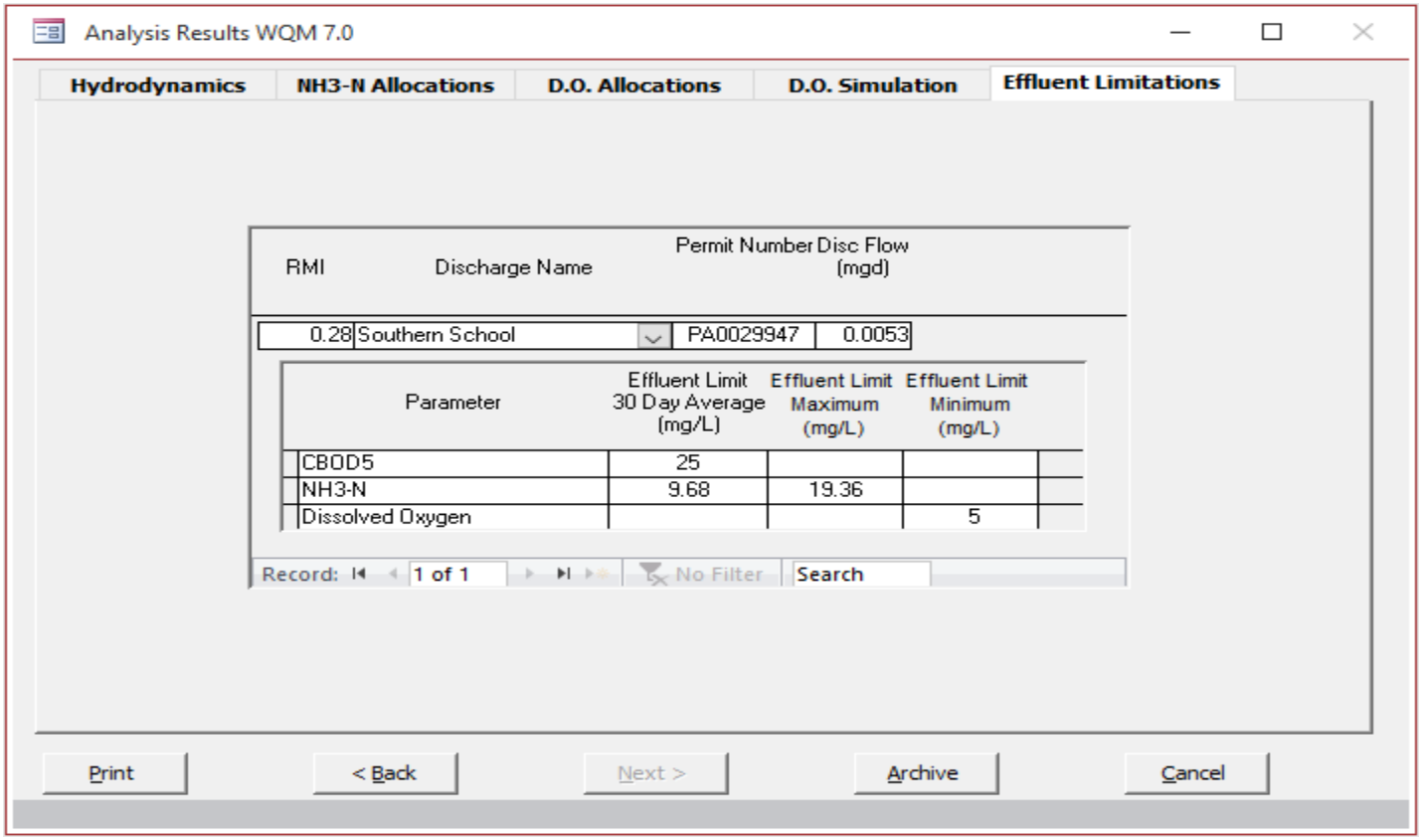
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	7.15	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	37	inches	35	50.4
STRDEN	Stream Density	2.16	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	3.3	feet	3.32	5.65
CARBON	Percent Carbonate	3.06	percent	0	99

Low-Flow Statistics Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region 2]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.235	ft^3/s
30 Day 2 Year Low Flow	0.377	ft^3/s
7 Day 10 Year Low Flow	0.0692	ft^3/s
30 Day 10 Year Low Flow	0.119	ft^3/s
90 Day 10 Year Low Flow	0.248	ft^3/s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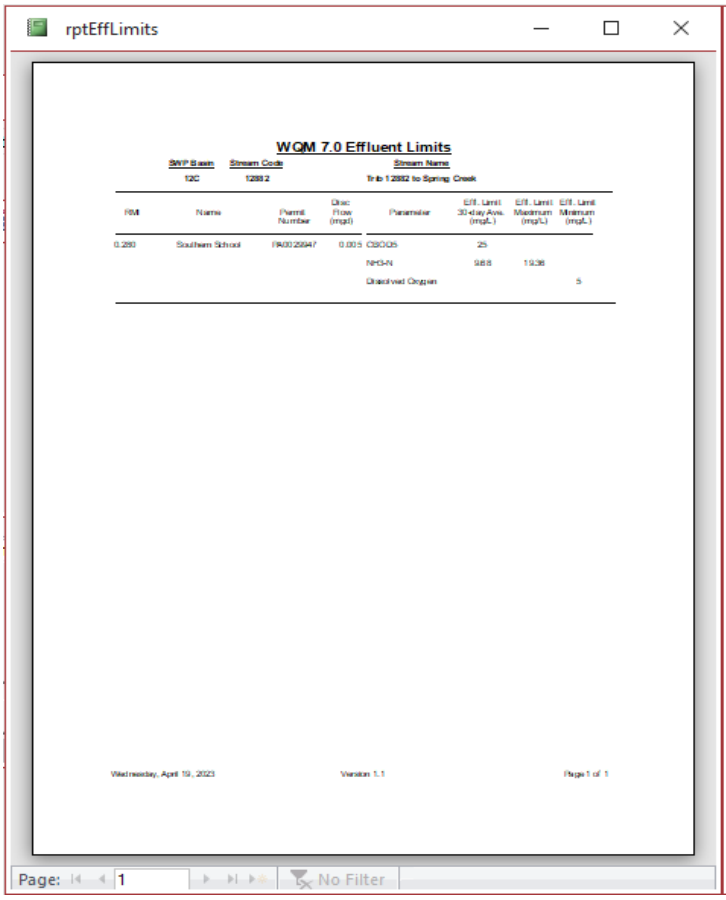
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
0.28
Southern School
PA0029947
0.0053
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
9.68
19.36
Dissolved Oxygen
5
Record: 1 of 1
No Filter
Search
Print
< Back
Next >
Archive
Cancel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WQM 7.0 Effluent Limits
SWP Basin
Stream Code
Stream Name
12C
12892
Trib 12892 to Spring Creek
RMI
Name
Permit Number
Disc Flow (mgd)
Parameter
Eff. Limit 30-day Avg. (mg/L)
Eff. Limit Maximum (mg/L)
Eff. Limit Minimum (mg/L)
0.280
Southern School
PA0029947
0.005
CBOD5
25
NH3-N
9.68
19.36
Dissolved Oxygen
5
Wednesday, April 19, 2023
Version 1.1
Page 1 of 1
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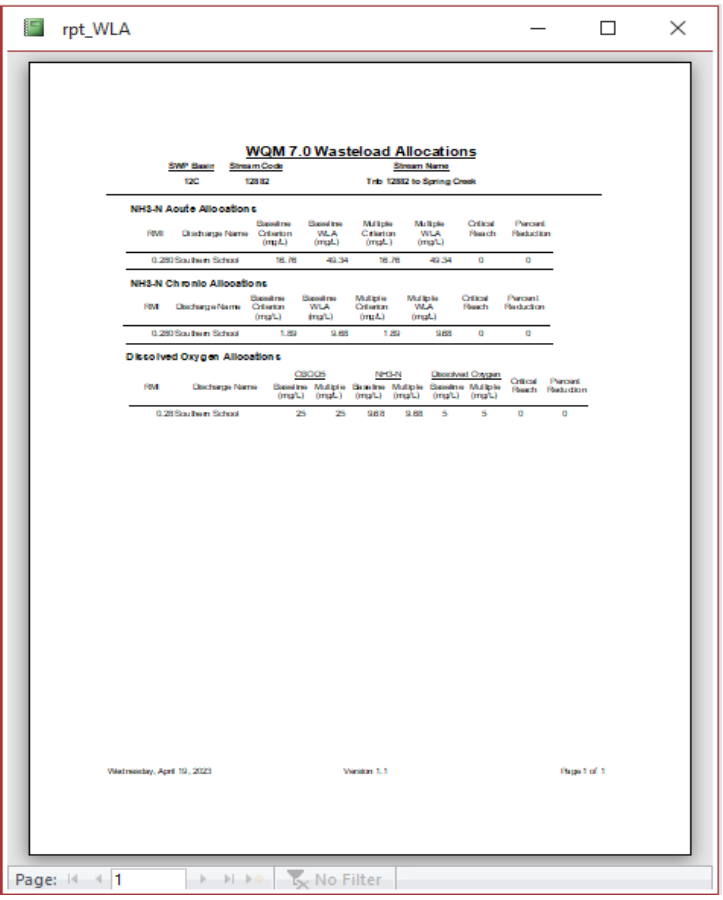
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WQM 7.0 Wasteload Allocations
SWP Basin
Stream Code
Stream Name
12C
12892
Trib 12892 to Spring Creek
NH3-N Acute Allocations
RMI
Discharge Name
Baseline Criterion (mg/L)
Baseline WLA (mg/L)
Multiple Criterion (mg/L)
Multiple WLA (mg/L)
Critical Reach
Percent Reduction
0.280
Southern School
16.76
49.34
16.76
49.34
0
0
NH3-N Chronic Allocations
0.280
Southern School
1.89
9.68
1.89
9.68
0
0
Dissolved Oxygen Allocations
CBOD5
NH3-N
Dissolved Oxygen
Baseline (mg/L)
Multiple (mg/L)
5
5
0.280
Southern School
25
25
9.68
9.68
5
5
0
0
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rptDOSim

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
12C	12882	Trib 12882 to Spring Creek

RM	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.289	0.005	20.000	7.000

Reach Width (ft)	Reach Depth (ft)	Reach WD Ratio	Reach Velocity (fps)
3.168	0.291	10.887	0.036

Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
7.70	1.150	2.40	0.700

Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.440	22.880	Owens	6

Reach Travel Time (days)
0.477

Subreach Results

Tav Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.048	7.30	2.32	8.00
0.095	6.92	2.24	8.22
0.143	6.57	2.17	8.24
0.191	6.23	2.10	8.24
0.239	5.91	2.03	8.24
0.286	5.60	1.98	8.24
0.334	5.31	1.90	8.24
0.382	5.04	1.84	8.24
0.430	4.78	1.78	8.24
0.477	4.53	1.72	8.24

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rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
12C	12882	Trib 12882 to Spring Creek

RM	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Dis c 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
Q 7-10 Flow												
0.289	0.02	0.00	0.02	.0052	0.01581	.291	3.19	10.97	0.04	0.477	20.00	7.00
Q 1-10 Flow												
0.289	0.02	0.00	0.02	.0052	0.01581	NA	NA	NA	0.03	0.570	20.00	7.00
Q 30-10 Flow												
0.289	0.03	0.00	0.03	.0052	0.01581	NA	NA	NA	0.04	0.417	20.00	7.00

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rptGeneral

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RM	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
12C	12882	Trib 12882 to Spring Creek	0.289	775.88	0.83	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	0.010	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
Southern School	PA0029947	0.0053	0.0053	0.0053	0.000	20.00	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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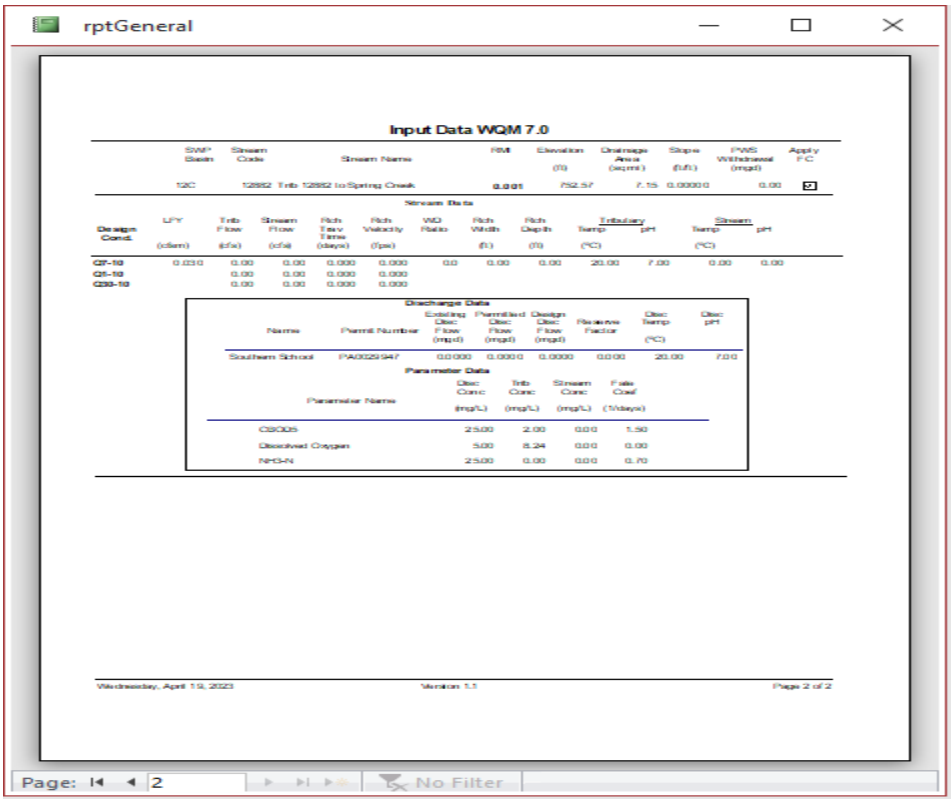
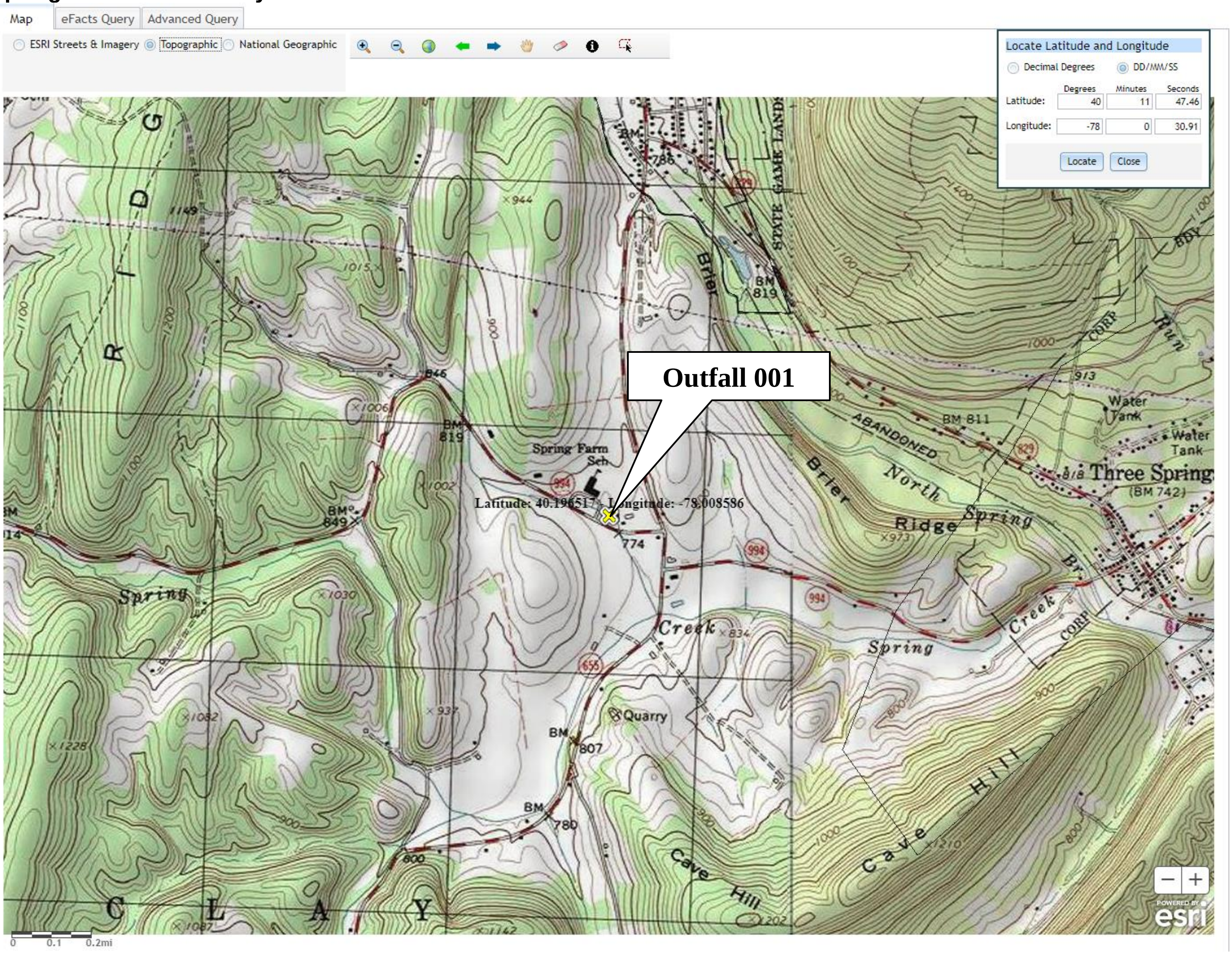


TRC EVALUATION			
Input appropriate values in A3:A9 and D3:D9			
0.025	= Q stream (cfs)	0.5	= CV Daily
0.00533	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.986	1.3.2.iii	WLA cfc =	0.954
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.367	5.1d	LTA_cfc =	0.555

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.452	AFC
		INST MAX LIMIT (mg/l) =	1.479	

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)**


Map
eFacts Query
Advanced Query
ESRI Streets & Imagery
Topographic
National Geographic
Locate Latitude and Longitude
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Minutes
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Latitude:
40
11
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Longitude:
-78
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Locate
Close
Outfall 001
Spring Farm Sch
Three Springs
Water Tank
Quarry
Cave Hill
North Ridge
Spring Creek
Brier Run
ABANDONED
STATE GAME LANDS
0
0.1
0.2mi

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.3	XXX	1.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	7.5	XXX	15	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	22.5	XXX	XXX	2/month	8-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.3	XXX	1.0	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	7.5	XXX	15.0	2/month	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	22.5	XXX	XXX	2/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Compliance Sampling Location:

Other Comments:

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