Pennsylvania Department of Environmental Protection

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0088439**
Facility Type	**Non-Municipal**	APS ID	**636767**
Major / Minor	**Minor**	Authorization ID	**1487301**

Applicant and Facility Information

Applicant Name	**School House Village Wastewater Division**	Facility Name	**School House Village**
Applicant Address	4774 Olde Pump Street, Unit 26, PO Box 128 Walnut Creek, OH 44687	Facility Address	23 Kennys Lane Harrisonville, PA 17228
Applicant Contact	Lee Mummau	Facility Contact	Lee Mummau
Applicant Phone	(301) 831-7624	Facility Phone	(301) 831-7624
Client ID	261657	Site ID	532866
Ch 94 Load Status	Not Overloaded	Municipality	Licking Creek Township
Connection Status	No Limitations	County	Fulton
Date Application Received	June 3, 2024	EPA Waived?	Yes
Date Application Accepted	June 5, 2024	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

School House Village Wastewater Division (Authority/Permittee), applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on November 15, 2019 and became effective on December 1, 2019. The permit expires on November 30, 2024.

The average annual design flow and hydraulic design capacity is 0.01 MGD. The treated effluent is discharged to Sindeldecker Branch. The 2024 application states that there are no industrial users.

WQM Part II Permit No. 2900401 original & 2900401 T-1 ownership transfer was issued on 10/25/2000 & 3/20/2008.

Sludge use and disposal description and location(s): N/A because sludge is hauled by County Septic contractor.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the proposed permit. The summer NH_3-N monthly average limit changed to 14.0 mg/L in the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	September 20, 2024
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	September 30, 2024

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.01
Latitude	39º 59' 44.56"	Longitude	-78º 5' 43.59"
Quad Name	Meadown Grounds	Quad Code	1921
Wastewater Description:	Sewage Effluent		
Receiving Waters	Sindeldecker Branch (CWF)	Stream Code	60751
NHD Com ID	49478724	RMI	3.26
Drainage Area	4.16 mi.^{2}	Yield (cfs/mi^2)	0.018
Q_{7-10} Flow (cfs)	0.076	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	905.21	Slope (ft/ft)	
Watershed No.	13-B	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	
Nearest Downstream Public Water Supply Intake	Hagerstown, MD		
PWS Waters	Potomac River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	Approximate 75.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Sindeldecker Branch at RMI 3.26. The drainage area upstream of the point of discharge is 4.16 sq.mi, according to USGS PA StreamStats (https://water.usgs.gov/osw/streamstats/pennsylvania.html).

Streamflow
According to StreamStats, the discharge point on Sindeldecker Branch has a Q_{7-10} of 0.076 cfs and a drainage area of 4.16 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.018 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 0.076 cfs
Low Flow Yield = 0.076 cfs / 4.16 mi.^{2} = 0.018 cfs/mi.^{2}
Q_{30-10} = 1.36 * 0.076 cfs = 0.10 cfs
Q_{1-10} = 0.64 * 0.076 cfs = 0.049 cfs

Sindeldecker Branch
25 Pa Code §93.9z classified the Sindeldecker Branch basin as cold-water fishes and migratory fishes. No Class A Wild Trout Fishery is impacted by this discharge. DEP's 2024 integrated water quality report indicates that the discharge is located in a stream segment listed as attaining use(s).

PWS Intake
The nearest downstream public water supply is Hagerstown, MD on Potomac River. It is approximately 75.0 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: School House Village - WWTP				
WQM Permit No.	**Issuance Date**			
2900401	10/25/2000			
2900401 T-1	3/20/2008			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Extended Aeration	Chlorine With Dechlorination	0.01
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.01		Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:
Per DEP's recent visit to the site on February 16, 2023, the treatment facility consists of the following units:

- One bar screen
- One equalization tank
- Two aeration tanks
- One clarifier
- One chlorine contact tank
- One dechlorination tank
- One post aeration tank
- One sludge holding tank
- Two blowers

Plant uses chlorine and dechlorination tablets for disinfection & reduce chlorine at the effluent discharge.

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

Biosolids Management:
Liquid biosolids are hauled off site by County Septic.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on the next page.
Summary of Inspections:	**3/14/24:** Mr. Clark, DEP WQS, conducted a routine compliance inspection. The field test results were within permit limits. There were violations noted during inspection. Recommendations were to make repairs to the air piping and valves to allow for proper air distribution and adjustments to all treatment tanks, perform process control testing of mixed liquor, and reseed plant if necessary. **2/16/23:** Mr. Clark, DEP WQS, conducted a compliance evaluation inspection. The field test results were within permit limits. The cooling water looked clear. No sludge has been removed from the treatment plant since 2019.
Other Comments:	There were two violations against the permittee or applicant. - 1/28/20222: Biosolids – permittee violated the record keeping requirements. - 3/14/2024: NPDES- Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance.

Compliance History

DMR Data for Outfall 001 (from August 1, 2023 to July 31, 2024)

Parameter	JUL-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23
Flow (MGD) Average Monthly	0.001698	0.002263	0.002132	0.002954	0.001776	0.001529	0.001676	0.001502	0.001530	0.001502	0.001502	0.001502
Flow (MGD) Daily Maximum	0.00425	0.005370	0.00518	0.004890	0.00912	0.00348	0.005540	0.004510	0.00485	0.004510	0.004510	0.004510
pH (S.U.) Daily Minimum	6.60	6.40	7.0	7.04	7.20	8.0	6.76	6.93	6.68	6.59	6.46	6.54
pH (S.U.) Daily Maximum	7.30	7.60	7.70	7.51	8.10	8.3	8.60	7.69	7.69	6.98	7.03	7.94
DO (mg/L) Daily Minimum	6.88	6.10	8.0	8.11	8.21	10.4	10.11	9.48	6.45	8.69	7.97	7.01
TRC (mg/L) Average Monthly	0.10	0.10	0.13	0.05	0.07	0.14	0.22	0.09	0.06	0.06	0.04	0.07
TRC (mg/L) Instantaneous Maximum	0.32	0.26	0.80	0.07	0.13	0.20	0.42	0.13	0.11	0.09	0.07	0.13
CBOD5 (mg/L) Average Monthly	2.39	6.42	2.58	3.26	7.16	4.62	3.41	2.60	2.0	3.0	2.48	2.0
TSS (mg/L) Average Monthly	2.75	3.0	2.75	2.00	3.75	3.75	2.50	5.50	4.50	4.25	3.25	7.50
Fecal Coliform (No./100 ml) Geometric Mean	6.0	6.0	3.0	22	9.0	3.0	1.0	3.0	3.0	26	1.0	3.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	18.0	37.0	7.0	52	85.0	4.0	1.0	7.0	12.0	62	1.0	3.0
Nitrate-Nitrite (mg/L) Average Quarterly		10.90			9.30			12.40			10.20	
Nitrate-Nitrite (lbs) Total Quarterly		6.68			1.382			3.08			4.333	
Total Nitrogen (mg/L) Average Quarterly		12.49			10.00			12.90			11.20	
Total Nitrogen (lbs) Total Quarterly		7.66			1.49			3.21			4.76	
Total Nitrogen (lbs) Total Annual								11.0				
Ammonia (mg/L) Average Monthly	0.50	5.35	0.61	0.50	0.50	0.50	1.41	0.50	< 0.50	0.50	0.50	0.50

Ammonia (mg/L) Average Quarterly		3.81			1.41			0.50			0.50	
Ammonia (lbs) Total Quarterly		1.08			0.1654			0.0931			0.48522	
Ammonia (lbs) Total Annual								15.0				
TKN (mg/L) Average Quarterly		1.59			0.70			0.50			1.0	
TKN (lbs) Total Quarterly		0.97			0.10			0.12			0.42	
Total Phosphorus (mg/L) Average Quarterly		0.44			0.15			0.29			0.32	
Total Phosphorus (lbs) Total Quarterly		0.27			0.02			0.07			0.13	
Total Phosphorus (lbs) Total Annual								1.0				

Existing Effluent Limitations and Monitoring Requirements

Outfall 001,

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	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	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) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	15.0	XXX	XXX	2/month	8-Hr Composite
Ammonia	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
TKN (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation

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		
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Total Nitrogen (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.01
Latitude 39º 59' 44.56" **Longitude** -78º 5' 43.59"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

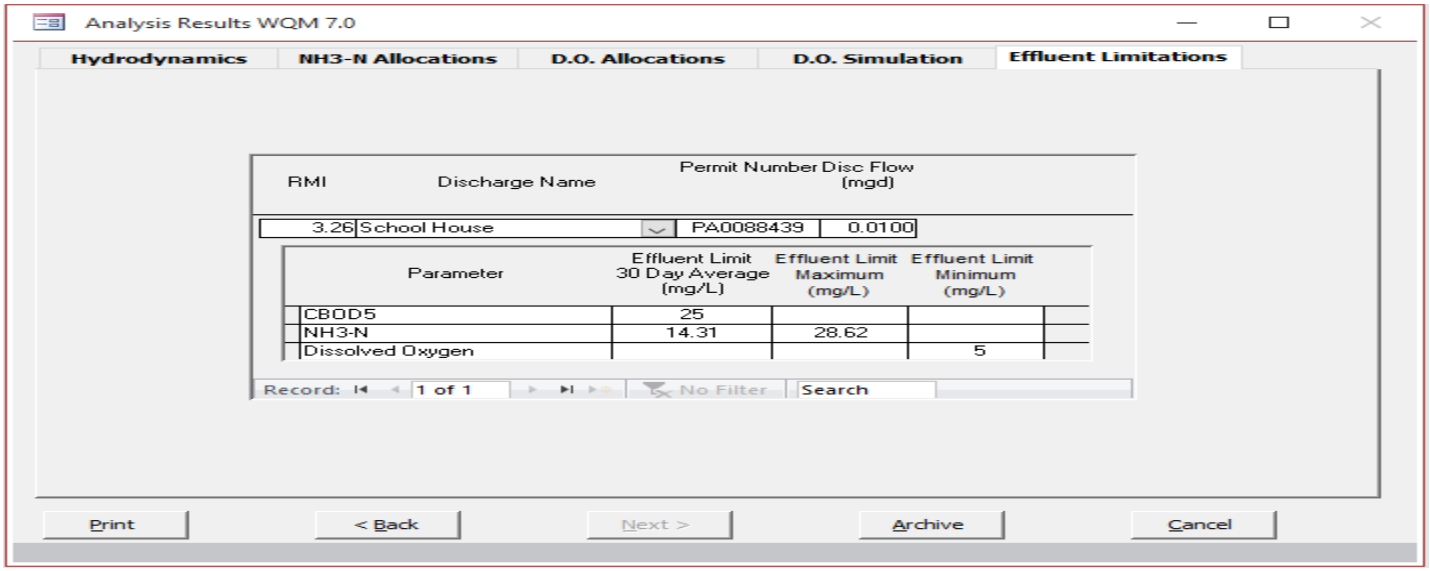
Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	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:

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3N calculations are 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 WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	20°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)



Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 14.31 mg/L as a monthly average and 28.62 mg/L instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects at the point of discharge. Therefore, the existing summer limits of 15.0 mg/L monthly average will be replaced with 14.0 mg/L because it is more stringent. The existing winter monitoring and reporting will remain in place. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Minimum monitoring frequency will be 2/month and sampling type will be 8-hr composite.

Dissolved Oxygen (D.O.):
The 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 2.0 revised February 5, 2024, and has been applied to other point source dischargers throughout the state.

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (ver. 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing permit 25.0 mg/L as AML 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).

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

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 § 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 2.0 revised February 5, 2024, a routine monitoring for E. Coli will be included in the proposed 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.

Toxics:
Any minor sewage facilities designed less than 0.1 MGD are not required to collect samples for toxics.

Total Phosphorus:
The receiving stream is in Potomac river basin, which is outside of Lower Susquehanna River Basin. Therefore, per DEP guidance No. 391-2000-018, no local phosphorus limits will be applied to this facility at this time.

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

Total Residual Chlorine (TRC):
Based on the attached TRC Excel spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.5 mg/L and an instantaneous maximum limit of 1.6 mg/L. These limits are the same as in existing permit and will be carried over. The minimum monitoring frequency is 1/day.

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.076	= Q stream (cfs)	0.5	= CV Daily
0.01	= 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 = 1.586	1.3.2.iii	WLA cfc = 1.539
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.591	5.1d	LTA_cfc = 0.895

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)

Additional Considerations

Flow Monitoring
The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Chesapeake Bay TMDL & TN/TP SOP Monitoring Requirement
The discharge is located within the Chesapeake Bay watershed and is considered under the Supplement to Phase II Watershed Implementation Plan a Phase 5 facility designed to treat between 0.002 MGD and 0.2 MGD. The requirement to monitor for Total Phosphorus and Total Nitrogen is recommended. This approach is also consistent with DEP's Standard Operating Procedure (SOP) no. BCW-PMT-033 in which the SOP recommends a routine monitoring of Total Phosphorus and Total Nitrogen for any sewage facilities greater than 0.002 MGD regardless of the discharge location. The facility has already been monitoring for Total Phosphorus; no change is therefore recommended for Total Phosphorus. For Total Nitrogen, 1/quarter 8-hr composite monitoring is recommended for all TN species.

Antidegradation Requirements
All effluent limitations and monitoring requirements have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected.

Anti-Degradation Requirements
Unless stated otherwise in this fact sheet, all permit requirements proposed in this fact sheet are at least as stringent as permit requirements specified in the existing permit renewal in accordance with 40 CFR §122.44(l)(1).

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.

WQM 7.0:

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

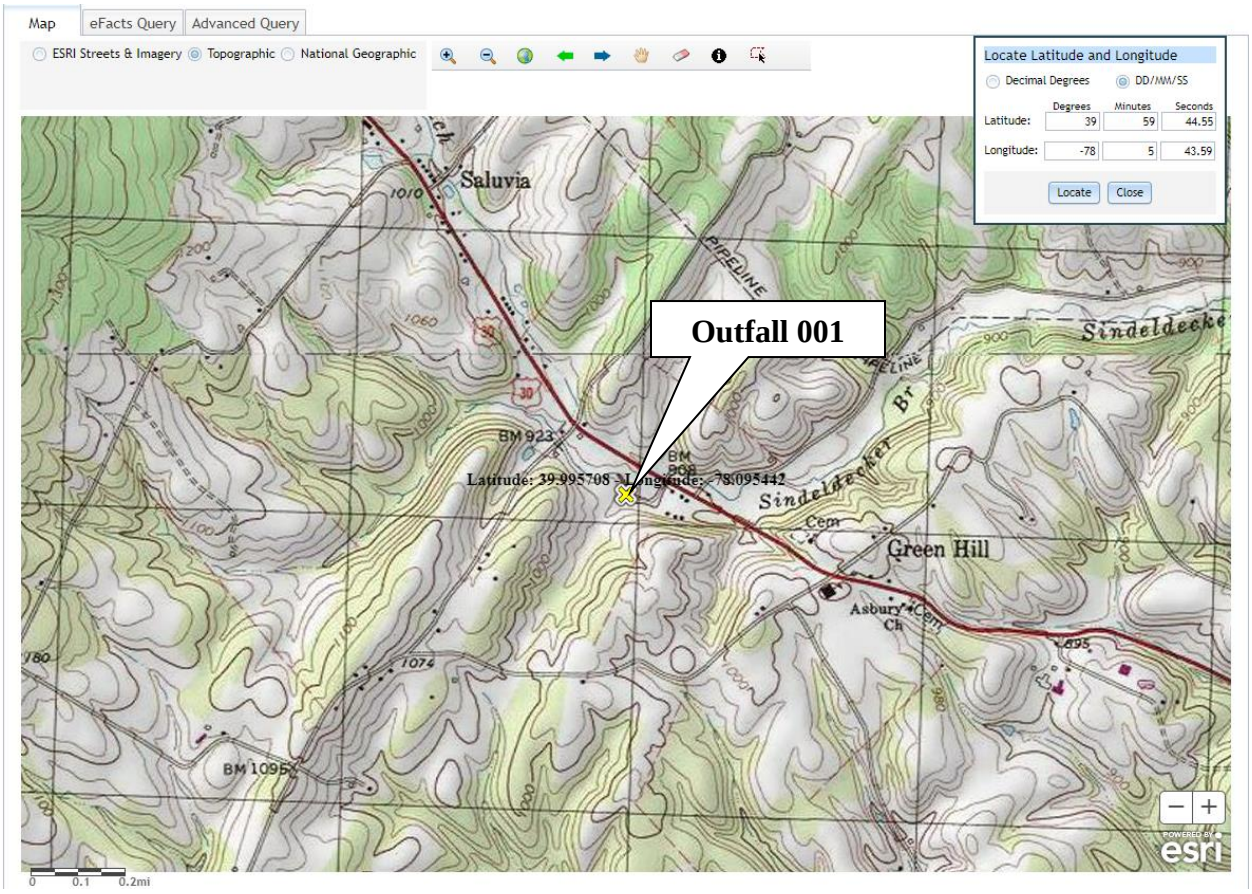
- Discharge pH 7.0 (Default)
- Discharge Temperature 20°C (Default per 391-2000-013)
- Stream pH 7.0 (391-2000-007)
- Stream Temperature 20°C (Default per 391-2000-013)

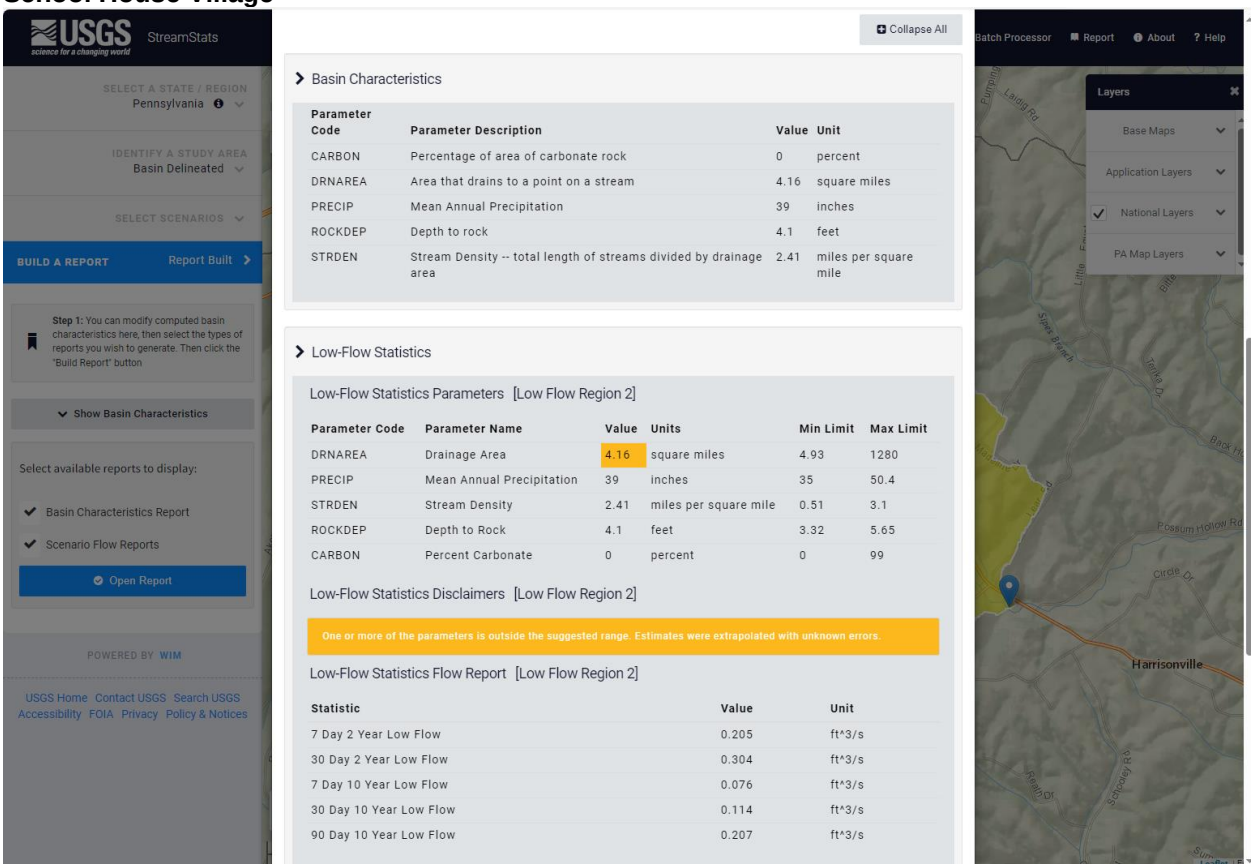
Node 1: Outfall 001 at Sindeldecker Branch (60751)

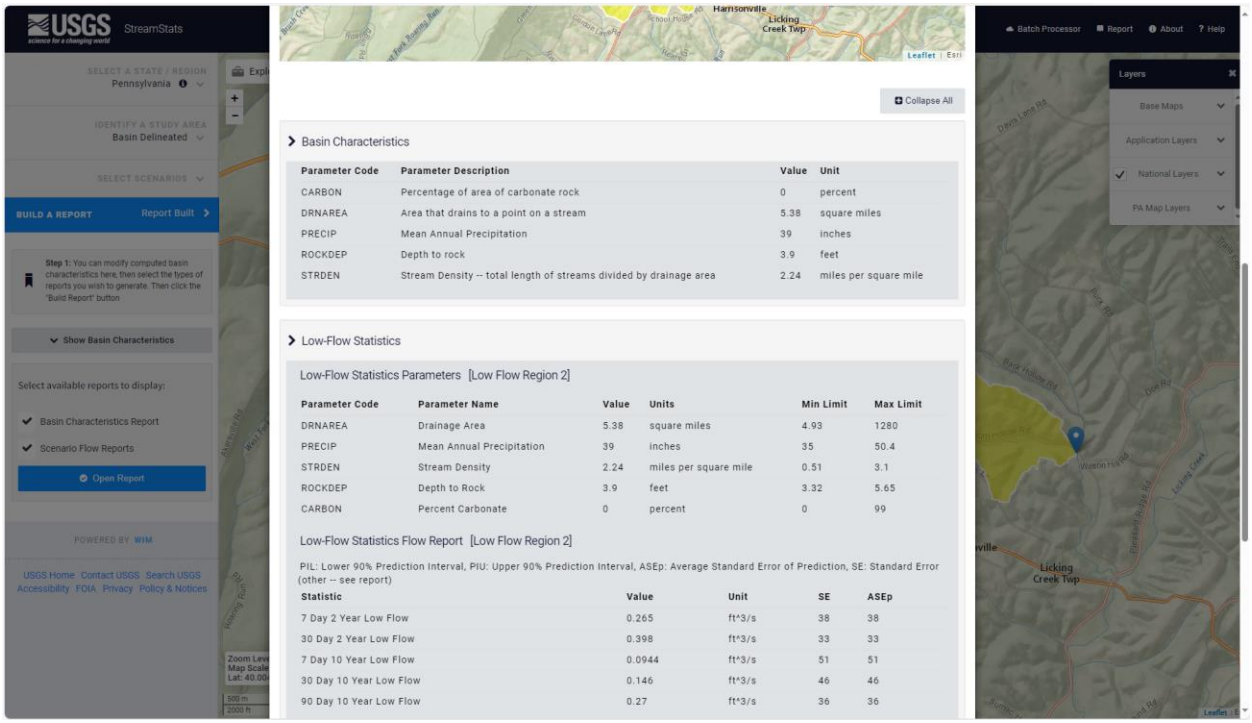
Elevation:	905.21 ft. (USGS National Map)
Drainage Area:	4.16 mi^2 (USGS StreamStats)
River Mile Index:	3.26 (PA DEP eMapPA)
Low Flow Yield:	0.018 cfs/mi^2
Discharge Flow:	0.01 MGD

Node 2: At the confluence with Sipes Branch (60753)

Elevation:	804.53 ft (USGS National Map)
Drainage Area:	5.38 mi^2 (StreamStats)
River Mile Index:	0.001 (PA DEP eMapPA)
Low Flow Yield:	0.018 cfs/mi^2
Discharge Flow:	0.00 MGD




USGS StreamStats
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 0 | percent
DRNAREA | Area that drains to a point on a stream | 4.16 | square miles
PRECIP | Mean Annual Precipitation | 39 | inches
ROCKDEP | Depth to rock | 4.1 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 2.41 | 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 | 4.16 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4
STRDEN | Stream Density | 2.41 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 4.1 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 0 | 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 | 0.205 | ft^3/s
30 Day 2 Year Low Flow | 0.304 | ft^3/s
7 Day 10 Year Low Flow | 0.076 | ft^3/s
30 Day 10 Year Low Flow | 0.114 | ft^3/s
90 Day 10 Year Low Flow | 0.207 | ft^3/s
Harrisonville


USGS StreamStats
Harrisonville
Licking Creek Twp
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
CARBON | Percentage of area of carbonate rock | 0 | percent
DRNAREA | Area that drains to a point on a stream | 5.38 | square miles
PRECIP | Mean Annual Precipitation | 39 | inches
ROCKDEP | Depth to rock | 3.9 | feet
STRDEN | Stream Density -- total length of streams divided by drainage area | 2.24 | 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 | 5.38 | square miles | 4.93 | 1280
PRECIP | Mean Annual Precipitation | 39 | inches | 35 | 50.4
STRDEN | Stream Density | 2.24 | miles per square mile | 0.51 | 3.1
ROCKDEP | Depth to Rock | 3.9 | feet | 3.32 | 5.65
CARBON | Percent Carbonate | 0 | percent | 0 | 99
Low-Flow Statistics Flow Report [Low Flow Region 2]
PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic | Value | Unit | SE | ASEp
7 Day 2 Year Low Flow | 0.265 | ft^3/s | 38 | 38
30 Day 2 Year Low Flow | 0.398 | ft^3/s | 33 | 33
7 Day 10 Year Low Flow | 0.0944 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 0.146 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 0.27 | ft^3/s | 36 | 36

Analysis Results WQM 7.0

Hydrodynamics | NH3-N Allocations | D.O. Allocations | D.O. Simulation | Effluent Limitations

RMI	Discharge Name	Permit Number	Disc Flow (mgd)
3.26	School House	PA0088439	0.0100

Parameter	Effluent Limit 30 Day Average (mg/L)	Effluent Limit Maximum (mg/L)	Effluent Limit Minimum (mg/L)
CBOD5	25		
NH3-N	14.31	28.62	
Dissolved Oxygen			5

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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13B	60751	SINDELDECKER BRANCH

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)
3.260	School House	PA0088439	0.010	CBOD5	25		
				NH3-N	14.31	28.62	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13B	60751	SINDELDECKER BRANCH

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
3.260	School House	16.76	50	16.76	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
3.260	School House	1.89	14.31	1.89	14.31	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
3.26	School House	25	25	14.31	14.31	5	5	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
13B	60751	SINDELDECKER BRANCH

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
3.260	0.010	20.000	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/D Ratio	Reach Velocity (fps)
6.332	0.352	17.965	0.040
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
5.84	0.221	2.45	0.700
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
7.666	17.420	Owens	5
Reach Travel Time (days)			
4.920			

Subreach Results

Trav.Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.492	5.33	1.74	8.24
0.984	4.78	1.23	8.24
1.476	4.28	0.87	8.24
1.968	3.84	0.62	8.24
2.460	3.45	0.44	8.24
2.952	3.09	0.31	8.24
3.444	2.77	0.22	8.24
3.936	2.49	0.16	8.24
4.428	2.23	0.11	8.24
4.920	2.00	0.08	8.24

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rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
W.A 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	5		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13B	60751	SINDELDECKER BRANCH

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												
3.260	0.07	0.00	0.07	.0155	0.00585	.352	6.33	17.96	0.04	4.920	20.00	7.00
Q1-10 Flow												
3.260	0.05	0.00	0.05	.0155	0.00585	NA	NA	NA	0.03	6.000	20.00	7.00
Q30-10 Flow												
3.260	0.10	0.00	0.10	.0155	0.00585	NA	NA	NA	0.05	4.251	20.00	7.00

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rptGeneral

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
13B	60751	SINDELDECKER BRANCH	3.260	905.21	4.16	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	W/D Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.018	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
School House	PA0088439	0.0100	0.0100	0.0100	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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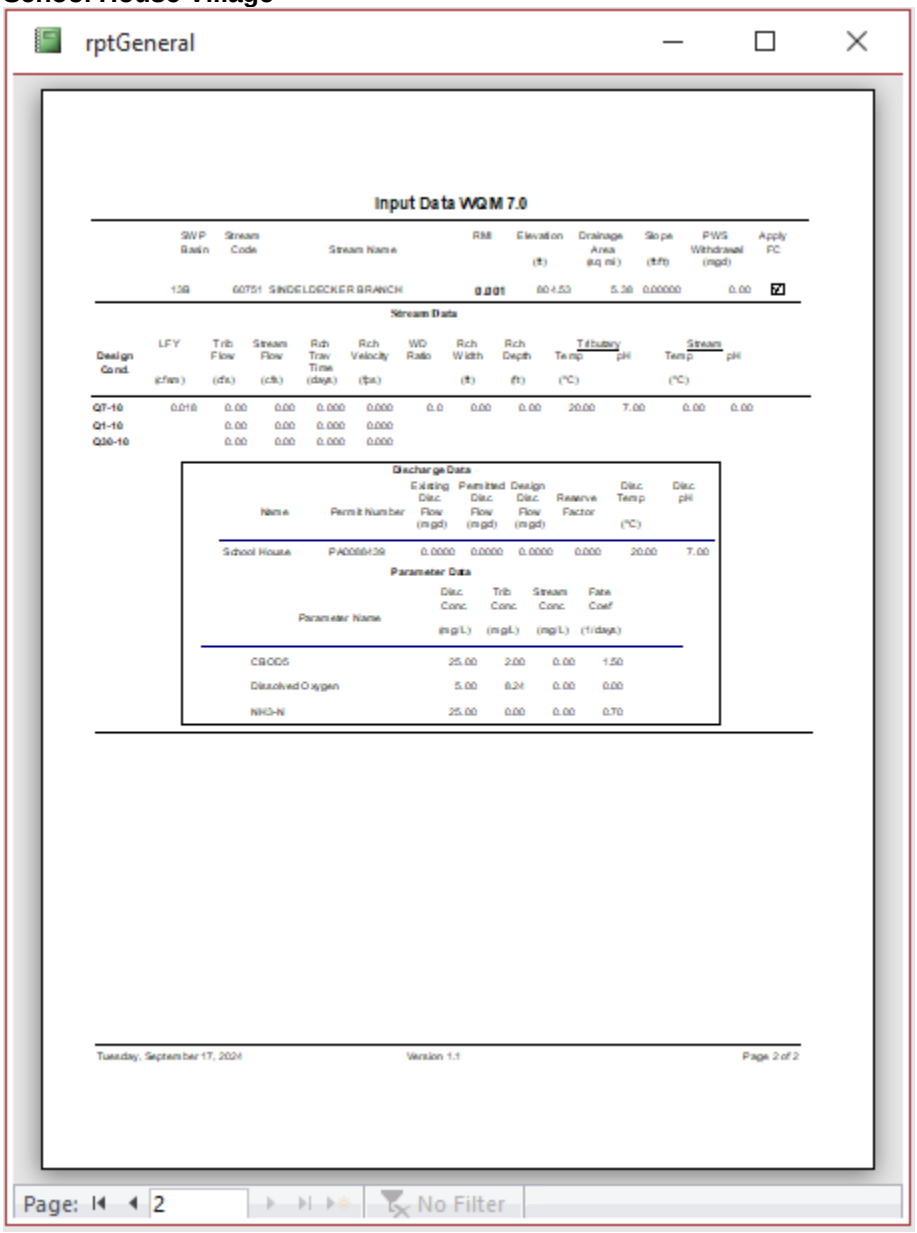

rptGeneral

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
13B	60751	SINDELDECKER BRANCH	0.001	604.53	5.36	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	0.018	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
School House	PA0088439	0.0000	0.0000	0.0000	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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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	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	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	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) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	14.0	XXX	XXX	2/month	8-Hr Composite
Ammonia	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Ammonia (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Ammonia (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

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		
TKN (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Nitrate-Nitrite (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
Total Nitrogen (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Phosphorus (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	Report Total Qrtly	XXX	XXX	XXX	XXX	XXX	1/quarter	Calculation

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, 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: BCW-PMT-033
☐	Other: