pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0084778**
Facility Type	**Municipal**	APS ID	**27862**
Major / Minor	**Minor**	Authorization ID	**1371359**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Granville Township Municipal Authority Mifflin County**	Facility Name	**Granville Township Strodes Mills STP**
Applicant Address	100 Helen Street	Facility Address	Chestnut Ridge Road
	Lewistown, PA 17044-2437		Lewistown, PA 17044-2437
Applicant Contact	Mary Herto	Facility Contact	Tim Tressler
Applicant Phone	(717) 242-2334	Facility Phone	(717) 994-0752
Client ID	75262	Site ID	445404
Ch 94 Load Status	Not Overloaded	Municipality	Granville Township
Connection Status	No Limitations	County	Mifflin
Date Application Received	September 29, 2021	EPA Waived?	Yes
Date Application Accepted	October 5, 2021	If No, Reason	
Purpose of Application	NPDES permit renewal.		

Summary of Review

The EADS Group, Inc., on behalf of the Granville Township - Strodes Mills Wastewater Treatment Plant, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The permit was reissued on April 07, 2017 and became effective on May 1, 2017. The permit expired on April 30, 2022.

The facility has an average annual design flow of 0.033 MGD and a hydraulic design capacity of 0.066 MGD.

In order of percent contribution, this facility serves the areas of Granville Township (90%), and Oliver Township (10%).

Sludge use and disposal description and location(s): N/A due to the sludge is hauled to junction WWTP.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will add to the permit.

Based on the review outline in this fact sheet, 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 8, 2022
X		/s/ Daniel W. Martin, P.E. / Environmental Engineer Manager	May 9, 2022

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.066
Latitude	40º 32' 51.85"	Longitude	-77º 40' 18.41"
Quad Name	Bellville	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Strodes Run (HQ-CWF)	Stream Code	12631
NHD Com ID	66206807	RMI	1.32
Drainage Area	9.89 mi.^{2}	Yield (cfs/mi^2)	0.033
Q_{7-10} Flow (cfs)	0.33	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	511	Slope (ft/ft)	
Watershed No.	12-A	Chapter 93 Class.	HQ-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	Newport Boro Water System		
PWS Waters	Juniata River	Flow at Intake (cfs)	
PWS RMI	12.65 miles	Distance from Outfall (mi)	Approximate 44.0 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Strodes Run at RMI 1.32 mile. A drainage area upstream of the discharge is estimated to be 9.89 mi.^{2}, according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to StreamStats, the point of first use has a Q_{7-10} of 0.33 cfs and a drainage area of 9.89 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.033 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} = 0.33 cfs
Low Flow Yield = 0.33 cfs / 9.89 mi.^{2} = 0.033 cfs/mi.^{2}
Q_{30-10} = 1.36 * 0.33 cfs = 0.45 cfs
Q_{1-10} = 0.64 * 0.33 cfs = 0.21 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 0.33 cfs / [0.066 MGD * (1.547 cfs/MGD)] = 3.23:1

Strodes Run
25 Pa. Code § 93.9n classifies Strodes Run as High Quality- Cold Water Fishes (HQ-CWF) surface water. Based on the 2020 Integrated Report, Strodes Run, assessment unit ID 1718, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is the Newport Borough Water Authority on Juniata River located in Newport Borough, Perry County, approximately 44 miles downstream of this discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary

Treatment Facility Name: Granville Township - Strodes Mills STP

WQM Permit No.	Issuance Date	Description
4493402	3/24/1994	New permit
4489402 99-2 4493402 99-1	5/6/1999	Transfer from Authority to Township
4493402 A-1	11/13/2001	Method of disinfection changed from Chlorine to UV

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Ultraviolet	0.066

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.066	147	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: None

The treatment facility consists of the following units:

- One Bar Screen
- Two Sequential Batch Reactors (SBRs)
- One UV System
- One Sludge Digester

Chemical uses Defoamer and Calcium Hypochlorite (granular for filament control only) as required.

The liquid biosolids are hauled off site to Junction WWTP (PA0032051) on a regular basis.

Compliance History	
Summary of DMRs:	The DMRs reported from March 1, 2021 to February 28, 2022 are summarized in the Table below (Pages # 4, & 5).
Summary of Inspections:	2/09/2022: Mr. Bettinger, DEP's WQS, conducted a compliance evaluation inspection. There were no violations noted during the inspection. 1/9/2020: Mr. Benham, SCRO DEP's inspectors, conducted a compliance evaluation inspection. There was recommendation to utilize a chain of custody form when transporting samples between the Granville Township's Strodes Mill WWTP and the Junction WWTP. The field test results were within permitted limits. There were no violations identified during inspection. 7/5/2018: Mr. Clark, SCRO DEP's inspectors, conducted a follow up inspection. All lab records were available and all results were consistent with data on the DMRs. The field test results were within permitted limits. Effluent appeared clear. There were no violations identified during inspection. 3/9/2017: Mr. Bowen, DEP's WQS, conducted a compliance evaluation inspection. No operator was at the treatment plant this time. The field test results were within permitted limits. Effluent appeared clear. There were no violations identified during inspection.
Other comments:	There are no open violations against the facility or the permittee.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from March 1, 2021 to February 28, 2022)

Parameter	FEB-22	JAN-22	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21
Flow (MGD) Average Monthly	0.033	0.030	0.029	0.028	0.030	0.039	0.030	0.030	0.034	0.031	0.032	0.034
Flow (MGD) Daily Maximum	0.076	0.041	0.038	0.035	0.043	0.188	0.071	0.040	0.116	0.039	0.040	0.041
pH (S.U.) Minimum	7.0	7.1	7.3	7.1	7.3	7.2	7.2	7.4	7.3	7.1	7.2	7.1
pH (S.U.) Maximum	7.6	7.8	7.9	8.1	7.8	7.8	7.8	7.9	7.8	7.8	8.0	7.9
DO (mg/L) Minimum	8.5	8.4	8.2	8.0	7.0	7.0	7.0	7.0	7.5	7.3	8.7	8.4
CBOD5 (lbs/day) Average Monthly	1.8	0.8	1.5	< 0.8	1.4	3.0	1.5	1.3	1.1	1.5	2.0	2.0
CBOD5 (lbs/day) Weekly Average	1.9	0.8	1.8	0.8	1.5	4.9	1.5	1.4	1.1	1.7	2.4	2.2
CBOD5 (mg/L) Average Monthly	7.6	3.6	6.3	< 3.2	5.7	3.6	6.4	5.4	4.1	6.6	7.5	6.7
CBOD5 (mg/L) Weekly Average	8.8	3.7	8.1	3.3	6.5	4.0	6.6	6.0	4.1	7.7	8.6	6.8
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	91	69	120	82	96	166	58	93	80	75	75	92
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	91	75	144	92	114	230	61	86	96	80	86	92
BOD5 (mg/L) Raw Sewage Influent Average Monthly	391	304	483	349	401	277	242	316	295	319	287	311
TSS (lbs/day) Average Monthly	0.6	0.9	1.1	0.8	0.5	2.1	0.6	1.9	1.6	1.8	1.6	1.5
TSS (lbs/day) Raw Sewage Influent Average Monthly	70	68	101	79	73	301	74	73	73	76	73	84
TSS (lbs/day) Raw Sewage Influent Daily Maximum	71	74	110	80	75	517	75	86	87	90	74	86
TSS (lbs/day) Weekly Average	0.8	1.1	1.2	0.8	0.5	3.6	0.8	3.0	2.1	2.6	2.0	1.8
TSS (mg/L) Average Monthly	2.6	3.7	4.4	3.2	2.1	2.2	2.7	8.3	5.6	8.0	5.9	5.3

TSS (mg/L) Raw Sewage Influent Average Monthly	298	302	412	337	307	333	311	316	270	323	283	284
TSS (mg/L) Weekly Average	3.2	4.9	5.6	3.3	2.3	2.3	3.5	13.0	7.5	11.6	6.9	6.6
Fecal Coliform (No./100 ml) Geometric Mean	< 4.0	< 4.0	< 15.4	< 4.0	< 4.0	< 23	55.1	6.9	< 405	14.6	15.4	53.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	4.0	< 4.0	59	4.0	< 4.0	132	74	12.0	< 10000	17.3	29.6	111.6
UV Intensity (µw/cm²) Minimum	2.7	3.2	3.5	3.7	3.8	3.1	4.5	4.8	5.7	3.4	1.9	2.7
Nitrate-Nitrite (mg/L) Average Monthly	< 5.4	< 6.3	< 1.2	5.2	5	7.5	7.7	4.0	< 3.7	< 2.8	< 2	< 1.7
Nitrate-Nitrite (lbs) Total Monthly	< 35	< 44	29	36	36	179	57	28	< 30	< 21	< 15	< 15
Total Nitrogen (mg/L) Average Monthly	< 8.9	< 9.6	< 5	7.2	10.9	9.2	11	5.7	< 6.4	< 13	< 19.4	< 13.5
Total Nitrogen (lbs) Total Monthly	< 58	< 67	< 38	50	77	235	81	40	< 51	< 94	< 150	< 120
Total Nitrogen (lbs) Total Annual						< 1317						
Ammonia (lbs/day) Average Monthly	0.4	< 0.2	0.2	0.2	0.6	< 0.8	< 0.2	0.2	0.3	2.0	4.0	3.0
Ammonia (mg/L) Average Monthly	1.6	< 1.1	1.0	0.8	2.7	< 0.8	< 1.0	1.0	1.0	8.6	17.0	10.1
Ammonia (lbs) Total Monthly	11	< 7.0	7	5	18	< 25	< 7	7	8	63	131	90
Ammonia (lbs) Total Annual						< 393						
TKN (mg/L) Average Monthly	3.5	3.3	3.8	2	5.9	1.7	3.3	1.7	< 2.7	10.2	17.5	11.8
TKN (lbs) Total Monthly	23	23	29	14	41	56	24	12	< 22	74	135	105
Total Phosphorus (mg/L) Average Monthly	2.1	< 2.1	2.8	2.6	1.6	2.6	1.9	2.3	0.9	1.5	2.4	2.8
Total Phosphorus (lbs) Total Monthly	13	< 15	20	18	12	73	14	16	7	11	19	26
Total Phosphorus (lbs) Total Annual						285						

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.066
Latitude 40º 32' 51.50" **Longitude** -77º 40' 18.78"
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: Total residual chlorine is not applied to this facility.

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 per 391-2000-007)
*	Discharge Temperature	20°C	(Default per 391-2000-007)
*	Stream pH	7.0	(Default per 391-2000-006)
*	Stream Temperature	20°C	(Default for WWF per 391-2000-003)
*	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 9.34 mg/L NH_3-N as a monthly average (AML) and 18.68 mg/L NH_3-N instantaneous maximum (IMAX) are necessary to protect the aquatic life from toxicity effects. However, the existing permit limits of 3.0 mg/l average monthly & 9.0 mg/L IMAX for summer and 9.0 mg/l average monthly & 18.0 mg/L IMAX for winter are more stringent and will be remain in the proposed permit. Monitoring frequency will also remain the same of 2/month. DMR data and site inspections reflect that the plant is capable of meeting this limit. Mass limits are calculated as follows:

Summer average monthly mass limit: 3.0 mg/L x 0.066 MGD x 8.34 = 1.65 (1.5) lbs/day
Winter average monthly mass limit: 9.0 mg/L x 0.066 MGD x 8.34 = 4.95 (5.0) lbs/day

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (version 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 limits of 25.0 mg/L monthly average (AML), 40.0 mg/L AWL, and 50.0 mg/L instantaneous maximum (IMAX) are more stringent and will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 25.0 mg/L x 0.066 MGD x 8.34 = 13.76 (13.0) lbs/day
Average weekly mass limit: 40.0 mg/L x 0.066 MGD x 8.34 = 22.02 (22.0) lbs/day

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. BPNPSM-PMT-033, 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 permit to be consistent with the recommendation from this SOP.

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. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

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 limits of 30.0 mg/L average monthly, 45.0 mg/L weekly average, and 60.0 mg/L instantaneous maximum will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has been consistently achieving concentrations below these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.066 MGD x 8.34 = 16.51 (16.0) lbs/day
Average weekly mass limit: 45.0 mg/L x 0.066 MGD x 8.34 = 24.77 (24.0) lbs/day

UV Disinfection:
The UV system monitor and report the UV intensity (mW/cm^2) after update to replace chlorine disinfection to UV disinfection system will remain in the proposed permit.

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 2/month "Monitor & Report" requirements for Ammonia-Nitrogen, Nitrate-Nitrite as N, and Total Kjeldahl Nitrogen; and 2/month calculation "Monitor & Report" for TN will remain in the proposed permit. The yearly calculation "report" for TP & TN will remain in the proposed permit.

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.

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. The receiving stream, Strodes Run, is classified as High-Quality (HQ), Cold Water Fish (CWF), and Migratory Fish (MF). A Socio-Economic Justification (SEJ) study was submitted with the application of New Discharge in 1991 and PADEP approved the discharge to HQ stream on July 15, 1991. No additional SEJ study is warranted for this renewal. No HQ 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.

303(d) Listed Streams:
The stream is listed as attaining its designated use(s).

Additional Considerations

Flow Monitoring
Flow monitoring is recommended by the permit guidance and is also required by 25 Pa. Code §§ 92a.27 and 92a.61.

Influent Monitoring
As a result of negotiation with EPA, influent monitoring of TSS and BOD_5 are required for any POTWs; therefore, influent sampling of BOD_5 and TSS will be included in the draft permit. A 24-hr composite sample type will be required to be consistent with the proposed sampling frequency for TSS and $CBOD_5$ in the effluent.

Total Nitrogen
Monitoring requirements for Total Nitrogen are being added to all NPDES permits in the State if the permit does not already include them, as authorized by 25 Pa. Code § 92a.61. Controlling nutrients in waterways requires data collection. The existing minimum monitoring and report calculation of monthly for Total Nitrogen permit will be remain in the proposed permit.

Total Phosphorus
The discharge is into a stream segment of Strodes Run which is Juniata River basin. DEP's Phosphorus guidance mention that *"(a) Phosphorus controls for waste discharges to streams shall be established, under subsection (b) whenever the Department determines that instream phosphorus, alone or in combination with other pollutants or instream conditions, contribute to impairment of designated uses as defined in Chapter 93 (relating to water quality standards). No determination made under this subsection shall constitute a final Department action with respect to any person until a specific treatment or control requirement is imposed under subsection (b)."* Since Juniata River doesn't have instream phosphorus related impairment, local Phosphorus limit is not necessary at this time. This determination may be re-evaluated in next permit term if regulation demands.

Toxics
DEP utilizes a Toxics Management Spreadsheet (TMS) (last modified on March 2021, ver. 1.3) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The effluent testing information renewal application (page 7) indicates that there are no toxic pollutants of concern.

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)
• Stream pH	7.0	(Default)
• Stream Temperature	20°C	(Default)

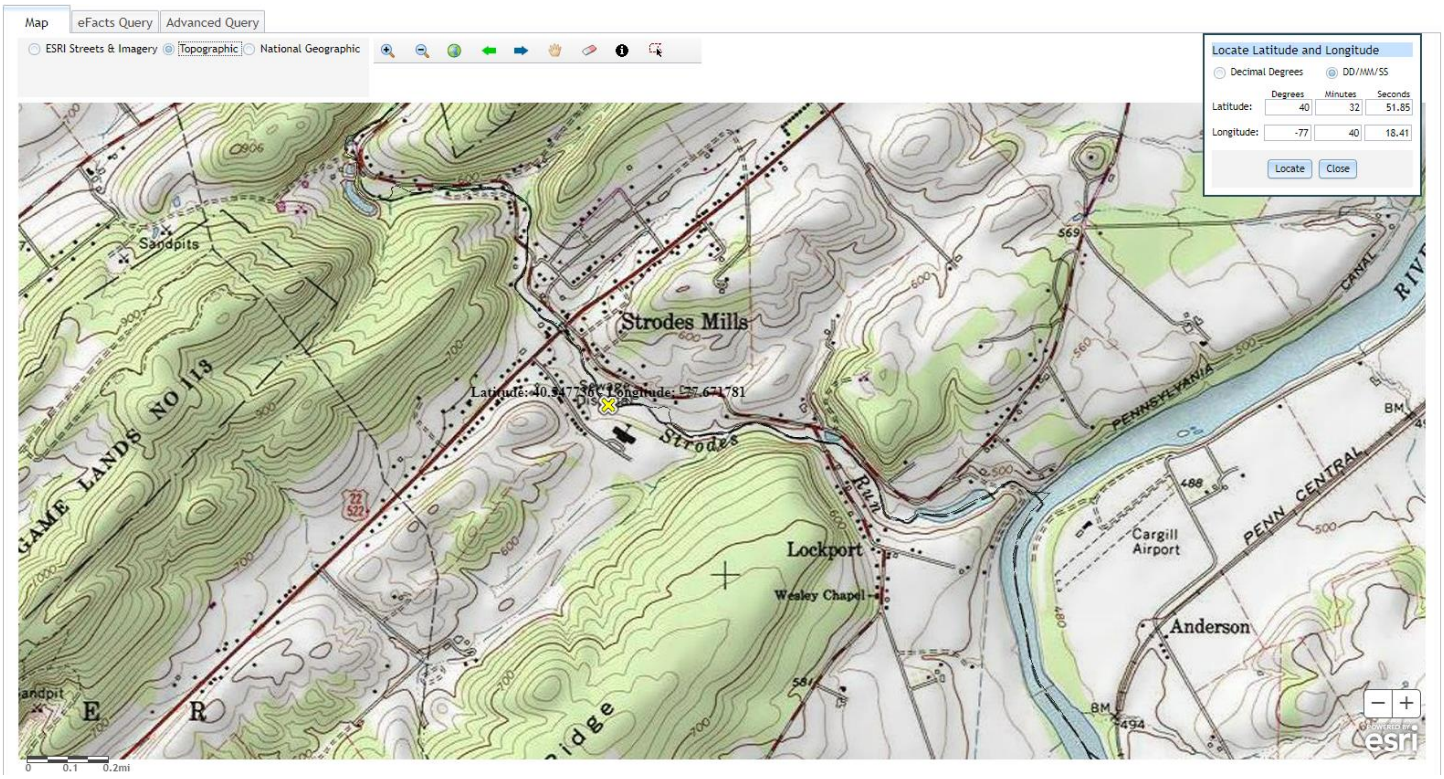
The following three nodes were used in modeling:

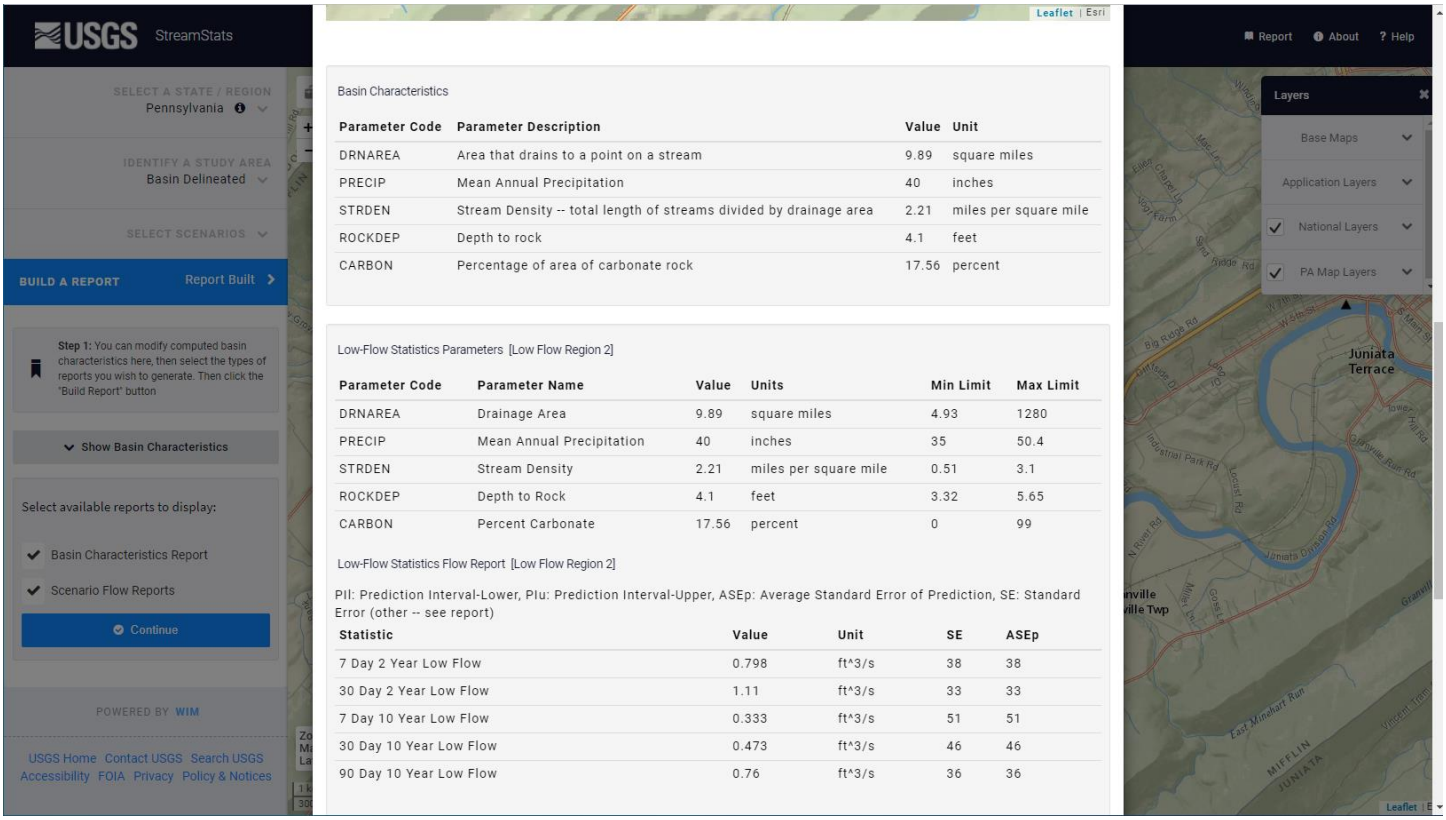
Node 1: Outfall 001 at Strodes Run (12631)

Elevation:	511 ft (USGS)
Drainage Area:	9.89 $mi.^2$ (StreamStats)
River Mile Index:	1.32 (PA DEP eMapPA)
Low Flow Yield:	0.03 $cfs/mi.^2$
Discharge Flow:	0.066 MGD

Node 2: At the confluence with Tributary 12632

Elevation:	495 ft (USGS)
Drainage Area:	10.0 $mi.^2$ (StreamStats)
River Mile Index:	0.99 (PA DEP eMapPA)
Low Flow Yield:	0.03 $cfs/mi.^2$
Discharge Flow:	0.00 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	9.89	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	2.21	miles per square mile
ROCKDEP	Depth to rock	4.1	feet
CARBON	Percentage of area of carbonate rock	17.56	percent

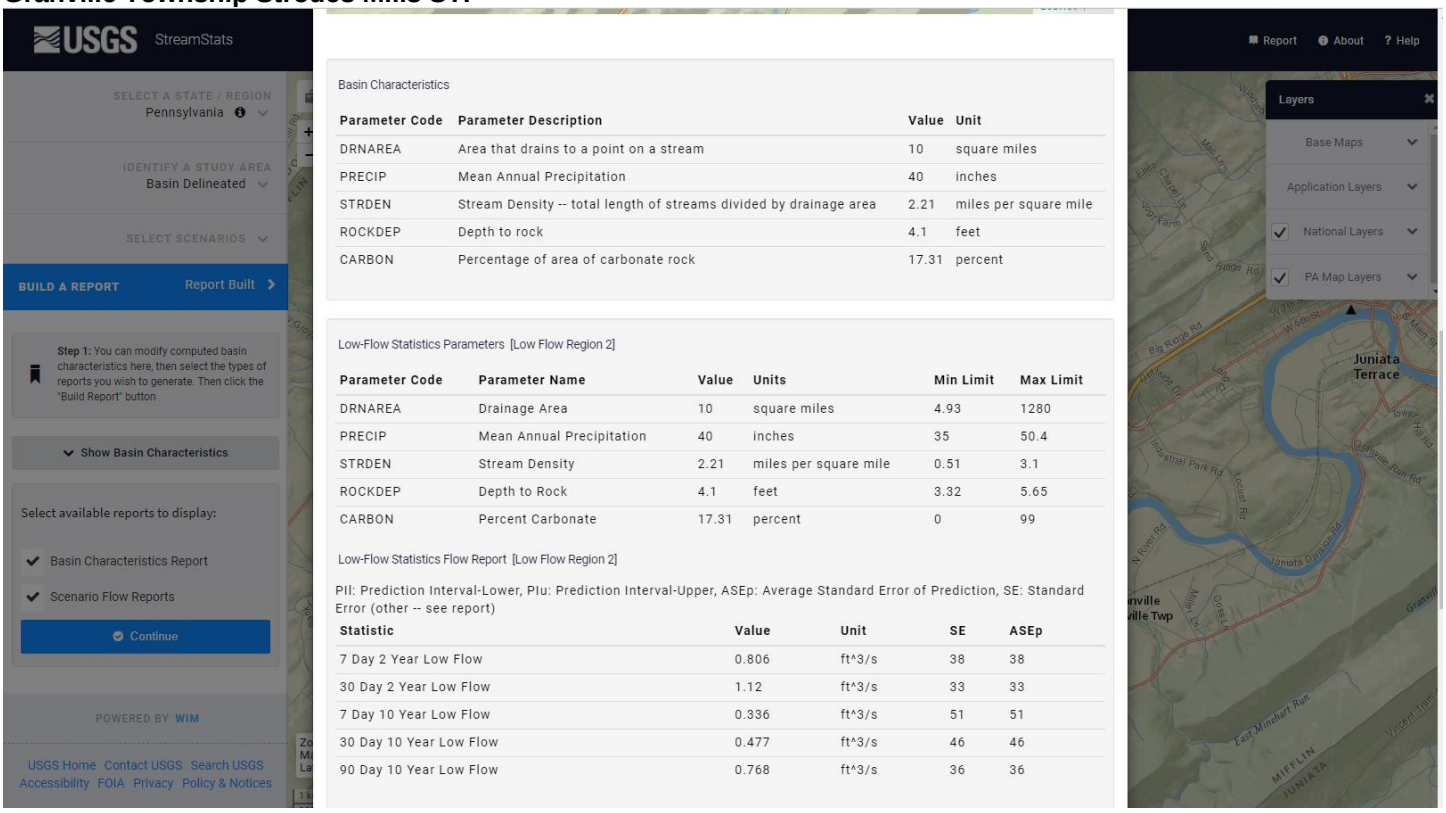
Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	9.89	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	2.21	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.1	feet	3.32	5.65
CARBON	Percent Carbonate	17.56	percent	0	99

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

PII: Prediction Interval-Lower, Plu: 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	0.798	ft^3/s	38	38
30 Day 2 Year Low Flow	1.11	ft^3/s	33	33
7 Day 10 Year Low Flow	0.333	ft^3/s	51	51
30 Day 10 Year Low Flow	0.473	ft^3/s	46	46
90 Day 10 Year Low Flow	0.76	ft^3/s	36	36



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	10	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	2.21	miles per square mile
ROCKDEP	Depth to rock	4.1	feet
CARBON	Percentage of area of carbonate rock	17.31	percent

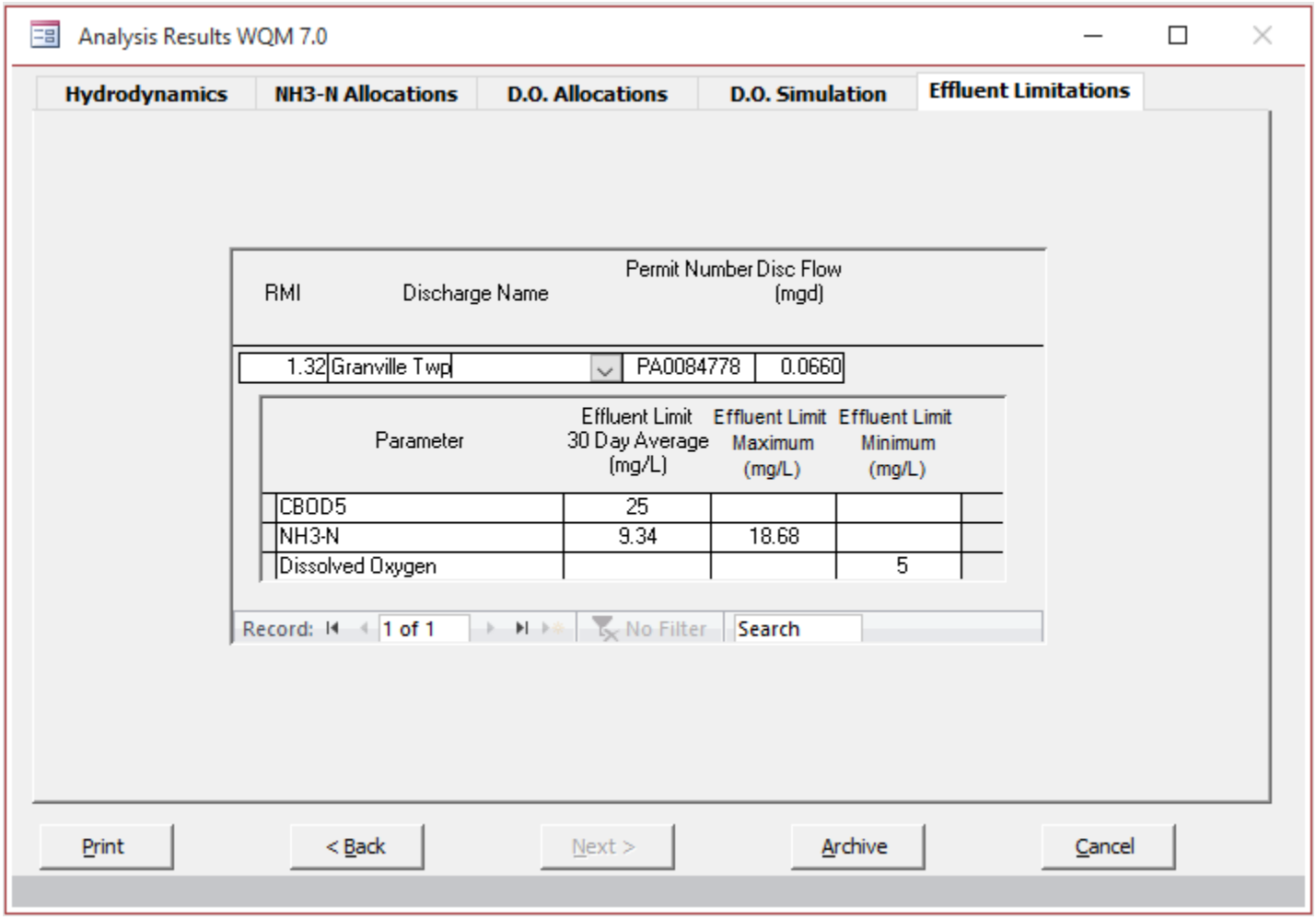
Low-Flow Statistics Parameters [Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	10	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	2.21	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.1	feet	3.32	5.65
CARBON	Percent Carbonate	17.31	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	0.806	ft^3/s	38	38
30 Day 2 Year Low Flow	1.12	ft^3/s	33	33
7 Day 10 Year Low Flow	0.336	ft^3/s	51	51
30 Day 10 Year Low Flow	0.477	ft^3/s	46	46
90 Day 10 Year Low Flow	0.768	ft^3/s	36	36



rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
12A	12831	STRODES RUN

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)
1.320	Granville Twp	PA0084778	0.066	CBOD5	25		
				NH3-N	9.34	18.68	
				Dissolved Oxygen			5

Wednesday, April 6, 2022 Version 1.1 Page 1 of 1

Page: 1 No Filter

rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
12A	12831	STRODES RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.320	Granville Twp	16.76	47.93	16.76	47.93	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.320	Granville Twp	1.89	9.34	1.89	9.34	0	0

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen			
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Critical Reach	Percent Reduction
1.32	Granville Twp	25	25	9.34	9.34	5	5	0	0

Wednesday, April 6, 2022 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
12A	12881	STRODES RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.320	0.095	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
11.079	0.451	24.552	0.080
Reach CBOD5 (mg/L)	**Reach Kr (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.89	1.170	2.39	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.413	17.377	Owens	6
Reach Travel Time (days)			
0.253			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.025	7.66	2.35	7.60
0.051	7.44	2.31	7.73
0.076	7.22	2.27	7.83
0.101	7.01	2.23	7.90
0.126	6.80	2.19	7.95
0.152	6.61	2.15	8.00
0.177	6.41	2.11	8.04
0.202	6.23	2.08	8.07
0.228	6.04	2.04	8.10
0.253	5.87	2.00	8.13

Wednesday, April 6, 2022 Version 1.1 Page 1 of 1

Page: 1 No Filter

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		

Wednesday, April 6, 2022 Version 1.1 Page 1 of 1

Page: 1 No Filter

rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin: 12A | Stream Code: 12631 | Stream Name: STRODES RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.320	0.30	0.00	0.30	.1021	0.00918	.451	11.08	24.55	0.08	0.253	20.00	7.00
Q1-10 Flow												
1.320	0.19	0.00	0.19	.1021	0.00918	NA	NA	NA	0.07	0.301	20.00	7.00
Q30-10 Flow												
1.320	0.40	0.00	0.40	.1021	0.00918	NA	NA	NA	0.09	0.221	20.00	7.00

Wednesday, April 6, 2022 Version 1.1 Page 1 of 1

Page: 1 No Filter

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
12A	12631	STRODES RUN	1.320	511.00	9.89	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)	Trib Temp (°C)	Trib pH	Stream Temp (°C)	Stream pH
Q7-10	0.030	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

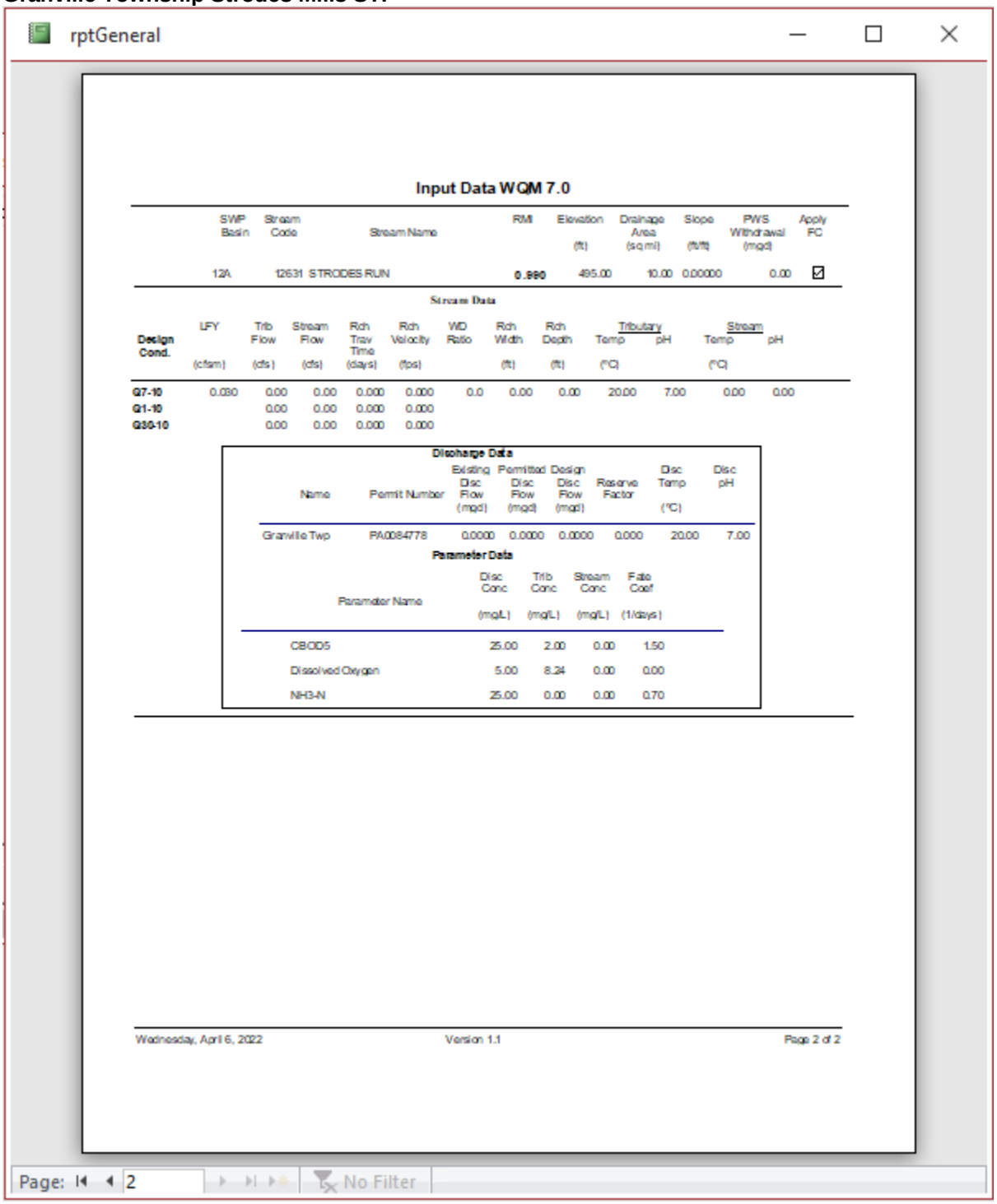
Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Granville Twp	PA0084778	0.0660	0.0660	0.0660	0.000	20.00	7.00

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

Wednesday, April 6, 2022 Version 1.1 Page 1 of 2

Page: 1 No Filter



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
12A	12631	STRODES RUN	**0.990**	495.00	10.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.030	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
Granville Twp	PA0084778	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

Wednesday, April 6, 2022 Version 1.1 Page 2 of 2

Page: 2 No Filter

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	Daily Maximum	Minimum	Average Monthly	Weekly Average	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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$	13	22 Wkly Avg	XXX	25.0	40.0	50	2/month	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	16	24 Wkly Avg	XXX	30.0	45.0	60	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-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
UV Intensity ($\mu w/cm^2$)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia May 1 - Oct 31	1.5	XXX	XXX	3.0	XXX	6	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	5.0	XXX	XXX	9.0	XXX	18	2/month	24-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

Chesapeake Bay Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Average Monthly	Maximum	IMAX		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	24-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	Instantaneous Minimum	Average Monthly	Weekly Average	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
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
$CBOD_5$	13.0	22.0 Wkly Avg	XXX	25.0	40.0	50.0	2/month	24-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	16.0	24.0 Wkly Avg	XXX	30.0	45.0	60.0	2/month	24-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	24-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
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
Ammonia May 1 - Oct 31	1.5	XXX	XXX	3.0	XXX	6.0	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	5.0	XXX	XXX	9.0	XXX	18.0	2/month	24-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: Chesapeake Bay Requirements, 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	Average Monthly	Maximum	IMAX		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	24-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: