pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0020834**
Facility Type	**Municipal**	APS ID	**277391**
Major / Minor	**Minor**	Authorization ID	**1341035**

Applicant and Facility Information

Applicant Name	**Greencastle, Franklin County, Authority**	Facility Name	**Greencastle STP**
Applicant Address	60 N Washington Street	Facility Address	60 N Washington Street
	Greencastle, PA 17225-1230		Greencastle, PA 17225-1230
Applicant Contact	Kevin Hunsberger	Facility Contact	Kevin Hunsberger
Applicant Phone	(717) 597-7143	Facility Phone	(717) 597-7143
Client ID	87535	Site ID	252114
Ch 94 Load Status	Not Overloaded	Municipality	Greencastle Borough
Connection Status	No Limitations	County	Franklin
Date Application Received	February 1, 2021	EPA Waived?	No
Date Application Accepted	February 5, 2021	If No, Reason	Significant CB Discharge
Purpose of Application	NPDES Renewal		

Summary of Review

Greencastle, Franklin County, Authority (GFA) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on August 17, 2016 and became effective on September 1, 2016. The permit will expire on August 31, 2021.

Based on the review, it is recommended that the permit be drafted.

Sludge use and disposal description and location(s): Sludge is processed onsite and land applied under PAG073514.

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
X		*Jinsu Kim* Jinsu Kim / Environmental Engineering Specialist	March 11, 2021
X		/s/ Daniel W. Martin, P.E. / Environmental Engineer Manager	March 15, 2021
X		/s/ Maria D. Bebenek, P.E. / Program Manager	March 15, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.95
Latitude	39º 47' 22"	Longitude	-77º 44' 40"
Quad Name	Greencastle	Quad Code	2024
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Conococheague Creek	Stream Code	59838
NHD Com ID	49479342	RMI	0.57
Drainage Area	4.4 mi^2	Yield (cfs/mi^2)	0.43
Q_{7-10} Flow (cfs)	1.89	Q_{7-10} Basis	USGS gage 01614500
Elevation (ft)	470	Slope (ft/ft)	
Watershed No.	13-C	Chapter 93 Class.	WWF, MF
Existing Use	None	Existing Use Qualifier	None
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	Water/Flow Variability		
Source(s) of Impairment	Agriculture		
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)	8.3	Median, July-Sep, 1999-2014, WQN0501
Temperature (°C)	21.5	Median, July-Sep, 1999-2014, WQN0501
Hardness (mg/L)	219.5	Median, July-Sep, 1999-2014, WQN0501
Other:		

Nearest Downstream Public Water Supply Intake	Hagerstown, MD		
PWS Waters	Potomac River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	38 miles

Drainage Area
The discharge is to an unnamed tributary to Conococheague Creek at RM 0.57. A drainage area upstream of the discharge point is estimated to be 1.51 sq.mi. according to USGS StreamStats available at https://streamstats.usgs.gov/ss/. However, in 1985, a site survey was conducted and determined that the estimated drainage area was 4.4 sq.mi.

Streamflow
USGS StreamStats produced a Q7-10 of 1.1 cfs. However, the drainage area of 1.51 sq.mi was below the minimum drainage area required to properly calculate the low flow statistics; resulting unknown errors occurred in calculations according to USGS StreamStats. As a result, the following low-flow method was used based on the gage no. 01614500 to calculate the low flows:

$$Q_{30-10}:Q_{7-10} = 65.3/55 = 1.19:1$$
$$Q_{1-10}:Q_{7-10} = 48.1/55 = 0.87:1$$
$$Q_{7-10} = 0.43*4.4=1.89 \text{ cfs}$$

Unnamed Tributary of Conococheague Creek
25 Pa Code §93.9z lists all unnamed tributaries of Conococheague Creek including the main stem from LR28017 to PA-MD border as warm water fishes. They also all support migratory fishes. No special protection water is impacted by this

discharge. DEP's latest integrated water quality report finalized in 2020 indicates that the receiving stream is impaired for flow regime modification as a result of agricultural activities. No TMDL has yet developed to address this issue.

Public Water Supply Intake
The fact sheet developed for the last permit renewal indicates the closest downstream public water supply intake from the discharge point is at Hagerstown, MD on the Potomac River. The distance from the discharge to the intake is approximately 38 miles. The discharge will not impact the intake because of the distance, additional dilution from the Potomac River, and the effluent limits.

Treatment Facility Summary

Treatment Facility Name: Greencastle STP

WQM Permit No.	Issuance Date
2820401 (PS)	May 1, 2020
2811405 (PS)	March 19, 2012
2888407 11-1 (TP)	November 23, 2011

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration w/BNR	Chlorine w/Dechlor	0.95

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
1.962	2171.0	Not Overloaded	Aerobic digestion	Land applied

GFA owns and operates a sanitary wastewater treatment plant located at 10409 Grant Shook Road, Greencastle PA 17225. The plant serves the areas of the Borough of Greencastle (95%) and Antrim Township (5%). All sewer systems are 100% separated. With the annual average design flow of 0.95 MGD and hydraulic design capacity of 1.962 MGD, the plant utilizes an BNR activated sludge treatment process consisting of screening, anoxic zone, aeration tank, clarifier, chlorine contact tank with dechlorination and outfall structure. Sludge processing units include digesters (2), belt filter press and a storage area. Any solids generated from this plant will be land applied as a Class A biosolids. Aluminum Sulfate is used for settleability and MircoC is used as a carbon source. Sodium hypochlorite and Sodium Bisulfate are used for chlorination and dechlorination, respectively. The application states that there is no industrial or commercial users contributing wastewater to the sewer system.

Compliance History

Summary of DMRs:	A summary of 12-month DMR data is presented on the next page
Summary of Inspections:	2/18/2020: Brandon Bettinger, DEP Water Quality Specialist, conducted a routine inspection and noted that the outfall is in good condition and the stream conditions appeared unchanged upstream and downstream of the outfall. No violation was noted at the time of inspection. 1/17/2018: Patrick Bowen, former DEP Water Quality Specialist, conducted a routine inspection. No violation was noted at the time of inspection.
Other Comments:	Since the last permit reissuance, there are two (2) effluent violations reported associated with DO (in 2018) and TRC (in 2020). DEP's database indicates that there is no open violation associated with the permittee or facility.

Effluent Data

DMR Data for Outfall 001 (from February 1, 2020 to January 31, 2021)

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Flow (MGD) Average Monthly	0.3716	0.4592	0.3269	0.3266	0.3234	0.3186	0.2923	0.2995	0.3635	0.3474	0.3205	0.3491
Flow (MGD) Daily Maximum	0.5150	1.4291	0.3915	0.4286	0.4290	0.3794	0.3413	0.4036	0.6537	0.8008	0.4163	0.4613
pH (S.U.) Minimum	6.80	6.8	6.92	6.77	6.9	6.83	6.73	6.92	6.78	6.88	6.76	6.63
pH (S.U.) Maximum	7.04	7.17	7.19	7.21	7.13	7.20	7.13	7.09	7.50	7.09	7.07	6.95
DO (mg/L) Minimum	5.79	5.54	5.12	5.07	5.12	5.18	5.08	5.06	5.69	6.00	6.02	6.2
TRC (mg/L) Average Monthly	< 0.01	< 0.01	< 0.02	0.02	0.02	0.02	0.03	0.02	< 0.02	< 0.01	< 0.02	< 0.02
TRC (mg/L) Daily Maximum	0.02	0.06	0.06	0.05	0.04	0.06	0.05	0.04	0.03	0.04	0.08	0.08
CBOD5 (lbs/day) Average Monthly	15.2	11.9	< 9.5	< 6.3	< 7.30	< 6.6	< 5.7	< 8.50	8.1	< 9.2	< 10.7	13.9
CBOD5 (lbs/day) Weekly Average	18.8	15.9	13.2	7.9	11.6	< 11.1	8.4	10.4	9.3	14.1	14.5	20.9
CBOD5 (mg/L) Average Monthly	5.1	4.0	< 3.5	< 2.4	< 2.6	< 2.6	< 2.3	< 3.4	2.9	< 3.3	< 3.9	4.9
CBOD5 (mg/L) Weekly Average	7.0	5.0	5	3.0	4.0	4.0	3.0	4.0	3.0	5.0	5.0	8.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	593	547	555	520	583	466	572	545	528	547	666	558
BOD5 (mg/L) Raw Sewage Influent Average Monthly	194	179	211	202	218	179	225	222	185	195	251	197
TSS (lbs/day) Average Monthly	22.5	15.5	11.1	8.6	< 8.9	8.3	< 5.1	9.5	13.6	9.3	10.0	14.3
TSS (lbs/day) Raw Sewage Influent Average Monthly	456	476	643	519	597	387	513	449	433	510	593	470
TSS (lbs/day) Weekly Average	28.0	20.1	13.3	13.9	14.6	10.6	9.5	10.4	19.6	13.2	14.1	18.9
TSS (mg/L) Average Monthly	7.5	5.0	4.1	3.3	< 3.0	3.3	< 2.1	3.8	5.0	3.4	3.6	5.0

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
TSS (mg/L) Raw Sewage Influent Average Monthly	153	155	245	202	220	147	200	182	146	183	223	164
TSS (mg/L) Weekly Average	10.0	6.0	5.0	5.0	5.0	4.0	4.0	4.0	8.0	5.0	5.0	7.0
Total Dissolved Solids (lbs/day) Average Monthly	3200	2842	2802	2787	3986	2494	2647	3152	3416	3099	3313	3348
Total Dissolved Solids (lbs/day) Weekly Average	3200	2842	2802	2787	3986	2494	2647	3152	3416	3099	3313	3348
Total Dissolved Solids (mg/L) Average Monthly	915	962	1120	1082	1114	994	1095	1210	941	1066	1173	1193
Fecal Coliform (No./100 ml) Geometric Mean	114	7	< 4	58	31	13	54	< 12	15	10	7	116
Fecal Coliform (No./100 ml) Instantaneous Maximum	440	22	23	450	99	21	140	56	81	18	16	3400
Nitrate-Nitrite (mg/L) Average Monthly	< 6.128	< 7.714	< 7.55	< 8.13	< 5.711	< 5.86	< 6.129	< 9.747	< 13.421	< 7.9	< 9.53	< 12.464
Nitrate-Nitrite (lbs) Total Monthly	< 570	< 731	< 608	< 654	< 475	< 466	< 470	< 729	< 1111	< 661	< 820	< 1036
Total Nitrogen (mg/L) Average Monthly	< 7.708	< 9.945	< 9.1	< 9.841	< 7.284	< 7.26	< 7.707	< 11.312	< 15.668	< 9.57	< 11.602	< 14.885
Total Nitrogen (lbs) Effluent Net Total Monthly	< 721	< 945	< 732	< 791	< 611	< 576	< 593	< 846	< 1304	< 800	< 995	< 1237
Total Nitrogen (lbs) Total Monthly	< 721	< 945	< 732	< 791	< 611	< 576	< 593	< 846	< 1304	< 800	< 995	< 1237
Total Nitrogen (lbs) Effluent Net Total Annual					< 12232							
Total Nitrogen (lbs) Total Annual					< 12232							
Ammonia (lbs/day) Average Monthly	< 1.90	< 1.90	< 1.3	< 1.3	< 1.5	< 1.3	< 1.2	< 1.3	< 1.9	< 1.40	< 3.80	< 2.10
Ammonia (mg/L) Average Monthly	< 0.635	< 0.591	< 0.50	< 0.50	< 0.538	< 0.50	< 0.50	< 0.508	< 0.679	< 0.50	< 1.381	< 0.742
Ammonia (lbs) Total Monthly	< 59.7	< 57.5	< 40.4	< 40.3	< 45.3	< 39.7	< 38.6	< 37.9	< 57.7	< 41.7	< 118.1	< 61.8

Parameter	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20
Ammonia (lbs) Total Annual					< 639							
TKN (mg/L) Average Monthly	< 1.58	2.23	< 1.54	1.71	< 1.57	< 1.4	< 1.58	< 1.56	< 2.25	1.67	< 2.07	2.42
TKN (lbs) Total Monthly	< 151	213	< 124	138	< 136	< 110	< 123	< 117	< 193	139	< 175	201
Total Phosphorus (mg/L) Average Monthly	1.521	1.08	1.59	1.87	1.87	2.07	1.963	2.11	1.85	1.69	1.563	1.123
Total Phosphorus (lbs) Effluent Net Total Monthly	147	99	128	151	157	164	152	158	154	139	132	93
Total Phosphorus (lbs) Total Monthly	147	99	128	151	157	164	152	158	154	139	132	93
Total Phosphorus (lbs) Effluent Net Total Annual					1584							
Total Phosphorus (lbs) Total Annual					1584							
Sulfate (lbs/day) Average Monthly	199	192	175	165	258	186	160	193	211	195	240	177
Sulfate (lbs/day) Weekly Average	199	192	175	165	258	186	160	193	211	195	240	177
Sulfate (mg/L) Average Monthly	57	65	70	64	72	74	66	74	58	67	85	63
Chloride (lbs/day) Average Monthly	1305	1055	1053	1054	1442	934	1044	1292	1176	1178	1452	1267
Chloride (lbs/day) Weekly Average	1305	1055	1053	1054	1442	934	1044	1292	1176	1178	1452	1267
Chloride (mg/L) Average Monthly	373	357.2	421	409	403	372.1	432	496	324	405.3	514	451.5
Bromide (lbs/day) Average Monthly	2	1	0.9	0.7	< 0.9	< 0.6	< 0.6	< 0.7	< 0.9	< 0.7	< 0.7	< 0.7
Bromide (lbs/day) Weekly Average	2	1	0.9	0.7	< 0.9	< 0.6	< 0.6	< 0.7	< 0.9	< 0.7	< 0.7	< 0.7
Bromide (mg/L) Average Monthly	0.52	0.42	0.37	0.26	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25

Existing Effluent Limits and Monitoring Requirements

A table below summarizes effluent limits and monitoring requirements specified in the current permit:

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0 Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.19	0.64 Daily Max	XXX	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	198.0	317.0	XXX	25.0	40.0	50	1/week	8-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Total Suspended Solids	237.0	356.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	74.63	XXX	XXX	9.42	XXX	18.84	2/week	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	24.9	XXX	XXX	3.14	XXX	6.28	2/week	8-Hr Composite
Sulfate, Total	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Chloride	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Bromide	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Existing Effluent Limits and Monitoring Requirements (continued)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	2/week	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Net Total Nitrogen	Report	17351.0	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	2314.0	XXX	XXX	XXX	XXX	1/month	Calculation

Development of Effluent Limitations and Monitoring Requirements

Outfall No. 001 **Design Flow (MGD)** .95
Latitude 39º 47' 22" **Longitude** -77º 44' 40"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

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

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

Water Quality-Based Limitations

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD5, NH3-N and DO. DEP's technical guidance no. 391-2000-007 describes the technical methods contained in the model for conducting wasteload allocation analyses and for determining recommended limits for point source discharges. The model output indicates that all existing effluent limits are still appropriate. However, the existing permit contains NH3-N effluent limits of 3.14 mg/L (average monthly) and 6.28 mg/L (IMAX) for summer and 9.42 mg/L (average monthly) and 18.84 mg/L (IMAX) for winter. DEP's technical guidance no. 362-0400-001 recommends effluent limits to be rounded down to the nearest decimal place due to the accuracy of the analytical techniques. As a result, it is recommended to round NH3-N effluent limits off as follows: 3.0 mg/L (average monthly) and 6.0 mg/L (IMAX) for summer, 9.0 mg/L (average monthly) and 18 mg/L (IMAX) for winter. Based on the past DMR data, the facility will not have any issues meeting these adjusted limits.

Total Residual Chlorine (TRC)
DEP's TRC_CALC worksheet was used to determine if a WQBEL for TRC is appropriate. The worksheet indicates that the existing WQBELs of 0.19 mg/L (average monthly) and 0.62 mg/L (IMAX) are still protective of water quality. No change is therefore recommended.

Toxics
DEP's minor sewage facility permit application does not require sampling of toxic pollutants for facilities greater than 0.1 MGD when there are no industrial or commercial users contributing wastewater to the sewer system. No toxic pollutants, except for TDS and its constituents, have therefore been taken into consideration as pollutants of concern at this time. See Additional Considerations section for more details on TDS monitoring requirements.

Best Professional Judgement (BPJ) Effluent Limitations

Dissolved Oxygen
A minimum of 5.0 mg/L for DO is an existing effluent limit and is a current state water quality criterion found in 25 Pa. Code § 93.7(a). This effluent limit will remain unchanged for the upcoming permit renewal to ensure the protection of water quality standards. This approach is also consistent with DEP's SOP no. BPNPSM-PMT-033.

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
The discharge is located within the Chesapeake Bay watershed and is considered under the Supplement to Phase III Watershed Implementation Plan (WIP) a Phase 2 significant sewage discharger. The following Cap Loads specified in the current WIP will be included in the draft permit:

NPDES Permit No.	Phase	Facility	Latest Permit Issuance Date	Permit Expiration Date	Cap Load Compliance Start Date	TN Cap Load (lbs/yr)	TN Offsets Included in Cap Load (lbs/yr)	TP Cap Load (lbs/yr)	TN Delivery Ratio	TP Delivery Ratio
PA0020834	2	Franklin County Authority - Greencastle	08/17/2016	08/31/2021	10/1/2012	17,351	-	2,314	0.683	0.67

Total Dissolved Solids (TDS)
TDS and its associated solids including Bromide, Chloride, and Sulfate have become statewide pollutants of concern. The requirement to monitor these pollutants must be considered under the criteria specified in 25 Pa. Code § 95.10 and the following January 23, 2014 DEP Central Office Directive:

For point source discharges and upon issuance or reissuance of an individual NPDES permit:

-Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for TDS, sulfate, chloride, and bromide. Discharges of 0.1 MGD or less should monitor and report for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD, Part A of the permit should include monitor and report for bromide. Discharges of 0.1 MGD or less should monitor and report for bromide if the concentration of bromide in the discharge exceeds 10 mg/L.

The facility has been monitoring for TDS and its constituents as the application for the last renewal reported the TDS concentration of 1,070 mg/L with the maximum concentration of 1,143 mg/L. The application for this renewal also reported 1,305 mg/L as the maximum effluent concentration. For this review, the past monthly sampling results have been summarized by DEP as follows:

	Monthly Effluent Data from September 2016 through February 2021 (54 datasets) in mg/L			
	TDS	Bromide	Chloride	Sulfate
Average	1033.80	0.516	400.98	69.287
Median	1084	0.25	415.25	70
90th Percentile	1219.8	0.726	477.04	78.81
Minimum	253	0.2	195	31
Maximum	1457	5	514	93

It is recommended that the facility continue to monitor for TDS and its constituents for the upcoming permit term as the effluent levels are still above the monitoring threshold recommended by DEP.

Influent BOD & TSS Monitoring
As a result of negotiation with EPA, the existing influent monitoring reporting requirement for TSS and BOD5 will be maintained in the draft permit. This requirement has been consistently assigned to all municipal wastewater treatment facilities.

Monitoring Frequency and Sample Type
Unless stated otherwise in this fact sheet, all existing monitoring frequencies and sample types will remain unchanged in the permit and are consistent with recommended requirements specified in DEP's technical guidance no. 362-0400-001.

Mass Loading Limitations
All effluent mass loading limits will be based on the formula: design flow x concentration limit x conversion factor of 8.34.

Class A Wild Trout Fishery
A Class A Wild Trout Fishery is not impacted by this discharge.

Anti-Backsliding
All effluent limits have been developed as stringent as the ones specified in the current permit.

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.19	0.64 Daily Max	XXX	1/day	Grab
CBOD5	198.0	317.0	XXX	25.0	40.0	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	237.0	356.0	XXX	30.0	45.0	60	1/week	8-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia Nov 1 - Apr 30	71	XXX	XXX	9.0	XXX	18	2/week	8-Hr Composite
Ammonia May 1 - Oct 31	23	XXX	XXX	3.0	XXX	6.0	2/week	8-Hr Composite
Total Dissolved Solids	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Sulfate	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Chloride	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Bromide	Report	Report	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements (continued)

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	8-Hr Composite
Net Total Nitrogen	XXX	17351.0	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	2314.0	XXX	XXX	XXX	XXX	1/year	Calculation

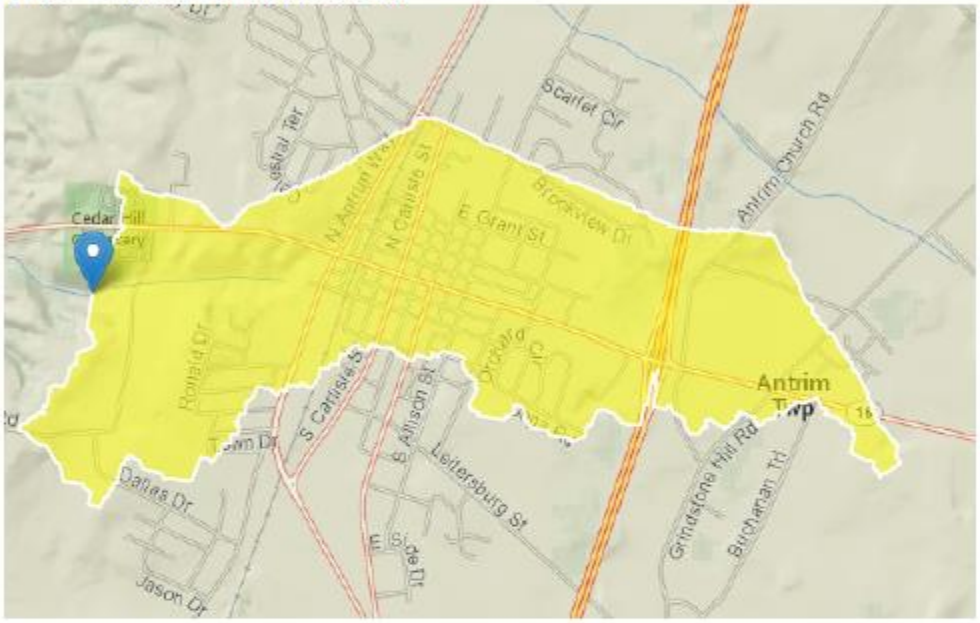
Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical 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:

Attachments

1. StreamStats (Drainage Area of 4.4 sq.mi and 6.0 sq.mi from the site survey used regardless of StreamStats)

StreamStats Report

Region ID: PA
Workspace ID: PA20210311131757065000
Clicked Point (Latitude, Longitude): 39.78949, -77.74492
Time: 2021-03-11 08:18:13 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.51	square miles
PRECIP	Mean Annual Precipitation	39	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	0.39	miles per square mile
ROCKDEP	Depth to rock	5.3	feet
CARBON	Percentage of area of carbonate rock	98.5	percent

3/11/2021 StreamStats

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.51	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	0.39	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5.3	feet	3.32	5.65
CARBON	Percent Carbonate	98.5	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]

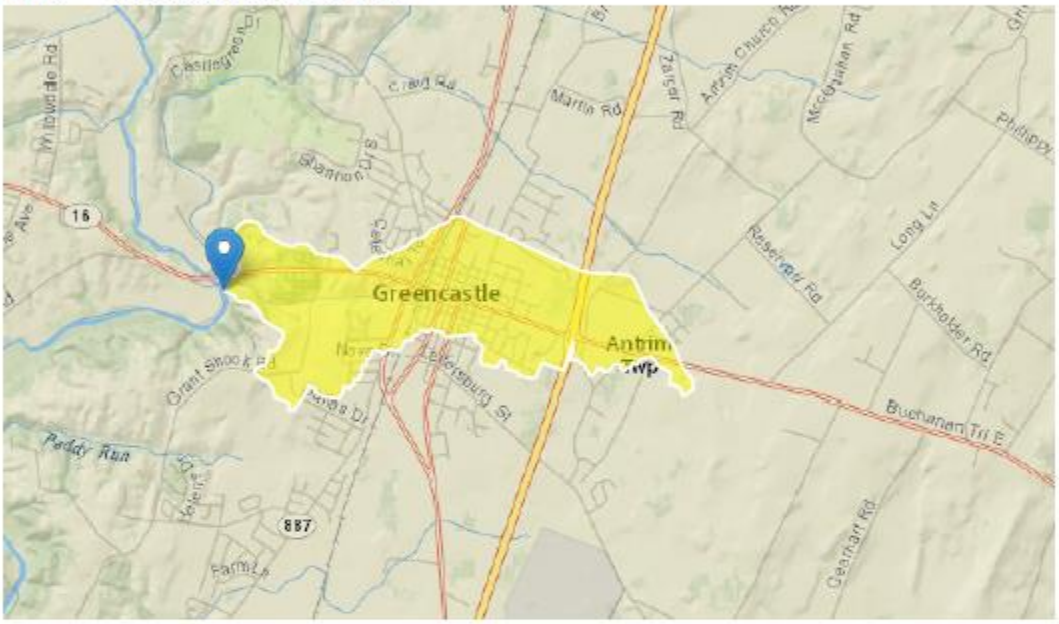
Statistic	Value	Unit
7 Day 2 Year Low Flow	1.53	ft^3/s
30 Day 2 Year Low Flow	1.59	ft^3/s
7 Day 10 Year Low Flow	1.1	ft^3/s
30 Day 10 Year Low Flow	1.15	ft^3/s
90 Day 10 Year Low Flow	1.29	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

StreamStats Report

Region ID: PA
Workspace ID: PA20210311133118204000
Clicked Point (Latitude, Longitude): 39.79067, -77.75222
Time: 2021-03-11 08:31:34 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1.71	square miles
PRECIP	Mean Annual Precipitation	39	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	0.61	miles per square mile
ROCKDEP	Depth to rock	5	feet
CARBON	Percentage of area of carbonate rock	87.56	percent

3/11/2021 StreamStats

Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1.71	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	39	inches	35	50.4
STRDEN	Stream Density	0.61	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	5	feet	3.32	5.65
CARBON	Percent Carbonate	87.56	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	0.964	ft^3/s
30 Day 2 Year Low Flow	1.06	ft^3/s
7 Day 10 Year Low Flow	0.607	ft^3/s
30 Day 10 Year Low Flow	0.679	ft^3/s
90 Day 10 Year Low Flow	0.812	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

2. WQM 7.0b

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
13C	59838	Trib 59838 to Conococheague Creek	0.570	471.00	4.40	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	0.430	0.00	0.00	0.000	0.000	0.0	0.00	0.00	21.50	8.30	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
Greencastle STP	PA0020834	0.9500	0.9500	0.9500	0.000	20.00	7.30

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

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
13C	59838	Trib 59838 to Conococheague Creek	0.000	460.00	6.00	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	0.430	0.00	0.00	0.000	0.000	0.0	0.00	0.00	21.50	8.30	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
13C	59838	Trib 59838 to Conococheague Creek

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.570	1.89	0.00	1.89	1.4697	0.00365	.603	19.15	31.78	0.29	0.120	20.84	7.61
Q1-10 Flow												
0.570	1.65	0.00	1.65	1.4697	0.00365	NA	NA	NA	0.28	0.125	20.79	7.58
Q30-10 Flow												
0.570	2.25	0.00	2.25	1.4697	0.00365	NA	NA	NA	0.31	0.113	20.91	7.64

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	0.87	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.19	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
13C	59838	Trib 59838 to Conococheague Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.570	0.950	20.844	7.607
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
19.150	0.603	31.783	0.291
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
12.06	1.347	1.37	0.747
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.825	10.323	Tsivoglou	5
Reach Travel Time (days)			
0.120			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.012	11.85	1.36	6.74
0.024	11.66	1.35	6.68
0.036	11.46	1.34	6.63
0.048	11.27	1.32	6.58
0.060	11.09	1.31	6.55
0.072	10.90	1.30	6.53
0.084	10.72	1.29	6.51
0.096	10.54	1.28	6.50
0.108	10.37	1.27	6.50
0.120	10.20	1.26	6.50

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
13C	59838	Trib 59838 to Conococheague 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
0.570	Greencastle STP	4.95	10.49	4.95	10.49	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
0.570	Greencastle STP	1.24	3.14	1.24	3.14	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
0.57	Greencastle STP	25	25	3.14	3.14	5	5	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
13C	59838	Trib 59838 to Conococheague Creek

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.570	Greencastle STP	PA0020834	0.950	CBOD5	25		
				NH3-N	3.14	6.28	
				Dissolved Oxygen			5

3. TRC_CALC Spreadsheet

TRC_CALC

1A	B	C	D	E	F	G
2	**TRC EVALUATION**					
3	Input appropriate values in B4:B8 and E4:E7					
4	1.89	= Q stream (cfs)		0.5	= CV Daily	
5	0.95	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.19	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2.iii	WLA afc = 0.429		1.3.2.iii	WLA cfc = 0.411
12	PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c	LTAMULT cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc= 0.160		5.1d	LTA_cfc = 0.239
14						
15	Source		Effluent Limit Calculations			
16	PENTOXSD TRG	5.1f	AML MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.190		BAT/BPJ	
18			INST MAX LIMIT (mg/l) = 0.621			

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)

4. TDS, Bromide, Chloride, Sulfate Effluent Data Summary

	TDS	Bromide	Chloride	Sulfate
Sep-16	1116	0.2	422	70.6
Oct-16	1004	0.2	396	78.6
Nov-16	253	0.2	414	67.8
Dec-16	422	0.2	401	65
Jan-17	1047	0.2	450	82.9
Feb-17	1072	0.2	433	74
Mar-17	936	0.2	434	72.8
Apr-17	1457	0.2	396	66.4
May-17	1055	0.6	469	87.5
Jun-17	1086	0.6	446	71.9
Jul-17	1202	0.6	473	78.9
Aug-17	790	0.6	271	56
Sep-17	1146	0.6	394	75.3
Oct-17	1136	0.6	443	59.3
Nov-17	1330	0.6	331	69.2
Dec-17	1171	0.6	504	86.3
Jan-18	1094	0.25	412.9	75
Feb-18	965	1.04	373.5	63
Mar-18	888	0.86	329.3	31
Apr-18	786	2.5	295.9	63
May-18	1135	0.51	418	77
Jun-18	857	0.25	303.6	59
Jul-18	1184	0.25	472.9	93
Aug-18	981	0.25	351.3	77
Sep-18	1161	0.25	448.6	76
Oct-18	712	0.25	223	61
Nov-18	651	0.25	195	56
Dec-18	879	5	311.8	56
Jan-19	794	0.25	274.7	61
Feb-19	1177	2.5	449.8	69
Mar-19	1007	0.25	358.3	57
Apr-19	1176	0.25	438.9	72
May-19	824	0.29	251	58
Jun-19	1073	0.25	416.5	76
Jul-19	833	0.25	454	77
Aug-19	1224	0.25	493.4	77
Sep-19	1283	0.25	499.8	74
Oct-19	1272	0.25	475.5	76
Nov-19	1167	0.25	404.2	69
Dec-19	1125	0.25	441.1	71
Jan-20	1305	0.25	477.7	70
Feb-20	1193	0.25	451.5	63
Mar-20	1173	0.25	514	85
Apr-20	1066	0.25	405.3	67
May-20	941	0.25	324	58
Jun-20	1210	0.25	496	74
Jul-20	1095	0.25	432	66
Aug-20	994	0.25	372.1	74
Sep-20	1114	0.25	403	72
Oct-20	1082	0.26	409	64
Nov-20	1120	0.37	421	70
Dec-20	962	0.42	357.2	65
Jan-21	915	0.52	373	57
Feb-21	1184	0.78	447	70
AVG	1033.796	0.517593	400.9778	69.28704
MED	1084	0.25	415.25	70
90th Percen	1219.8	0.726	477.04	78.81
MIN	253	0.2	195	31
MAX	1457	5	514	93