pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0246727**
Facility Type	**Municipal**	APS ID	**802591**
Major / Minor	**Minor**	Authorization ID	**1311978**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Dudley Carbon Coalmont Joint Municipal Authority**	Facility Name	**Dudley Carbon Coalmont STP**
Applicant Address	PO Box 276	Facility Address	19599 Municipal Drive
	Dudley, PA 16634-0276		Saxton, PA 16678
Applicant Contact	Christopher Hamilton	Facility Contact	Christopher Hamilton
Applicant Phone	(814) 635-2384	Facility Phone	(814) 635-2384
Client ID	242720	Site ID	559626
Ch 94 Load Status	Not Overloaded	Municipality	Carbon Township
Connection Status	No Limitations	County	Huntingdon
Date Application Received	April 21, 2020	EPA Waived?	Yes
Date Application Accepted	April 27, 2020	If No, Reason	

Purpose of Application .

Summary of Review

Dudley Carbon Coalmont Joint Municipal Authority (DCC JMA) Wastewater Treatment Plant has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit No. PA0246727 was last reissued on March 17, 2015 and became effective on April 1, 2015. The permit expired on March 31, 2020.

The wastewater treatment plant located at Middletown serves the Boroughs of Dudley and Coalmont, the villages of Barnettstown and Middletown, Route 913 between Dudley and Middletown, the areas of Little Valley, Ribson Hill, and Black's Farm Road. The WWTP was constructed for 0.1 MGD and with an annual average discharge flow of 0.071MGD.

The treated wastewater will discharge from the left bank of Shoup Run. This stream is classified as a Warm Water Fishery (WWF), but is also listed as an Acid Mine Drainage impaired stream on the Department's 303(d) list. A TMDL for the effects of Acid Mine Drainage was completed and approved on February 21, 2001 and is discussed further in this report.

WQM part II permit No. 3102401 was issued on 11/18/2002.

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	May 28, 2020
		Daniel W. Martin, P.E. / Environmental Engineer Manager	
		Maria D. Bebenek, P.E. / Clean Water Program Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.071
Latitude	40º 13' 23.50"	Longitude	-78º 12' 59.28"
Quad Name	Saxton	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Shoup Run (WWF)	Stream Code	13717
NHD Com ID	65842243	RMI	2.1 miles
Drainage Area	18.2 mi.^{2}	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	980	Slope (ft/ft)	
Watershed No.	11-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH		
Source(s) of Impairment	ACID MINE DRAINAGE,		
TMDL Status	Final	Name	Shoup Run Watershed
Nearest Downstream Public Water Supply Intake	Lake Raystown Resort, Huntingdon County		
PWS Waters	Raystown Branch Juniata River	Flow at Intake (cfs)	
PWS RMI	2.0 miles	Distance from Outfall (mi)	39 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Shoup Run at RMI 2.1 mile. A drainage area upstream of the discharge is estimated to be 18.2 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
Stream flows for the water quality were determined by correlating with the yield of USGS gauging station No.01562000 on Raystown Branch Juniata River at Saxton, PA. The Q_{7-10} is 44.9 cfs and the drainage area is 755 mi.^{2} (according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/) which results in a Q_{7-10} low flow yield of 0.06 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):

Low Flow Yield = 44.9 cfs / 755 mi.^{2} ≈ 0.06 cfs/mi.^{2}
Q_{7-10} discharge = 0.06 cfs/mi.^{2} x D.A discharge = 0.06 cfs/mi.^{2} x 18.2 mi.^{2} = 1.09 cfs
Q_{30-10} = 1.36 * 1.09 cfs ≈ 1.48 cfs
Q_{1-10} = 0.64 * 1.09 cfs ≈ 0.7 cfs

Public Water Supply
The closest water supply intake is located downstream from the discharge in the Lake Raystown Resort, Huntingdon County approximately 39.0 miles from the point of discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Acid Mine Drainage (AMD) Requirements
AMD treatment requirements are taken from Chapter 95, Section 95.5. Section 95.5(a)(1) provides for standard secondary treatment, unless downstream conditions require greater treatment for reasons provided in Section 95.5(b). The water quality analysis below is for informational purposes and could change final limitations if the biologist's report indicates the stream is recovering downstream of the discharge.

Treatment Facility Summary				
Treatment Facility Name: Dudley Carbon Coalmont STP				
WQM Permit No.	**Issuance Date**			
3102401	11/28/2002			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage			Ultraviolet	0.071
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.1	250	Not Overloaded		

Changes Since Last Permit Issuance:

The existing WWTP train is as follows:

Mechanical Bar Screen (1) ⇒ Equalization Tank (1) ⇒ Aeration Tanks (2) ⇒ Clarifier ⇒ Ultraviolet Disinfection Unit (1) ⇒ Sludge Holding (1) ⇒ Reed Beds (2) ⇒ Discharge

Sodium bicarbonate is used as needed.

Compliance History	
Summary of DMRs:	DMRs reported last 12 months from April 1, 2019 to March 31, 2020 are summarized in the Table below (Pages 4 & 5).
Summary of Inspections:	10/2/2019: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There was a recommendation such as submit NPDES renewal application as soon possible. The field test results were within permit limits. The effluent was clear. 8/21/2018: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. There were recommendations such as repair fine screen and EQ tank pump. The field test results were within permit limits. The effluent was clear. There were no violations noted during inspection. 6/15/2017: Mr. Clark, DEP WQS, conducted compliance evaluation inspection. The field test results were within permit limits. The effluent was clear. There were no violations noted during inspection.
Other Comments:	There are currently no open violations associated with the permittee or the facility.

Other Comments: DMRs for the past 12 months indicated compliance with permitted limits.

Compliance History

DMR Data for Outfall 001 (from April 1, 2019 to March 31, 2020)

Parameter	MAR-20	FEB-20	JAN-20	DEC-19	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19
Flow (MGD) Average Monthly	0.085	0.073	0.079	0.049	0.039	0.036	0.041	0.043	0.047	0.039	0.075	0.061
Flow (MGD) Daily Maximum	0.282	0.156	0.204	0.099	0.076	0.070	0.114	0.086	0.087	0.073	0.208	0.134
pH (S.U.) Minimum	7.3	7.3	7.2	7.1	7.2	7.1	6.2	6.9	6.7	6.8	6.8	6.5
pH (S.U.) Maximum	7.5	7.63	7.5	7.4	7.5	7.4	7.2	7.9	7.4	7.4	7.5	7.2
DO (mg/L) Minimum	7.2	7.3	7.3	7.0	6.9	6.0	5.04	5.6	5.2	5.2	5.1	6.0
$CBOD_5$ (lbs/day) Average Monthly	< 1	< 4	2	2	< 1	< 0.7	< 0.8	2	2	2	2	1
$CBOD^5$ (lbs/day) Weekly Average	< 2	6	3	3	< 1	< 0.8	0.9	3	2	2	2	1
$CBOD_5$ (mg/L) Average Monthly	< 3	< 5	4.24	6	< 3	< 3	< 2	4	4	5	2.54	2
$CBOD_5$ (mg/L) Weekly Average	< 3	8	5.04	7	< 3	< 3	2	5	5	6	2.75	2
BOD_5 (lbs/day) Raw Sewage Influent Average Monthly	40	78	145	63	48	39	55	123	85	36	49	30
BOD_5 (lbs/day) Raw Sewage Influent Daily Maximum	40	87	188	84	57	54	66	186	118	44	51	34
BOD_5 (mg/L) Raw Sewage Influent Average Monthly	109	123	294	136	145	137	157	190	201	111	83	65
TSS (lbs/day) Average Monthly	2	4	3	6	1	2	3	< 2	< 1	< 2	< 5	< 2
TSS (lbs/day) Raw Sewage Influent Average Monthly	43	39	49	37	69	42	45	129	84	54	39	34
TSS (lbs/day) Raw Sewage Influent Daily Maximum	58	43	57	71	86	47	59	192	110	60	47	44
TSS (lbs/day) Weekly Average	2	5	5	7	1	2	4	2	1	2	7	2
TSS (mg/L) Average Monthly	6	6	6	16	2	9	7	< 3	< 3	< 4	< 9	< 4

TSS (mg/L) Raw Sewage Influent Average Monthly	105	66	105	55	205	160	128	201	203	154	61	75
TSS (mg/L) Weekly Average	8	6	9	24	2	12	11	4	4	6	16	5
Fecal Coliform (CFU/100 ml) Geometric Mean	< 1	< 2	< 1	< 2	8	< 1	< 3	< 1	2	< 1	< 1	< 1
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	< 1	3	1	< 4	31	< 1	< 10	1	3	< 1	1	< 1
UV Intensity (mW/cm²) Minimum	0.08	0.8	1.0	1.1	1	1.1	1.0	1.2	1	1.0	1	0.9
Nitrate-Nitrite (mg/L) Average Quarterly	< 13.55			4.8			2.45			13.2		
Total Nitrogen (mg/L) Average Quarterly	< 13.4			< 5.8			< 3.88			< 15.2		
TKN (mg/L) Average Quarterly	< 0.5			< 1.0			3.63			< 2.0		
Total Phosphorus (mg/L) Average Quarterly	2.43			5.7			2.45			1.70		
Total Aluminum (lbs/day) Average Monthly	< 0.05	< 0.05	< 0.04	< 0.05	< 0.04	< 0.03	< 0.03	< 0.05	< 0.05	< 0.03	< 0.05	< 0.04
Total Aluminum (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.100	< 0.10	< 0.1	< 0.100	< 0.10	< 0.01	< 0.10
Total Iron (lbs/day) Average Monthly	< 0.1	< 0.1	< 0.09	< 0.1	< 0.08	< 0.07	0.02	0.02	0.04	0.01	0.07	0.03
Total Iron (mg/L) Average Monthly	< 0.2	< 0.2	< 0.2	< 0.25	< 0.2	< 0.2	0.07	0.038	0.08	0.04	0.148	0.07
Total Manganese (lbs/day) Average Monthly	0.08	0.01	0.01	0.06	< 0.008	< 0.007	< 0.007	< 0.01	0.04	< 0.06	0.02	0.01
Total Manganese (mg/L) Average Monthly	0.164	0.0251	0.0321	0.09	< 0.02	< 0.02	< 0.02	< 0.02	0.08	< 0.02	0.0458	0.03

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.071
Latitude 40º 13' 20.00" **Longitude** -78º 13' 0.00"
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	Ultraviolet	Disinfection	Used	

Water Quality-Based Limitations

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model indicates that a monthly average limit of 25 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing limits of 25 mg/L monthly average (AML), 40mg/l average weekly limit (AWL), and 50 mg/L instantaneous maximum 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 mg/L x 0.071 MGD x 8.34 = 14.8 (15.0) lbs/day
Average weekly mass limit: 40 mg/L x 0.071 MGD x 8.34 = 23.68 (24.0) lbs/day

The secondary treatment is again recommended for this permit cycle and this also agrees with AMD requirements from Chapter 95, Section 95.5(a)(1).

Total Suspended Solids (TSS):
The existing technology-based limits of 30 mg/L average monthly, 45 mg/L average weekly, and 60 mg/L instantaneous maximum 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. Mass limits are calculated as follows:

Average monthly mass limit: 30 mg/L x 0.071 MGD x 8.34 = 17.76 (18.0) lbs/day
Average weekly mass limit: 45 mg/L x 0.071 MGD x 8.34 = 26.65 (27.0) lbs/day

This would also meet the AMD requirements of Chapter 95, Section 95.5(a)(1).

Dissolved Oxygen (D.O.):
A minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. This is consistent with the previous permit and current Department criteria.

pH:
The effluent discharge pH should remain above 6 and below 9 standard units according to 25 Pa. Code § 95.2(1).

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 1,000/100 ml and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean and an instantaneous maximum not greater than 10,000/100 ml.

Ultraviolet (UV):
Since UV is used for disinfection, routine monitoring of UV light transmittance (%) will remain in the proposed permit.

NH_3N Calculations:
NH_3N calculations will be 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 instream NH_3N criteria used in the attached computer model of the stream:

- STP pH = 7.0 (Default)
- STP Temperature = 25 ^{o} C (default)
- Stream pH = 5.0 (AMD)
- Stream Temperature = 23 ^{o} C (WQN station on Raystown Branch at Saxton)
- Background NH_3-N = 0.0 (default)

The attached computer printout of the WQM 7.0 stream model indicates that no limits of NH_3 as a monthly average is necessary to protect the aquatic life from toxicity effects. This would also meet the AMD requirements of Chapter 95, Section 95.5(a)(1).

Influent BOD_5 and TSS Monitoring:
The permit will include influent BOD_5 and TSS monitoring at the same frequency as is done for effluent in order to implement 25 Pa. Code § 94.12 and assess percent removal requirements, per DEP policy.

Toxics:
No toxic parameters of concern associated with this discharge. The discharge consists entirely of domestic sewage, no industrial users discharge to the facility.

Biosolids Management:
Digested Sludge is sent out periodically to the drying beds.

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

Chesapeake Bay Strategy:
The Department formulated a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). Sewage discharges have been prioritized by Central Office based on their delivered TN loadings to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual loading caps based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. Phase 4 (0.2 -0.4 MGD) will be required to monitor and report TN and TP during permit renewal monthly and Phase 5 (below 0.2 MGD) will monitor during current permit renewal once a year unless two years of monitoring are completed and documented. Any facility in Phases 4 and 5 that undergoes expansion is subjected to cap load right away. This plant is classified as a phase 5, and thus required to monitor and report Total Phosphorus, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen and Total Nitrogen.

According to SOP for establishing effluent limitation for individual sewage, monitoring frequency for nutrients should be equivalent to conventional pollutants in Table 6-3 of DEP's *Technical Guidance for the Development and Specification of Effluent Limitations* (362-0400-001) ("Permit Writer's Manual") where the facility discharges to nutrient-impaired waters, or a lesser frequency for discharges to waters not impaired for nutrients. Quarterly monitoring frequency is required for this discharge since the receiving stream is not nutrient impaired. This monitoring will remain in the proposed permit.

Anti-Degradation (93.4)

The effluent limits for this discharge 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. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

Class A Wild Trout Fisheries

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

303d Listed Streams:

The discharge is located on a 303d listed stream segment for the effects of AMD. A TMDL was completed and approved on February 21, 2001. The TMDL provided load allocations for Aluminum, Iron, Manganese, and negative alkalinity for nonpoint sources. Sewage wastewater treatment plants such as this facility are not considered a source of AMD and are not included in the TMDL. This treated wastewater discharge improves the stream quality by adding alkalinity and nutrients. The TMDL calls for reduction in Aluminum downstream of the discharge at sampling station SR1. This facility does not seem to contribute Total Aluminum, Total Manganese and Total Iron to the impairment, but will be required to monitor them to collect data for further analysis.

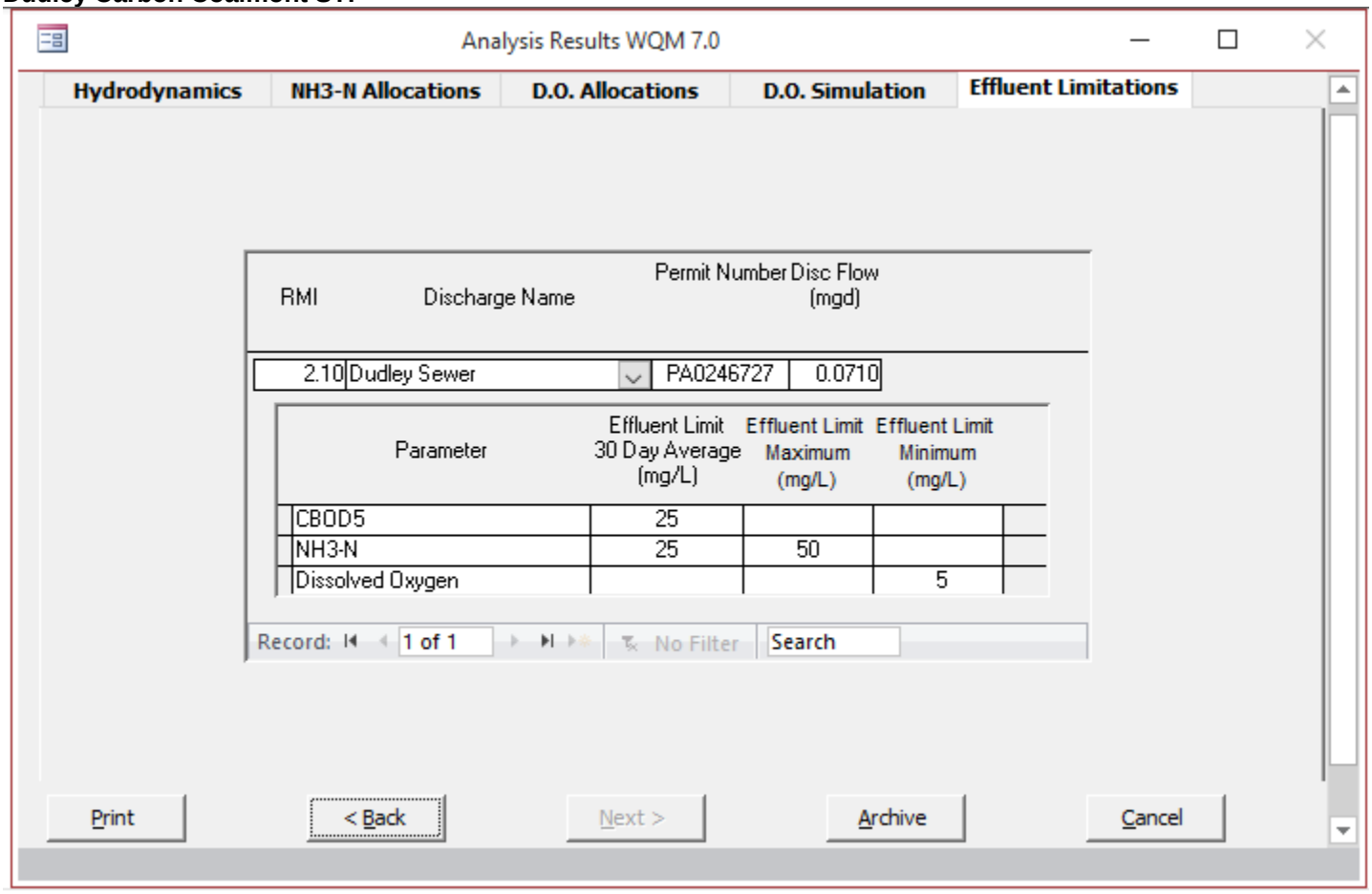
WQM 7.0

Node 1: Outfall 001 on Shoup Run (13717)

Elevation:	980.0 ft (USGS National Map Viewer)
Drainage Area:	18.2 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	2.1 (PA DEP eMapPA)
Low Flow Yield:	0.06 $cfs/mi.^2$
Discharge Flow:	0.0710 MGD (NPDES Application)

Node 2: Just before junction with Trib. 13718

Elevation:	915.59 ft (USGS National Map Viewer)
Drainage Area:	20.4 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	1.55 (PA DEP eMapPA)
Low Flow Yield:	0.06 $cfs/mi.^2$
Discharge Flow:	0.000 MGD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D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
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Permit Number
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Dudley Sewer
PA0246727
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Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
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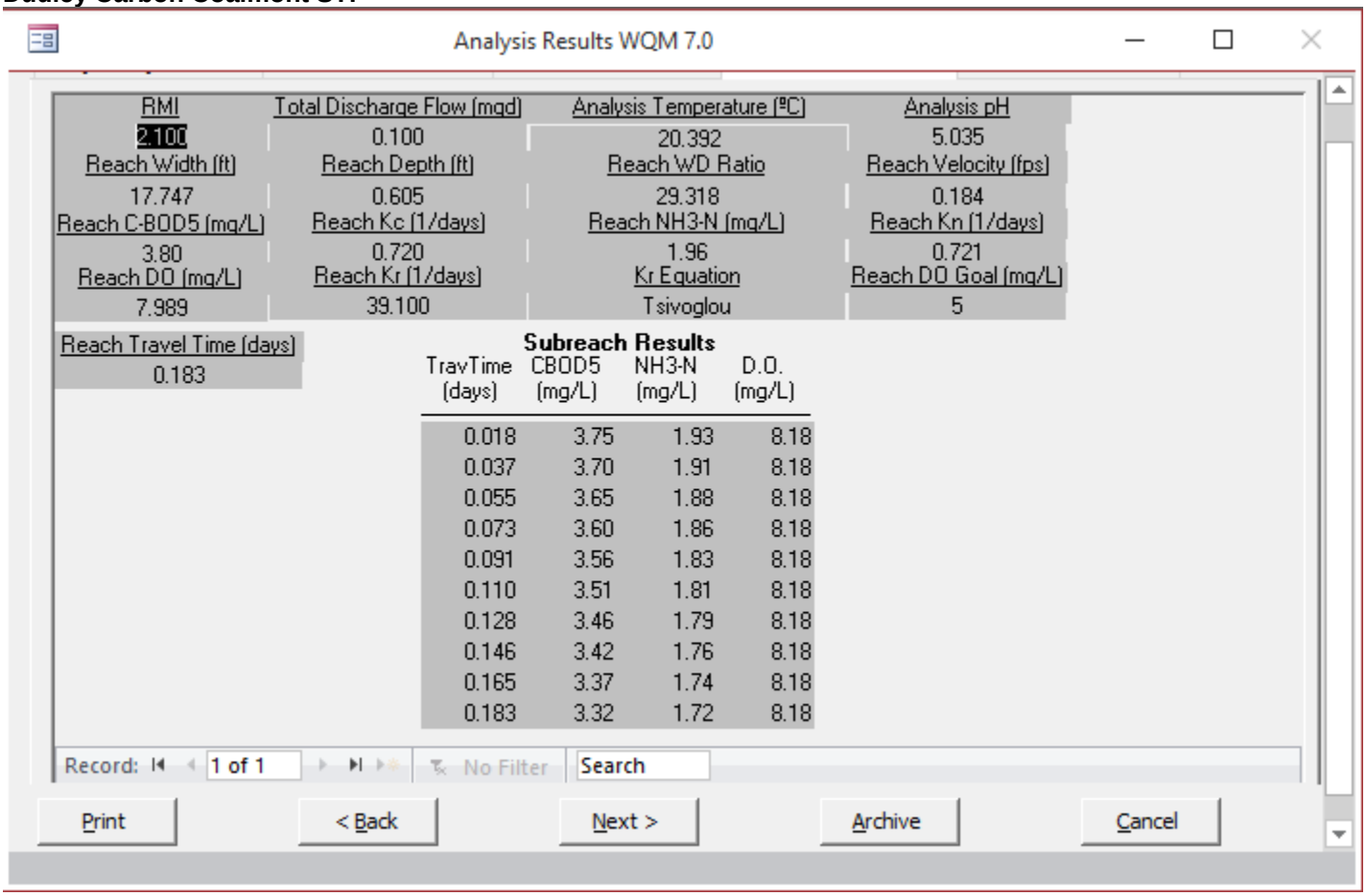
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RMI
2.100
Total Discharge Flow (mgd)
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Analysis Temperature (°C)
20.392
Analysis pH
5.035
Reach Width (ft)
17.747
Reach Depth (ft)
0.605
Reach WD Ratio
29.318
Reach Velocity (fps)
0.184
Reach C-BOD5 (mg/L)
3.80
Reach Kc (1/days)
0.720
Reach NH3-N (mg/L)
1.96
Reach Kn (1/days)
0.721
Reach DO (mg/L)
7.989
Reach Kr (1/days)
39.100
Kr Equation
Tsivoglou
Reach DO Goal (mg/L)
5
Reach Travel Time (days)
0.183
Subreach Results
TravTime (days)
CBOD5 (mg/L)
NH3-N (mg/L)
D.O. (mg/L)
0.018 3.75 1.93 8.18
0.037 3.70 1.91 8.18
0.055 3.65 1.88 8.18
0.073 3.60 1.86 8.18
0.091 3.56 1.83 8.18
0.110 3.51 1.81 8.18
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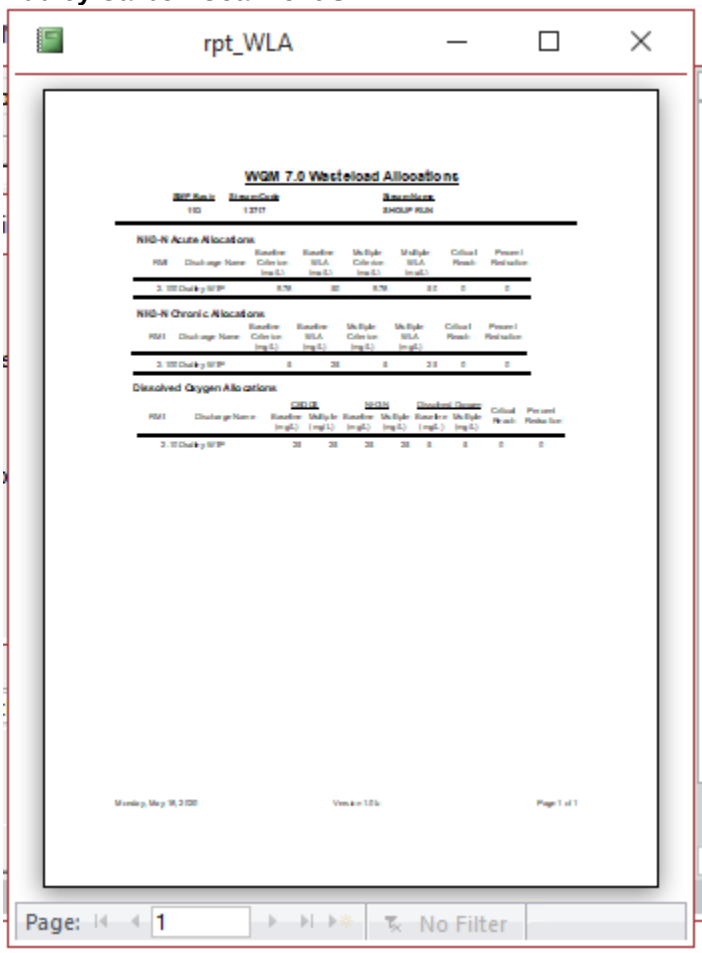
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NH3-N Chronic Allocations
Dissolved Oxygen Allocations
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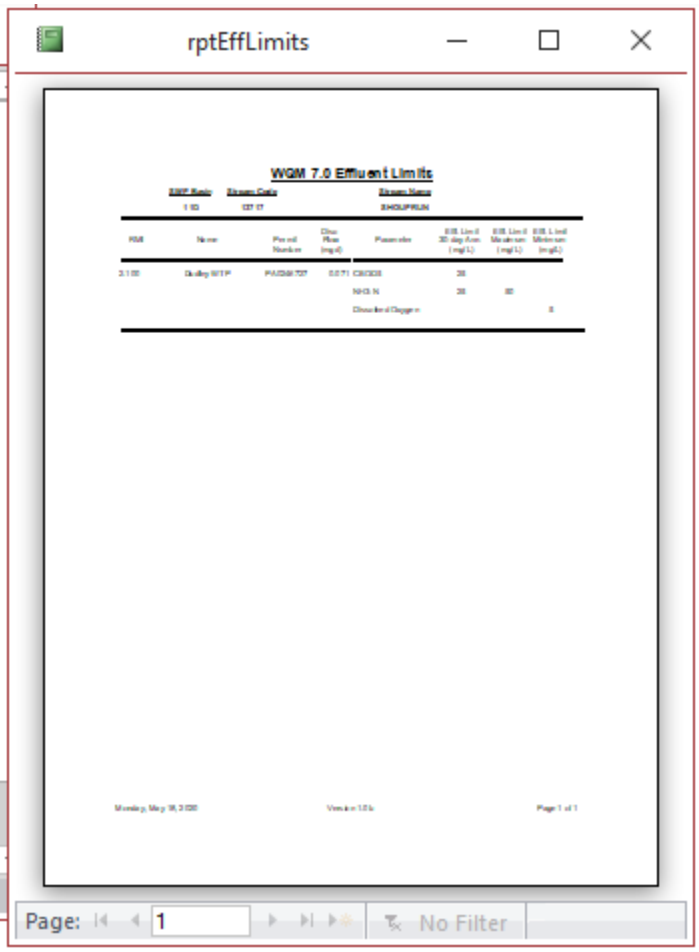
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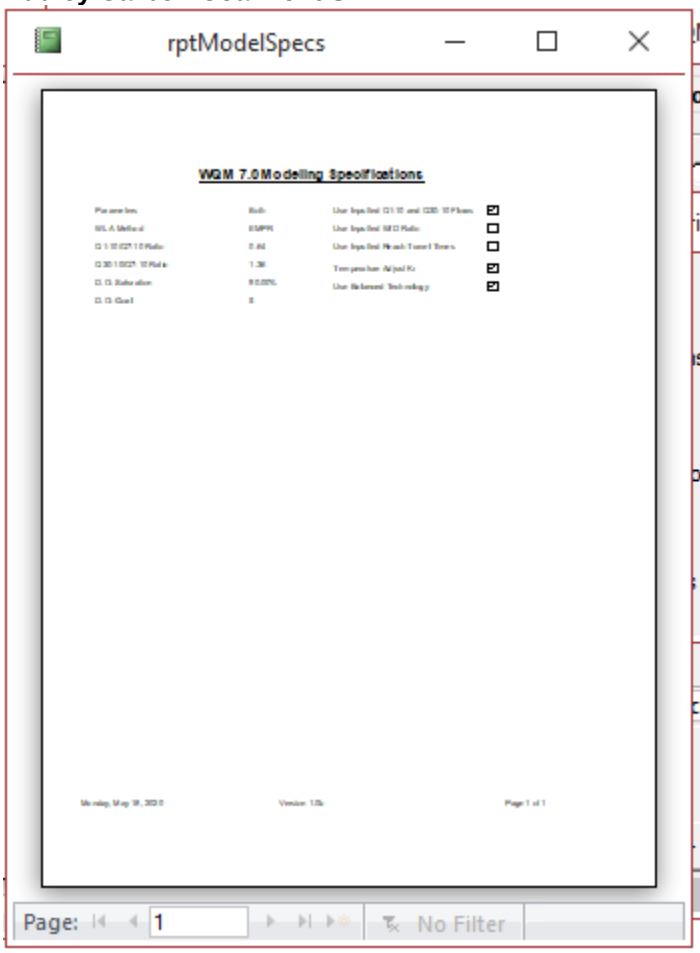
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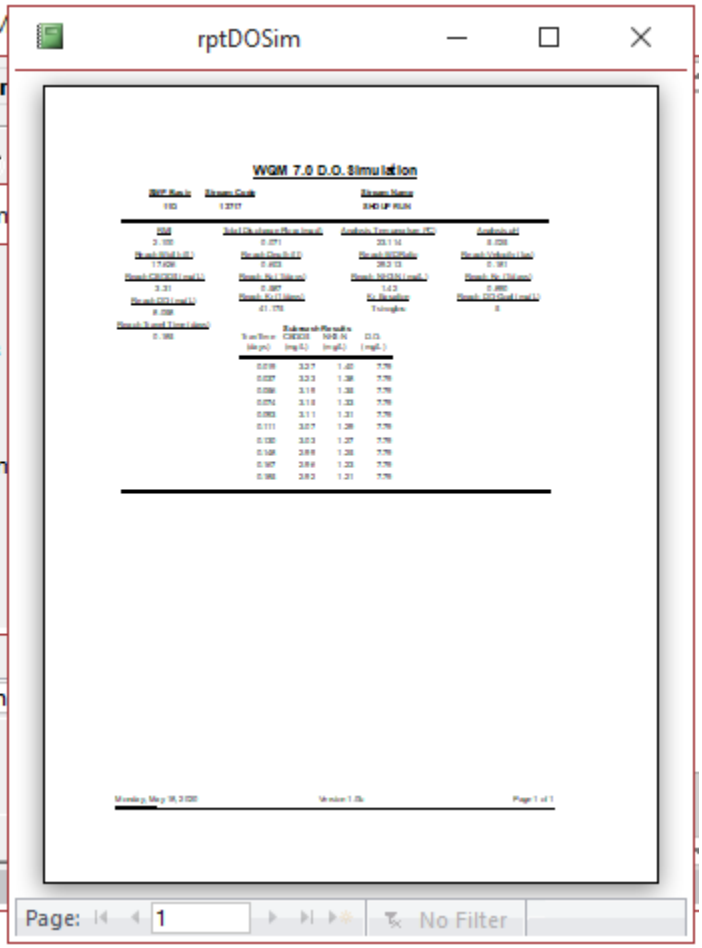
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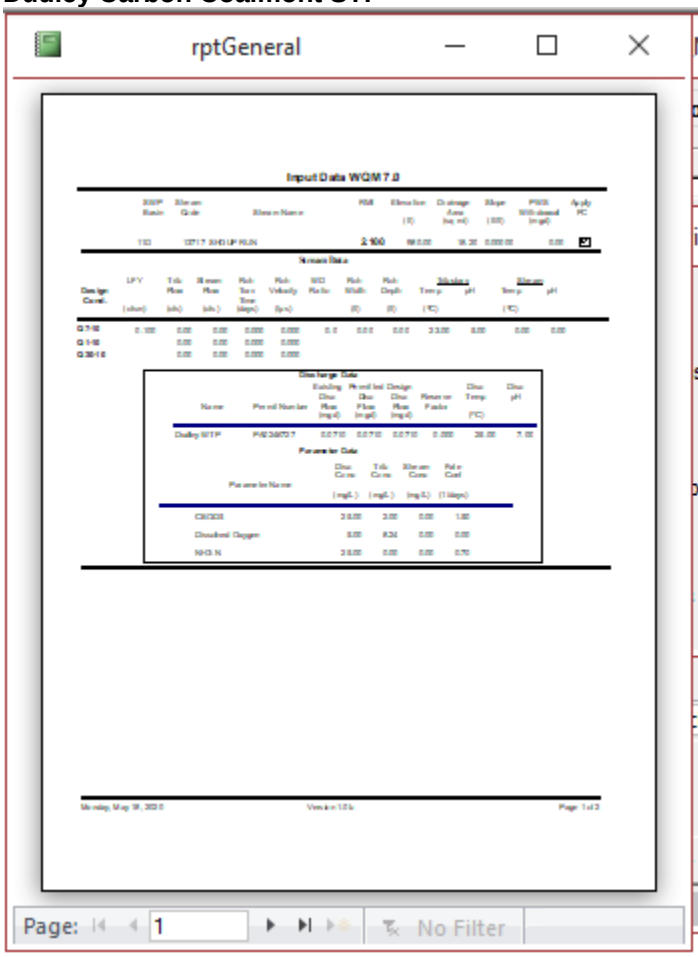
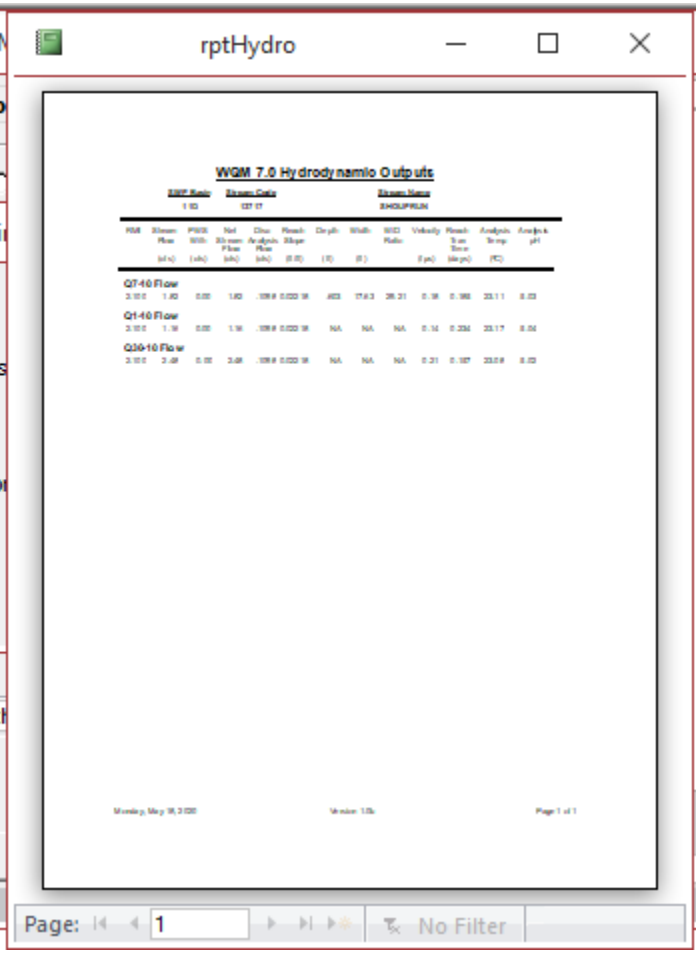
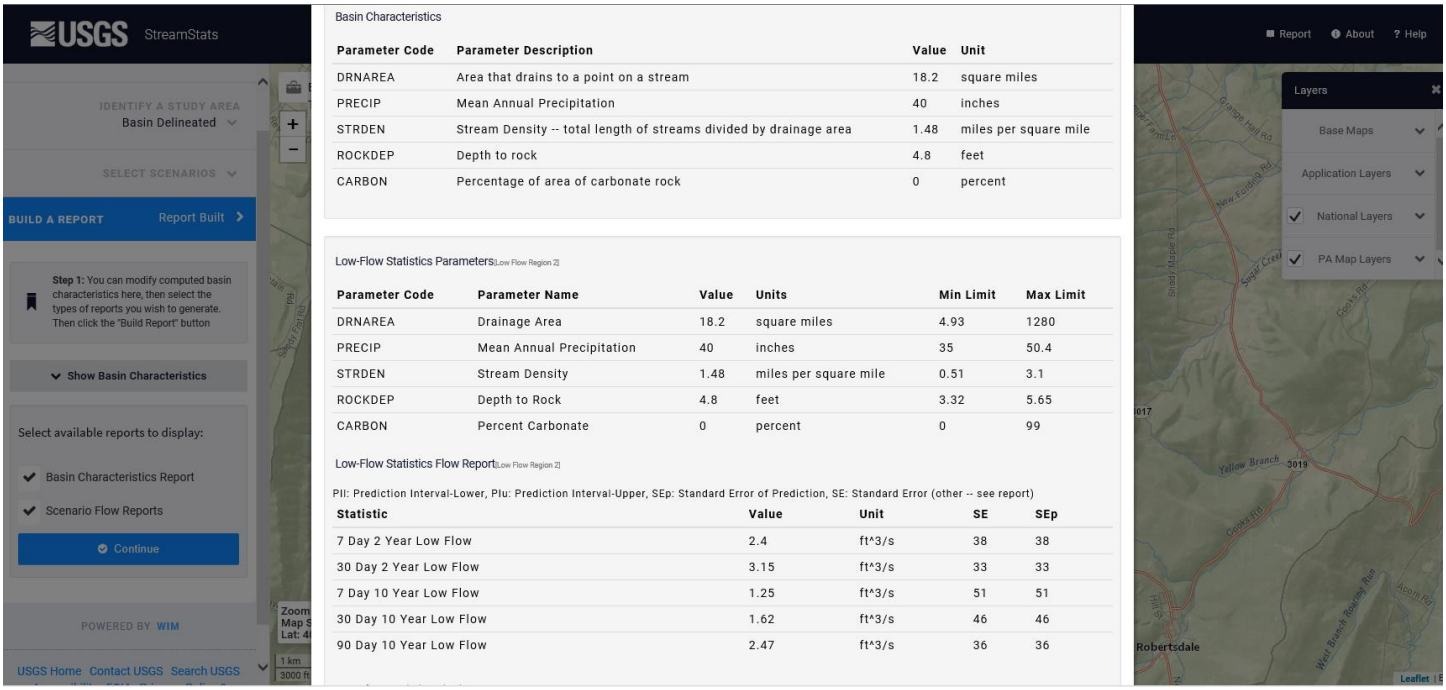






Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	18.2	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.48	miles per square mile
ROCKDEP	Depth to rock	4.8	feet
CARBON	Percentage of area of carbonate rock	0	percent

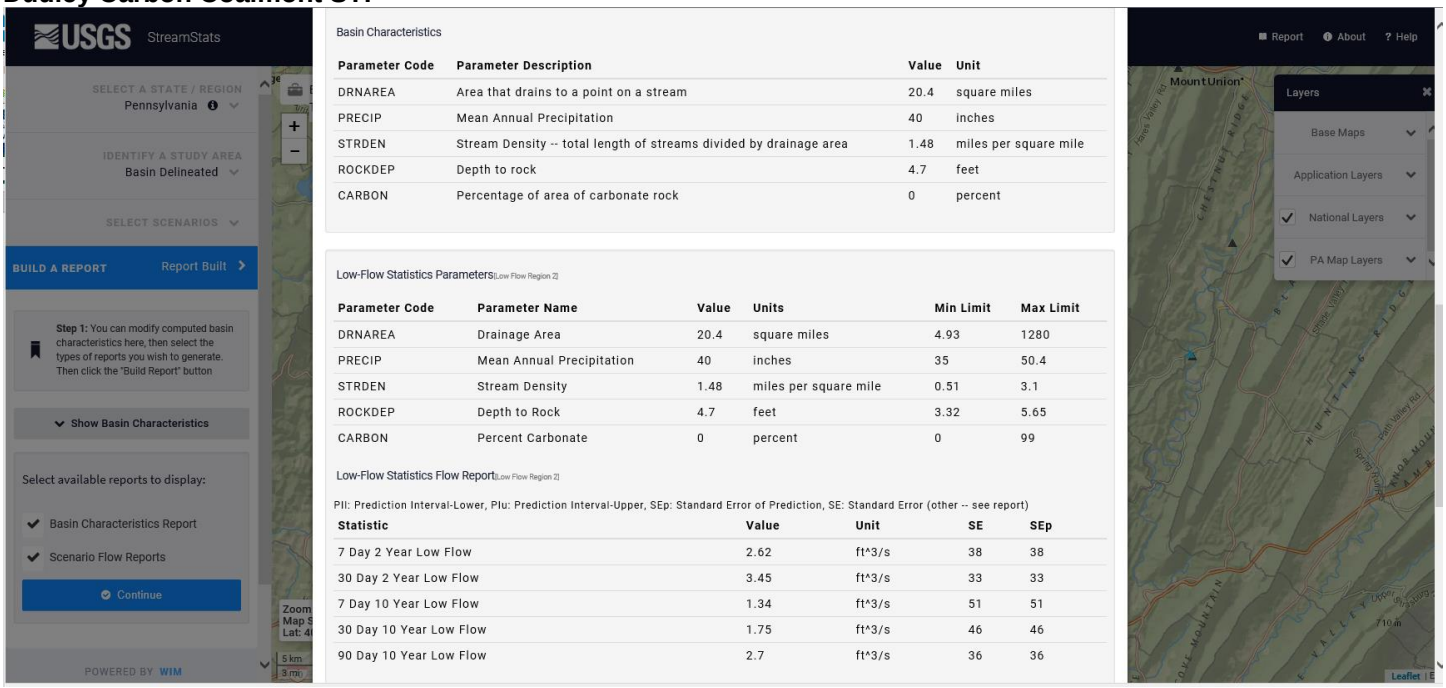
Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	18.2	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.48	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.8	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

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

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	2.4	ft^3/s	38	38
30 Day 2 Year Low Flow	3.15	ft^3/s	33	33
7 Day 10 Year Low Flow	1.25	ft^3/s	51	51
30 Day 10 Year Low Flow	1.62	ft^3/s	46	46
90 Day 10 Year Low Flow	2.47	ft^3/s	36	36



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	20.4	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	1.48	miles per square mile
ROCKDEP	Depth to rock	4.7	feet
CARBON	Percentage of area of carbonate rock	0	percent

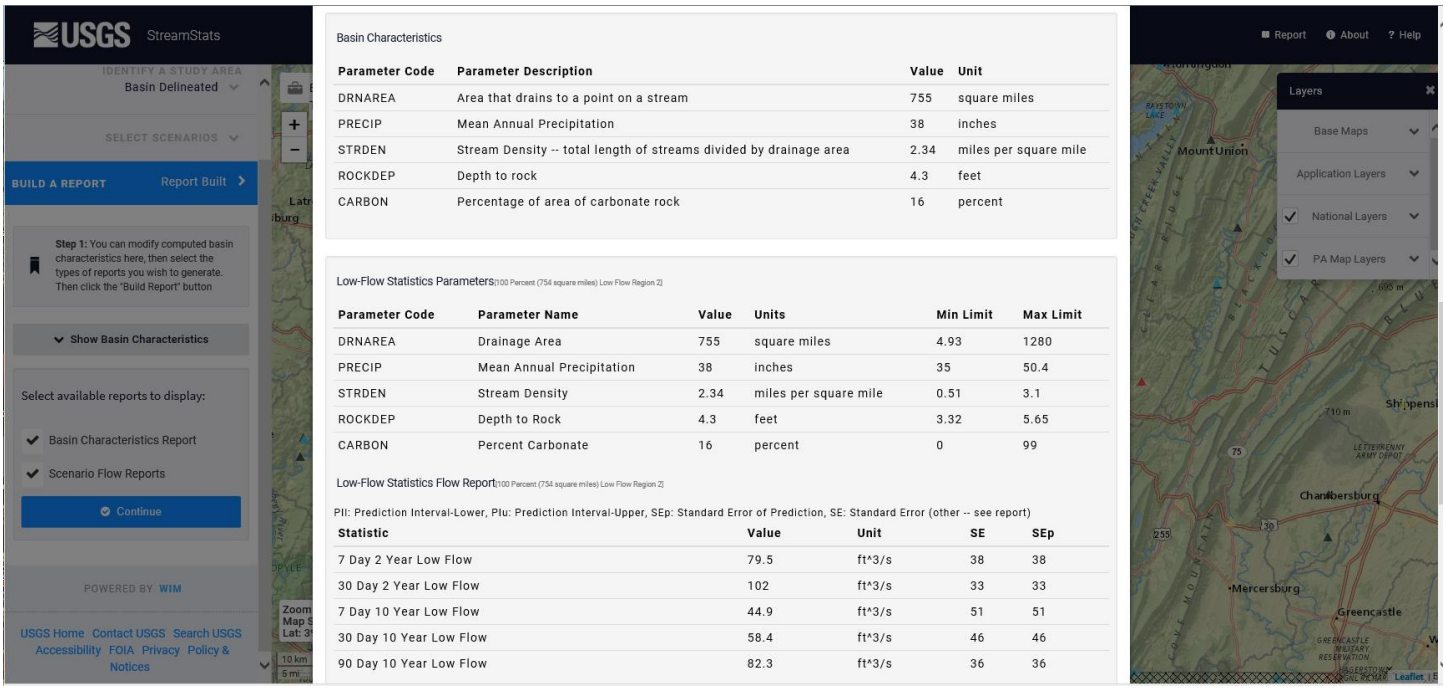
Low-Flow Statistics Parameters[Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	20.4	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	1.48	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.7	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

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

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	2.62	ft^3/s	38	38
30 Day 2 Year Low Flow	3.45	ft^3/s	33	33
7 Day 10 Year Low Flow	1.34	ft^3/s	51	51
30 Day 10 Year Low Flow	1.75	ft^3/s	46	46
90 Day 10 Year Low Flow	2.7	ft^3/s	36	36



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	755	square miles
PRECIP	Mean Annual Precipitation	38	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	2.34	miles per square mile
ROCKDEP	Depth to rock	4.3	feet
CARBON	Percentage of area of carbonate rock	16	percent

Low-Flow Statistics Parameters[100 Percent (754 square miles) Low Flow Region 2]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	755	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	38	inches	35	50.4
STRDEN	Stream Density	2.34	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.3	feet	3.32	5.65
CARBON	Percent Carbonate	16	percent	0	99

Low-Flow Statistics Flow Report[100 Percent (754 square miles) Low Flow Region 2]

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

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	79.5	ft^3/s	38	38
30 Day 2 Year Low Flow	102	ft^3/s	33	33
7 Day 10 Year Low Flow	44.9	ft^3/s	51	51
30 Day 10 Year Low Flow	58.4	ft^3/s	46	46
90 Day 10 Year Low Flow	82.3	ft^3/s	36	36

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	Daily 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
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	15	24 Wkly Avg	XXX	25	40	50	2/month	8-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
TSS	18	27 Wkly Avg	XXX	30	45	60	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
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
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Aluminum	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Iron	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Manganese	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite

Proposed Effluent Limitations and Monitoring Requirements

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

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2)	Required
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum	Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
UV Intensity (mW/cm^2)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Recorded
$CBOD_5$	15	24 Wkly Avg	XXX	25	40	50	2/month	8-Hr Composite
BOD_5 Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
TSS	18	27 Wkly Avg	XXX	30	45	60	2/month	8-Hr Composite
TSS Raw Sewage Influent	Report	Report	XXX	Report	XXX	XXX	2/month	Grab
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
Total Aluminum	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Iron	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Total Manganese	Report	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Nitrate-Nitrite	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	Calculation
TKN	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Permit No. PA0246727

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	8-Hr Composite

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	PENTOXSD for Windows Model (see Attachment)
☐	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis 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: