

Application Type Renewal  
 Facility Type Municipal  
 Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0216984  
 APS ID 1017656  
 Authorization ID 1316687

**Applicant and Facility Information**

Applicant Name	<u>Shannock Valley General Services Authority</u>	Facility Name	<u>Nu Mine WWTP</u>
Applicant Address	<u>111 South Center Street</u> <u>Nu Mine, PA 16244</u>	Facility Address	<u>111 South Center Street</u> <u>Nu Mine, PA 16244</u>
Applicant Contact	<u>Lee Calarie, Chairman</u>	Facility Contact	<u>Lee Calarie, Chairman</u>
Applicant Phone	<u>(724) 783-2454</u>	Facility Phone	<u>(724) 783-2454</u>
Client ID	<u>45258</u>	Site ID	<u>238113</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Cowanshannock Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Armstrong County</u>
Date Application Received	<u>May 19, 2020</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 9, 2020</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of an NPDES Permit for an existing discharge of treated sanitary wastewater from a municipal sewer system.</u>		

**Summary of Review**

Act 14 - Proof of Notification was submitted and received.  
 A Part II Water Quality Management permit is not required at this time.  
 The applicant should be able to continue to meet the limits of this permit, which will protect the uses of the receiving stream.

I. OTHER REQUIREMENTS:

- A. Stormwater into Sewers
- B. Right of Way
- C. Solids Handling
- D. Effluent Chlorine Optimization and Minimization

SPECIAL CONDITIONS:

- II. Solids Management

There are no open violations in effects associated with the subject Client ID (45258) as of 4/15/2021.

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	4/15/2021
X		Justin Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	4/16/2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.065
Latitude	40° 47' 36.00"	Longitude	-79° 16' 55.00"
Quad Name	-	Quad Code	-
Wastewater Description: Sewage Effluent			
Receiving Waters	Cowanshannock Creek (WWF)	Stream Code	46965
NHD Com ID	134403962	RMI	18.6
Drainage Area	16	Yield (cfs/mi <sup>2</sup> )	0.04
Q <sub>7-10</sub> Flow (cfs)	0.64	Q <sub>7-10</sub> Basis	calculated
Elevation (ft)	1120	Slope (ft/ft)	0.00077
Watershed No.	17-E	Chapter 93 Class.	WWF
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	-
Background/Ambient Data		Data Source	
pH (SU)	-		-
Temperature (°F)	-		-
Hardness (mg/L)	-		-
Other:	-		-
Nearest Downstream Public Water Supply Intake	PA American Water Company - Kittanning District		
PWS Waters	Allegheny River	Flow at Intake (cfs)	987
PWS RMI	45.6	Distance from Outfall (mi)	22.0

Sludge use and disposal description and location(s): Sludge from the Yatesboro STP is accepted at this facility. The sludge is managed under beneficial use permits for disposal at the Homer City Waste Management Site and the Carbon Limestone Landfill. All sludge not used is disposed of at an approved landfill.

Public Participation

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.

Narrative: This Fact Sheet details the determination of draft NPDES permit limits for an existing discharge of 0.065 MGD of

treated sewage from a Municipal STP in Cowanshannock Township, Armstrong County.

Treatment permitted under Water Quality Management Permit No. 0399402 consists of the following: An equalization tank, two clarification tanks, and Ultraviolet (UV) light disinfection. Sludge is stored in an aerated holding tank.

**1. Streamflow:**

Mahoning Creek at Mahoning Creek Dam, PA (USGS gage 03036000):

Q <sub>7-10</sub> :	<u>14.2</u>	cfs	(USGS StreamStats)
Drainage Area:	<u>344</u>	sq. mi.	(USGS StreamStats)
Yieldrate:	<u>0.04</u>	cfsm	calculated

Cowanshannock Creek at Outfall 001:

Yieldrate:	<u>0.04</u>	cfsm	calculated above
Drainage Area:	<u>16</u>	sq. mi.	(USGS StreamStats)
Q <sub>7-10</sub> :	<u>0.64</u>	cfs	calculated

% of stream allocated: 100% Basis: No nearby discharges

**2. Wasteflow:**

Maximum discharge: 0.065 MGD = 0.100 cfs

Runoff flow period: 24 hours Basis: Runoff flow for a municipal STP

There is greater than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). Therefore, the standards in DEP guidance (391-2000-014) will not be applied.

Flow will be required to be monitored as authorized under Chapter 92a.61, and as recommended in the SOP.

**3. Parameters:**

The following parameters were evaluated: pH, Total Suspended Solids, Fecal Coliform, E. Coli, Total Phosphorus, Total Nitrogen, NH<sub>3</sub>-N, CBOD<sub>5</sub>, Dissolved Oxygen, Total Residual Chlorine, influent Total Suspended Solids, and influent BOD<sub>5</sub>. NH<sub>3</sub>-N, CBOD<sub>5</sub>, and Dissolved Oxygen were evaluated using WQM 7.0 at the discharge point.

a. pH

Between 6.0 and 9.0 at all times

Basis: Application of Chapter 93.7 technology-based limits. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

b. Total Suspended Solids

Limits are 30 mg/l as a monthly average and 60 as an instantaneous maximum.

Basis: Application of Chapter 92a47 technology-based limits.

c. Fecal Coliform

05/01 - 09/30: 200/100ml (monthly average geometric mean)  
1,000/100ml (instantaneous maximum)

10/01 - 04/30: 2,000/100ml (monthly average geometric mean)  
10,000/100ml (instantaneous maximum)

Basis: Application of Chapter 92a47 technology-based limits

d. E. Coli

Monitoring was added for E. Coli at a frequency of 1/quarter.

Basis: Application of Chapter 92a.61 as recommended by the SOP.

d. Phosphorus

- Limit necessary due to:
- Discharge to lake, pond, or impoundment
  - Discharge to stream

Basis: N/A

- Limit not necessary

Basis: Chapter 96.5 does not apply. However, the previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61.

e. Total Nitrogen

The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61.

f. Ammonia-Nitrogen (NH<sub>3</sub>-N)

Median discharge pH to be used: 6.9 Standard Units (S.U.)

Basis: eDMR data

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 25°C (default value used for WWF modeling)

Background NH<sub>3</sub>-N concentration: 0.1 mg/l

Basis: Default value.

Calculated NH<sub>3</sub>-N Summer limits: 13.2 mg/l (monthly average)  
26.4 mg/l (instantaneous maximum)

Calculated NH<sub>3</sub>-N Winter limits: 25.0 mg/l (monthly average)  
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer limits above (see Attachment 1). The winter limits are calculated as three times the summer limits, but since the technology-based limits would govern, they will be used. However, the previous limits are more restrictive and are attainable, so they will be retained.

g. CBOD<sub>5</sub>

Median discharge pH to be used: 6.9 Standard Units (S.U.)

Basis: eDMR data

Discharge temperature: 25°C (default value used in the absence of data)

Median stream pH to be used: 7.0 Standard Units (S.U.)

Basis: default value used in the absence of data

Stream Temperature: 25°C (default value used for WWF modeling)

Background CBOD<sub>5</sub> concentration: 2.0 mg/l

Basis: Default value

CBOD<sub>5</sub> Summer limits: 25.0 mg/l (monthly average)  
50.0 mg/l (instantaneous maximum)

CBOD<sub>5</sub> Winter limits: 25.0 mg/l (monthly average)  
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the summer limits above (see Attachment 1), which are the same as in the previous permit. The winter limits are calculated as three times the summer limits, but since the technology-based limits would govern, they will be used. Since the summer and winter limits are technology-based, per the SOP, the year-round limit of 25.0 mg/l monthly average and 50.0 mg/l instantaneous maximum will be retained with this renewal.

h. Dissolved Oxygen (DO)

- 4.0 mg/l - minimum desired in effluent to protect all aquatic life
- 5.0 mg/l - desired in effluent for CWF, WWF, or TSF
- 6.0 mg/l - minimum required due to discharge falling under guidance document 391-2000-014
- 8.0 mg/l - required due to discharge going to a naturally reproducing salmonid stream

Discussion: The Dissolved Oxygen minimum of 4.0 mg/l will be retained with this renewal. The technology-based minimum of 4.0 mg/l is recommended by the WQ Model (see Attachment 1) and the SOP based on Chapter 93.7, under the authority of Chapter 92a.61. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

i. Total Residual Chlorine (TRC)

- No limit necessary

Basis: N/A

- TRC limits: \_\_\_\_\_ mg/l (monthly average)  
\_\_\_\_\_ mg/l (instantaneous maximum)

Basis: Since Ultraviolet (UV) light is used for disinfection, limits for TRC are not necessary. UV Transmittance (%) will be retained with this renewal. The measurement frequency was previously set to 1/day as recommended in the SOP, based on Table 6-3 in the "Technical Guidance for the Development and Specification of Effluent Limitations" (362-0400-001), which will be retained.

j. Influent Total Suspended Solids and BOD<sub>5</sub>

Monitoring for these two parameters will be retained as recommended in the SOP for POTWs, and as authorized under Chapter 92a.61.

k. Anti-Backsliding

Since all the permit limits in this renewal are the same or more restrictive than the previous NPDES Permit, anti-backsliding is not applicable.

**4. Reasonable Potential Analysis for Receiving Stream:**

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 since no sampling other than sewage-related parameters was performed for this facility with the renewal application.

**5. Reasonable Potential for Downstream Public Water Supply (PWS):**

The Reasonable Potential Analysis performed above does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). However, since no data was provided, mass-balance calculations were not able to be performed.

Nearest Downstream potable water supply (PWS): PA American Water Company - Kittanning District

Distance downstream from the point of discharge: 22.0 miles (approximate)

No limits necessary

Limits needed

Basis: Significant dilution available.

**6. Flow Information:**

100% of the wastewater flow comes from the Cowanshannock Township.

All the sewers in the Cowanshannock Township system are separate sewers.

**7. Attachment List:**

Attachment 1 - WQ Modeling Printouts

(The Attachments above can be found at the end of this document)

Compliance History

DMR Data for Outfall 001 (from March 1, 2020 to February 28, 2021)

Parameter	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20
Flow (MGD) Average Monthly	0.033	0.034	0.029	0.022	0.017	0.016	0.017	0.015	0.014	0.020	0.038	0.041
Flow (MGD) Daily Maximum	0.046	0.046	0.042	0.037	0.036	0.032	0.036	0.028	0.027	0.045	0.049	0.046
pH (S.U.) Minimum	6.7	6.6	6.6	6.3	6.1	6.7	6.7	6.9	6.9	6.7	6.8	7.0
pH (S.U.) Maximum	7.7	7.4	7.7	6.9	7.0	7.5	6.9	7.1	7.9	7.2	7.5	7.8
DO (mg/L) Instantaneous Minimum	6.1	6.6	6.5	6.0	5.6	5.1	5.1	6.2	5.6	7.1	7.7	7.1
CBOD5 (lbs/day) Average Monthly	0.82	0.85	0.48	0.37	0.28	0.27	0.28	0.32	0.23	0.42	0.79	1.0
CBOD5 (mg/L) Average Monthly	3	3	2.0	2.0	2	2.05	2.1	2.6	2	2.5	2.5	3
CBOD5 (mg/L) Instantaneous Maximum	3	3	2.0	2.0	2	2.1	2.1	3	2	3.0	3.0	3
BOD5 (lbs/day) Influent Average Monthly	41	54	48	39.2	34	40	36	40	44	42.3	42	88
BOD5 (mg/L) Influent Average Monthly	120	213	174	214	252	300	335	359	378	253.5	133.5	241
BOD5 (mg/L) Influent Instantaneous Maximum	120	223	197	251	259	385	337	428	420	285	159	396
TSS (lbs/day) Average Monthly	3.3	2.8	2.8	2.4	2.3	0.80	1.0	1.6	0.93	2.3	5.0	5.5
TSS (lbs/day) Influent Average Monthly	29	48	60	32.4	28	40	27	30	59	45	54	90
TSS (mg/L) Average Monthly	12	10	11.5	13	16	6	6.5	13	8	14	15	16
TSS (mg/L) Influent Average Monthly	84	178	224	177	208	300	245	270	455	271	171	247
TSS (mg/L) Influent Instantaneous Maximum	84	195	290	251	215	370	250	335	550	310	192	420

**NPDES Permit Fact Sheet  
Nu Mine WWTP**

**NPDES Permit No. PA0216984**

TSS (mg/L) Instantaneous Maximum	12	18	12	14	17	7	8	20	10	15	18	17
Fecal Coliform (CFU/100 ml) Geometric Mean	14.60	4.4	1.4	15	10	8.36	12	21	1	1000	93.4	180
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	14.60	6.30	2.0	18.50	12.70	23.30	13.00	436	1	1299.70	129.60	517.20
UV Transmittance (%) Average Monthly	2.6	2.3	3.6	4.4	4.5	6.1	5.4	6.3	9.4	0.9	1.7	1.3
UV Transmittance (%) Instantaneous Maximum	1.0	10	10	10	10.2	10	10	10	10	10	9.5	2.8
Total Nitrogen (mg/L) Instantaneous Maximum			35.4			43.8			45.3			21.7
Ammonia (lbs/day) Average Monthly	0.02	0.02	0.03	0.04	0.02	0.02	0.01	0.001	0.03	0.03	0.04	1.3
Ammonia (mg/L) Average Monthly	0.07	0.07	0.12	0.18	0.11	0.2	0.085	0.08	0.21	0.16	0.14	3.8
Ammonia (mg/L) Instantaneous Maximum	0.07	0.09	0.13	0.21	0.13	0.36	0.09	0.10	0.30	0.26	0.15	6.70
Total Phosphorus (mg/L) Instantaneous Maximum			2.70			5.86			6.38			2.51



**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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	13.6	XXX	XXX	25.0	XXX	50.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
TSS	16.3	XXX	XXX	30.0	XXX	60.0	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	Report	1/day	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
Ammonia-Nitrogen Nov 1 - Apr 30	13.6	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Ammonia-Nitrogen May 1 - Oct 31	5.4	XXX	XXX	10.0	XXX	20.0	2/month	Grab

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Compliance Sampling Location: at Outfall 001, after Ultraviolet (UV) light disinfection.

Flow is monitor only based on Chapter 92a.61. The limits for pH and Dissolved Oxygen are technology-based on Chapter 93.7. The limits for CBOD<sub>5</sub>, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for influent BOD<sub>5</sub> and influent Total Suspended Solids is based on Chapter 92a.61. The limits for Ammonia-Nitrogen are water quality-based on Chapter 93.7. Monitoring for E. Coli, UV Transmittance, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

Attachment 1

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
17E		46965	COWANSHANNOCK 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)
18.600	Nu Mine WWTP	PA0216984	0.065	CBOD5	25		
				NH3-N	13.26	26.52	
				Dissolved Oxygen			4

**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
17E	46965	COWANSHANNOCK CREEK	18.600	1120.00	16.00	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
Nu Mine WWTP	PA0216984	0.0650	0.0000	0.0000	0.000	25.00	6.90

**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	4.00	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
17E	46965	COWANSHANNOCK CREEK	15.900	1109.00	29.40	0.00000	0.00	<input checked="" type="checkbox"/>

**Stream Data**

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.040	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	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
		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 D.O.Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>	
17E	46965	COWANSHANNOCK CREEK	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
18.600	0.065	25.000	6.985
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
16.831	0.533	31.606	0.083
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>
5.12	0.374	1.80	1.029
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.667	14.746	Owens	5
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>		
1.997	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.200	4.66	1.47
	0.399	4.24	1.19
	0.599	3.86	0.97
	0.799	3.52	0.79
	0.999	3.20	0.64
	1.198	2.91	0.52
	1.398	2.65	0.43
	1.598	2.41	0.35
	1.797	2.20	0.28
	1.997	2.00	0.23

### WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

### WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
17E		46965				COWANSHANNOCK 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
<b>Q7-10 Flow</b>												
18.600	0.64	0.00	0.64	.1006	0.00077	.533	16.83	31.61	0.08	1.997	25.00	6.98
<b>Q1-10 Flow</b>												
18.600	0.41	0.00	0.41	.1006	0.00077	NA	NA	NA	0.07	2.460	25.00	6.98
<b>Q30-10 Flow</b>												
18.600	0.87	0.00	0.87	.1006	0.00077	NA	NA	NA	0.10	1.716	25.00	6.99



### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
17E	46965	COWANSHANNOCK 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
18.600	Nu Mine WWTP	11.28	50	11.28	50	0	0

**NH3-N Chronic Allocations**

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
18.600	Nu Mine WWTP	1.37	13.26	1.37	13.26	0	0

**Dissolved Oxygen Allocations**

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
18.60	Nu Mine WWTP	25	25	13.26	13.26	4	4	0	0