

Application Type Renewal
 Facility Type Non-Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0034380
 APS ID 1068146
 Authorization ID 1404377

Applicant and Facility Information

Applicant Name	<u>Quadland Corporation</u>	Facility Name	<u>Emlenton Service Plaza</u>
Applicant Address	<u>7041 Truck World Boulevard</u> <u>Hubbard, OH 44425-3254</u>	Facility Address	<u>I-80 Exit 43</u> <u>Emlenton, PA 16373</u>
Applicant Contact	<u>Steven Lukac, V.P. of Operations</u> <u>(sjlukac@quadlandcorp.com)</u>	Facility Contact	<u>Steven Lukac, V.P. of Operations</u> <u>(sjlukac@quadlandcorp.com)</u>
Applicant Phone	<u>(330) 565-1707</u>	Facility Phone	<u>(330) 565-1707</u>
Client ID	<u>191576</u>	Site ID	<u>269643</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Scrubgrass Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Venango</u>
Date Application Received	<u>July 25, 2022</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>July 27, 2022</u>	If No, Reason	<u>-</u>
Purpose of Application	<u>Renewal of an existing NPDES Permit for an existing discharge of treated sanitary wastewater.</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 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. Public Sewerage Availability
- E. Effluent Chlorine Optimization and Minimization
- F. Little or No Assimilative Capacity

SPECIAL CONDITIONS:

- II. Solids Management
- III. Requirements Applicable to Stormwater Outfalls

There are no open violations in efacts associated with the subject Client ID (191576) as of 8/16/2023. [8/31/2023 CWY](#)

Approve	Deny	Signatures	Date
X		Stephen A. McCauley Stephen A. McCauley, E.I.T. / Environmental Engineering Specialist	8/16/2023
X		Chad W. Yurisc Chad W. Yurisc, P.E. / Environmental Engineer Manager	8/31/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.02</u>
Latitude	<u>41° 10' 32.00"</u>	Longitude	<u>-79° 44' 18.00"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Unnamed Tributary to the Allegheny River (CWF (exist. use))</u>	Stream Code	<u>42123</u>
NHD Com ID	<u>100479847</u>	RMI	<u>2.19</u>
Drainage Area	<u>0.18</u>	Yield (cfs/mi ²)	<u>0.1</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.018</u>	Q ₇₋₁₀ Basis	<u>calculated</u>
Elevation (ft)	<u>1339</u>	Slope (ft/ft)	<u>0.040646</u>
Watershed No.	<u>16-G</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>CWF (Cold Water Fishes)*</u>	Existing Use Qualifier	<u>Use Attainability Analysis</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Impaired**</u>		
Cause(s) of Impairment	<u>Metals</u>		
Source(s) of Impairment	<u>Abandoned Mine Drainage</u>		
TMDL Status	<u>-</u>	Name	<u>-</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake	<u>Aqua Pennsylvania, Inc. - Emlenton</u>		
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>1,376</u>
PWS RMI	<u>90.0</u>	Distance from Outfall (mi)	<u>4.0</u>

* - DEP has evaluated information indicating that the existing use of the receiving waters is different than the designated use under 25 Pa. Code § 93.9. In developing the draft NPDES permit, DEP is proposing to protect the existing use of the receiving waters. Following DEP's notice of the receipt of the application and the draft permit in the Pennsylvania Bulletin, DEP will accept written comments during the public comment period regarding DEP's tentative determination to protect the existing use. DEP will make a final determination on existing use protection for the receiving waters as part of the final permit action.

** - The receiving stream is impaired for AMD metals (Aluminum, Iron, and Manganese). Per the SOP, monitoring will be added at Outfall 001 for Aluminum, Iron, and Manganese to determine whether the discharge is contributing to the impairment. The three stormwater outfalls will not be monitored.

Sludge use and disposal description and location(s): All sludge 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 0.02 MGD of treated sewage from an existing non-municipal STP in Scrubgrass Township, Venango County.

Treatment permitted under WQM Permit No. 6106402 consists of the following: A 10,150 gallon flow equalization tank with a comminutor and an overflow bar screen, a 26,172 gallon aeration tank, a 5,327 gallon settling tank, a 5,040 gallon sludge stabilization tank, tablet chlorine disinfection with a 670 gallon compartment for chlorine contact, and tablet dechlorination with a 290 gallon compartment for dechlorination contact.

1. Streamflow:

Unnamed Tributary to the Allegheny River at Outfall 001:

Drainage Area:	<u>0.18</u>	sq. mi.	(USGS StreamStats)
Yieldrate:	<u>0.1</u>	cfsm	(default)
% of stream allocated:	<u>100%</u>	Basis:	No nearby discharges
Q7-10:	<u>0.018</u>	cfs	(calculated)

2. Wasteflow:

Maximum discharge: 0.02 MGD = 0.03 cfs

Runoff flow period: 24 hours Basis: Equalized flow and previous WQPRs

There is less than 3 parts stream flow (Q7-10) to 1 part effluent (design flow). However, since this is an existing discharge, the more stringent treatment requirements cannot be achieved, and the receiving stream is not impaired by the discharge, 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, NH₃-N, CBOD₅, Dissolved Oxygen, and Disinfection.

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 30.0 mg/l as a monthly average and 60.0 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/year.

Basis: Application of Chapter 92a.61 as recommended by the SOP for flows between 0.002 MGD and 0.05 MGD.

e. Phosphorus

Chapter 96.5 does not apply. The previous monitoring for Total Phosphorus will be retained in accordance with the SOP, based on Chapter 92a.61. The monitoring frequency will be reduced from 1/quarter to 1/year since the receiving stream is not impaired for nutrients, per the SOP.

f. Total Nitrogen

The previous monitoring for Total Nitrogen will be retained in accordance with the SOP, based on Chapter 92a.61. The monitoring frequency will be reduced from 1/quarter to 1/year since the receiving stream is not impaired for nutrients, per the SOP.

g. Ammonia-Nitrogen (NH₃-N)

Median discharge pH to be used: 7.2 Standard Units (S.U.)

Basis: eDMR data from previous 12 months

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: 20°C (default value used for CWF modeling)

Background NH₃-N concentration: 0.1 mg/l

Basis: Default value

Calculated NH₃-N Summer limits: 25.0 mg/l (monthly average)

50.0 mg/l (instantaneous maximum)

Calculated NH₃-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. Per the SOP, and the previous permit, year-long monitoring will be retained for NH₃-N.

h. CBOD₅

Median discharge pH to be used: 7.2 Standard Units (S.U.)

Basis: eDMR data from previous 12 months

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: 20°C (default value used for CWF modeling)

Background CBOD₅ concentration: 2.0 mg/l

Basis: Default value

Calculated CBOD₅ limits: 25.0 mg/l (monthly average)
50.0 mg/l (instantaneous maximum)

Result: WQ modeling resulted in the limits above (see Attachment 1). The calculated limits are the same as the previous permit and will be retained.

i. Dissolved Oxygen (DO)

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.

j. Disinfection

Ultraviolet (UV) light

TRC limits: 0.09 mg/l (monthly average)
0.30 mg/l (instantaneous maximum)

Basis: The TRC limits above were calculated using the Department's TRC Calculation Spreadsheet (see Attachment 2). The limits are the same as in the previous NPDES Permit and will be retained.

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.

4. Reasonable Potential Analysis for Receiving Stream:

A Reasonable Potential Analysis was not performed in accordance with State practices for Outfall 001 using the Department's Toxics Management Spreadsheet 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 Department's Toxics Management Spreadsheet does not calculate limits for parameters that are based on PWS criteria (TDS, Chloride, Bromide, and Sulfate). Since no relevant sampling was provided, mass-balance calculations were not performed.

Nearest Downstream potable water supply (PWS): Aqua Pennsylvania, Inc. - Emlenton

Distance downstream from the point of discharge: 4.0 miles (approximate)

Result: No limits or monitoring are necessary as there is significant dilution available.

6. 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.

7. Attachment List:

Attachment 1 - WQ Modeling Printouts

Attachment 2 - TRC Spreadsheet

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

Compliance History

DMR Data for Outfall 001 (from June 1, 2022 to May 31, 2023)

Parameter	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22
Flow (MGD) Average Monthly	0.001	0.078	0.0078	0.0079	0.0134	0.00166	0.006	0.010	0.009	0.0067	0.0067	0.005
pH (S.U.) Instantaneous Minimum	7.0	7.0	7.0	7.0	7.0	7.0	6.8	7.0	6.85	7.28	7.38	7.28
pH (S.U.) Instantaneous Maximum	7.4	7.3	7.3	7.7	7.3	7.3	7.3	7.8	7.48	7.55	7.70	7.56
DO (mg/L) Instantaneous Minimum	4.14	4.02	5.02	5.18	5.0	4.87	5.88	4.96	4.44	4.21	4.4	5.12
TRC (mg/L) Average Monthly	0.08	0.07	0.075	0.07	0.07	0.07	0.072	0.058	0.05	0.03	0.06	0.07
TRC (mg/L) Instantaneous Maximum	0.17	0.16	0.17	0.21	0.19	0.22	0.21	0.21	0.21	0.27	0.10	0.10
CBOD5 (mg/L) Average Monthly	3.2	< 5.0	8.0	11.0	< 4.0	< 2.0	2.09	6.41	5.53	2.2	17.81	2.35
TSS (mg/L) Average Monthly	< 10.0	< 20.0	31.0	12.0	< 5.0	6.0	14.0	8.75	12.0	2.5	30.75	7.25
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	> 2420	< 13	< 2	< 14	1	1	1	1	1	120
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	< 1	> 2420	180	3	204.6	1	1	1	1	1	325.5
Total Nitrogen (mg/L) Average Quarterly			4.1			E			4.0			27.37
Ammonia (mg/L) Average Monthly	< 0.4	< 2.28	7.69	< 0.8	< 3.4	2.657	3.38	4.41	0.1	0.15	5.33	0.12
Total Phosphorus (mg/L) Average Quarterly			0.78			E			1.46			2.14

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	XXX	XXX	XXX	XXX	XXX	1/week	Estimate
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
TRC	XXX	XXX	XXX	0.09	XXX	0.30	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Nov 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Oct 31	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Iron	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite
Total Manganese	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	8-Hr Composite

Compliance Sampling Location: at Outfall 001, after 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 Total Residual Chlorine (TRC) limits are water quality-based on Chapter 93.7. The limits for CBOD₅, Total Suspended Solids, and Fecal Coliforms are technology-based on Chapter 92a.47. Monitoring for Ammonia-Nitrogen, Total Nitrogen, and Total Phosphorus is based on Chapter 92a.61.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>002</u>	Design Flow (MGD)	<u>N/A</u>
Latitude	<u>41° 10' 29.84"</u>	Longitude	<u>-79° 44' 24.53"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Unnamed Tributary to the Allegheny River (CWF (exist. use))</u>	Stream Code	<u>N/A</u>
NHD Com ID	<u>100479847</u>	RMI	<u>N/A</u>
Drainage Area	<u>-</u>	Yield (cfs/mi ²)	<u>-</u>
Q ₇₋₁₀ Flow (cfs)	<u>-</u>	Q ₇₋₁₀ Basis	<u>-</u>
Elevation (ft)	<u>-</u>	Slope (ft/ft)	<u>-</u>
Watershed No.	<u>16-G</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>CWF (Cold Water Fishes)*</u>	Existing Use Qualifier	<u>Use Attainability Analysis</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Metals</u>		
Source(s) of Impairment	<u>Abandoned Mine Drainage</u>		
TMDL Status	<u>-</u>	Name	<u>-</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake		<u>Aqua Pennsylvania, Inc. - Emlenton</u>	
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>1,376</u>
PWS RMI	<u>90.0</u>	Distance from Outfall (mi)	<u>4.0</u>

* - DEP has evaluated information indicating that the existing use of the receiving waters is different than the designated use under 25 Pa. Code § 93.9. In developing the draft NPDES permit, DEP is proposing to protect the existing use of the receiving waters. Following DEP's notice of the receipt of the application and the draft permit in the Pennsylvania Bulletin, DEP will accept written comments during the public comment period regarding DEP's tentative determination to protect the existing use. DEP will make a final determination on existing use protection for the receiving waters as part of the final permit action.

** - The receiving stream is impaired for AMD metals (Aluminum, Iron, and Manganese). Per the SOP, monitoring will be added at Outfall 001 for Aluminum, Iron, and Manganese to determine whether the discharge is contributing to the impairment. The three stormwater outfalls will not be monitored.

The stormwater monitoring from the previous permit was based on Appendix J facilities under the PAG-03 General NPDES Permit, which will be retained. However, pH, COD, Total Nitrogen, and Total Phosphorus were added with the 2022 renewal of the PAG-03 General Permit and will be added with this renewal.

Compliance History

DMR Data for Outfall 002 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
TSS (mg/L) Daily Maximum	E						< 2.5					
Oil and Grease (mg/L) Daily Maximum	< 5.0						< 5.05					

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 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at Outfall 002.

PH, COD, TSS, Oil and Grease, Total Nitrogen and Total Phosphorus are monitor only based on Appendix J of the PAG-03 General Permit, under the authority of Chapter 92a.61.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>003</u>	Design Flow (MGD)	<u>N/A</u>
Latitude	<u>41° 10' 30.64"</u>	Longitude	<u>-79° 44' 21.65"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Unnamed Tributary to the Allegheny River (CWF (exist. use))</u>	Stream Code	<u>N/A</u>
NHD Com ID	<u>100479847</u>	RMI	<u>N/A</u>
Drainage Area	<u>-</u>	Yield (cfs/mi ²)	<u>-</u>
Q ₇₋₁₀ Flow (cfs)	<u>-</u>	Q ₇₋₁₀ Basis	<u>-</u>
Elevation (ft)	<u>-</u>	Slope (ft/ft)	<u>-</u>
Watershed No.	<u>16-G</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>CWF (Cold Water Fishes)*</u>	Existing Use Qualifier	<u>Use Attainability Analysis</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Metals</u>		
Source(s) of Impairment	<u>Abandoned Mine Drainage</u>		
TMDL Status	<u>-</u>	Name	<u>-</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake	<u>Aqua Pennsylvania, Inc. - Emlenton</u>		
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>1,376</u>
PWS RMI	<u>90.0</u>	Distance from Outfall (mi)	<u>4.0</u>

* - DEP has evaluated information indicating that the existing use of the receiving waters is different than the designated use under 25 Pa. Code § 93.9. In developing the draft NPDES permit, DEP is proposing to protect the existing use of the receiving waters. Following DEP's notice of the receipt of the application and the draft permit in the Pennsylvania Bulletin, DEP will accept written comments during the public comment period regarding DEP's tentative determination to protect the existing use. DEP will make a final determination on existing use protection for the receiving waters as part of the final permit action.

** - The receiving stream is impaired for AMD metals (Aluminum, Iron, and Manganese). Per the SOP, monitoring will be added at Outfall 001 for Aluminum, Iron, and Manganese to determine whether the discharge is contributing to the impairment. The three stormwater outfalls will not be monitored.

The stormwater monitoring from the previous permit was based on Appendix J facilities under the PAG-03 General NPDES Permit, which will be retained. However, pH, COD, Total Nitrogen, and Total Phosphorus were added with the 2022 renewal of the PAG-03 General Permit and will be added with this renewal.

Compliance History

DMR Data for Outfall 003 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
TSS (mg/L) Daily Maximum	E						< 2.50					
Oil and Grease (mg/L) Daily Maximum	< 5.6						< 5.80					

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 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at Outfall 003.

PH, COD, TSS, Oil and Grease, Total Nitrogen and Total Phosphorus are monitor only based on Appendix J of the PAG-03 General Permit, under the authority of Chapter 92a.61.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>004</u>	Design Flow (MGD)	<u>N/A</u>
Latitude	<u>41° 10' 32.94"</u>	Longitude	<u>-79° 44' 18.54"</u>
Quad Name	<u>-</u>	Quad Code	<u>-</u>
Wastewater Description: <u>Stormwater</u>			
Receiving Waters	<u>Unnamed Tributary to the Allegheny River (CWF (exist. use))</u>	Stream Code	<u>N/A</u>
NHD Com ID	<u>100479847</u>	RMI	<u>N/A</u>
Drainage Area	<u>-</u>	Yield (cfs/mi ²)	<u>-</u>
Q ₇₋₁₀ Flow (cfs)	<u>-</u>	Q ₇₋₁₀ Basis	<u>-</u>
Elevation (ft)	<u>-</u>	Slope (ft/ft)	<u>-</u>
Watershed No.	<u>16-G</u>	Chapter 93 Class.	<u>WWF</u>
Existing Use	<u>CWF (Cold Water Fishes)*</u>	Existing Use Qualifier	<u>Use Attainability Analysis</u>
Exceptions to Use	<u>-</u>	Exceptions to Criteria	<u>-</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>Metals</u>		
Source(s) of Impairment	<u>Abandoned Mine Drainage</u>		
TMDL Status	<u>-</u>	Name	<u>-</u>
Background/Ambient Data		Data Source	
pH (SU)	<u>-</u>		<u>-</u>
Temperature (°F)	<u>-</u>		<u>-</u>
Hardness (mg/L)	<u>-</u>		<u>-</u>
Other:	<u>-</u>		<u>-</u>
Nearest Downstream Public Water Supply Intake	<u>Aqua Pennsylvania, Inc. - Emlenton</u>		
PWS Waters	<u>Allegheny River</u>	Flow at Intake (cfs)	<u>1,376</u>
PWS RMI	<u>90.0</u>	Distance from Outfall (mi)	<u>4.0</u>

* - DEP has evaluated information indicating that the existing use of the receiving waters is different than the designated use under 25 Pa. Code § 93.9. In developing the draft NPDES permit, DEP is proposing to protect the existing use of the receiving waters. Following DEP's notice of the receipt of the application and the draft permit in the Pennsylvania Bulletin, DEP will accept written comments during the public comment period regarding DEP's tentative determination to protect the existing use. DEP will make a final determination on existing use protection for the receiving waters as part of the final permit action.

** - The receiving stream is impaired for AMD metals (Aluminum, Iron, and Manganese). Per the SOP, monitoring will be added at Outfall 001 for Aluminum, Iron, and Manganese to determine whether the discharge is contributing to the impairment. The three stormwater outfalls will not be monitored.

The stormwater monitoring from the previous permit was based on Appendix J facilities under the PAG-03 General NPDES Permit, which will be retained. However, pH, COD, Total Nitrogen, and Total Phosphorus were added with the 2022 renewal of the PAG-03 General Permit and will be added with this renewal.

Compliance History

DMR Data for Outfall 004 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
TSS (mg/L) Daily Maximum	E						< 2.50					
Oil and Grease (mg/L) Daily Maximum	< 6.1						< 5.90					

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 004, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
pH (S.U.)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
COD	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
TSS	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Calculation
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: at Outfall 004.

PH, COD, TSS, Oil and Grease, Total Nitrogen and Total Phosphorus are monitor only based on Appendix J of the PAG-03 General Permit, under the authority of Chapter 92a.61.

Attachment 1

WQM 7.0 Effluent Limits (Perennial Reach)

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
18A		42123		Trib 42123 to Allegheny River			
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)
1.550	Emlenton Svc	PA0034380p	0.020	CBOD5	2		
				NH3-N	2.68	5.36	
				Dissolved Oxygen			7.78

Since the results are equal to the Dry Reach inputs, the inputs are protective of the receiving stream.

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
18A	42123	Trib 42123 to Allegheny River		
<u>RM</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
1.550	0.020	20.000	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
824.984	1.073	768.571	1.443	
<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>	
2.00	0.000	0.00	0.700	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.243	0.823	Tsivoglou	6	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.066	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.007	2.00	0.00	8.24
	0.013	2.00	0.00	8.24
	0.020	2.00	0.00	8.24
	0.026	2.00	0.00	8.24
	0.033	2.00	0.00	8.24
	0.039	2.00	0.00	8.24
	0.046	2.00	0.00	8.24
	0.053	2.00	0.00	8.24
	0.059	2.00	0.00	8.24
	0.066	2.00	0.00	8.24

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	6		

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
18A	42123 Trib	42123 to Allegheny River	1.550	869.00	6390.00	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 Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.200	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Emlenton Svc	PA0034380p	0.0200	0.0000	0.0000	0.000	25.00	7.20

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	2.00	2.00	0.00	1.50
Dissolved Oxygen	7.78	8.24	0.00	0.00
NH3-N	2.68	0.00	0.00	0.70

(from the Dry Reach Model)

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
18A	42123 Trib	42123 to Allegheny River	0.000	868.00	6391.00	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 Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.200	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
18A		42123				Trib 42123 to Allegheny River						
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												
1.550	1278.00	0.00	1278.00	.0309	0.00012	1.073	824.98	768.57	1.44	0.066	20.00	7.00
Q1-10 Flow												
1.550	817.92	0.00	817.92	.0309	0.00012	NA	NA	NA	1.12	0.084	20.00	7.00
Q30-10 Flow												
1.550	1738.08	0.00	1738.08	.0309	0.00012	NA	NA	NA	1.71	0.055	20.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin **Stream Code** **Stream Name**
 18A 42123 Trib 42123 to Allegheny River

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
	1.550 Emlenton Svc	16.76	5.36	16.76	5.36	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
	1.550 Emlenton Svc	1.89	2.68	1.89	2.68	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)		
	1.55 Emlenton Svc	2	2	2.68	2.68	7.78	7.78	0	0

WQM 7.0 D.O.Simulation (Dry Reach)

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
18A	42123	Trib 42123 to Allegheny River		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
2.190	0.020	23.161	7.115	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
2.199	0.331	6.647	0.067	
<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>	
16.54	0.919	15.81	0.893	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
5.561	29.693	Owens	NA	
<u>Reach Travel Time (days)</u>	Subreach Results			
1.989	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.199	13.39	13.23	6.03
	0.398	10.84	11.08	6.47
	0.597	8.78	9.28	6.85
	0.795	7.10	7.77	7.15
	0.994	5.75	6.51	7.41
	1.193	4.66	5.45	7.62
	1.392	3.77	4.56	7.78
	1.591	3.05	3.82	7.78
	1.790	2.47	3.20	7.78
	1.989	2.00	2.68	7.78

(input into Perennial Reach Model)

WQM 7.0 Modeling Specifications

Parameters	D.O.	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	Simulation	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	2		

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
18A	42123	Trib 42123 to Allegheny River	2.190	1339.00	0.18	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Emlenton Svc	PA0034380d	0.0200	0.0000	0.0000	0.000	25.00	7.20

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
18A	42123	Trib 42123 to Allegheny River	0.000	869.00	1.06	0.00000	0.00	<input type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
18A		42123				Trib 42123 to Allegheny River						
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												
2.190	0.02	0.00	0.02	NA	0.04065	.331	2.2	6.65	0.07	1.989	23.16	7.12
Q1-10 Flow												
2.190	0.01	0.00	0.00	NA	0.04065	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
2.190	0.02	0.00	0.00	NA	0.04065	NA	NA	NA	0.00	0.000	0.00	0.00

Attachment 2

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.018	= Q stream (cfs)	0.5	= CV Daily	
0.02	= Q discharge (MGD)	0.5	= CV Hourly	
30	= no. samples	1	= AFC_Partial Mix Factor	
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor	
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)	
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)	
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)	
Source	Reference	AFC Calculations		Reference
TRC	1.3.2.iii	WLA_afc = 0.205		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc= 0.076		5.1d
		WLA_cfc = 0.192		
		LTAMULT_cfc = 0.581		
		LTA_cfc = 0.112		
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.094		AFC
		INST MAX LIMIT (mg/l) = 0.307		
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)			