

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

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0083194
 APS ID 1070599
 Authorization ID 1439068

Applicant and Facility Information

Applicant Name	<u>Applegreen PA Welcome Center LLC</u>	Facility Name	<u>Blue Mt Turnpike Plaza</u>
Applicant Address	<u>208 Harristown Road</u> <u>Glen Rock, NJ 07452-3308</u>	Facility Address	<u>Pa Turnpike Between Exits 201 And 226</u> <u>Newburg, PA 17240</u>
Applicant Contact	<u>Shawn Leslie</u>	Facility Contact	<u>Damien Corle</u>
Applicant Phone	<u>(443) 206-6899</u>	Facility Phone	<u>(445) 448-0716</u>
Client ID	<u>370385</u>	Site ID	<u>2084</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Hopewell Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Cumberland</u>
Date Application Received	<u>May 8, 2023</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>June 1, 2023</u>	If No, Reason	<u></u>
Purpose of Application	<u>NPDES Renewal.</u>		

Summary of Review

Applegreen PA Welcome Center LLC (Applegreen) has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its NPDES permit. The permit was last reissued on November 26, 2018 and became effective on December 1, 2018. The permit expired on November 30, 2023 but the terms and conditions of the permit have been extended since that time.

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

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.

Approve	Deny	Signatures	Date
X		<i>Jinsu Kim</i> Jinsu Kim / Environmental Engineering Specialist	April 9, 2024
X		Maria D. Bebenek Daniel W. Martin, P.E. / Environmental Engineer Manager	April 17, 2024
X		Maria D. Bebenek Maria D. Bebenek, P.E. / Program Manager	April 17, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.05
Latitude	40° 9' 58.85"	Longitude	-77° 35' 43.14"
Quad Name	Newburg	Quad Code	1725
Wastewater Description: Sewage Effluent			
Receiving Waters	Newburg Run	Stream Code	10531
NHD Com ID	56408225	RMI	4.78
Drainage Area	0.47 sq.mi.	Yield (cfs/mi ²)	0.147
Q ₇₋₁₀ Flow (cfs)	0.0609	Q ₇₋₁₀ Basis	USGS gage no. 0157000
Elevation (ft)		Slope (ft/ft)	
Watershed No.	7-B	Chapter 93 Class.	WWF, MF
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	Final	Name	Conodoguinet Creek Watershed
Nearest Downstream Public Water Supply Intake	Carlisle Borough		
PWS Waters	Conodoguinet Creek	Flow at Intake (cfs)	48
PWS RMI	35.95	Distance from Outfall (mi)	36.8

Drainage Area

The discharge is to Newburg Run at RMI 4.78. A point of first use stream survey was conducted by DEP biologist on September 29, 1992. The survey concluded the stream was perennial. A drainage area upstream of the point of discharge is estimated to be 0.47 sq.mi. according to USGS StreamStats available at <https://streamstats.usgs.gov/ss/>.

Streamflow

USGS StreamStats produced a Q7-10 flow of 0.0108 cfs; however, this value may not be accurate. The drainage area estimated by USGS StreamStats at the point of discharge is below the minimum value required to be used in regression equations to calculate the Q7-10. Thus, technical errors may be made during the stream flow calculation. The flow data from the nearest downstream USGS gage station (i.e., USGS gage no. 0157000) is then used to calculate the Q7-10 using a low-flow yield method as follows:

$$\text{Low Flow Yield} = \text{Q7-10}_{\text{gage}} / \text{Drainage Area}_{\text{gage}} = 69.3 \text{ cfs} / 470 \text{ sq.mi.} = 0.147 \text{ cfs/sq.mi.}$$

$$\text{Q7-10}_{\text{site}} = \text{Low Flow Yield} * \text{Drainage Area}_{\text{site}} = 0.147 \text{ cfs/sq.mi.} * 0.47 \text{ sq.mi} = 0.0609 \text{ cfs}$$

Newburg Run

Under Pa Code §93.9o, Newburg Run is designated as warm water and migratory fishes. Newburg Run is a tributary of Conodoguinet Creek which is also designated as warm water and migratory fishes from PA 997 at Roxbury to Mouth. As a result, no special protection water(s) is impacted by this discharge. Further, no Class A Wild Trout Fishery is impacted by this discharge. DEP's 2024 integrated water quality report indicated that the discharge is located in a stream segment listed as attaining use(s). However, further downstream of the point of discharge is impaired for nutrients and siltation as a result of agricultural activities. A Total Maximum Daily Load for the majority part of the Conodoguinet Creek watershed was developed in December 2000 to address impairments associated with nutrients and sediments associated with agriculture, construction, urban runoff and storm sewers. This TDML addressed load allocations for non-point sources on Newburg Run; yet, does not address wasteload allocations for point sources on Newburg Run. Therefore, no TMDL has been taken into consideration during this review. DEP may reopen this permit in case the TMDL is revised to include the wasteload allocation for this facility in the future.

Public Water Supply

The fact sheet prepared for the last permit renewal indicates that the nearest downstream public water supply intake is Carlisle Borough located on the Conodoguinet Creek approximately 37 miles from the discharge. Given the distance, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary				
Treatment Facility Name: Blue Mt. Turnpike WWTP				
WQM Permit No.	Issuance Date			
2193403	09/12/1995			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Oxidation Ditch	Chlorine	0.05
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.05	-	Not Overloaded	Digestion	Other WWTP

Applegreen operates a sanitary wastewater treatment facility serving I-76/PA Turnpike travel plaza near Newburg, Pa. With having both annual average design flow and hydraulic design capacity of 0.05 MGD, the facility utilizes an oxidation ditch activated sludge process consisting of a bar screen, equalization tank, oxidation ditches (2), clarifiers (2), chlorine contact tank, sand filters, and outfall 001 to Newburg Run.

Sodium hypochlorite is used for chlorination, sodium bisulfite is used as needed for dechlorination, ferric chloride is used as needed for phosphorus removal and soda ash is used for pH control.

Sludge is sent to a sludge holding tank prior to hauled off site via a local septage hauler to another WWTP for ultimate treatment and disposal.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMR data is presented on the next page.
Summary of Inspections:	02/23/2023: DEP conducted an incident inspection regarding a reported Sanitary Sewer Overflow occurred on 02/22/2023. The inspection report indicates that no streams/waterways were impacted by the SSO. 11/10/2021: DEP conducted a routine inspection and discussed with the permittee regarding some effluent violations during the July-August monitoring periods.
Other Comments:	Since the last permit reissuance, there are a number of effluent violations reported to DEP. These violations are shown on the next pages. DEP's database shows that there are a number of open violations associated with this facility or permittee. The draft permit letter will indicate that the permit may not be finalized until all open violations are resolved.

Effluent Data

DMR Data for Outfall 001 (from March 1, 2023 to February 29, 2024)

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
Flow (MGD) Average Monthly	0.00307	0.00282	0.00372	0.00426	0.00447	0.0483	0.00878 6	0.0083	0.0068	0.0089	0.0067	0.0051
Flow (MGD) Daily Maximum	0.00874	0.00594	0.00658	0.0098	0.00795	0.1445	0.03640 4	0.0213	0.0143	0.0166	0.02	0.0114
pH (S.U.) Daily Minimum	6.15	6.24	6.08	6.1	6.58	6.61	6.54	6.2	6.2	6.2	6.1	6.2
pH (S.U.) Daily Maximum	8.17	8.3	8.3	8.32	8.3	8.36	7.75	7.9	7.9	7.9	7.8	7.9
DO (mg/L) Daily Minimum	9.72	9.48	9.78	8.43	7.91	7.0	5.72	6.4	6.2	7.8	8.8	10.1
TRC (mg/L) Average Monthly	0.06	0.06	0.08	0.15	0.10	0.07	< 0.04	< 0.06	< 0.05	< 0.05	< 0.09	< 0.08
TRC (mg/L) Instantaneous Maximum	0.13	0.30	0.31	0.38	0.28	0.27	0.20	0.20	0.14	0.21	0.31	0.24
CBOD5 (mg/L) Average Monthly	< 3.0	< 4.7	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 16.5	4.2	< 3.0	< 4.2	5.7
TSS (mg/L) Average Monthly	14.2	7.2	5.2	5.6	4.6	1.6	< 1.6	< 1.8	6.4	7.2	11.0	18.6
Fecal Coliform (No./100 ml) Geometric Mean	28	< 17	< 5	< 7	14	< 14	2123	< 46	< 18	< 10	< 34	< 10
Fecal Coliform (No./100 ml) Instantaneous Maximum	42.5	54.5	5	10	20	1296	4106	213	31	10	115.2	< 10
Nitrate-Nitrite (lbs/day) Daily Maximum			3			24			< 13			< 8
Nitrate-Nitrite (mg/L) Daily Maximum			101.6			83.12			< 112.4			< 103.7
Total Nitrogen (lbs/day) Daily Maximum			3			24			< 13			8
Total Nitrogen (mg/L) Daily Maximum			103.1			83.62			< 112.9			104.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.1	< 0.1	0.2	< 0.2	< 0.1	< 0.1	1.1	< 0.6	< 0.4	< 1.9	< 2.4
TKN (lbs/day) Daily Maximum			< 0.01			< 0.01			< 0.06			< 0.04

**NPDES Permit Fact Sheet
Blue Mt Turnpike Plaza**

NPDES Permit No. PA0083194

Parameter	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23	APR-23	MAR-23
TKN (mg/L) Daily Maximum			< 0.5			< 0.5			< 0.5			< 0.05
Total Phosphorus (lbs/day) Average Monthly	0.009	0.007	0.005	0.020	0.020	0.200	< 0.100	0.004	0.009	0.008	0.030	0.030
Total Phosphorus (mg/L) Average Monthly	0.3	0.3	0.2	0.6	0.6	0.9	< 1.6	0.2	0.2	0.1	0.2	0.6

Effluent Violations

Effluent Violations since the last permit reissuance

Date	Parameter	Results	Limits	Units	SBC
11/1/2018	Total Phosphorus	2.3	2	mg/L	Average Monthly
1/1/2019	Total Residual Chlorine (TRC)	0.51	0.4	mg/L	Instantaneous Maximum
5/1/2019	Ammonia-Nitrogen	3	2.5	mg/L	Average Monthly
8/1/2019	Fecal Coliform	280	200	No./100 ml	Geometric Mean
9/1/2019	Fecal Coliform	1110	200	No./100 ml	Geometric Mean
9/1/2019	Fecal Coliform	3654	1000	No./100 ml	Instantaneous Maximum
12/1/2019	Total Suspended Solids	32.5	30	mg/L	Average Monthly
5/1/2020	Ammonia-Nitrogen	8.3	2.5	mg/L	Average Monthly
7/1/2020	Fecal Coliform	1296	1000	No./100 ml	Instantaneous Maximum
8/1/2020	Fecal Coliform	6867	1000	No./100 ml	Instantaneous Maximum
9/1/2020	Fecal Coliform	7701	1000	No./100 ml	Instantaneous Maximum
9/1/2020	Total Residual Chlorine (TRC)	0.42	0.4	mg/L	Instantaneous Maximum
3/1/2021	Ammonia-Nitrogen	9.8	7.5	mg/L	Average Monthly
7/1/2021	Ammonia-Nitrogen	< 5.1	2.5	mg/L	Average Monthly
7/1/2021	Total Phosphorus	2.6	2	mg/L	Average Monthly
8/1/2021	Ammonia-Nitrogen	< 3.4	2.5	mg/L	Average Monthly
12/1/2021	Total Residual Chlorine (TRC)	0.6	0.4	mg/L	Instantaneous Maximum
6/1/2022	Total Residual Chlorine (TRC)	0.45	0.4	mg/L	Instantaneous Maximum
9/1/2022	Fecal Coliform	< 215	200	No./100 ml	Geometric Mean
9/1/2022	Fecal Coliform	< 4611	1000	No./100 ml	Instantaneous Maximum
8/1/2023	Fecal Coliform	2123	200	No./100 ml	Geometric Mean
8/1/2023	Fecal Coliform	4106	1000	No./100 ml	Instantaneous Maximum
9/1/2023	Fecal Coliform	1296	1000	No./100 ml	Instantaneous Maximum
11/1/2023	Total Residual Chlorine (TRC)	0.15	0.12	mg/L	Average Monthly

Existing Effluent Limits and Monitoring Requirements

Effluent Limits and Monitoring Requirements in the existing permit.

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	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.12	XXX	0.40	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
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
Nitrate-Nitrite as N	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	2.5	XXX	5	2/month	24-Hr Composite
Total Kjeldahl Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Phosphorus	0.417	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite

Development of Effluent Limitations and Monitoring Requirements

Outfall No. <u>001</u>	Design Flow (MGD) <u>.05</u>
Latitude <u>40° 9' 58.00"</u>	Longitude <u>-77° 35' 43.00"</u>
Wastewater Description: <u>Sewage Effluent</u>	

Technology-Based Limitations

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

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

Water Quality-Based Limitations

CBOD₅, NH₃-N and Dissolved Oxygen (DO)

WQM 7.0 version 1.0b is a water quality model designed to assist DEP to determine appropriate permit requirements for CBOD₅, NH₃-N and DO. DEP's guidance no. 391-2000-007 provides the technical methods contained in WQM 7.0 for conducting wasteload allocation and for determining recommended NPDES effluent limits for point source discharges. The model was utilized and the model output indicated that existing limits are still appropriate and protective of water quality.

Total Residual Chlorine

Since sodium hypochlorite is used for disinfection, Total Residual Chlorine (TRC) effluent levels must be regulated in accordance with 25 Pa Code §92a.48(b). DEP's TRC_CALC worksheet indicates that existing effluent limits are protective of water quality. No change is recommended.

Toxics

DEP's NPDES permit application for minor sewages less than 0.1 MGD does not require sampling of toxics pollutants. As a result, no reasonable potential analysis for toxics pollutants has been performed for the upcoming permit renewal.

Best Professional Judgment (BPJ) Limitations

Dissolved Oxygen

A minimum of 5.0 mg/L for DO is an existing effluent limit and will remain unchanged in the draft permit as recommended by DEP's SOP. This requirement has also been assigned to other sewage facilities in the region. 5.0 mg/L is taken directly from 25 Pa. Code § 93.7(a) and it is also determined to be appropriate according to water quality modeling.

Total Phosphorus

The existing permit renewal contains average monthly concentration effluent limit of 2.0 mg/L, IMAX of 4.0 mg/L and average monthly mass load effluent limit of 0.417 lbs/day for Total Phosphorus. The fact sheet prepared for the last permit renewal contained the following basis for these effluent limits:

“A limit of 2 mg/l was written to control phosphorus loading to the lower Susquehanna River. Reevaluating phosphorus limits using the Implementaiton Guidance for Section 96.5 Phosphorus Discharges to Free Flowing Streams dated 10/27/97 (ID No. 391-2000-018) determined the discharge contributed less than 0.25% of the phosphorus loading and limits were not necessary. However, antibacksliding requirements prevent relaxing limits.

*Following D.O. violations at Orr’s Bridge Dam resulting in fish kills with a diurnal swing from 3 to 17 mg/l, a joint survey with SRBC documented excessive nutrients. Central office and the region agreed that Conodoguinnet Creek needed addition protection and that Conodoguinnet Creek did not the standard categories of free flowing, impoundment or estuary. It was agreed that maintaining the loading at existing levels was consistent with phosphorus regulations and guidance. Expanding facilities would be permitted at existing mass limits. While not discussed at that time, **existing mass load would only be applied up to point where concentration level became 1 mg/l.** New facilities would be permitted at 1 mg/l.*

Write the existing mass load of 0.417 lbs/day and a concentration limit of 2 mg/l.”

DEP finds no reasonable rationale to relax or remove these effluent limits; consequently, existing effluent limits for Total Phosphorus will remain unchanged in the draft permit in accordance with 40 CFR 122.44(L)(1) and (2).

Additional Considerations

Flow Monitoring

The requirement to monitor the volume of effluent will remain in the draft permit per 40 CFR § 122.44(i)(1)(ii).

Nutrient Monitoring Requirement

DEP’s Standard Operating Procedure no. BCW-PMT-033 recommends nutrient monitoring for all sewage facilities. Therefore, the existing quarterly monitoring requirements will remain unchanged in the permit.

E. Coli Monitoring Requirement

DEP’s Standard Operating Procedure no. BCW-PMT-033 recommends a quarterly monitoring of E. Coli for all sewage facilities with design flows ≥ 0.05 MGD and < 1 MGD. Therefore, a new quarterly monitoring requirement will be included in the permit.

Monitoring Frequency and Sample Type

Unless otherwise specified throughout this fact sheet, existing monitoring frequencies and sample types will remain unchanged in the permit.

Mass Loading Limitations

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

Antidegradation Requirements

All effluent limitations and monitoring requirements 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.

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.

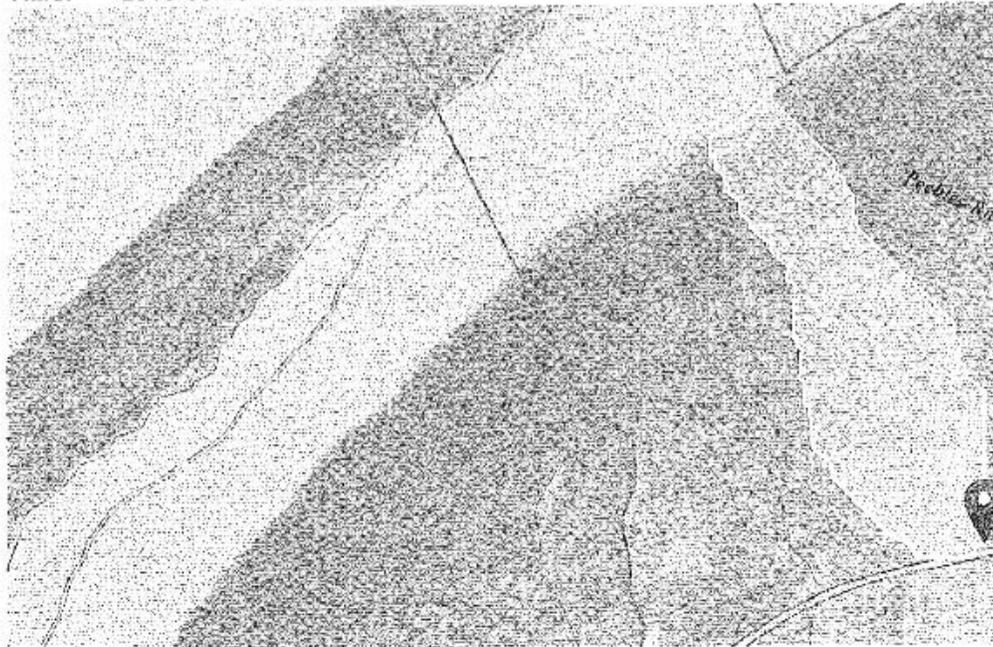
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

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	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.12	XXX	0.40	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	24-Hr Composite
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
Nitrate-Nitrite	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Nitrogen	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	Calculation
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	7.5	XXX	15	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.5	XXX	5	2/month	24-Hr Composite
TKN	XXX	Report Daily Max	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Total Phosphorus	0.417	XXX	XXX	2.0	XXX	4	2/month	24-Hr Composite
E. Coli (no / 100 mL)	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment [redacted])
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	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, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP: [redacted]
<input type="checkbox"/>	Other: [redacted]

StreamStats Report

Region ID: PA
Workspace ID: PA20180625143814973000
Clicked Point (Latitude, Longitude): 40.16617, -77.59506
Time: 2018-06-25 10:38:33 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.47	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	2.29	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	0.47	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	2.29	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 Disclaimers [Low Flow Region 2]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0275	ft ³ /s
30 Day 2 Year Low Flow	0.0397	ft ³ /s
7 Day 10 Year Low Flow	0.0108	ft ³ /s
30 Day 10 Year Low Flow	0.0153	ft ³ /s
90 Day 10 Year Low Flow	0.0265	ft ³ /s

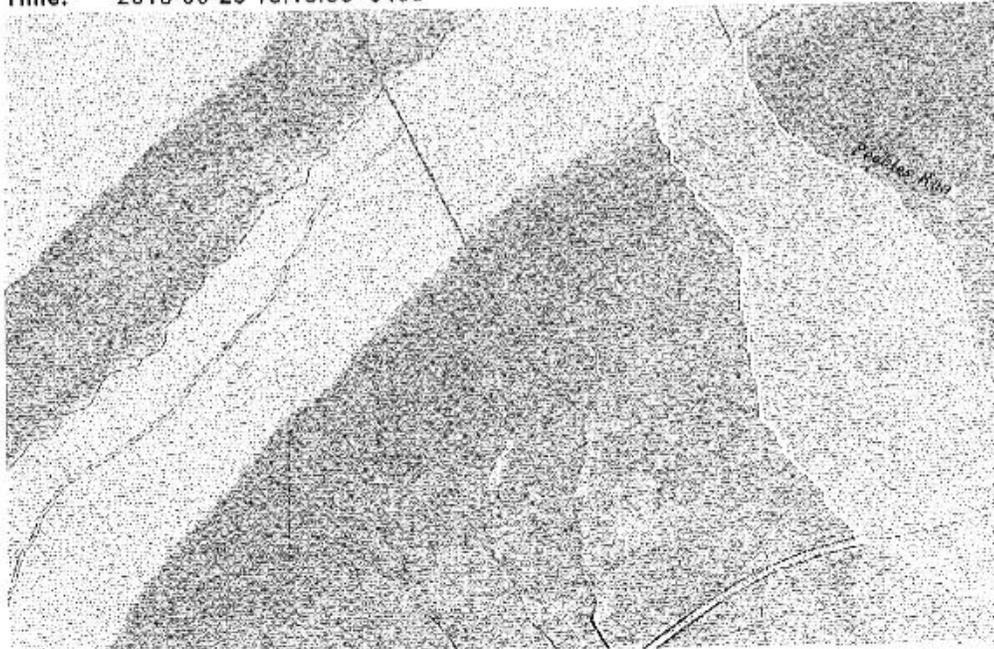
Low-Flow Statistics Citations

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

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and

StreamStats Report

Region ID: PA
Workspace ID: PA20180625171339851000
Clicked Point (Latitude, Longitude): 40.16251, -77.59004
Time: 2018-06-25 13:13:55 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.78	square miles
PRECIP	Mean Annual Precipitation	40	inches
STRDEN	Stream Density -- total length of streams divided by drainage area	3.32	miles per square mile
ROCKDEP	Depth to rock	4.5	feet
CARBON	Percentage of area of carbonate rock	0	percent

StreamStats

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Low-Flow Statistics Parameters (Low Flow Region 2)

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.78	square miles	4.93	1280
PRECIP	Mean Annual Precipitation	40	inches	35	50.4
STRDEN	Stream Density	3.32	miles per square mile	0.51	3.1
ROCKDEP	Depth to Rock	4.5	feet	3.32	5.65
CARBON	Percent Carbonate	0	percent	0	99

Low-Flow Statistics Disclaimers (Low Flow Region 2)

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report (Low Flow Region 2)

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0315	ft ³ /s
30 Day 2 Year Low Flow	0.047	ft ³ /s
7 Day 10 Year Low Flow	0.0116	ft ³ /s
30 Day 10 Year Low Flow	0.0171	ft ³ /s
90 Day 10 Year Low Flow	0.0301	ft ³ /s

Low-Flow Statistics Citations

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

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and

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
07B	10531	NEWBURG RUN	4.780	800.00	0.47	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	pH	Stream Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.147	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
Blue Mt. Plaza	PA0083194	0.0500	0.0500	0.0500	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	5.00	8.24	0.00	0.00
NH3-N	2.50	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
07B	10531	NEWBURG RUN	4.391	718.00	0.78	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	pH	Stream Temp	pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.147	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>		
07B	10531	NEWBURG RUN		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
4.780	0.050	25.000	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
3.733	0.390	9.585	0.101	
<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>	
14.15	1.376	1.32	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>	
6.530	29.881	Owens	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.237	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.024	13.58	1.29	6.75
	0.047	13.04	1.26	6.89
	0.071	12.51	1.23	6.98
	0.095	12.01	1.20	7.05
	0.118	11.53	1.17	7.11
	0.142	11.07	1.14	7.16
	0.166	10.62	1.11	7.21
	0.189	10.20	1.09	7.26
	0.213	9.79	1.06	7.30
	0.237	9.39	1.04	7.34

WQM 7.0 Hydrodynamic Outputs

		<u>SWP Basin</u>	<u>Stream Code</u>		<u>Stream Name</u>							
		07B	10531		NEWBURG RUN							
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												
4.780	0.07	0.00	0.07	.0773	0.03992	.39	3.73	9.57	0.10	0.237	25.00	7.00
Q1-10 Flow												
4.780	0.08	0.00	0.08	.0773	0.03992	NA	NA	NA	0.10	0.242	25.00	7.00
Q30-10 Flow												
4.780	0.08	0.00	0.08	.0773	0.03992	NA	NA	NA	0.10	0.229	25.00	7.00

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	0.91	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.13	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 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
07B	10531	NEWBURG RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
4.780	Blue Mt. Plaza	11.07	5	11.07	5	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
4.780	Blue Mt. Plaza	1.37	2.5	1.37	2.5	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)		
4.78	Blue Mt. Plaza	25	25	2.5	2.5	5	5	0	0

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>			
07B		10531		NEWBURG RUN			
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)
4.780	Blue Mt. Plaza	PA0083194	0.050	CBOD5	25		
				NH3-N	2.5	5	
				Dissolved Oxygen			5

TRC_CALC

1A	B	C	D	E	F	G
2	TRC EVALUATION					
3	Input appropriate values in B4:B8 and E4:E7					
4	0.0609	= Qstream (cfs)		0.5	= CV Daily	
5	0.05	= Q discharge (MGD)		0.5	= CV Hourly	
6	30	= no. samples		1	= AFC_Partial Mix Factor	
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor	
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)	
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)	
	0	= % Factor of Safety (FOS)			=Decay Coefficient (K)	
10	Source	Reference	AFC Calculations		Reference	CFC Calculations
11	TRC	1.3.2 iii	WLA_afc = 0.270		1.3.2 iii	WLA_cfc = 0.256
12	PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c	LTAMULT_cfc = 0.581
13	PENTOXSD TRG	5.1b	LTA_afc = 0.101		5.1d	LTA_cfc = 0.149
14	Source	Effluent Limit Calculations				
16	PENTOXSD TRG	5.1f	AML_MULT = 1.231			
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.124		AFC	
18			INST MAX LIMIT (mg/l) = 0.405			
	WLA_afc	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc})] \dots$				
		$\dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)^2 (1 - FOS/100)$				
	LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$				
	LTA_afc	$wla_afc \cdot LTAMULT_afc$				
	WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc})] \dots$				
		$\dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)^2 (1 - FOS/100)$				
	LTAMULT_cfc	$EXP((0.5 \cdot LN(cvd^2 / no_samples + 1)) - 2.326 \cdot LN(cvd^2 / no_samples + 1)^{0.5})$				
	LTA_cfc	$wla_cfc \cdot LTAMULT_cfc$				
	AML_MULT	$EXP(2.326 \cdot LN((cvd^2 / no_samples + 1)^{0.5}) - 0.5 \cdot LN(cvd^2 / no_samples + 1))$				
	AVG MON LIMIT	$MIN(BAT_BPJ, MIN(LTA_afc, LTA_cfc) \cdot AML_MULT)$				
	INST MAX LIMIT	$1.5 \cdot ((av_mon_limit \cdot AML_MULT) / LTAMULT_afc)$				