

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

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0095851  
APS ID 1077819  
Authorization ID 1421269

**Applicant and Facility Information**

Applicant Name	<u>Roof Garden MHC LLC</u>	Facility Name	<u>Roof Garden Acres MHP STP</u>
Applicant Address	<u>1199 Lancaster Avenue</u> <u>Berwyn, PA 19312-1341</u>	Facility Address	<u>116 Willow Lane</u> <u>Somerset, PA 15501-6934</u>
Applicant Contact	<u>Nathan Jameson</u>	Facility Contact	<u></u>
Applicant Phone	<u>(484) 289-2704</u>	Facility Phone	<u></u>
Client ID	<u>374295</u>	Site ID	<u>244618</u>
Ch 94 Load Status	<u>Existing Hydraulic and Projected Organic</u>	Municipality	<u>Somerset Township</u>
Connection Status	<u>Dept. Imposed Connection Prohibitions</u>	County	<u>Somerset</u>
Date Application Received	<u>December 21, 2022</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>January 5, 2023</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of NPDES Minor Sewage Treatment Plant.</u>		

**Summary of Review**

Roof Garden MHC LLC applied for renewal of the Roof Garden Acres STP in Somerset County. The facility is a minor NPDES Sewage Treatment Plant.

Sewage to the plant is treated by bar screen, aeration, settling, polishing lagoon, chlorination, and dechlorination.

This renewal also transfers the permittee from High-Top LLC to Roof Garden MHC LLC.

Act 14 notification was provided to Somerset Township and Somerset County in the letters dated February 23, 2022.



Sludge use and disposal description and location(s): Hauled for off-site treatment by Piles Concrete

The renewal includes more stringent TRC and Ammonia-Nitrogen limits. A schedule for meeting final TRC effluent limitations is included with the permit.

Issuance of the draft permit is recommended.

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		 Jack Price / Environmental Engineering Specialist	April 23, 2025
x		 Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	April 28, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.013
Latitude	40° 0' 49.00"	Longitude	-79° 3' 55.00"
Quad Name	Somerset	Quad Code	40079A1
Wastewater Description:		Sewage Effluent	
Receiving Waters	Unnamed Tributary to East Branch Coxes Creek (TSF)	Stream Code	39028
NHD Com ID	69916239	RMI	0.28
Drainage Area	2.57	Yield (cfs/mi <sup>2</sup> )	0.054
Q <sub>7-10</sub> Flow (cfs)	0.139	Q <sub>7-10</sub> Basis	USGS StreamStats
Elevation (ft)	2096.53	Slope (ft/ft)	0.0025
Watershed No.	19-F	Chapter 93 Class.	TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Aquatic life - Impaired		
Cause(s) of Impairment	METALS ; PH ; SILTATION ; TOTAL SUSPENDED SOLIDS (TSS) ; TURBIDITY ;		
Source(s) of Impairment	ALUMINUM ; IRON ; MANGANESE ; PH, LOW		
TMDL Status	HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED) - SILTATION		
	Final	Name	Coxes Creek Watershed
Background/Ambient Data	Data Source		
pH (SU)			
Temperature (°F)			
Hardness (mg/L)			
Other:			
Nearest Downstream Public Water Supply Intake	Indian Creek Valley Water Auth PWSID 5260011 (0.259 MGD)		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	390 (Army Corps of Engineers)
PWS RMI	62.89	Distance from Outfall (mi)	24.7 Linear Miles

Changes Since Last Permit Issuance:

The stream code for the receiving waters has been corrected to reflect the actual receiving stream. Previous authorizations used stream code 39027 (TSF), a different UNT to Coxes Creek. The location of the outfall was verified by DEP on December 18, 2024. The outfall location identified by coordinates in previous permits and the permit application for this authorization are correct and the source of the error was an incorrectly entered stream code.

A new analysis for Water Quality Based Effluent Limitations (WQBELs) has been performed. This WQBEL analysis has resulted in more stringent limitations for Ammonia-Nitrogen limits in summer, and more stringent TRC. More details about this analysis are available under the Development of Effluent Limitations section.

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Roof Garden Acres MHP STP				
<b>WQM Permit No.</b>	<b>Issuance Date</b>			
5670401	03/01/1970			
5670401 A-1	10/28/2021			
5670401 A-2	04/07/2025			
<u><b>Treatment Facility Description</b></u>				
The facility consists of the following treatment processes with a design average annual daily flow of 0.013 MGD:				
<ul style="list-style-type: none"> <li>• Influent bar screen;</li> <li>• Aeration tank;</li> <li>• Settling tank;</li> <li>• Polishing lagoon;</li> <li>• Chlorine contact tank;</li> <li>• Tablet-fed dechlorinator, and;</li> <li>• Sludge holding tank.</li> </ul>				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration, with polishing Lagoon	Chlorination, with Dechlorination	0.013
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.013	29.8	Existing Hydraulic and Projected Organic	Stored for hauling to disposal facility.	Hauled off site

Changes Since Last Permit Issuance: WQM Permit 5670401 A-2 was issued April 7, 2025 to approve construction of dechlorination equipment. This permit amendment is intended to address the issues of recurrent Fecal Coliform and Total Residual Chlorine violations.

Review of Organic and Hydraulic Loading

The applicant is conducting a study on the sewer system to identify sources of infiltration and inflow, and flow meters along mains and to individual homes.

Compliance History

DMR Data for Outfall 001 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
Flow (MGD) Average Monthly	0.0324	0.0144	0.0116	0.0031	0.004	0.0045	0.0047	0.00298	0.00293	0.0045	0.0055	0.00419
pH (S.U.) Minimum	7.1	7.5	7.0	8.0	8.1	7.6	7.9	8.1	7.9	7.8	7.0	7.0
pH (S.U.) Maximum	8.1	8.2	8.3	8.8	8.8	8.6	8.5	8.7	8.4	8.5	8.4	8.3
DO (mg/L) Minimum	7.0	7.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
TRC (mg/L) Average Monthly	0.4	0.23	0.36	0.46	0.7	0.55	0.53	0.71	0.16	0.31	0.25	0.35
TRC (mg/L) Instantaneous Maximum	0.48	0.49	0.58	0.69	1.57	1.5	1.51	1.5	0.5	1.3	0.8	0.6
CBOD <sub>5</sub> (mg/L) Average Monthly	20	26	18	< 2.3	< 1.5	< 8	7	< 1.8	< 11.3	7	6	11
CBOD <sub>5</sub> (mg/L) Instantaneous Maximum	26	28	20	3	< 1.5	< 12	9	2.0	21	8	6	17
TSS (mg/L) Average Monthly	5	15	12	6	5.0	14	8.0	14	19	18	23	12
TSS (mg/L) Instantaneous Maximum	6	20	13	10	5.0	22	9.0	15	20	20	36	14
Fecal Coliform (No./100 ml) Geometric Mean	13259	1083	19357	757	55	2269	2393	< 5	219227	1105	30109	3522
Fecal Coliform (No./100 ml) Instantaneous Maximum	57940	12561.5	24810	6895.5	261.6	3828	9144	28.5	241960	2455.5	36540	68670
Total Nitrogen (mg/L) Daily Maximum			12.71									
Ammonia (mg/L) Average Monthly	5.56	19.3	12.79	9.27	14.8	25.8	10.37	23.1	30.8	73.89	5.2	10
Ammonia (mg/L) Instantaneous Maximum	6.07	20.5	16.6	10	19.2	26.1	14.8	27.6	30.9	145	9.1	13.2
Total Phosphorus (mg/L) Daily Maximum			1.42									

Effluent Violations for Outfall 001, from: April 1, 2024 To: February 28, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Flow	01/31/25	Avg Mo	0.0144	MGD	.013	MGD
Flow	02/28/25	Avg Mo	0.0324	MGD	.013	MGD
TRC	08/31/24	Avg Mo	0.53	mg/L	.5	mg/L
TRC	07/31/24	Avg Mo	0.71	mg/L	.5	mg/L
TRC	10/31/24	Avg Mo	0.7	mg/L	.5	mg/L
TRC	09/30/24	Avg Mo	0.55	mg/L	.5	mg/L
CBOD <sub>5</sub>	01/31/25	Avg Mo	26	mg/L	25	mg/L
Fecal Coliform	06/30/24	Geo Mean	219227	No./100 ml	200	No./100 ml
Fecal Coliform	05/31/24	Geo Mean	1105	No./100 ml	200	No./100 ml
Fecal Coliform	04/30/24	Geo Mean	30109	No./100 ml	2000	No./100 ml
Fecal Coliform	02/28/25	Geo Mean	13259	No./100 ml	2000	No./100 ml
Fecal Coliform	12/31/24	Geo Mean	19357	No./100 ml	2000	No./100 ml
Fecal Coliform	09/30/24	Geo Mean	2269	No./100 ml	200	No./100 ml
Fecal Coliform	08/31/24	Geo Mean	2393	No./100 ml	200	No./100 ml
Fecal Coliform	12/31/24	IMAX	24810	No./100 ml	10000	No./100 ml
Fecal Coliform	06/30/24	IMAX	241960	No./100 ml	1000	No./100 ml
Fecal Coliform	08/31/24	IMAX	9144	No./100 ml	1000	No./100 ml
Fecal Coliform	02/28/25	IMAX	57940	No./100 ml	10000	No./100 ml
Fecal Coliform	04/30/24	IMAX	36540	No./100 ml	10000	No./100 ml
Fecal Coliform	01/31/25	IMAX	12561.5	No./100 ml	10000	No./100 ml
Fecal Coliform	09/30/24	IMAX	3828	No./100 ml	1000	No./100 ml

**NPDES Permit Fact Sheet**  
**Roof Garden Acres MHP STP**

**NPDES Permit No. PA0095851**

Fecal Coliform	05/31/24	IMAX	2455.5	No./100 ml	1000	No./100 ml
Ammonia	05/31/24	Avg Mo	73.89	mg/L	15	mg/L
Ammonia	07/31/24	Avg Mo	23.1	mg/L	15	mg/L
Ammonia	06/30/24	Avg Mo	30.8	mg/L	15	mg/L
Ammonia	09/30/24	Avg Mo	25.8	mg/L	15	mg/L
Ammonia	06/30/24	IMAX	30.9	mg/L	30	mg/L
Ammonia	05/31/24	IMAX	145	mg/L	30	mg/L

## Operations Compliance Check Summary Report

**Facility:** Roof Garden Acres MHP STP

**NPDES Permit No.:** PA0095851

**Compliance Review Period:** 04/01/2020-04/01/2025

**Inspection Summary:**

INSP ID	INSPECTED DATE	INSP TYPE	INSPECTION RESULT DESC	INSPECTOR
3052279	07/06/2020	Administrative/File Review	Violation(s) Noted	OPILA, TAMI
<a href="#">3161014</a>	03/10/2021	Routine/Partial Inspection	No Violations Noted	MILSOP, LISA
<a href="#">3157228</a>	02/26/2021	Incident- Response to Accident or Event	Violation(s) Noted	MILSOP, LISA
3319753	12/20/2021	Administrative/File Review	Violation(s) Noted	KING, WILLIAM
<a href="#">3066426</a>	07/09/2020	Compliance Evaluation	Violation(s) Noted	MILSOP, LISA
3732422	03/22/2024	Administrative/File Review	Violation(s) Noted	KOHUT, JEFFREY
<a href="#">3892676</a>	12/18/2024	Compliance Evaluation	Violation(s) Noted	MILSOP, LISA
<a href="#">3576371</a>	05/24/2023	Routine/Partial Inspection	Violation(s) Noted	MILSOP, LISA
<a href="#">3576807</a>	06/13/2023	Compliance Evaluation	Violation(s) Noted	MILSOP, LISA
3700915	12/28/2023	Administrative/File Review	Violation(s) Noted	KING, WILLIAM
<a href="#">3673452</a>	01/10/2024	Routine/Partial Inspection	No Violations Noted	MILSOP, LISA

**Violation Summary:**

VIOL ID	VIOLATION DATE	VIOLATION TYPE	VIOLATION TYPE DESC	RESOLVED DATE
888139	07/06/2020	92A.62	NPDES - Failure to pay annual fee	07/08/2020
891007	07/09/2020	92A.44	NPDES - Violation of effluent limits in Part A of permit	08/12/2020
891008	07/09/2020	92A.41(A)5	NPDES - Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance	07/07/2022
909519	02/26/2021	91.33(A)	CSL - Failure to immediately report to DEP a pollution incident	03/05/2021
944744	12/20/2021	302.202	Operator Certification - Failure to submit annual system fee	01/04/2022

**NPDES Permit Fact Sheet**  
**Roof Garden Acres MHP STP**

**NPDES Permit No. PA0095851**

999640	05/24/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	06/28/2023
999711	06/13/2023	92A.1(B)	NPDES - Discharge of pollutants from a point source into surface waters without an NPDES permit	06/13/2023
999712	06/13/2023	92A.44	NPDES - Violation of effluent limits in Part A of permit	06/13/2023
8173038	12/28/2023	302.202	Operator Certification - Failure to submit annual system fee	01/24/2024
8180496	03/22/2024	92A.44	NPDES - Violation of effluent limits in Part A of permit	03/22/2024
8212422	12/18/2024	92A.44	NPDES - Violation of effluent limits in Part A of permit	01/03/2025
8212423	12/18/2024	302.1202	Operator Certification - Owner failed to comply with the Act or Chapter 302 regulations	01/03/2025

**Open Violations by Client ID:**

No open violations for Roof Garden MHC LLC Client ID 374295.

**Enforcement Summary:**

ENF ID	ENF TYPE	ENF CREATION DATE	VIOLATIONS	# OF VIOLATIONS	PENALTY AMOUNT	AMOUNT RECEIVED	ENF FINALSTATUS	ENF CLOSED DATE
<a href="#">436973</a>	NOV	01/03/2025	302.1202; 92A.44	2				
<a href="#">436973</a>	NOV	01/03/2025	302.1202; 92A.44	2				
<a href="#">435555</a>	NOV	11/19/2024	92A.41(A)5; 92A.44	2			Comply/Closed	08/12/2020
<a href="#">427083</a>	CACP	03/22/2024	92A.44	1	\$3,000.00	\$3,000.00	Comply/Closed	03/22/2024
<a href="#">435726</a>	NOV	11/21/2024	91.33(A)	1			Comply/Closed	03/05/2021
<a href="#">386751</a>	NOV	07/07/2020	92A.62	1			Comply/Closed	07/08/2020
<a href="#">435555</a>	NOV	11/19/2024	92A.41(A)5; 92A.44	2			Comply/Closed	08/12/2020
<a href="#">435480</a>	NOV	11/15/2024	92A.44	1			Administrative Close Out	11/15/2024
<a href="#">424825</a>	NOV	01/26/2024	302.202	1			Comply/Closed	01/24/2024
401340	NOV	02/10/2022	302.202	1			Comply/Closed	01/04/2022

**Compliance Status:**

The facility does not currently have any open violations and has one open enforcement item. This enforcement item is likely to be resolved for final permit issuance. A final compliance status will be determined at permit issuance.

NOV 436973 noted violations for failure to notify DEP of a change in operator and for violations of effluent limitations. The applicant responded to the NOV January 21, 2025.

The applicant has identified Infiltration and Inflow as the cause for increased flow to the plant. The applicant is conducting a study of the sewershed with flow meters to mains and individual houses for monitoring of leaks.

Inadequate aeration was stated to be the cause of Ammonia-Nitrogen exceedances; to address this the applicant has upgraded blowers and airlines to improve nitrification performance.

To resolve the recurring Fecal Coliform and TRC violations, the applicant applied for a WQM Permit Amendment to construct dechlorination equipment at the facility. Dechlorination will allow sufficient chlorine concentration and contact time to disinfect plant effluent while meeting the TRC effluent limitation.

**Development of Effluent Limitations**

Outfall No. 001  
Latitude 40° 0' 50.00"  
Wastewater Description: Sewage Effluent

Design Flow (MGD) 0.013  
Longitude -79° 3' 54.00"

**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 <sub>5</sub>	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)

**Comments:**

The discharge was evaluated using WQM 7.0 to evaluate CBOD<sub>5</sub>, Ammonia-Nitrogen, and Dissolved Oxygen Parameters; the discharge was also evaluated using TRC\_Calc for Total Residual Chlorine.

The WQM 7.0 model determined that TBELs would be sufficiently protective for CBOD<sub>5</sub> year-round. Ammonia-Nitrogen TBELs are sufficiently protective for the winter months. A printout of the WQM 7.0 Report may be found in Attachment 2 and a printout of the TRC\_Calc report may be found in Attachment 3.

**Water Quality-Based Limitations (WQBELs)**

The following limitations were determined through water quality modeling (output files attached):

Parameter	Limit (mg/l)	SBC	Model
Dissolved Oxygen	4.0 (min)	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen (May-October)	14.42	Average Monthly	WQM 7.0 Version 1.1
TRC	0.110	Average Monthly	TRC_Calc

**Comments:**

The existing Dissolved Oxygen limit of 5.0 mg/L is more stringent than the limit returned by the WQM Model, therefore the more stringent existing limit will be imposed. See the anti-backsliding section for details.

The facility has had difficulty achieving the summer Ammonia-Nitrogen limit in the past, however the source of Ammonia-Nitrogen violations was identified as insufficient aeration and corrected by making repairs to the aeration equipment. Please see the compliance section for additional details.

Analyses for WQBELs were performed using the Q<sub>7-10</sub> flow. The flow was obtained via USGS StreamStats. The USGS StreamStats Report is located in Attachment 1.

### **Chlorine Disinfection and Dechlorination**

Disinfection at this facility is provided by tablet-feed chlorination. Per the SOP for effluent limitations and the recommendations from the TRC\_Calc Model, a monthly limit of 0.110 mg/L and an instantaneous maximum of 0.359 mg/L is established.

A tablet-fed dechlorinator has been approved by DEP to enable the facility to meet the TRC limits while still providing adequate disinfection to meet effluent Fecal Coliform limits. With the startup of the new dechlorination equipment and the more stringent TRC limits recommended by water quality modeling, a schedule is therefore added to provide the applicant sufficient time to study the performance of the new equipment and make adjustments to achieve the performance necessary to meet final effluent limitations.

*(Section I.A, Note 3, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9 and 25 PA Code 92a.61(b).)*

### **Coxes Creek Watershed TMDL-Acid Mine Drainage**

This facility discharges into the Coxes Creek Watershed, for which a TMDL was finalized in February 2009. The TMDL addresses aluminum, iron, and manganese impairment due to acid mine drainage.

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulation (codified at Title 40 of the Code of Federal Regulations Part 130) requires states to develop a TMDL for impaired water quality criteria for the pollutant. TMDLs also provide a scientific basis for States to establish water-quality based controls for reducing pollution to both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). Stream reaches within the Coxes Creek Watershed, are included in the state's 1996 Section 303(d) lists because of pH and metal impairments including aluminum, iron, and manganese.

In accordance with 25 PA Code §92a.61, a yearly monitoring requirement for iron, manganese, and aluminum will be imposed in the permit to test for reasonable potential and verify this sewage discharge is not contributing to stream impairment.

### **Anti-Backsliding**

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation. Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

*(40 CFR 122.44 (l)(2) Establishing limitations, standards, and other permit conditions., 40 CFR Ch. I (7-1-21 Edition))*

No permits limits have been made less stringent in the renewal draft permit.

### **Best Professional Judgment (BPJ) Limitations**

Comments: None.

### Additional Considerations

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for design flows  $\geq 0.05$  and  $< 1$  MGD.

(Note 12 SOP-Establishing Effluent Limitations for Individual Sewage Permits Final November 9, 2012, Revised February 5, 2024, Version 2.0. and 25 PA Code 92a.61(b).)

Monitoring frequencies are generally determined using Table 6-3 of the Permit Writer's Manual, however the Clean Water SOP for Individual Sewage NPDES Permits modifies these requirements. For new parameters introduced into renewed permits, in which the application manager desires for the permittee to collect data to verify reasonable potential for the subsequent permit application review, the application manager may select any reasonable monitoring frequency that is greater than or equal to once per year. A monitoring frequency of 1/year has been selected for these parameters.

(Section IV.E.5. SOP – New and Reissuance Individual Sewage NPDES Permits Final November 9, 2012, Revised February 3, 2022, Version 2.0.)

Nutrient monitoring is required by the SOP for Effluent Limitations for Individual Sewage Permits. Monitoring is included to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). The receiving stream is not listed as impaired for nutrients, therefore at the discretion of the application manager, a monitoring frequency less than the equivalent of conventional pollutants in Table 6-3 of the Permit Writer's Manual has been selected.

(Section I.A, Note 7 & 8, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9 and 25 PA Code 92a.61(b).)

Rounding-Off Mathematical Values. Section 5 C.2. of the Permit Writers Manual contains general guidelines for rounding conventional and toxic pollutants, with instructions to round down to the nearest decimal place indicated. Non-conventional pollutants not listed as toxic are rounded according to other procedures.

<u>General Magnitude</u>	<u>Conventional Pollutants</u>	<u>Toxic Pollutants</u>
<0.01	to nearest 0.001	to nearest 0.001
0.01 - 0.1	to nearest 0.01	to nearest 0.01
0.1 - 1.0	to nearest 0.1	to nearest 0.01
1.0 - 10.0	to nearest 0.5	to nearest 0.01
10.0 - 60.0	to nearest 1.0	to nearest 0.01
60.0 or greater	to nearest 5.0	to nearest 0.10

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

Section 2.C of the Permit Writers Manual contains the procedure for converting average monthly effluent limitations to average weekly, maximum daily, and instantaneous maximum effluent limitations. The average monthly limit is multiplied according to the following chart:

Discharge Solution	Parameters	Average Weekly	Maximum Daily	Instantaneous Maximum Multiplier
Sewage	All	1.5		2.0
Industrial	All		2.0	2.5*

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

**Table 5-3: Methods of Expressing Effluent Limits for Sewage Discharges**

Discharge Situation	Mass Loadings (lbs/day)			Concentrations (mg/L)				Limit On Flow <sup>6</sup>
	Average Monthly	Average Weekly <sup>3</sup>	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Instant Maximum <sup>4</sup>	
A. <u>POTW DISCHARGES:</u>								
1. Technology Based concentration limits	x	x <sup>3</sup>		x	x <sup>3</sup>		x	Yes
2. Water Quality Based limits	x	x <sup>3</sup>		x	x <sup>3</sup>		x	Yes
3. Water Quality Based limits (Toxics)	x		x	x		x		
B. <u>NON-POTW DISCHARGES:</u>								
1. Technology Based concentration limits	x <sup>5</sup>			x			x	Yes
2. Water Quality based limits	x <sup>5</sup>			x			x	Yes

1. This table is for all pollutants, conventional, non-conventional, toxic and all other pollutants that may be regulated by the permit. (Also refer to the toxics management strategy when specifying toxic WQBELs.)
2. X indicates need for an effluent limitation.
3. Only CBOD and TSS limitation.
4. Only include Instantaneous maximum limitations on the DMR forms if grab a sample is specified in the permit, otherwise do not include instantaneous maximum limitations on the DMR.

Also, the permit page could include the following language for when composite samples are required  
 “Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee does not have to monitor for the instantaneous maximum limitations, however, if grab samples are collected by the permittee, the results must be reported.”

5. This is for all sewage permits with design flow greater than 100,000 gpd since 25 Pa. Code § 94.13 requires flow monitoring.
6. The maximum monthly average flow limitation is the permitted flow that is to be placed in the NPDES permit. Generally, the annual average flow (AAF) is to be used for water quality modeling and to be used to determine the allowable mass loading in NPDES permits (i.e., AAF x 8.34 x mg/l = #/day) (Refer to the Domestic Wastewater Facilities Manual).

(Department Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits, Updated June 28, 2023 (Document No. 362-0400-001))

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers.

Table 6-3 – Self-Monitoring Requirements for SEWAGE Discharges

Plant Design Flow (MGD)	Flow Monitoring	C-BOD <sub>5</sub> or BOD <sub>5</sub>	Suspended Solids	pH	Fecal Coliform	Chlorine Residual	NH <sub>3</sub> -N	Phosphorus	DO	Toxics
Single Residence (Individual Permit)	2/year by estimate	2/year*	2/year*	1/month*	2/year*	1/month*	2/year*	2/year*	2/year*	N/A
.0005 to .002	weekly, using average pump rate or weir (a)	1/month*	1/month*	daily*	1/month*	daily*	1/month*	1/month*	daily*	N/A
.002 to .01	weekly, using average pump rate or weir (a)	2/month*	2/month*	daily*	2/month*	daily*	2/month*	2/month*	daily*	N/A
<u>0.01 to 0.1</u>	<u>weekly, using average pump rate or weir (a)</u>	<u>2/month*</u>	<u>2/month*</u>	<u>daily*</u>	<u>2/month*</u>	<u>daily*</u>	<u>2/month*</u>	<u>2/month*</u>	<u>Daily*</u>	<u>1/week*</u>
0.1 to 1.0	meter	1/week**	1/week**	daily*	1/week*	daily*	1/week**	1/week**	daily*	1/week****
1.0 to 5.0	meter	2/week***	2/week***	daily*	2/week*	daily*	2/week***	2/week***	daily*	1/week****
5.0 to 25.0	meter	daily***	daily***	daily*	daily*	1/shift*	daily***	daily***	daily*	1/week****
over 25.0	meter	daily***	daily***	1/shift*	daily*	1/shift*	1/shift***	1/shift***	1/shift*	1/week****

\* Grab sample-these should be most representative of the effluent and are to be taken at a time when the normal daily maximum flow would reach the sampling point.

\*\* 8-hour composite sample.

\*\*\* 24-hour composite sample.

\*\*\*\* Same sample type as for Industrial Process Wastewater (See Table 6-4).

For facilities with PLC or SCADA systems per 25 Pa. Code § 302.1208 that are capable of monitoring these parameters and alerting operators of concerns, personnel do not necessarily need to be on-site to collect samples to comply with the permit.

**Changes to Effluent Limitations**

The following changes have been made to the final effluent limitations:

	Parameter (Unit of Measure) Statistical Basis	Proposed Change	Previous Permit	New Permit	Reason for Change
NH <sub>3</sub> -N	Summer Ammonia-Nitrogen (mg/L) Average Monthly	More stringent (lower) effluent limitation.	15.0	14.42	WQM 7.0 Model Results
	Summer Ammonia-Nitrogen (mg/L) Instantaneous Maximum	More stringent (lower) effluent limitation.	30.0	28.84	WQM 7.0 Model Results
TRC	Total Residual Chlorine Average Monthly	More stringent (lower) effluent limitation.	0.5	0.110	TRC_Calc Model
	Total Residual Chlorine Instantaneous Maximum	More stringent (lower) effluent Limitation	1.6	0.359	TRC_Calc Model
TMDL Monitoring	Total Aluminum Daily Max	Add monthly monitoring.	N/A	Report	SOP BCW-PMT-033 II.I.1.
	Total Iron Daily Max	Add monthly monitoring.	N/A	Report	SOP BCW-PMT-033 II.I.1.
	Total Manganese Daily Max	Add monthly monitoring.	N/A	Report	SOP BCW-PMT-033 II.I.1.
	Dissolved Oxygen (mg/L) Minimum	Increase monitoring frequency.	3/week	1/day	Permit Writer's Manual Table 6-3
	pH Min/Max	Increase monitoring frequency.	3/week	1/day	Permit Writer's Manual Table 6-3
	Total Residual Chlorine Average Monthly/Instantaneous Max	Increase monitoring frequency.	3/week	1/day	Permit Writer's Manual Table 6-3
	<i>E. Coli</i> (No./100 mL) Daily Max	Add quarterly <i>E. Coli</i> monitoring.	N/A	Report	BCW-PMT-033 Table I.A.

**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: Implementation of Chlorine Minimization Plan 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		
TRC	XXX	XXX	XXX	0.110	XXX	0.359	1/day	Grab

Compliance Sampling Location: Outfall 001

**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 Implementation of Chlorine Minimization Plan.**

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		
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab

Compliance Sampling Location: Outfall 001

**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) <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)	0.013	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD <sub>5</sub>	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (CFU/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
Total Nitrogen	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	14.42	XXX	28.84	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Aluminum	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Iron	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab
Total Manganese	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

Compliance Sampling Location: Outfall 001

## **Attachment 1-Receiving Stream Report**

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	10.8	square miles	2.26	1400
ELEV	Mean Basin Elevation	2212	feet	1050	2580

Low-Flow Statistics Flow Report [Low Flow Region 4]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.703	ft^3/s	43	43
30 Day 2 Year Low Flow	1.26	ft^3/s	38	38
7 Day 10 Year Low Flow	0.218	ft^3/s	66	66
30 Day 10 Year Low Flow	0.413	ft^3/s	54	54
90 Day 10 Year Low Flow	0.864	ft^3/s	41	41

*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/>)

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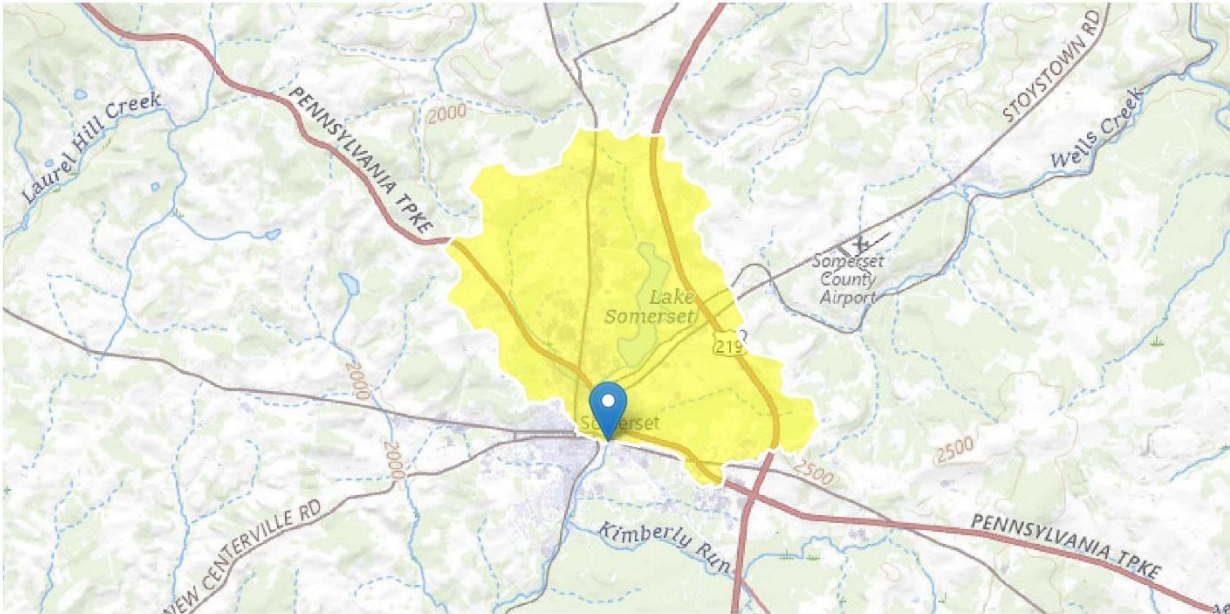
Application Version: 4.28.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

StreamStats Report-Downstream

Region ID: PA  
Workspace ID: PA20250421181618868000  
Clicked Point (Latitude, Longitude): 40.00665, -79.07135  
Time: 2025-04-21 14:16:56 -0400



Outlet Elevation=2091.49'

+ Collapse All

> Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	10.8	square miles
ELEV	Mean Basin Elevation	2212	feet
OUTLTXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-91471.3774	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	112300.2164	meters

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**Application Version:** 4.28.1

**StreamStats Services Version:** 1.2.22

**NSS Services Version:** 2.2.1

Parameter Code	Parameter Description	Value	Unit
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	112576.9382	meters

## ➤ Low-Flow Statistics

### Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	2.57	square miles	2.26	1400
ELEV	Mean Basin Elevation	2250	feet	1050	2580

### Low-Flow Statistics Flow Report [Low Flow Region 4]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR<sup>2</sup>: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	0.139	ft <sup>3</sup> /s	43	43
30 Day 2 Year Low Flow	0.266	ft <sup>3</sup> /s	38	38
7 Day 10 Year Low Flow	0.0375	ft <sup>3</sup> /s	66	66
30 Day 10 Year Low Flow	0.0792	ft <sup>3</sup> /s	54	54
90 Day 10 Year Low Flow	0.178	ft <sup>3</sup> /s	41	41

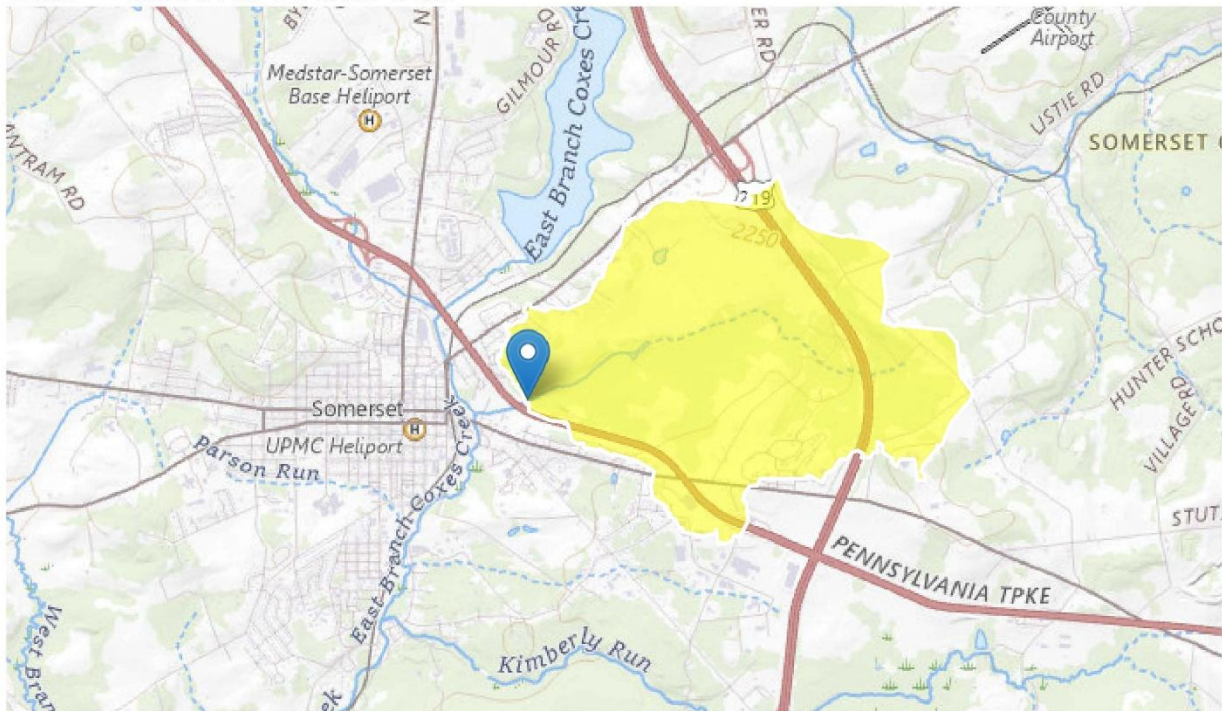
#### *Low-Flow Statistics Citations*

**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/>)**

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## StreamStats Report-Upstream

**Region ID:** PA  
**Workspace ID:** PA20250421181228914000  
**Clicked Point (Latitude, Longitude):** 40.00919, -79.06663  
**Time:** 2025-04-21 14:13:09 -0400



Outlet Elevation=2096.53'

[+ Collapse All](#)

### ➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	2.57	square miles
ELEV	Mean Basin Elevation	2250	feet
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	-91067.7041	meters

## **Attachment 2-WQM Reports**

## **Summer WQM Report**

### 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
19F	39028	Trib 39028 to East Branch Coxes Cr	10.280	2096.53	2.57	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.054	0.14	0.00	0.000	0.000	10.0	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
Roof Garden MHP	PA0095851	0.0130	0.0130	0.0130	0.000	20.00	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	4.00	8.38	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
19F	39028	Trib 39028 to East Branch Coxes Cr	10.000	2092.82	2.57	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.054	0.14	0.00	0.000	0.000	10.0	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	20.00	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	4.00	8.38	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
19F	39028	Trib 39028 to East Branch Coxes Cr	9.900	2091.49	10.80	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.054	0.70	0.00	0.000	0.000	10.0	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	20.00	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	4.00	8.38	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

### 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 checked="" 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>								
19F		39028		Trib 39028 to East Branch Coxes Cr								
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
10.280	0.14	0.00	0.14	.0201	0.00251	.526	5.26	10	0.06	0.297	24.37	7.00
10.000	0.28	0.00	0.28	.0201	0.00252	.604	6.04	10	0.08	0.075	24.66	7.00
<b>Q1-10 Flow</b>												
10.280	0.09	0.00	0.09	.0201	0.00251	NA	NA	NA	0.05	0.367	24.08	7.00
10.000	0.18	0.00	0.18	.0201	0.00252	NA	NA	NA	0.07	0.094	24.49	7.00
<b>Q30-10 Flow</b>												
10.280	0.19	0.00	0.19	.0201	0.00251	NA	NA	NA	0.07	0.255	24.52	7.00
10.000	0.38	0.00	0.38	.0201	0.00252	NA	NA	NA	0.10	0.063	24.75	7.00

### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
19F	39028	Trib 39028 to East Branch Coxes Cr

#### **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
10.280	Roof Garden MH	7.22	39.15	7.22	39.15	0	0
10.000		NA	NA	7.01	NA	NA	NA

#### **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
10.280	Roof Garden MH	1.39	14.42	1.39	14.42	0	0
10.000		NA	NA	1.36	NA	NA	NA

#### **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)		
10.28	Roof Garden MHP	25	25	14.42	14.42	4	4	0	0
10.00		NA	NA	NA	NA	NA	NA	NA	NA

### WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>	
19F	39028	Trib 39028 to East Branch Coxes Cr	
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
10.280	0.013	24.368	7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
5.256	0.526	10.000	0.058
<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>
4.91	0.868	1.82	0.980
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.826	11.684	Owens	5
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>		
0.297	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.030	4.75	1.77
	0.059	4.61	1.72
	0.089	4.46	1.67
	0.119	4.33	1.62
	0.149	4.19	1.58
	0.178	4.06	1.53
	0.208	3.94	1.49
	0.238	3.81	1.44
	0.267	3.69	1.40
	0.297	3.58	1.36
			7.62
			7.49
			7.40
			7.35
			7.33
			7.33
			7.33
			7.35
			7.36
			7.39
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
10.000	0.013	24.664	7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
6.039	0.604	10.000	0.082
<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>
2.84	0.492	0.72	1.002
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.852	11.537	Owens	5
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>		
0.075	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>
			<u>D.O. (mg/L)</u>
	0.007	2.83	0.72
	0.015	2.81	0.71
	0.022	2.80	0.71
	0.030	2.79	0.70
	0.037	2.78	0.70
	0.045	2.76	0.69
	0.052	2.75	0.69
	0.060	2.74	0.68
	0.067	2.73	0.68
	0.075	2.71	0.67
			7.58
			7.58
			7.58
			7.58
			7.58
			7.58
			7.58
			7.58
			7.58
			7.58

### WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
19F		39028	Trib 39028 to East Branch Coxes Cr				
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)
10.280	Roof Garden MHP	PA0095851	0.013	CBOD5	25		
				NH3-N	14.42	28.84	
				Dissolved Oxygen			4

## **Winter WQM Report**

### 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
19F	39028	Trib 39028 to East Branch Coxes Cr	10.000	2092.82	2.57	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.108	0.28	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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	20.00	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	4.00	12.80	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
19F	39028	Trib 39028 to East Branch Coxes Cr	10.280	2096.53	2.57	0.00000	0.00	<input checked="" type="checkbox"/>

### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.108	0.28	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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
Roof Garden MHP	PA0095851	0.0130	0.0130	0.0130	0.000	15.00	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	4.00	12.80	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

### WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
19F		39028	Trib 39028 to East Branch Coxes Cr				
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)
10.280	Roof Garden MHP	PA0095851	0.013	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			4

### WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
19F	39028	Trib 39028 to East Branch Coxes Cr		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
10.280	0.013	5.670	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
6.044	0.604	10.000	0.082	
<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>	
3.54	0.679	1.68	0.232	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
12.210	7.349	Owens	5	
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>			
0.208	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.021	3.52	1.67	11.26
	0.042	3.49	1.66	11.26
	0.062	3.46	1.65	11.26
	0.083	3.44	1.64	11.26
	0.104	3.41	1.64	11.26
	0.125	3.39	1.63	11.26
	0.146	3.36	1.62	11.26
	0.167	3.34	1.61	11.26
	0.187	3.32	1.60	11.26
	0.208	3.29	1.60	11.26

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
10.000	0.013	5.347	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
6.986	0.699	10.000	0.119	
<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>	
2.67	0.409	0.83	0.227	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
12.003	7.145	Owens	5	
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>			
0.051	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.005	2.67	0.82	11.35
	0.010	2.66	0.82	11.35
	0.015	2.66	0.82	11.35
	0.021	2.66	0.82	11.35
	0.026	2.65	0.82	11.35
	0.031	2.65	0.82	11.35
	0.036	2.65	0.82	11.35
	0.041	2.65	0.82	11.35
	0.046	2.64	0.82	11.35
	0.051	2.64	0.82	11.35

### WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
19F	39028	Trib 39028 to East Branch Coxes Cr

#### **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
10.280	Roof Garden MH	20.59	50	20.59	50	0	0
10.000		NA	NA	20.59	NA	NA	NA

#### **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
10.280	Roof Garden MH	4.08	25	4.08	25	0	0
10.000		NA	NA	4.08	NA	NA	NA

#### **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)		
10.28	Roof Garden MHP	25	25	25	25	4	4	0	0
10.00		NA	NA	NA	NA	NA	NA	NA	NA

### WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>		<u>Stream Name</u>								
19F		39028		Trib 39028 to East Branch Coxes Cr								
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
10.280	0.28	0.00	0.28	.0201	0.00251	.604	6.04	10	0.08	0.208	5.67	7.00
10.000	0.56	0.00	0.56	.0201	0.00252	.699	6.99	10	0.12	0.051	5.35	7.00
<b>Q1-10 Flow</b>												
10.280	0.18	0.00	0.18	.0201	0.00251	NA	NA	NA	0.07	0.262	6.01	7.00
10.000	0.36	0.00	0.36	.0201	0.00252	NA	NA	NA	0.09	0.065	5.53	7.00
<b>Q30-10 Flow</b>												
10.280	0.38	0.00	0.38	.0201	0.00251	NA	NA	NA	0.10	0.177	5.50	7.00
10.000	0.76	0.00	0.76	.0201	0.00252	NA	NA	NA	0.14	0.044	5.26	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 checked="" 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		

### 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
19F	39028	Trib 39028 to East Branch Coxes Cr	9.900	2091.49	10.80	0.00000	0.00	<input checked="" type="checkbox"/>

#### Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.108	1.41	0.00	0.000	0.000	10.0	0.00	0.00	5.00	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	20.00	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	4.00	12.80	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

## **Attachment 3-TRC\_Calc Report**

TRC\_CALC.xls

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.0139	= Q stream (cfs)	0.5	= CV Daily	
0.013	= 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)		=Decay Coefficient (K)	
Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.239	1.3.2.iii	WLA cfc = 0.226
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc = 0.089	5.1d	LTA_cfc = 0.131
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML MULT = 1.231		
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.110	AFC	
		INST MAX LIMIT (mg/l) = 0.359		
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)			