

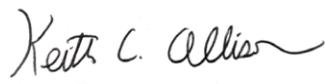
Application Type Renewal
 Facility Type Non-Municipal
 Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0209651
 APS ID 1140307
 Authorization ID 1532154

Applicant and Facility Information			
Applicant Name	<u>Columbia Investment Corporation</u>	Facility Name	<u>Country Terrace MHP</u>
Applicant Address	<u>6009 Columbia Boulevard</u> <u>Bloomsburg, PA 17815-8800</u>	Facility Address	<u>Reagan Trail</u> <u>Bloomsburg, PA 17815</u>
Applicant Contact	<u>Frank Baker</u>	Facility Contact	<u>Frank Baker</u>
Applicant Phone	<u>(570) 387-0902</u>	Facility Phone	<u>(570) 387-0902</u>
Client ID	<u>6750</u>	Site ID	<u>241646</u>
Ch 94 Load Status	<u>N/A</u>	Municipality	<u>Main Township</u>
Connection Status	<u>N/A</u>	County	<u>Columbia</u>
Date Application Received	<u>June 26, 2025</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>July 2, 2025</u>	If No, Reason	
Purpose of Application	<u>Renewal of a NPDES Permit</u>		

Summary of Review
<p>The subject sewage treatment plant serves a mobile home park in in Main Township, Columbia.</p> <p>Sludge use and disposal description and location(s): The facility's sludge is transferred to other WWTPs for further processing.</p> <p><u>Public Participation</u></p> <p>DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the <i>Pennsylvania Bulletin</i> in accordance with 25 Pa. Code § 92a.82. Upon publication in the <i>Pennsylvania Bulletin</i>, 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 <i>Pennsylvania Bulletin</i> at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.</p>

Approve	Deny	Signatures	Date
✓		 Keith C. Allison / Project Manager	January 8, 2026
✓		 Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	January 9, 2026

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.0165
Latitude	40° 59' 24.66"	Longitude	-76° 23' 28.26"
Quad Name	Catawissa, PA	Quad Code	1134
Wastewater Description: Sewage Effluent			
Receiving Waters	Unnamed Tributary of Catawissa Creek (CWF)	Stream Code	27539
NHD Com ID	65640553	RMI	0.23
Drainage Area	0.35	Yield (cfs/mi ²)	0.1869
Q ₇₋₁₀ Flow (cfs)	0.065	Q ₇₋₁₀ Basis	USGS Gage 01442500, Brodhead Ck @ Minisink, PA
Elevation (ft)	659	Slope (ft/ft)	0.03995
Watershed No.	5-E	Chapter 93 Class.	CWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Catawissa Borough Municipal Authority		
PWS Waters	Catawissa Creek	Flow at Intake (cfs)	28
PWS RMI	1.0	Distance from Outfall (mi)	6.11

Comments: While the unnamed tributary directly receiving the discharge is not impaired, Catawissa Creek is impaired by metals, Aluminum, Iron, Manganese, and pH from AMD and the entire watershed is under the Catawissa Creek TMDL.

No downstream water supply is expected to be affected by this discharge with the limitations and monitoring proposed.

Treatment Facility Summary				
Treatment Facility Name: Country Terrace Estates MHP				
WQM Permit No.	Issuance Date			
1998404	9/1/98			
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Erosion Chlorination	0.0165
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.0165	27.7	N/A	Storage	Offsite

Changes Since Last Permit Issuance: None

Other Comments: The treatment facilities, as permitted under WQM Permit No. 1998404 consist of bar screen, aeration tank, clarifier, erosion chlorinator, chlorine contact tank and sludge holding.

Compliance History

DMR Data for Outfall 001 (from December 1, 2024 to November 30, 2025)

Parameter	NOV-25	OCT-25	SEP-25	AUG-25	JUL-25	JUN-25	MAY-25	APR-25	MAR-25	FEB-25	JAN-25	DEC-24
Flow (MGD) Average Monthly	0.0042	0.0042	0.0048	0.0049	0.0054	0.0049	0.0054	0.0059	0.005	0.0046	0.0057	0.0058
Flow (MGD) Daily Maximum	0.0046	0.0047	0.0054	0.0053	0.0059	0.0057	0.0063	0.0066	0.0064	0.0050	0.0061	0.0063
pH (S.U.) Instantaneous Minimum	6.0	6.0	6.4	6.1	6.1	6.3	6.2	6.4	6.8	6.4	6.8	6.2
pH (S.U.) Instantaneous Maximum	7.6	6.9	7.2	7.4	7.2	8.2	7.7	8.5	8.1	7.8	7.6	7.6
DO (mg/L) Instantaneous Minimum	4.1	4.0	4.2	4.3	4.3	4.1	4.1	4.2	4.8	4.4	5.1	5.1
TRC (mg/L) Average Monthly	0.07	0.07	0.07	0.12	0.10	0.18	0.15	0.14	0.18	0.24	0.13	0.05
TRC (mg/L) Instantaneous Maximum	0.21	0.17	0.26	0.74	0.24	0.35	0.6	0.19	0.24	0.35	0.31	0.08
CBOD5 (mg/L) Average Monthly	2.6	4.6	< 2.0	< 3.0	< 3.0	5.2	< 3.0	< 1.9	< 1.9	< 1.8	4.8	3.0
CBOD5 (mg/L) Instantaneous Maximum	5.2	6.3	< 2.0	< 3.0	< 3.0	5.6	< 3.0	< 1.9	< 2.0	< 2.0	5.8	4.1
TSS (mg/L) Average Monthly	5.0	9.0	5.0	< 4.0	4.0	4.0	< 4.0	4.0	4.0	4.0	7.0	13.5
TSS (mg/L) Instantaneous Maximum	6.0	13.0	5.0	< 4.0	4.0	4.0	< 4.0	4.0	4.0	4.0	10.0	23.0
Fecal Coliform (No./100 ml) Geometric Mean	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1
Fecal Coliform (No./100 ml) Instantaneous Maximum	< 1	< 1	< 1	< 1	< 1	< 1	5	< 1	< 1	< 1	< 1	< 1
Ammonia (mg/L) Average Monthly	0.4	0.8	0.3	0.55	2.2	1.9	0.9	0.15	0.43	0.31	0.52	2.9

Compliance History, Continued

Summary of Inspections:	The most recent inspection of the facility by the Department on October 22, 2025 identified no violations at the time of inspection.
Other Comments:	There are no open violations in eFACTS for Columbia Investment Corporation.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
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	0.37	XXX	1.2	1/day	Grab
CBOD5	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 (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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.2	XXX	10	2/month	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

Development of Effluent Limitations

Outfall No. <u>001</u>	Design Flow (MGD) <u>0.0165</u>
Latitude <u>40° 59' 26.40"</u>	Longitude <u>-76° 23' 32.20"</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)

Comments: The above limits are applicable and are included in the existing permit except for more stringent water quality-based limits for TRC.

Water Quality-Based Limitations

CBOD5, DO, and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD (CBOD₅), and ammonia nitrogen (NH₃-N) into free-flowing streams and rivers. To accomplish this the model simulates two basic processes: the mixing and degradation of NH₃-N in the stream and the mixing and consumption of DO in the stream due to the degradation of CBOD₅ and NH₃-N. The discharge has existing water quality-based limits for NH₃-N and DO as listed on the previous page. WQM7.0 modeling was performed for the discharge to the unnamed tributary to Catawissa Creek and showed that the existing limits are adequate to protect the receiving waters. See Attachment B.

TRC

The Department uses a modeling spreadsheet to determine necessary WQBELs for TRC toxicity based on instream dilution. The attached modeling results (See attachment C) show that the existing water quality-based limit of 0.37 mg/l is adequate to protect the receiving stream.

Toxics Management

No further "Reasonable Potential Analysis" was performed to determine additional toxic parameters as candidates for limitations for this 0.0165 MGD sewage treatment facility receiving no industrial influent.

TMDL

This facility is not identified as a significant source of impairment in the Catawissa Creek TMDL and has not received a wasteload allocation. It is not expected to make significant contribution to the impairment and consistently meets the pH limitations. Monitoring of the primary TMDL pollutants of concern (Al, Fe and Mn) was required in the previous renewal in accordance with 40 CFR § 122.44(d)(1)(vii)(B), to ensure that this discharge is not contributing to the impairment of the watershed. Averages for these parameters over the past permit term and been <0.0295 mg/L for Total Aluminum, <0.0697 mg/L for Total Iron, and <0.11315 mg/L for Total Manganese. Because the levels of these metals in the discharge have been adequately characterized, no further monitoring will be required at this time.

Chesapeake Bay Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania to reduce the total nutrient load to the Bay and meet State of Maryland Water Quality Standards. This facility is considered an existing Phase 5, insignificant Chesapeake Bay discharger per the Phase III Watershed Implementation Plan (WIP) and thus has not received Cap Loads. Monitoring under a previous permit found the Total Nitrogen and Total Phosphorus to average 29 and 3.7 mg/L, respectively. Because the nutrient load from the discharge has adequately been characterized no further nutrient monitoring will be required at this time.

e. Coli

Annual e. coli monitoring will be required at this time due to recent changes to Chapter 93 of the Departments regulations and Department policy.

Best Professional Judgment (BPJ) Limitations

No additional BPJ limits are needed beyond the water quality and technology-based limits noted above.

Anti-Backsliding

No water quality based or BPJ limits were made less stringent consistent with the anti-backsliding requirements of 40 CFR 122.44(I).

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	Metered
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	0.37	XXX	1.2	1/day	Grab
CBOD5	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 (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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.2	XXX	10	2/month	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
E. Coli	XXX	XXX	XXX	Report Daily Max	XXX	XXX	1/year	Grab

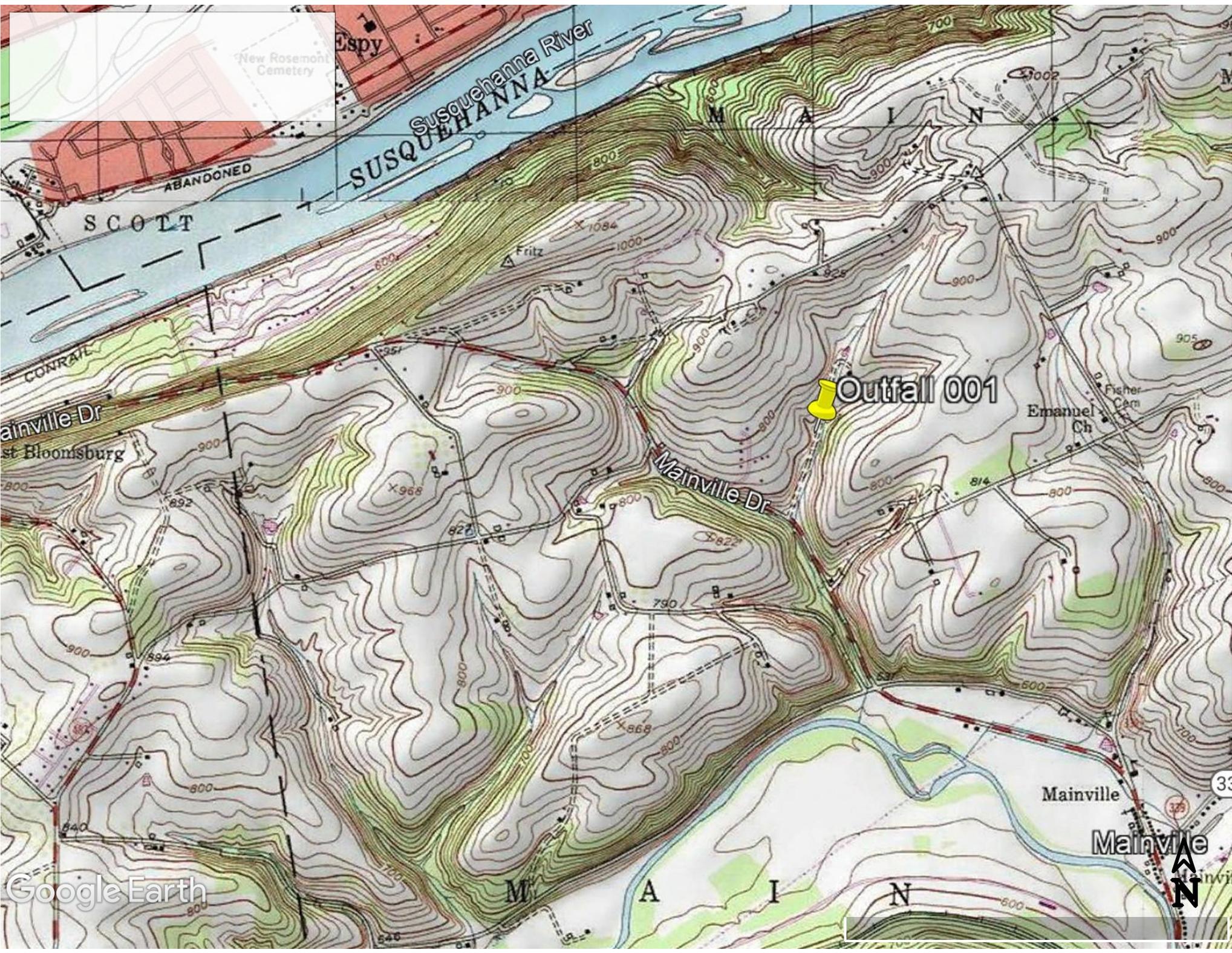
Compliance Sampling Location: Outfall 001

Other Comments: E. Coli monitoring is new as mentioned above. Total Iron, Total Aluminum, and Total Manganese monitoring have been removed as noted above.

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B)
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment)
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment C)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment)
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" 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 checked="" 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 checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input checked="" type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP:
<input type="checkbox"/>	Other:

Attachments:

- A. Discharge Location Map
- B. WQM7.0 Model
- C. TRC Model



Google Earth



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
05E	27539	Trib 27539 of Catawissa Creek	0.830	671.00	0.35	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	pH	Stream Temp (°C)	pH
	Q7-10	0.187	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	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
Country Terrace	PA0209651	0.0165	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	4.00	8.24	0.00	0.00
NH3-N	5.20	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
05E	27539	Trib 27539 of Catawissa Creek	0.100	517.00	1.29	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	Temp	pH	Temp	pH
Q7-10	0.187	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>						
05E		27539				Trib 27539 of Catawissa Creek						
RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.830	0.07	0.00	0.07	.0255	0.03995	.361	3.07	8.49	0.08	0.543	21.40	7.00
Q1-10 Flow												
0.830	0.04	0.00	0.04	.0255	0.03995	NA	NA	NA	0.07	0.642	21.89	7.00
Q30-10 Flow												
0.830	0.09	0.00	0.09	.0255	0.03995	NA	NA	NA	0.09	0.477	21.11	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	0.64	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		

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>	
05E	27539	Trib 27539 of Catawissa Creek	

<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>
0.830	0.016	21.403	7.000
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>
3.066	0.361	8.491	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>
8.46	1.135	1.46	0.780
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>
7.052	27.672	Owens	6
<u>Reach Travel Time (days)</u>	Subreach Results		
0.543	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>
	(days)	(mg/L)	(mg/L)
			<u>D.O.</u>
			(mg/L)
	0.054	7.92	1.40
	0.109	7.41	1.34
	0.163	6.94	1.29
	0.217	6.50	1.23
	0.272	6.09	1.18
	0.326	5.70	1.13
	0.380	5.34	1.09
	0.435	5.00	1.04
	0.489	4.68	1.00
	0.543	4.38	0.96

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
05E	27539	Trib 27539 of Catawissa Creek

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.830	Country Terrace	14.33	10.4	14.33	10.4	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
0.830	Country Terrace	1.76	5.2	1.76	5.2	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)		
0.83	Country Terrace	25	25	5.2	5.2	4	4	0	0

WQM 7.0 Effluent Limits

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
05E	27539	Trib 27539 of Catawissa Creek					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.830	Country Terrace	PA0209651	0.016	CBOD5	25		
				NH3-N	5.2	10.4	
				Dissolved Oxygen			4

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.065	= Q stream (cfs)	0.5	= CV Daily	
0.0165	= 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
TRC	1.3.2.iii	WLA_afc = 0.831		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc = 0.310		5.1d
				WLA_cfc = 0.803
				LTAMULT_cfc = 0.581
				LTA_cfc = 0.467
Source	Effluent Limit Calculations			
PENTOXSD TRG	5.1f	AML_MULT = 1.231		
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.381		AFC
		INST MAX LIMIT (mg/l) = 1.247		
WLA_afc	$(.019/e^{-k \cdot AFC_tc}) + [(AFC_Yc \cdot Qs \cdot .019 / Qd \cdot e^{-k \cdot AFC_tc}) \dots + Xd + (AFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
LTAMULT_afc	$EXP((0.5 \cdot LN(cvh^2 + 1)) - 2.326 \cdot LN(cvh^2 + 1)^{0.5})$			
LTA_afc	wla_afc * LTAMULT_afc			
WLA_cfc	$(.011/e^{-k \cdot CFC_tc}) + [(CFC_Yc \cdot Qs \cdot .011 / Qd \cdot e^{-k \cdot CFC_tc}) \dots + Xd + (CFC_Yc \cdot Qs \cdot Xs / Qd)] \cdot (1 - FOS / 100)$			
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 * 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) * AML_MULT)			
INST MAX LIMIT	1.5 * ((av_mon_limit / AML_MULT) / LTAMULT_afc)			