pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0115100**
Facility Type	**Non-Municipal**	APS ID	**1077907**
Major / Minor	**Minor**	Authorization ID	**1421456**

Applicant and Facility Information

Applicant Name	**Tioga MHC, LLC**	Facility Name	**Tioga MHC, LLC**
Applicant Address	35 Calais Road	Facility Address	32 Deer Lane
	Randolph, NJ 07869-3531		Tioga, PA 16946-8446
Applicant Contact	Vamshi Sagi	Facility Contact	Patrick Crowley, Operator
Applicant Phone	(586) 871-9237	Facility Phone	570-439-0731
Client ID	366665	Site ID	262186
Ch 94 Load Status	Not Overloaded	Municipality	Lawrence Township
Connection Status	N/A	County	Tioga
Date Application Received	December 20, 2022	EPA Waived?	Yes
Date Application Accepted	December 29, 2022	If No, Reason	

Purpose of Application: Renewal of NPDES Permit coverage

Summary of Review

The subject facility is a sewage treatment plant serving a mobile home court in Lawrence Township, Tioga County. A map indicating the discharge location is attached (Attachment A).

Sludge use and disposal description and location(s): The facility's sludge is sent to other WWTPs for further processing in the past year. Per the application, approximately 0.78 tons of sludge were disposed in the previous year.

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
✓		Keith C. Allison Keith C. Allison / Project Manager	August 15, 2023
✓		N. W. H. Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	August 24, 2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0067
Latitude	41º 57' 43.75"	Longitude	-77º 5' 40.95"
Quad Name	Jackson Summit, PA	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Tioga River (WWF)	Stream Code	31172
NHD Com ID	57349671	RMI	1.16
Drainage Area	8.41	Yield (cfs/mi^2)	0.0646
Q_{7-10} Flow (cfs)	0.543	Q_{7-10} Basis	USGS Gage 01518700. Tioga River @ Tioga Junction, PA
Elevation (ft)	1085	Slope (ft/ft)	0.00102
Watershed No.	4-A	Chapter 93 Class.	WWF
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	PA/NY Border		
PWS Waters	Tioga River	Distance from Outfall (mi)	4.4

Changes Since Last Permit Issuance: None. The above stream and drainage characteristics were determined in the previous review and remain adequate. The stream is identified on maps as Mutton Lane Creek.

Other Comments: The discharge is not expected to affect any downstream water supply at this time with the limitations and monitoring proposed.

The facility also receives water filter plant backwash from the onsite water treatment plant as approved by a December 28, 2022 letter.

Treatment Facility Summary

Treatment Facility Name: Tioga MHC LLC

WQM Permit No.	Issuance Date
5992404	Original – 8/28/92
	T-1 – 06/03/21 T-2 – 11/30/22

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.0067

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.01	20	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance: The WQM permit (and NPDES) have been transferred twice since the previous NPDES renewal.

Other Comments: The treatment facility consists of comminutor, manual bar screen, equalization tank, two aeration tanks, clarifier, polishing clarifier, erosion chlorinator, chlorine contact tank, and sludge holding tank.

Compliance History

DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
Flow (MGD) Average Monthly	0.005	0.006	0.008	0.009	0.009	0.009	0.009	0.007	0.006	0.009	0.009	0.008
Flow (MGD) Daily Maximum	0.011	0.017	0.024	0.015	0.022	0.023	0.041	0.02	0.015	0.018	0.014	0.013
pH (S.U.) Instantaneous Minimum	7.8	7.1	6.7	6.8	6.1	6.2	7.4	7.0	7.8	7.5	7.5	7.3
pH (S.U.) Instantaneous Maximum	8.2	8.4	7.6	7.5	8.4	8.0	8.2	8.1	8.4	8.3	8.6	7.9
DO (mg/L) Instantaneous Minimum	6.02	6.2	6	5.2	5.8	8	11.88	7.0	7.2	2.5	3.6	5.9
TRC (mg/L) Average Monthly	0.5	0.1	0.3	0.2	0.4	0.8	1.0	0.6	0.38	0.67	0.8	0.6
TRC (mg/L) Instantaneous Maximum	1.11	0.5	1.7	1.0	1.1	1.5	2.20	1.44	1.35	2.20	2.20	2.20
CBOD5 (mg/L) Average Monthly	< 20.0	< 3.0	< 7.0	< 7.0	< 10.0	7.0	7.0	< 14.0	13.0	< 11.0	< 4.0	< 3.0
TSS (mg/L) Average Monthly	110.0	< 5.0	7.0	< 3.0	< 19.0	4.0	8.0	23.0	< 50.0	36.0	< 5.0	< 8.0
Fecal Coliform (No./100 ml) Geometric Mean	1525.0	2420.0	4010.0	1170.0	< 71.0	2374.0	6932.0	130.0	12211.0	1518.0	628.0	39.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	2420.0	2420.0	12098.0	4479.6	6932	24196.0	24196	1130.4	24196	9678.4	4839.2	1297.6
Ammonia (lbs/day) Average Monthly	< 0.8	< 0.02	< 1	< 0.04	< 0.07	< 0.4	< 0.2	< 0.9	2	2	1	< 0.09
Ammonia (mg/L) Average Monthly	< 14.99	< 0.4	< 2.423	< 0.539	< 0.944	< 12.75	< 3.55	< 19.119	31.46	26.92	10.548	< 2.101

Compliance History, Cont'd

Effluent Violations for Outfall 001, from: August 1, 2022 To: June 30, 2023

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	01/31/23	Avg Mo	0.8	mg/L	.5	mg/L
TRC	12/31/22	Avg Mo	1.0	mg/L	.5	mg/L
TRC	12/31/22	IMAX	2.20	mg/L	1.6	mg/L
TRC	04/30/23	IMAX	1.7	mg/L	1.6	mg/L
TSS	09/30/22	Avg Mo	36.0	mg/L	30.0	mg/L
TSS	10/31/22	Avg Mo	< 50.0	mg/L	30.0	mg/L
TSS	10/31/22	Avg Mo	70.0	mg/L	30.0	mg/L
TSS	10/31/22	Avg Mo	< 50.0	mg/L	30.0	mg/L
TSS	06/30/23	Avg Mo	110.0	mg/L	30.0	mg/L
Fecal Coliform	10/31/22	Geo Mean	24196.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	12/31/22	Geo Mean	6932.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	08/31/22	Geo Mean	628.0	No./100 ml	200.0	No./100 ml
Fecal Coliform	10/31/22	Geo Mean	12211.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	01/31/23	Geo Mean	2374.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	04/30/23	Geo Mean	4010.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	05/31/23	Geo Mean	2420.0	No./100 ml	200.0	No./100 ml
Fecal Coliform	09/30/22	Geo Mean	1518.0	No./100 ml	200.0	No./100 ml
Fecal Coliform	10/31/22	Geo Mean	12211.0	No./100 ml	2000.0	No./100 ml
Fecal Coliform	06/30/23	Geo Mean	1525.0	No./100 ml	200.0	No./100 ml

Fecal Coliform	06/30/23	IMAX	2420.0	No./100 ml	1000.0	No./100 ml
Fecal Coliform	05/31/23	IMAX	2420.0	No./100 ml	1000.0	No./100 ml
Fecal Coliform	04/30/23	IMAX	12098.0	No./100 ml	10000	No./100 ml
Fecal Coliform	01/31/23	IMAX	24196.0	No./100 ml	10000	No./100 ml
Fecal Coliform	12/31/22	IMAX	24196	No./100 ml	10000	No./100 ml
Fecal Coliform	10/31/22	IMAX	24196	No./100 ml	10000	No./100 ml
Fecal Coliform	10/31/22	IMAX	24196	No./100 ml	10000	No./100 ml
Fecal Coliform	09/30/22	IMAX	9678.4	No./100 ml	1000.0	No./100 ml
Fecal Coliform	10/31/22	IMAX	24196	No./100 ml	10000	No./100 ml
Fecal Coliform	08/31/22	IMAX	4839.2	No./100 ml	1000.0	No./100 ml

Compliance History, Cont'd	
Summary of Inspections:	The facility has been inspected approximately annually by the Department over the past permit term. The most recent inspection on December 14, 2022 identified multiple effluent violations as also noted above.
Other Comments:	A query in WMS found no open violation for Tioga MHC, LLC in eFACTS. The permittee was sent a Notice of Violation August 8, 2023 for effluent violations.

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	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	1/week	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	1/week	Grab
Total Nitrogen	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Ammonia	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
Total Phosphorus	Report Annl Avg	Report Total Annual	XXX	Report Annl Avg	XXX	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0067
Latitude 41º 57' 17.30" **Longitude** -77º 5' 37.10"
Wastewater Description: Sewage Effluent

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.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed showing that the existing limitations are adequate to protect the receiving stream. See Attachment B.

Total Residual Chlorine

The Department uses a modeling spreadsheet to analyze the toxicity of a discharge's TRC in a receiving stream, accounting for available dilution. TRC modeling was performed that shows the existing BAT limit of 0.5 mg/L is adequate to protect the receiving stream. See Attachment C.

Chesapeake Bay/Nutrient Requirements

According to the Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, this facility is an existing Phase 5 Chesapeake Bay sewage discharger that is not expanding, and therefore requires no nutrient loading limits but does require Total Nitrogen and Total Phosphorus monitoring. Annual nutrient monitoring was included in the current permit consistent with the Phase III Watershed Implementation Plan. The results of this monitoring from the eDMR system found the Total Nitrogen to average 30.5 mg/L and the Total Phosphorus to average 3.4 mg/L. Because adequate nutrient monitoring has been performed for the past permit term to characterize the discharge's nutrient load, no further monitoring for nutrients will be required at this time in the proposed permit.

Toxics Management

No further "Reasonable Potential Analysis" was performed for this minor sewage facility with no industrial wastewaters (besides water filter plant backwash) to determine additional parameters as possible candidates for limitations or monitoring.

Best Professional Judgment (BPJ) Limitations

Comments: None needed beyond the limitations mentioned above.

Anti-Backsliding

No proposed limitations have been made less stringent consistent with the anti-backsliding provisions of the Clean Water Act and 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" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (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	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	1/week	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	1/week	Grab
Ammonia	Report	XXX	XXX	Report	XXX	XXX	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

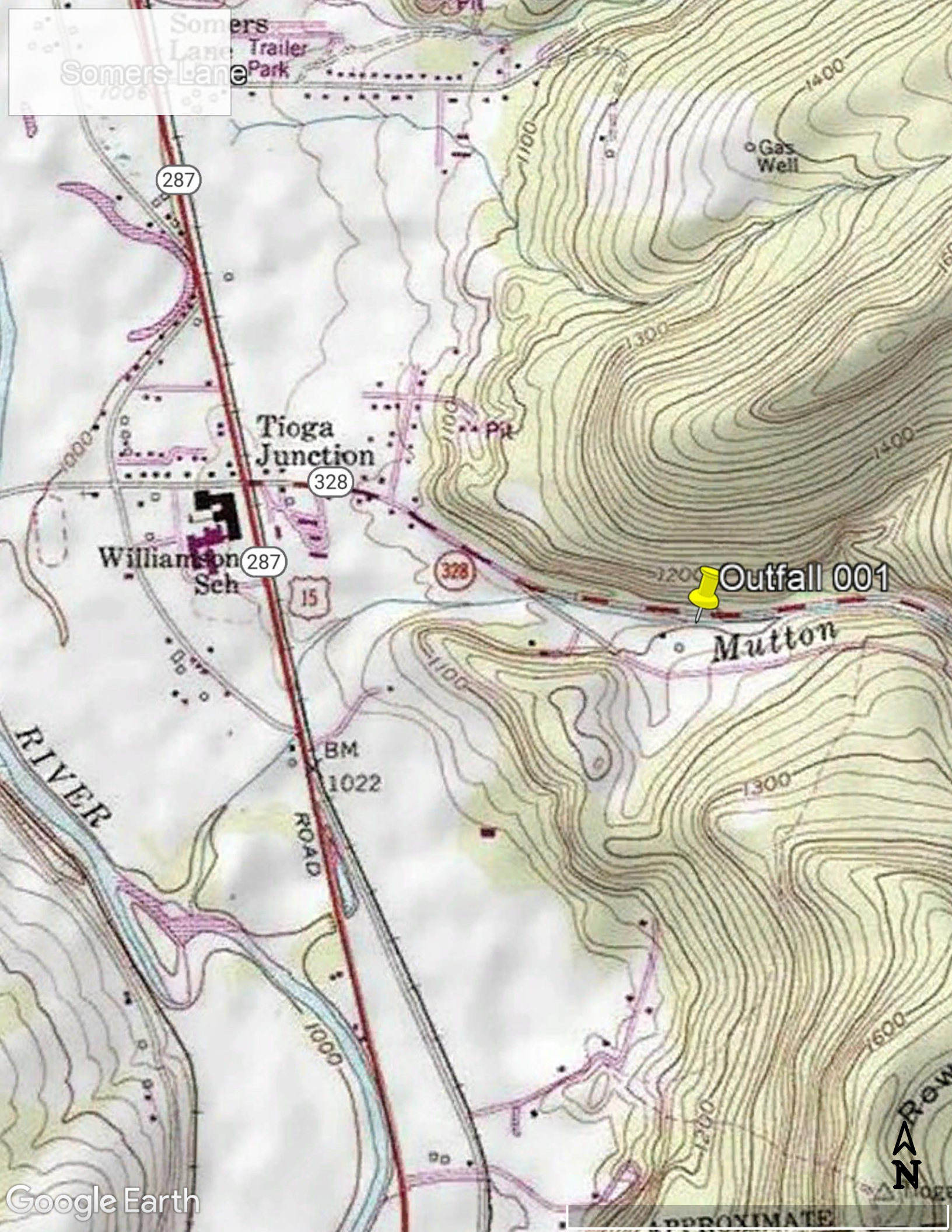
Compliance Sampling Location: Outfall 001

Other Comments: e. Coli monitoring is new as mentioned above due to recent changes to Chapter 93 of the Department's regulations and Department policy. Also, no further Total Nitrogen or Total Phosphorus monitoring will be required at this time as also mentioned above.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	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, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 3/24/21
☐	Other:

Attachments:

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


Somers Lane
Trailer Park
Gas Well
287
Tioga Junction
328
Williamson Sch
287
328
15
Outfall 001
Mutton
RIVER
ROAD
BM 1022
1000
1100
1200
1300
1400
1600
N
Google Earth

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
31172	MUTTON LANE CREEK	**1.160**	1085.00	8.41	0.00000	0.00	☑

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)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	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
Tioga MHC	PA0115100	0.0067	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

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
31172	MUTTON LANE CREEK	**0.001**	1000.00	9.50	0.00000	0.00	☑

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)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.065	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 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
04A	31172	MUTTON LANE 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 (ºC)	Analysis pH
Q7-10 Flow												
1.160	0.54	0.00	0.54	.0104	0.01389	.473	11.39	24.07	0.10	0.689	20.09	7.00
Q1-10 Flow												
1.160	0.35	0.00	0.35	.0104	0.01389	NA	NA	NA	0.08	0.879	20.14	7.00
Q30-10 Flow												
1.160	0.74	0.00	0.74	.0104	0.01389	NA	NA	NA	0.12	0.582	20.07	7.00

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
04A	31172	MUTTON LANE CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
1.160	0.007	20.094	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.386	0.473	24.073	0.103
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.43	0.192	0.47	0.705
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.145	18.923	Owens	5
Reach Travel Time (days)			
0.689			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.069	2.40	0.45	8.23
0.138	2.37	0.42	8.23
0.207	2.34	0.40	8.23
0.276	2.30	0.39	8.23
0.344	2.27	0.37	8.23
0.413	2.24	0.35	8.23
0.482	2.21	0.33	8.23
0.551	2.19	0.32	8.23
0.620	2.16	0.30	8.23
0.689	2.13	0.29	8.23

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
04A	31172	MUTTON LANE 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
1.160	Tioga MHC	16.56	50	16.56	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.160	Tioga MHC	1.88	25	1.88	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.16	Tioga MHC	25	25	25	25	3	3	0	0

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
1.160	Tioga MHC	PA0115100	0.007	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.543	= Q stream (cfs)	0.5	= CV Daily
0.0067	= 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 = 16.731	1.3.2.iii	WLA cfc = 16.304
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 6.234	5.1d	LTA_cfc = 9.478

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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)