pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0032913**
Facility Type	**Non-Municipal**	APS ID	**1028929**
Major / Minor	**Minor**	Authorization ID	**1336935**

Applicant and Facility Information

Applicant Name	**Scenic MHP, LLC**	Facility Name	**Scenic MHP STP**
Applicant Address	24 Bogle Avenue	Facility Address	156 Shenango Park Road
	North Arlington, NJ 07031-4726		Transfer, PA 16154
Applicant Contact	Nicholas Burgagni	Facility Contact	Marvin McAfoose
Applicant Phone	(201) 424-3202	Facility Phone	(724) 699-4070
Client ID	302782	Site ID	244061
Ch 94 Load Status	Not Overloaded	Municipality	Pymatuning Township
Connection Status	No Limitations	County	Mercer
Date Application Received	November 30, 2020	EPA Waived?	Yes
Date Application Accepted	December 14, 2020	If No, Reason	-

Purpose of Application: Individual NPDES permit renewal for a minor sewage facility.

Summary of Review

Act 14 – Proof of notification were submitted and received.

There are two open violations for subject client no. 302782 for exceeding part A effluent limitations as of 12/17/2021. A COA will be executed with the issuance of the final permit, which will resolve the two open violations.

Monitoring frequencies for DO, pH, and TRC are being increased from 1/week on the previous renewal to 1/day in order to comply with Table 6-3 from the Permit Writers Manual and current department practices.

This facility is currently submitting eDMR reports.

Sludge use and disposal description and location(s): Septage must be pumped and hauled off-site by a septage hauler for land application under a general permit authorized by DEP or disposal at an STP.

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		Jon F. Bucha Jonathan F. Bucha / Civil Engineer General	December 17, 2021
X		Justin C. Dickey Justin C. Dickey, P.E. / Environmental Engineer Manager	December 22, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	.02
Latitude	41º 18' 29"	Longitude	-80º 25' 59"
Quad Name	Sharpsville	Quad Code	0802
Wastewater Description:	Sewage Effluent		

Receiving Waters	Brush Run (WWF)	Stream Code	36035
NHD Com ID	130034224	RMI	0.565
Drainage Area	4.0 mi^2	Yield (cfs/mi^2)	0.011
Q_{7-10} Flow (cfs)	0.044	Q_{7-10} Basis	Pymatuning Ck @ Orangevile
Elevation (ft)	925 (Google Earth)	Slope (ft/ft)	-
Watershed No.	20-A	Chapter 93 Class.	WWF
Existing Use	-	Existing Use Qualifier	-
Exceptions to Use	-	Exceptions to Criteria	-
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment	-		
Source(s) of Impairment	-		
TMDL Status	-	Name	-

Background/Ambient Data		Data Source
pH (SU)	7.6	8/13/86 dry stream determination for Sunnyview MHP
Temperature (°C)	25	WWF
Hardness (mg/L)	-	
Other: NH_3-N	0.1	default

Nearest Downstream Public Water Supply Intake	Aqua PA Shenango Valley		
PWS Waters	Shenango River	Flow at Intake (cfs)	143.8
PWS RMI	28.88	Distance from Outfall (mi)	6

Changes Since Last Permit Issuance: Updates were made to drainage areas and elevations using the most recent versions of Streamstats and Google Earth.

The 24-hour discharge flow used to calculate the Sunnyview MHP dry stream reach on the previous permit renewal was 0.058 mgd, which resulted from converting the 16-hour flow twice from the permitted design flow of 0.025 mgd. This was corrected on this permit renewal (i.e. 24 hr flow = 0.025 * 24/16 = 0.038 mgd), therefore the dry stream reach for Sunnyview MHP was re-modeled on this permit renewal. The difference in outcome was negligible.

Other Comments: This treatment facility is capable of meeting effluent requirements with proper maintenance and operation.

Treatment Facility Summary

Treatment Facility Name: Scenic MHP

WQM Permit No.	Issuance Date
4311401 T-1	Sep 24, 2013
4311401	June 12, 2011

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Activated Sludge	Hypochlorite	0.02

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.02	34	Not Overloaded	Concentration	Other WWTP

Changes Since Last Permit Issuance: No changes to the treatment facility since the previous permit renewal.

Other Comments: Treatment consists of a comminutor with bar screen, extended aeration, clarifier, sludge handling, chlorination (liquid feed) and dichlorination (sodium sulfate).

WQM permit no. 368S030 was canceled on September 25, 2013, due to all components of the treatment facility now being permitted under WQM permit no. 4311401 T-1.

Compliance History

DMR Data for Outfall 001 (from November 1, 2020 to October 31, 2021)

Parameter	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20
Flow (MGD) Average Monthly	0.003	0.0025	0.002	0.003	0.003	0.003	0.0024	0.0026	0.002	0.003	0.003	0.003
pH (S.U.) Minimum	7.38	7.54	6.92	7.32	7.08	7.35	6.24	6.53	6.54	6.11	6.51	6.08
pH (S.U.) Maximum	7.81	8.20	7.74	7.81	7.52	7.93	7.58	7.56	7.95	6.71	7.08	6.78
DO (mg/L) Minimum	4.39	4.49	4.10	4.18	4.28	5.89	8.76	6.54	4.14	4.08	4.08	4.23
TRC (mg/L) Average Monthly	0.21	0.226	0.14	0.13	0.17	0.19	0.16	0.24	0.19	0.19	0.18	0.20
TRC (mg/L) Instantaneous Maximum	0.36	0.48	0.25	0.24	0.25	0.26	0.23	0.32	0.24	0.24	0.24	0.31
CBOD5 (mg/L) Average Monthly	2.47	4.04	2.43	2.96	3.52	3.5	25	4.1	2.1	2.6	2.1	2.0
TSS (mg/L) Average Monthly	4.5	3.0	3.5	5.83	3.75	7.0	32.5	4.5	26.0	4.5	9.0	8.5
Fecal Coliform (No./100 ml) Geometric Mean	1	1	1	1	1	1	1	1	1	1	1	1
Fecal Coliform (No./100 ml) Instantaneous Maximum	1	1	1	1	1	1	1	1	1	1	1	1
Total Nitrogen (mg/L) Average Monthly		7.54			6.64			14.2			17.95	
Ammonia (mg/L) Average Monthly	3.2	0.1	6.21	9.74	3.47	2.02	8.7	9.7	8.68	0.19	1.05	0.18
Total Phosphorus (mg/L) Average Monthly		1.35			1.71			1.65			1.06	

Compliance History

Effluent Violations for Outfall 001, for: 2020 and 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TRC	03/31/21	Avg Mo	0.24	mg/L	0.23	mg/L
TSS	04/30/21	Avg Mo	32.5	mg/L	30	mg/L
Ammonia	06/30/21	Avg Mo	3.47	mg/L	2.5	mg/L
Ammonia	04/30/21	Avg Mo	8.7	mg/L	7.5	mg/L
Ammonia	10/31/21	Avg Mo	3.2	mg/L	2.5	mg/L
Ammonia	08/31/21	Avg Mo	6.21	mg/L	2.5	mg/L
Ammonia	03/31/21	Avg Mo	9.7	mg/L	7.5	mg/L
Ammonia	02/28/21	Avg Mo	8.68	mg/L	7.5	mg/L
Ammonia	07/31/21	Avg Mo	9.74	mg/L	2.5	mg/L
Ammonia	10/31/2020	Avg Mo	2.66	mg/L	2.5	mg/L
TSS	10/31/2020	Avg Mo	43	mg/L	30	mg/L
Ammonia	9/30/2020	Avg Mo	6.7	mg/L	2.5	mg/L
Fecal	7/31/2020	imax	2419	No./100 mL	1000	No./100 mL
Ammonia	7/31/2020	Avg Mo	6.6	mg/L	2.5	mg/L
Ammonia	5/31/2020	Avg Mo	7	mg/L	2.5	mg/L
Dissolved Oxygen	4/30/2020	Minimum	3.39	mg/L	4	mg/L

Summary of Inspections: A site inspection on 5/29/2020 resulted in numerous violations for this treatment facility listed in Table A on the following page. A follow up inspection on 11/30/2021, which noted violations were not addressed.

Other Comments: The operator has discussed the possibility of fertilizer from the adjacent golf course infiltrating the effluent and being a cause of effluent violations. Influent sampling would have to be conducted to determine if there are any differences during normal influent flow compared to influent flow during periods of inflow and infiltration.

Table A: Violations from Compliance Inspection on 5/29/2020

1. **25 Pa. Code 271.918:** Failure to maintain sludge records for at least 5 years.
   Sludge hauling manifests were requested and not provided. Only Sewage Sludge / Biosolids Production and Disposal Supplemental Reports from the end of 2014 & for 2015 were provided at the inspection.
2. **25 Pa. Code 302.1201:** Circuit rider failed to make available the general work plan and/or the system specific management plan.
   General Work Plan was not available.
3. **25 Pa. Code 302.1201:** Circuit rider failed to make available the general work plan and/or the system specific management plan.
   System Specific Management Plan was not available.
4. **25 Pa. Code 302.1202:** Owner failed to provide a copy of current NPDES/WQM permit to all available operators.
   A copy of current permits should be provided to the operator.
5. **25 Pa. Code 302.1202:** Operator failed to comply with the Act or Chapter 302 regulations
   Any violations should be reported to the responsible official.
6. **25 Pa. Code 91.21:** Failure to apply for and/or obtain a WQM permit for the construction or installation of facilities or equipment
   An application to amend WQM Permit 4311401 is required to continue using the erosion chlorinator.
7. **25 Pa. Code 92a.41(a)(12):** Failure to notify DEP of planned physical changes to a facility
   Requirements for WQM Permit amendment were discussed.
8. **25 Pa. Code 92a.41(a)(12):** Failure to submit monitoring reports or properly complete monitoring reports.
   Required supplemental reports were discussed and provided via email.
9. **25 Pa. Code 92a.41(a)(12):** Failure to submit a required DMR supplemental report.
   Sewage Sludge/Biosolids Production & Disposal Supplemental Reports are not being submitted monthly as required.
10. **25 Pa. Code 92a.41(a)(5):** Failure to maintain permitted treatment units in operable condition
    Only one of two blowers is operational; a new motor and started switch are needed. The operator indicated the owner will be notified to initiate repairs.
11. **25 Pa. Code 92a.61(c):** Failure to monitor pollutants as required by the NPDES permit.
    Permit requires 8-hour composite samples for some parameters. Operator indicated composite samples consist of only 2 grabs. Manual, flow proportioned composite sampling guidance has been provided to the operator in the past.
12. **P.L. 1987, No. 394, Sec 611:** Failure to comply with the terms and conditions of a WQM permit
    An erosion chlorinator was installed in place of the originally installed liquid chlorine feed system.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .02
Latitude 41º 18' 29" **Longitude** -80º 25' 59"
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)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia Nitrogen (May 1 – Oct 31)	2.2	Avg Monthly	WQM 7.0 (v1.1)
Ammonia Nitrogen (Nov 1 – Apr 30)	6.6	Avg Monthly	WQM 7.0 (v1.1)
Total Residual Chlorine	0.21	Avg Monthly	TRC_Calc Spreadsheet
Total Residual Chlorine	0.5	imax	TRC Spreadsheet (2016)

Comments: Water quality modeling for ammonia nitrogen has determined that an effluent limitation of 2.2 mg/L is required to protect the stream quality. Wintertime ammonia nitrogen limits were determined by using a seasonal multiplier of 3 times the summertime average monthly limit according to the Establishing Effluent Limitations SOP.

TRC limits on the previous permit renewal were 0.23 mg/L average monthly with an imax of 0.5 mg/L. Calculations for this permit renewal has an average monthly TRC limit of 0.21 mg/L and 0.70 mg/L imax. The TRC imax will continue the 0.5 mg/L limit from the previous renewal in order to continue protecting the stream uses and considering eDMR data.

Best Professional Judgment (BPJ) Limitations

Comments: Monitoring for Total Nitrogen, Total Phosphorus, and E. Coli is based on Ch. 92a.61 and the Departments SOP for Establishing Effluent Limitations for Individual Sewage Permits (SOP No. BPNPSM-PMT-033). E. Coli monitoring of 1/year is a new addition to this permit renewal. Total Nitrogen and Total Phosphorus monitoring frequencies will remain at 2/quarter based on eDMR data and compliance history. The two quarterly samples are to be collected within the same calendar month. Quarterly sampling is based on the calendar quarter.

Anti-Backsliding

Anti-Backsliding considerations do not apply since the effluent limitations have not been relaxed from the previous permit renewal.

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.

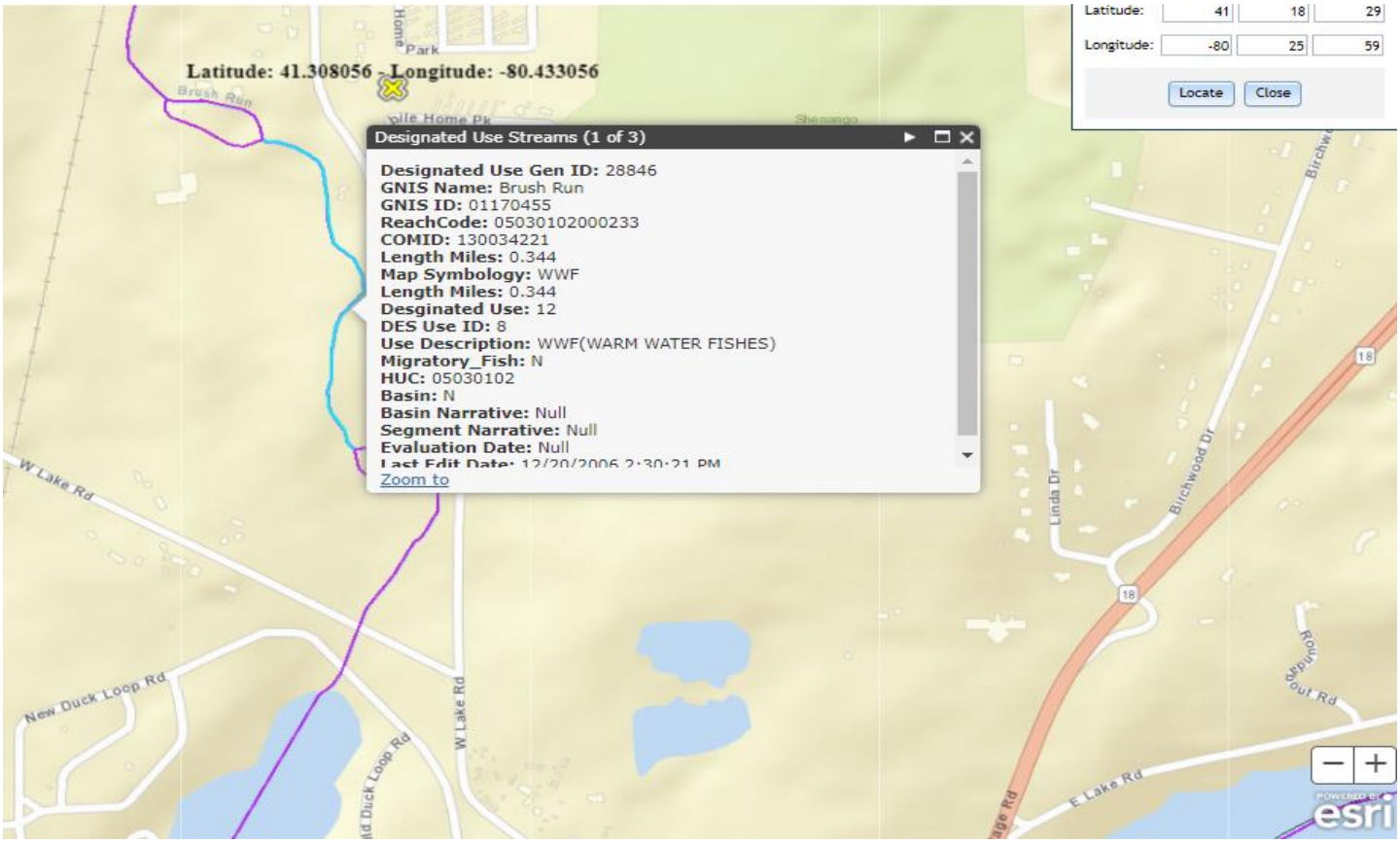
Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

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	XXX	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Daily Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.21	XXX	0.5	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30.0	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) 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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Total Nitrogen	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	2/quarter*	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	6.6	XXX	13.2	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	2.2	XXX	4.4	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report Avg Qrtly	XXX	XXX	2/quarter*	8-Hr Composite

Compliance Sampling Location: Outfall 001 after disinfection.

* The two quarterly samples shall be collected within the same calendar month. Quarterly sampling shall be based on the calendar quarter.

Attachment A – eMAP Stream Designation



ATTACHMENT B

StreamStats REPORT – RMI 0.565 On Brush Run

Region ID:	PA
Workspace ID:	PA20211207150128582000
Clicked Point (Latitude, Longitude):	41.30719, -80.43443
Time:	2021-12-07 10:01:47 -0500

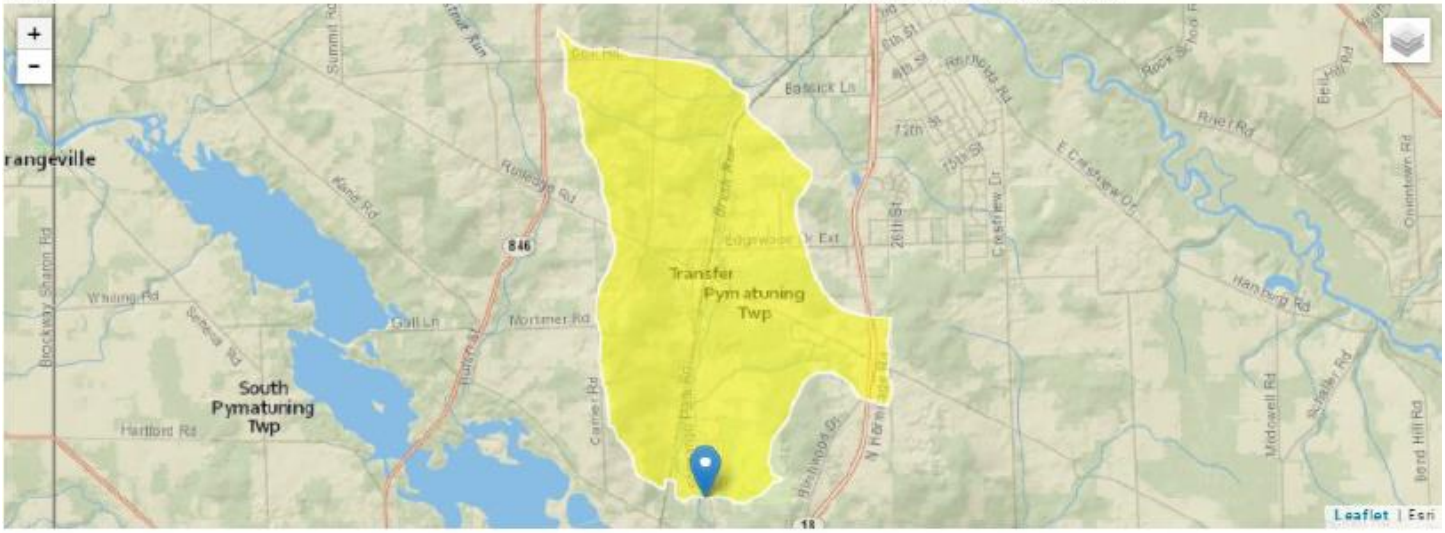
Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4	square miles
ELEV	Mean Basin Elevation	1072	feet

ATTACHMENT C

StreamStats REPORT – RMI 0.47 On Brush Run

Region ID:	PA
Workspace ID:	PA20211207150622434000
Clicked Point (Latitude, Longitude):	41.30545, -80.43347
Time:	2021-12-07 10:06:42 -0500



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.09	square miles
ELEV	Mean Basin Elevation	1071	feet

ATTACHMENT D

StreamStats REPORT – RMI 0.001 On Brush Run

Region ID:	PA
Workspace ID:	PA20211207151212209000
Clicked Point (Latitude, Longitude):	41.30010, -80.43396
Time:	2021-12-07 10:12:33 -0500

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	4.24	square miles
ELEV	Mean Basin Elevation	1068	feet

ATTACHMENT E
WQM 7.0 MODEL OUTPUT FILE

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.565	Scenic MHP	PA0032913	0.000	CBOD5	25		
				NH3-N	2.28	4.56	
				Dissolved Oxygen			3

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)
0.470	Sunnyview MHP	PA0032905	0.000	CBOD5	24.57		
				NH3-N	1.89	3.78	
				Dissolved Oxygen			4

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.565	0.030	22.433	7.421
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
5.956	0.350	17.008	0.043
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
13.81	1.382	1.22	0.844
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.209	19.552	Owens	5
Reach Travel Time (days)			
0.134			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	13.52	1.21	5.60
0.027	13.25	1.19	5.91
0.040	12.97	1.18	6.15
0.054	12.71	1.17	6.35
0.067	12.45	1.15	6.51
0.080	12.19	1.14	6.64
0.094	11.94	1.13	6.75
0.107	11.70	1.11	6.84
0.121	11.46	1.10	6.91
0.134	11.22	1.09	6.98

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.470	0.068	21.498	7.451
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
7.076	0.378	18.707	0.056
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
16.39	1.417	1.40	0.786
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
5.817	19.718	Owens	5
Reach Travel Time (days)			
0.511			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.051	15.16	1.34	6.47
0.102	14.03	1.29	6.81
0.153	12.99	1.24	7.01
0.204	12.02	1.19	7.17
0.255	11.12	1.14	7.30
0.306	10.29	1.10	7.41
0.358	9.52	1.05	7.52
0.409	8.81	1.01	7.54
0.460	8.16	0.97	7.54
0.511	7.55	0.93	7.54

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
20A	36035	BRUSH RUN	0.565	925.00	4.00	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	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.60	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
Scenic MHP	PA0032913	0.0000	0.0000	0.0300	0.000	20.00	7.30

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	7.54	0.00	0.00
NH3-N	25.00	0.10	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
20A	36035	BRUSH RUN	0.470	919.00	4.09	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	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.60	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
Sunnyview MHP	PA0032905	0.0000	0.0000	0.0380	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	24.57	2.00	0.00	1.50
Dissolved Oxygen	2.66	7.54	0.00	0.00
NH3-N	24.79	0.10	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
20A	36035	BRUSH RUN	0.001	896.00	424.00	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	0.011	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.60	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

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.565	0.04	0.00	0.04	.0464	0.01196	.35	5.96	17.01	0.04	0.134	22.43	7.42
0.470	0.04	0.00	0.04	.1052	0.00929	.378	7.08	18.71	0.06	0.511	21.50	7.45
Q1-10 Flow												
0.565	0.03	0.00	0.03	.0464	0.01196	NA	NA	NA	0.04	0.149	21.89	7.39
0.470	0.03	0.00	0.03	.1052	0.00929	NA	NA	NA	0.05	0.544	21.07	7.44
Q30-10 Flow												
0.565	0.06	0.00	0.06	.0464	0.01196	NA	NA	NA	0.05	0.122	22.82	7.44
0.470	0.06	0.00	0.06	.1052	0.00929	NA	NA	NA	0.06	0.482	21.84	7.46

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 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
0.565	Scenic MHP	9.24	14.79	9.24	14.33	2	3
0.470	Sunnyview MHP	7.7	11.42	9.28	11.07	2	3

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
0.565	Scenic MHP	1.22	2.66	1.22	2.28	2	14
0.470	Sunnyview MHP	1.13	2.21	1.28	1.89	2	14

Dissolved Oxygen Allocations

		CBOD5		NH3-N		Dissolved Oxygen			
RMI	Discharge Name	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Critical Reach	Percent Reduction
0.56	Scenic MHP	25	25	2.28	2.28	3	3	0	0
0.47	Sunnyview MHP	24.57	24.57	1.89	1.89	4	4	0	0

ATTACHMENT F

WQM 7.0 MODEL OUTPUT FILE (Sunnyview Dry Stream Reach)

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
0.019	Sunnyview	PA0032905	0.000	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			2

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
0.019	0.038	20.000	7.500
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
1.588	0.374	4.251	0.099
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
24.98	1.500	24.98	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
2.005	28.521	Owens	NA
Reach Travel Time (days)			
0.011			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	24.94	24.96	2.08
0.002	24.90	24.94	2.15
0.003	24.85	24.92	2.22
0.004	24.81	24.90	2.29
0.006	24.77	24.88	2.36
0.007	24.73	24.86	2.42
0.008	24.69	24.84	2.48
0.009	24.65	24.82	2.54
0.010	24.61	24.80	2.60
0.011	24.57	24.79	2.66

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
20A	36035	BRUSH RUN	0.019	923.00	0.05	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	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.50	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
Sunnyview	PA0032905	0.0000	0.0000	0.0380	0.000	20.00	7.50

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	0.00	0.00	1.50
Dissolved Oxygen	2.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20A	36035	BRUSH RUN	0.001	919.00	0.06	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	0.001	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.50	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

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
0.019	0.00	0.00	0.00	.0588	0.04209	.374	1.59	4.25	0.10	0.011	20.00	7.50
Q1-10 Flow												
0.019	0.00	0.00	0.00	.0588	0.04209	NA	NA	NA	0.00	0.000	0.00	0.00
Q30-10 Flow												
0.019	0.00	0.00	0.00	.0588	0.04209	NA	NA	NA	0.00	0.000	0.00	0.00

WQM 7.0 Modeling Specifications

Parameters	D.O.	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	2		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20A	36035	BRUSH RUN

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)		
0.02	Sunnyview	25	25	25	25	2	2	0	0

Attachment G – Discharge pH

Scenic MHP
Pymatuning Twp, Mercer County
PA0032913
Discharge pH

Date	pH min	pH max	10^ -pH min	10^ -pH max	& pH max)	-Log (Ave pH)
Sep-21	7.54	8.2	2.884E-08	6.3096E-09	1.7575E-08	**7.8**
Aug-21	6.92	7.74	1.2023E-07	1.8197E-08	6.9212E-08	**7.2**
Jul-21	7.32	7.81	4.7863E-08	1.5488E-08	3.1676E-08	**7.5**
Sep-20	7.21	7.72	6.166E-08	1.9055E-08	4.0357E-08	**7.4**
Aug-20	6.77	7.7	1.6982E-07	1.9953E-08	9.4888E-08	**7.0**
Jul-20	7.21	7.74	6.166E-08	1.8197E-08	3.9928E-08	**7.4**
Sep-19	7.2	7.4	6.3096E-08	3.9811E-08	5.1453E-08	**7.3**
Aug-19	7.24	7.32	5.7544E-08	4.7863E-08	5.2704E-08	**7.3**
Jul-19	7.18	7.29	6.6069E-08	5.1286E-08	5.8678E-08	**7.2**
Sep-18	7.32	7.38	4.7863E-08	4.1687E-08	4.4775E-08	**7.3**
					Median:	7.3

Attachment H – TRC_Calc Spreadsheet

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.044	= Q stream (cfs)	0.5	= CV Daily
0.02	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.473	1.3.2.iii	WLA cfc = 0.453
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.176	5.1d	LTA_cfc = 0.264

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.217	AFC
		INST MAX LIMIT (mg/l) = 0.709	

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)**