pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

M,Northwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0239631**
Facility Type	**Municipal**	APS ID	**1041899**
Major / Minor	**Minor**	Authorization ID	**1359514**

Applicant and Facility Information

Applicant Name	**Monroe Township**	Facility Name	**Monroe Township STP**
Applicant Address	17956 Route 68	Facility Address	142 Monroe Woods Drive
	Sligo, PA 16255-4442		Clarion, PA 16214
Applicant Contact	Walter Shook	Facility Contact	Matt Hockins
Applicant E Mail	monroetwp@atlanticbb.net	Operator E Mail	maddy1014@comcast.net
Applicant Phone	(814) 745-2819	Facility Phone	(814) 745-2819
Client ID	66376	Site ID	705601
Municipality	Monroe Township	County	Clarion
Ch 94 Load Status	Not Overloaded	Connection Status	No Limitations
SIC Code	**4952**	SIC Description	Sewage collection and treatment
Application Received	June 17, 2021	EPA Waived?	No - Brush Creek (Clarion) TMDL)
Application Accepted	August 17, 2021	If No, Reason	DEP Discretion

Purpose of Application: NPDES renewal

Summary of Review

NOV 390045 November 13, 2020 PA0239631 Failure to monitor pollutants, laboratory not accredited, failure to provide records needed to show compliance, failure to properly document monitoring, failure to submit completed monitoring reports.

Cleared for drafting May 25, 2023. *There are no open violations in WMS as of 7/7/2023. CWY*

The facility has aluminum, iron and manganese monitoring based on a mining TMDL. Quarterly E. coli monitoring has been added. The existing nutrient monitoring has been continued.

Sludge use and disposal description and location(s): No sludge disposal occurred or reported. Landfill disposal is authorized.

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		William H. Mentzer William H. Mentzer, P.E. Environmental Engineering Specialist	June 8. 2023
X		Chad W. Yurisic Chad W. Yurisic, P.E. Environmental Engineer Manager	7/7/2023

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.08
Latitude DP	41º 10' 34.36"	Longitude DP	-79º 23' 35.41"
Latitude NHD	41º 10' 33.27"	Longitude NHD	-79º 23' 34.86"
Quad Name	Clarion	Quad Code	0910
Wastewater Description:	Treated municipal sewage		

Receiving Waters	Brush Run	Stream Code	49502
NHD Com ID	102670765	RMI	2.8
Drainage Area	10.8	Yield (cfs/mi^2)	0.0364
Q_{7-10} Flow (cfs)	0.3927	Q_{7-10} Basis	WRI 81-21 area 10
Elevation (ft)	1252.10	Slope (ft/mi)	38.9
Watershed No.	17-B	Chapter 93 Class.	CWF
Existing Use	**statewide**	Existing Use Qualifier	none
Exceptions to Use	none	Exceptions to Criteria	none
Comments	Stream Node RMI is 0.68		

Assessment Status	Impaired		
Cause(s) of Impairment	Metals and pH		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Brush Run (Clarion)
Comments	This discharge is not included in the Mining Brush Run TMDL but is reviewed as part of any TMDL update. The additional TMDL parameters are total aluminum, iron and manganese		

Background/Ambient Data		Data Source
pH (SU)	4.4	TMDL mean (with concentration adjustment)
Temperature (°C)	20	CWF default
Hardness (mg/L)	100-mg/L as calcium carbonate	default
CBOD5:	0.8-mg/L	Cathers Run
Ammonia	0.022	Cathers Run
Aluminum	1.75	TMDL mean
Iron	3.21	TMDL mean
Alkalinity	5.65-mg/L as calcium carbonate	
Acidity	36.95 -mg/L as calcium carbonate	

Nearest Downstream Public Water Supply Intake	Parker City Water		
PWS Waters	Allegheny River	Flow at Intake (cfs)	279
PWS RMI	83.95	Distance from Outfall (mi)	31.3

Changes Since Last Permit Issuance: none

Other Comments: none

Treatment Facility Summary				
Treatment Facility Name: Monroe Township STP				
WQM Permit No.	**Issuance Date**			
1606402	May 1, 2006			
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary With Ammonia Reduction	Sequencing Batch Reactor	UV	0.08
Hydraulic Capacity (MGD)	**Organic Capacity (lbs/day)**	**Load Status**	**Biosolids Treatment**	**Biosolids Use/Disposal**
0.08	227	Not Overloaded	Aerobic Digestion	Landfill

Changes Since Last Permit Issuance: none

Treatment: hydro-dyne screen, equalization, two-unit sequencing batch reactor (aeration and settling) and UV radiation disinfection.

Other Comments: Design flow has not materialized. The cause is not reported (reduced users, low wastewater flows or exfiltration).

Reported Commercial Users			
Pennsylvania State Police Building	1 EDU	~ 0.0004 MGD	0.5% hydraulic capacity
Insurance Office	1 EDU	~ 0.0004 MGD	0.5% hydraulic capacity
BioTech Center & Office	6 EDU	~ 0.0024 MGD	3.0% hydraulic capacity
PA Dept of Welfare Office	1 EDU	~ 0.0004 MGD	0.5% hydraulic capacity
Tractor Supply	2 EDU	~ 0.0008 MGD	1.0% hydraulic capacity
84 Lumber	2 EDU	~ 0.0008 MGD	1.0% hydraulic capacity
Primary Health Network	20 EDU	~ 0.0080 MGD	10.0% hydraulic capacity
Total	33 EDU	~ 0.0132 MGD	16.5% hydraulic capacity

No report on residential users

				Influent			Effluent			
			MGD	PPD	mg/L	mg/L	#	mg/L	mg/L	mg/L	#
Hydraulic Design Capacity			0.0800								
Organic Load Capacity				227							
Annual Average Flow		2018	0.0031								
		2019	0.0035								
		2020	0.0034								
Highest Monthly Average	July	2020	0.0040								
BOD5					161.36	385,5	24				
TSS					187.71	1345	24				
pH								6.0		7.11	1460
Fecal Coliform									31.74	1606	48
CBOD5									4.78	13.2	48
TSS									9.62	56.0	48
Amm									8.92	35.0	48
N									24.25	35.5	48
P									3.41	31.3	48
Al									0.66	1.0	48
Fe									0.41	1.33	48
Mn									0.11	0.23	48

Compliance History

DMR Data for Outfall 001 (from July 1, 2020 to June 30, 2021)

Parameter	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20
Flow (MGD) Ave Mon			0.0033	0.0033	0.0034	0.0031	0.0035	0.0029	0.0035	0.0035	0.0039	0.0040
Flow (MGD) Daily Max			0.0033	0.0033	0.0034	0.0031	**35**	0.0029	0.0035	0.0035	0.0039	0.0040
pH (S.U.) Minimum			7.03	6.98	7.03	7.03	6.98	6.89	6.98	6.95	7.11	6.75
pH (S.U.) Maximum			7.08	7.13	7.22	7.11	7.11	7.02	7.22	7.23	7.43	7.03
DO (mg/L) Minimum			8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	8.0	6.0
CBOD5 (PPD) Ave M			0.238	0.238	0.364	0.269	0.213	0.213	0.213	0.245	0.213	0.308
CBOD5 (PPD) Wkly A			0.238	0.238	0.364	0.269	0.2113	0.213	0.213	0.245	0.213	0.308
CBOD5 (mg/L) Ave M			3.0	3.0	4.6	3.4	3	3.0	3.0	3.45	3	4.35
CBOD5 (mg/L) Wkly A			3.0	3.0	4.6	3.4	3.0	3.0	3.0	3.45	3	4.35
BOD5 (PPD) Inf A Mon			4.816	4.775	8.88	12.55	6.056	3.241	5.704	2.397	3.584	3.329
BOD5 (PPD) Infl D Max			4.816	4.775	8.88	12.55	6.056	3.241	5.7704	2.397	3.584	3.329
BOD5 (mg/L) Inf A Mon			175.5	174	254	478.5	206.5	135	194.5	81	57	99
TSS (PPD) Ave Mon			0.238	0.357	1.624	0.357	0.213	0.213	0.425	0.886	0.248	0.461
TSS (lbs/day) Influent Average Monthly			4.555	92	8.89	12.17	3.9	3.001	3.226	3.980	1.84	2.320
TSS (PPD) Influent Daily Maximum			4.555	92	8.89	12.17	3.9	3.001	3.226	3.980	1.84	2.320
TSS (PPD) Weekly A			0.238	0.357	1.624	0.357	0.213	0.213	0.425	0.886	0.248	0.461
TSS (mg/L) Ave Mon			3.0	3.0	20.5	4.5	3.0	3.0	6.0	12.5	3.5	6.5
TSS (mg/L) Influent Average Monthly			166	2.525	315	464	133	125	110	1345	111	69
TSS (mg/L) Weekly A			3.0	3.0	20.5	4.5	3.0	3.0	6.0	12.5	3.5	6.5
Fecal Coliform (#/100 ml) Geometric Mean			111.45	< 1.0	49.19	1	< 1	< 1	49.193	49.19	1155	44.65
UV Transmittance (%) Average Monthly			48	48	55	52	49	52	48	52	44	52
Total N (mg/L) Ave Mo			24.15	34.35	19.23	26.85	35.7	8.16	18.2	31.55	15.59	25.0
Ammonia (PPD) Av M									0.018	**2.481**	**0.865**	**2.16**
Ammonia (mg/L) A Mo			0.16	0.1	3.14	0.59	1.495	0.77	0.255	**35.0**	**12.2**	**30.5**
Ammonia (mg/L) I Mx									0.255	**48.2**	21.8	43.3
T P (mg/L) Ave Mon			0.825	0.185	0.23	0.905	4.345	1.375	0.27	2.74	0.715	1.43
T Al (mg/L) Ave Mon			< 0.10	< 0.10	0.145	0.10	0.10	< 0.10	0.10	0.10	0.10	0.10
T Iron (mg/L) Ave Mon			0.14	0.145	0.285	0.11	0.105	0.45	0.125	0.41	0.23	1.29
T Mn (mg/L) Ave Mon			0.03	0.055	0.06	0.05	0.06	0.03	0.065	0.15	0.12	0.23

Flow design 0.08-MGD reported 0.003 to 0.004-MGD
Influent BOD5: average 186-mg/L range 99 to 479-mg/L
Influent TSS: average 284-mg/L range 69 to 1345 mg/L including 2.525-mg/L for March

DMR Data for Outfall 001 (from January 1, 2021 to December 31, 2021)

Parameter	DEC-21	NOV-21	OCT-21	SEP-21	AUG-21	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21
Flow (MGD) Ave Mon		0.0034	0.0034	0.0034	0.0035	0.0037	0.003	0.0037	0.0033	0.0033	0.0034	0.0031
Flow (MGD) D Max		0.0034	0.0034	0.0034	0.0035	0.0037	0.003	0.0037	0.0033	0.0033	0.0034	0.0031
pH (S.U.) Minimum		6.81	6.89	7.13	6.95	6.79	6.77	6.69	7.03	6.98	7.03	7.03
pH (S.U.) Maximum		6.93	7.09	7.21	7.03	6.91	6.83	6.81	7.08	7.13	7.22	7.11
DO (mg/L) Minimum		6.0	8.0	8.0	8.0	8.0	6.0	6.0	8.0	8.0	8.0	6.0
CBOD5 (ppd) Ave Mon		0.566	0.337	0.570	0.650	0.213	0.216	0.822	0.238	0.238	0.364	0.269
CBOD5 (ppd) W Ave		0.566	0.337	0.570	0.650	0.213	0.216	0.822	0.238	0.238	0.364	0.269
CBOD5 (mg/L) Ave Mon		7.15	4.25	7.2	8.2	3	3.05	11.6	3.0	3.0	4.6	3.4
CBOD5 (mg/L) W Ave		7.15	4.25	7.2	8.2	3	3.05	16.8	3.0	3.0	4.6	3.4
BOD5 (ppd) Inf Ave Mon		6.497	3.390	4.138	9.281	3.680	4.522	9.993	4.816	4.775	8.88	12.55
BOD5 (ppd) Infl D Max		6.497	3.390	4.138	9.281	3.680	4.522	9.993	4.816	4.775	8.88	12.55
BOD5 (mg/L) I Ave Mon		230	120	146.5	231	125.5	183.5	323	175.5	174	254	478.5
TSS (ppd) Ave Monthly		0.951	0.475	0.277	0.357	0.532	0.354	1.560	0.238	0.357	1.624	0.357
TSS (ppd) In Ave Mon		3.87	3.277	4.802	6.774	2.932	2.784	5.414	4.555	92	8.89	12.17
TSS (ppd) Infl D Max		3.87	3.277	4802	6.774	2.932	2.784	5.414	4.555	92	8.89	12.17
TSS (ppd) W Average		0.951	0.475	0.277	0.357	0.532	0.354	1.560	0.238	0.357	1.624	0.357
TSS (mg/L) Ave Mon		12	6.0	3.5	4.5	7.5	5	22	3.0	3.0	20.5	4.5
TSS (mg/L) In Ave Mon		194	116	170	231	100	113	175	166	2.525	315	464
TSS (mg/L) W Average		12	6.0	3.5	4.5	7.5	5	22	3.0	3.0	20.5	4.5
Coliform (#/100ml) GM		1849	10.7	49.193	1.0	49.193	60.3	133.1	111.45	< 1.0	49.19	1
UV Trans (%) Ave Mon		54	48	48	54	52	55	52	48	48	55	52
T N (mg/L) Ave Mon		21.2	12.8	26.9	28.75	25.9	25.5	33.15	24.15	34.35	19.23	26.85
Amm (ppd) Ave Mon			0.360	0.064	0.233	0.121	0.041	0.476				
Amm (mg/L) Ave Mon		9.08	4.545	0.81	2.94	1.71	0.585	6.71	0.16	0.1	3.14	0.59
Amm (mg/L) I Max			8.67	0.81	5.66	3.06	0.585	12.2				
T P (mg/L) Ave Monthly		10.46	7.29	7.865	3.63	2.765	5.4	25.8	0.825	0.185	0.23	0.905
T Al (mg/L) Ave Mon		0.10	0.10	0.10	0.10	0.10	0.10	0.23	< 0.10	< 0.10	0.145	0.10
T Iron (mg/L) Ave Mon		0.965	0.345	0.285	0.065	0.145	0.315	0.57	0.14	0.145	0.285	0.11
T Mn (mg/L) Ave Mon		0.08	0.04	0.035	0.02	0.065	0.11	0.25	0.03	0.055	0.06	0.05

Flow Ave Mon = Flow D Max Flow range 0.0030 to 0.00037-MGD
Influent BOD5: average 222-mg/L range 120 to 479-mg/L
Influent TSS: average 186-mg/L range 100 to 464 mg/L including 2.525-mg/L for March
Long term mean BOD5 189-mg/L Long term TSS 380-mg/L with a 2525-mg/L maximum
The 2.525 TSS value may have a comma instead of a period.

Compliance History

Effluent Violations for Outfall 001, from: August 1, 2020 To: June 30, 2021

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	08/31/20	Geo Mean	1155	CFU/100 ml	200	CFU/100 ml
Ammonia	09/30/20	Avg Mo	35.0	mg/L	8.5	mg/L
Ammonia	08/31/20	Avg Mo	12.2	mg/L	8.5	mg/L
Ammonia	08/31/20	IMAX	21.8	mg/L	17.0	mg/L
Ammonia	09/30/20	IMAX	48.2	mg/L	17.0	mg/L

Summary of Inspections: Last filed inspection was on November 20, 2013 by Clint Stonesifer. Under used facility with low sludge production. The low load inhibits permit compliance.

Other Comments:

The facility is operating at less than 4% of its hydraulic design and less than 15% of its organic design,

pH Notes

	July	August	September	October	November	December	January	February	March	April	May	June
2020	6.75	7.11	6.95	6.98	6.89	6.98	7.03	7.03	6.98	7.03		
	7.03	7.43	7.23	7.22	7.02	7.11	7.11	7.22	7.13	7.08		
2021	6.79	6.95	7.13	6.89	6.81		7.03	7.03	6.98	7.03	6.69	6.77
	6.91	7.03	7.21	7.09	6.93		7.11	7.22	7.13	7.08	6.81	6.83

Summer, Winter & Annual Median	7.03
Summer Mean	7.04
Winter Mean	7.01`
Annual Mean	7.02

The Brush Creek TMDL addresses acid mine drainage and does not include the Monroe Township STP discharge. However the Monroe Township sewage discharge is to be reviewed during any TMDL update.

The last filed WLMR is dated March 31, 2020 for the 2019 operating year.

The annual average flow is 0.003-MGD with a peak 0.004-MGD flow in August, July, April, March, and February. The hydraulic load appears to alternate between 0.002 and 0.003-MGD.

The annual average organic load is 3.3-PPD with a peak 6.3-PPD in January.
The organic load appears to be deceasing as it was higher prior to 2019.

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	95.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
17B	49502	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
2.800	Monroe Township	14.5	43.76	14.5	43.76	0	0
2.560		NA	NA	14.52	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
2.800	Monroe Township	1.77	9	1.77	9	0	0
2.560		NA	NA	1.77	NA	NA	NA

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)		
2.80	Monroe Township	25	25	9	9	4	4	0	0
2.56		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
17B	49502	BRUSH RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.800	0.080	21.197	7.007
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
12.207	0.470	25.981	0.090
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
7.51	1.163	2.23	0.768
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.227	18.006	Owens	5
Reach Travel Time (days)			
0.163			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.016	7.36	2.20	7.36
0.033	7.21	2.18	7.47
0.049	7.07	2.15	7.56
0.065	6.93	2.12	7.63
0.081	6.79	2.10	7.68
0.098	6.66	2.07	7.73
0.114	6.53	2.04	7.77
0.130	6.40	2.02	7.80
0.146	6.27	1.99	7.83
0.163	6.15	1.97	7.86

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
2.560	0.080	21.179	7.007
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
11.715	0.475	24.641	0.094
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
6.08	0.635	1.86	0.767
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.864	18.138	Owens	5
Reach Travel Time (days)			
1.661			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.166	5.44	1.64	8.24
0.332	4.87	1.45	8.24
0.498	4.36	1.27	8.24
0.664	3.90	1.12	8.24
0.830	3.49	0.99	8.24
0.997	3.12	0.87	8.24
1.163	2.79	0.76	8.24
1.329	2.50	0.67	8.24
1.495	2.24	0.59	8.24
1.661	2.00	0.52	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
17B	49502	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)
2.800	Monroe Township	PA0239631	0.080	CBOD5	25		
				NH3-N	9	18	
				Dissolved Oxygen			4

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
17B	49502	BRUSH RUN	**2.800**	1251.12	10.80	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	0.036	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
Monroe Township	PA0239631	0.0800	0.0800	0.0800	0.000	25.00	7.03

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	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
17B	49502	BRUSH RUN	**2.560**	1240.00	11.01	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	0.036	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

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
17B	49502	BRUSH RUN	**0.000**	1047.60	12.60	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	0.036	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

SWP Basin	Stream Code	Stream Name
17B	49502	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												
2.800	0.39	0.00	0.39	.1238	0.00878	.47	12.21	25.98	0.09	0.163	21.20	7.01
2.560	0.40	0.00	0.40	.1238	0.01423	.475	11.72	24.64	0.09	1.661	21.18	7.01
Q1-10 Flow												
2.800	0.25	0.00	0.25	.1238	0.00878	NA	NA	NA	0.08	0.195	21.65	7.01
2.560	0.26	0.00	0.26	.1238	0.01423	NA	NA	NA	0.08	1.989	21.63	7.01
Q30-10 Flow												
2.800	0.53	0.00	0.53	.1238	0.00878	NA	NA	NA	0.10	0.142	20.94	7.01
2.560	0.55	0.00	0.55	.1238	0.01423	NA	NA	NA	0.11	1.450	20.93	7.01

Permit No. PA0239631

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .08
Latitude 41º 10' 34.00" **Longitude** -79º 23' 35.00"
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)
Dissolved Oxygen	4.0	Daily Minimum		BPJ
Escherichia coli	126/100 ml	Geo Mean		94.7

Comments: Escherichia coli is new Commonwealth parameter presently with annual monitoring.

Water Quality-Based Limitations

A Sewerage Program "Reasonable Potential Analysis" determined the following parameters were candidates for limitations: BOD5, CBOD5, TSS, nitrogen, ammonia, phosphorus, fecal coliform, Escherichia coli, chlorine, dissolved oxygen, and pH.

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

Parameter		Limit (mg/l)			SBC	Model (mg/l)		
		min	mean	max		min	mean	max
Ammonia	summer		8.5	17.0	NA		9.0	18.0
	winter		25.5	41.0			27.0	54.9
DO		4.0				4.0		

Comments:

For modelling assumed stream pH is 7,0-SU. No backsliding is proposed. Models 6.3, 7.0 and 7.1 recommend the same requirements. Any limitation difference is based on low flow significant digits.

Best Professional Judgment (BPJ) Limitations

Comments: Applies to DO only.

Anti-Backsliding

With no listed ammonia violations ammonia backsliding is not proposed.

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	4.0 Daily Min	XXX	XXX	XXX	1/day	Grab
CBOD5	16	24	XXX	25.0	40.0	50	2/month	24-Hr Composite
BOD5 Intake	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
TSS	20	30	XXX	30.0	45.0	60	2/month	24-Hr Composite
TSS Intake	Report	Report Daily Max	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	XXX	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	XXX	2/month	Grab
E. Coli	XXX	XXX	XXX	XXX	XXX	Report	1/quarter	Grab
UV Transmittance (%)	XXX	XXX	XXX	Report	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Ammonia May 1 - Oct 31	5.5	XXX	XXX	8.5	XXX	17.0	2/month	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite
Total Manganese	XXX	XXX	XXX	Report	XXX	XXX	2/month	24-Hr Composite

Compliance Sampling Location: outfall 001 after disinfection