pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**New**	Application No.	**PA0284963**
Facility Type	**Municipal**	APS ID	**1066997**
Major / Minor	**Minor**	Authorization ID	**1402399**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Union Township**	Facility Name	**Mingo Circle WWTP**
Applicant Address	3904 Finleyville Elrama Road	Facility Address	Garvin Road
	Finleyville, PA 15332-3011		Finleyville, PA 15332
Applicant Contact	Ms. Tammy Walsh	Facility Contact	Same as Applicant
Applicant Phone	(724) 348-4250	Facility Phone	Same as Applicant
Client ID	45153	Site ID	858436
Ch 94 Load Status	**Not Overloaded**	Municipality	Union Township
Connection Status	**No Limitations**	County	Washington
Date Application Received	July 7, 2022	EPA Waived?	Yes
Date Application Accepted		If No, Reason	

Purpose of Application: Issuance of a New NPDES Permit for the discharge of treated sewage.

Summary of Review

The applicant is proposing to construct a new WWTP to serve the existing homes in Mingo Circle Drive Service Area of Union Township, Washington County.

The applicant signed a Consent Order and Agreement (COA) on January 29, 2018, which required the following:

- Within 20 days of receipt of the execution of the COA, Union Township shall contract an environmental sanitation service to empty holding tanks at 13 and 17 Mingo Circle Drive (3.a).
- Upon execution of the COA, the Township shall submit to the DEP copies of all pumping receipts for the aforementioned sewage holding tanks on a monthly basis (3.b).
- Within 120 days of execution, the Township shall submit to the DEP a revised Act 537 Official Plan to address areas of the Township lacking adequate sewage facilities (3.c). The plan was to address an alternatives analysis, and a schedule for the implementation of the chosen alternative.
- Union Township shall implement the DEP Approved Chosen Alternative, as outlined in the Implementation Schedule.

The Act 537 Official Plan & Minor Plan Update was approved by the Department on January 23, 2020, and October 27, 2021. The plans approve a total of 106 EDUs or 0.0424 MGD.

The Act 537 Plan Implementation Schedule stated that construction of the WWTP was to begin on January 1, 2023 and be operational by October 31, 2023. The applicant will be working with the Department's Operation Section to come into compliance with the COA.

Approve	Deny	Signatures	Date
X		William C. Mitchell, E.I.T. / Environmental Engineering Specialist	March 28, 2023
x		Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineering Manager	March 30, 2023

Summary of Review
It is DEP's policy to coordinate multiple permits for new facilities and issue the permits simultaneously. A Water Quality Management (WQM) permit application must be submitted to construct and operate the proposed WWTP. The final NPDES permit will be issued only in conjunction with a WQM permit. If a WQM permit application is not received within 90 days following the conclusion of the draft NPDES permit public comment period, the NPDES permit application may be denied. The treated effluent will discharge to an Unnamed Tributary to Mingo Creek, which is classified as a HQ-TSF located in State Watershed No. 19-C. The applicant has complied with Act 14 Notifications via letters dated on December 1, 2021, and no comments were received. Sludge use and disposal description and location(s): Unknown – Proposed facility is not operational. <u>Public Participation</u> 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.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.0227
Latitude	40º 13' 28.00"	Longitude	-80º 0' 30.00"
Quad Name	Hackett	Quad Code	1705
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to Mingo Creek (HQ-TSF)	Stream Code	39592
NHD Com ID	99409222	RMI	1.27
Drainage Area	0.31	Yield (cfs/mi^2)	0.00616
Q_{7-10} Flow (cfs)	0.00191	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1026	Slope (ft/ft)	0.0234
Watershed No.	19-C	Chapter 93 Class.	HQ-TSF
Existing Use		Existing Use Qualifier	
Exceptions to Use	NONE	Exceptions to Criteria	NONE
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	PA American Water Company – Pittsburgh		
PWS Waters	Monongahela River	Flow at Intake (cfs)	1,230
PWS RMI	4.46	Distance from Outfall (mi)	29.4

Changes Since Last Permit Issuance: N/A – Proposed facility is not constructed/operational.

Other Comments: None

Treatment Facility Summary

Treatment Facility Name: Mingo Circle WWTP

WQM Permit No.	Issuance Date
Not Submitted	N/A

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary Treatment	Unknown	UV	0.0227

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.03	38.56	No **Overloaded**	Unknown	Unknown

Changes Since Last Permit Issuance: N/A – Proposed facility is not constructed/operational. WQM Permit has not yet been submitted to the Department for review and processing.

Other Comments: It is DEP's policy to coordinate multiple permits for new facilities and issue the permits simultaneously. A Water Quality Management (WQM) permit application must be submitted to construct and operate the proposed treatment facilities. The final NPDES permit will be issued only in conjunction with a WQM permit. If a WQM permit application is not received within 90 days following the conclusion of the draft NPDES permit public comment period, the NPDES permit application may be denied.

Limits are based on a Design Flow of 0.0227 MGD, which is the Annual Average Design Flow of the WWTP. The Hydraulic Design Capacity is 0.03 MGD for the WWTP, and this number will be used to prepare the Annual Municipal Wasteload Management Report to help determine whether a "hydraulic overload" situation exists, as defined in Title 25 Pa. Code Chapter 94. The Organic Capacity of 38.56 lbs/day is based upon the Annual Average Design Flow of 0.0227 MGD and will control growth in the system.

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.0227
Latitude 40º 13' 28.00" **Longitude** -80º 0' 30.00"
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)

Water Quality-Based Limitations

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

Parameter	Limit (mg/l)	SBC	Model
Ammonia-Nitrogen (Nov 1 to Apr 30)	3.2	Average Monthly	WQM 7.0 Version 1.1
Ammonia-Nitrogen (May 1 to Oct 31)	1.9	Average Monthly	WQM 7.0 Version 1.1
Dissolved Oxygen	6.0 (Minimum)	Average Monthly	WQM 7.0 Version 1.1

Additional TBELs:

Outfall 001 discharges to an UNT to Mingo Creek, which is classified as a HQ-TSF. The proposed facility is being built to address nuisance conditions in the Mingo Circle Drive area of the township where there is malfunctioning holding tanks addressed under the above discussed COA. An anti-degradation analysis is typically not required when the proposed facility addresses an area of need with a high rate of malfunctioning on-lot systems/holding tanks. Act 537 Planning was approved for this facility on January 23, 2020, and later updated on October 27, 2021.

The following Antidegradation Best Available Combination of Technologies (ABACT) effluent limits, at a minimum, will be established based on the requirements of DEP's "Water Quality Antidegradation Implementation Guidance" (Doc. No. 391-0300-002; November 29, 2003).

Parameter	Treatment Process Performance Expectations (mg/L)		
	<2,000 gpd	2,000-50,000 gpd	>50,000 gpd
$CBOD_5$ (May 1 – Oct. 31)	10	10	10
$CBOD_5$ (Nov. 1 – Apr. 30)	20	20	10
Suspended Solids	20	10	10
NH_3-N (May 1 – Oct. 31)	5.0	3.0	1.5
NH_3-N (Nov. 1 – Apr. 30)	15.0	9.0	4.5

Effective disinfection	Disinfection should be accomplished using a method that leaves no detectable residual. Disinfection using ultra-violet light or other non-chlorine based systems is encourage and must be considered.
Other parameters, as needed	*Determined by the size and characteristics of the proposed discharge, may include – NO_2/NO_3-N, Total Phosphorus, Copper, Lead, Zinc*

The limitations and monitoring requirements, specified on page 7 & 8 of this Fact Sheet, reflect the most stringent limitation amongst the above Technology-Based Limitations and Water Quality-Based Limitations.

Best Professional Judgment (BPJ) Limitations

Comments: N/A

Anti-Backsliding

N/A – This is a new facility.

Additional Considerations

Monitoring frequency for the proposed effluent limits are based upon Table 6-3, Self-Monitoring Requirements for Sewage Dischargers, from the Departments Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (Document No. 362-0400-001).

For POTWs, mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N. In general, average monthly mass loading limits will be established for CBOD5, TSS, NH3-N, and where necessary Total P and Total N, and average weekly mass loading limits will be established for CBOD5 and TSS (Section IV, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9)

For POTWs with design flows greater than 2,000 GPD and for non-municipal sewage facilities that service municipalities or portions thereof, the application manager will establish influent BOD5 and TSS monitoring in the permit using the same frequency and sample type as is used for other effluent parameters (Section IV.E.8, SOP for Clean Water Program, New and Reissuance Sewage Individual NPDES Permit Applications, Final November 9, 2012, Revised February 3, 2022, Version 2.0).

Sewage discharges will include monitoring, at a minimum, for *E. Coli*, in new and reissued permits, with a monitoring frequency of 1/quarter for facilities with design flows of >= 0.05 MGD and < 1.0 MGD per Chapter 92a.61.

Where ultraviolet (UV) disinfection is used, TRC limits are not applicable, but Part A will generally contain, at a minimum, routine monitoring of UV transmittance (%), UV dosage (µWs/cm2 or mWs/cm2 or mjoules/cm2) or UV intensity (µW/cm2 or mW/cm2) at the same monitoring frequency that would be used for TRC (Section I.A, Note 4, SOP for Clean Water Program, Establishing Effluent Limitations for Individual Sewage Permits, Final November 9, 2012, Revised March 24, 2021, Version 1.9).

Nutrient monitoring is required to establish the nutrient load from the wastewater treatment facility and the impacts that load may have on the quality of the receiving stream(s). A 1/year monitoring requirement for Total N & Total P has been added to the permit per Chapter 92a.61.

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	Instantaneous Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	1/week	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0	XXX	XXX	XXX	1/day	Grab
CBOD5 Nov 1 - Apr 30	3.5	XXX	XXX	20.0	XXX	40.0	2/month	Grab
CBOD5 May 1 - Oct 31	1.5	XXX	XXX	10.0	XXX	20.0	2/month	Grab
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	2/month	Grab
TSS	1.5	XXX	XXX	10.0	XXX	20.0	2/month	Grab
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	Report	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
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	0.6	XXX	XXX	3.2	XXX	6.4	2/month	Grab

Outfall 001, Continued (from 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	Instantaneous Minimum	Average Monthly	Maximum	Instant. Maximum		
Ammonia May 1 - Oct 31	0.3	XXX	XXX	1.9	XXX	3.8	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

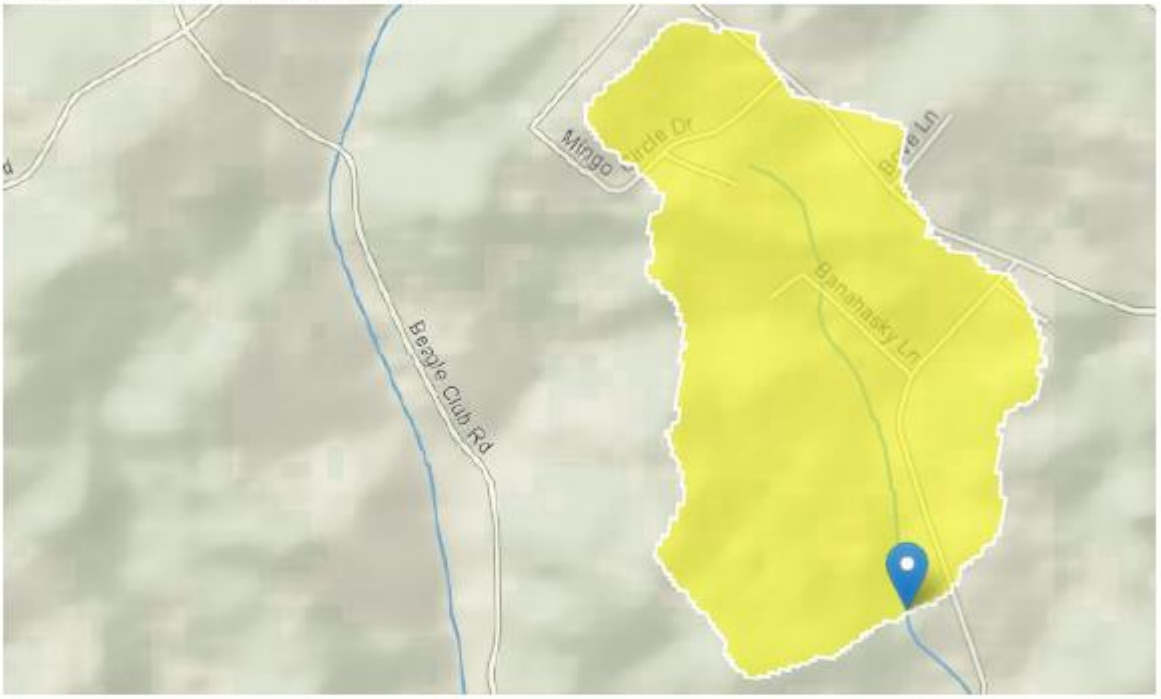
Compliance Sampling Location: Outfall 001

Other Comments: N/A – New Proposed Facility.

Attachment #1 – USGS StreamStats Report

StreamStats Report

Region ID: PA
Workspace ID: PA20230307154547551000
Clicked Point (Latitude, Longitude): 40.22435, -80.00851
Time: 2023-03-07 10:46:12 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.31	square miles
ELEV	Mean Basin Elevation	1172	feet

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.31	square miles	2.26	1400
ELEV	Mean Basin Elevation	1172	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

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

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00725	ft^3/s
30 Day 2 Year Low Flow	0.0147	ft^3/s
7 Day 10 Year Low Flow	0.00191	ft^3/s
30 Day 10 Year Low Flow	0.00446	ft^3/s
90 Day 10 Year Low Flow	0.00961	ft^3/s

Low-Flow Statistics Citations

Stuckey, M.H.,2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (http://pubs.usgs.gov/sir/2006/5130/)

not imply endorsement by the U.S. Government.

Application Version: 4.13.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

Attachment # 2 – WQM 7.0 Version 1.1 – Warmer Period

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
19C	39592	Trib 39592 to Mingo Creek	1.270	1026.00	0.31	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	0.006	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Mingo Circle	PA0284963	0.0000	0.0227	0.0227	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	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
19C	39592	Trib 39592 to Mingo Creek	0.710	957.00	0.62	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	0.006	0.00	0.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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
19C	39592	Trib 39592 to Mingo 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												
1.270	0.00	0.00	0.00	.0351	0.02334	.276	2.76	10	0.05	0.702	20.26	7.00
Q1-10 Flow												
1.270	0.00	0.00	0.00	.0351	0.02334	NA	NA	NA	0.05	0.709	20.17	7.00
Q30-10 Flow												
1.270	0.00	0.00	0.00	.0351	0.02334	NA	NA	NA	0.05	0.694	20.34	7.00

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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo 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
1.270	Mingo Circle	16.53	17.1	16.53	17.1	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
1.270	Mingo Circle	1.85	1.98	1.85	1.98	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)		
1.27	Mingo Circle	25	25	1.98	1.98	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.270	0.023	20.258	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.755	0.276	10.000	0.049
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
23.81	1.488	1.88	0.714
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.116	31.329	Owens	6
Reach Travel Time (days)			
0.702			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.070	21.43	1.79	7.19
0.140	19.28	1.70	7.46
0.210	17.34	1.62	7.63
0.281	15.60	1.54	7.77
0.351	14.04	1.46	7.90
0.421	12.63	1.39	8.01
0.491	11.37	1.32	8.11
0.561	10.23	1.26	8.20
0.631	9.20	1.20	8.20
0.702	8.28	1.14	8.20

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo 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)
1.270	Mingo Circle	PA0284963	0.000	CBOD5	25		
				NH3-N	1.98	3.96	
				Dissolved Oxygen			6

Attachment # 3 – WQM 7.0 Version 1.1 – Colder Period

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
19C	39592	Trib 39592 to Mingo Creek	1.270	1026.00	0.31	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	0.012	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Mingo Circle	PA0284963	0.0000	0.0227	0.0227	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	12.51	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
19C	39592	Trib 39592 to Mingo Creek	0.710	957.00	0.62	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	0.012	0.00	0.00	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	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
19C	39592	Trib 39592 to Mingo 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												
1.270	0.00	0.00	0.00	.0351	0.02334	.279	2.79	10	0.05	0.682	14.02	7.00
Q1-10 Flow												
1.270	0.00	0.00	0.00	.0351	0.02334	NA	NA	NA	0.05	0.696	14.35	7.00
Q30-10 Flow												
1.270	0.01	0.00	0.01	.0351	0.02334	NA	NA	NA	0.05	0.669	13.71	7.00

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	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo 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
1.270	Mingo Circle	24.1	25.78	24.1	25.78	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
1.270	Mingo Circle	2.83	3.25	2.83	3.25	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)		
1.27	Mingo Circle	25	25	3.25	3.25	6	6	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo Creek

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.270	0.023	14.019	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
2.786	0.279	10.000	0.050
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
22.74	1.481	2.93	0.442
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.639	26.977	Owens	6
Reach Travel Time (days)			
0.682			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.068	21.06	2.84	8.41
0.136	19.51	2.76	8.78
0.205	18.07	2.68	8.92
0.273	16.73	2.60	9.02
0.341	15.50	2.52	9.11
0.409	14.35	2.45	9.19
0.477	13.29	2.37	9.26
0.546	12.31	2.30	9.28
0.614	11.40	2.23	9.28
0.682	10.56	2.17	9.28

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19C	39592	Trib 39592 to Mingo 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)
1.270	Mingo Circle	PA0284963	0.000	CBOD5	25		
				NH3-N	3.25	6.5	
				Dissolved Oxygen			6