



Application Type

Renewal

Facility Type

Non-Municipal

Major / Minor

Minor

Application No.

PA0261572

APS ID

726093

Authorization ID

1493775

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Applicant and Facility Information

Applicant Name	Mt. Hope Nazarene Retirement Community	Facility Name	Mt Hope Nazarene Retirement Community
Applicant Address	3026 Mount Hope Home Road Manheim, PA 17545-9529	Facility Address	3026 Mount Hope Home Road Manheim, PA 17545-9529
Applicant Contact	Michele Tornabe	Facility Contact	Michele Tornabe
Applicant Phone	(717) 665-6365	Facility Phone	(717) 665-6365
Client ID	254476	Site ID	249410
Ch 94 Load Status	Not Overloaded	Municipality	Rapho Township
Connection Status	No Limitations	County	Lancaster
Date Application Received	<u>July 26, 2024</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>August 1, 2024</u>	If No, Reason	
Purpose of Application	NPDES Renewal.		

Summary of Review

Mt. Hope Nazarene Retirement Community has applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit. The existing permit was issued January 23, 2020, and became effective on February 1, 2020, authorizing discharge of treated sewage from the Mt. Hope Nazarene Retirement Community wastewater treatment plant (WWTP) into Brubaker Run. The existing permit expiration date was January 31, 2025, and the permit has been administratively extended since that time.

Per the previous fact sheet, this facility is a 0.012 mgd treatment facility. The facility has been online since June 2015. The Mount Hope Nazarene Retirement Community is comprised of primarily two parcels on the east and west side of Mount Hope Home Road. The existing land uses on the west parcel are for assisted care facility and cottage units. Existing uses on the east parcel is for one single family home, parking, the existing WWTP, and field areas for agricultural purposes. The existing development consists of 24 EDUs with an additional 19 EDUs built out for future use. The WWTP serves all of the existing units and has the design capacity for the proposed future units.

Changes in this renewal: E. Coli monitoring has been added to the permit.

Sludge use and disposal description and location(s): Sludge holding tank with offsite disposal.

Supplemental information for this facility is provided at the end of this fact sheet.

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*,

Approve	Deny	Signatures	Date
X		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	May 20, 2025
X		Maria D. Bebeneck for Daniel W. Martin, P.E. / Environmental Engineer Manager	June 30, 2025

Summary of Review

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)	.012
Latitude	40° 12' 1.0"	Longitude	76° 27' 57"
Quad Name		Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Brubaker Run (TSF)	Stream Code	7955
NHD Com ID	57462407	RMI	4.1
Drainage Area	1.68 mi ²	Yield (cfs/mi ²)	0.12
Q ₇₋₁₀ Flow (cfs)	0.20	Q ₇₋₁₀ Basis	USGS Gage # 01576500
Elevation (ft)	443	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	TSF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	N/A	Exceptions to Criteria	N/A
Assessment Status	Impaired		
Cause(s) of Impairment	Siltation		
Source(s) of Impairment	Agriculture		
TMDL Status	Pending	Name	Chiques Creek Alternate Restoration Plan
Nearest Downstream Public Water Supply Intake	Mt. Joy Borough Authority		
PWS Waters	Little Chiques Creek	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	7.8

Changes Since Last Permit Issuance: A drainage area of 1.26 mi² and a Q₇₋₁₀ flow of 0.20 cubic feet per second (cfs) were determined by establishing a correlation to the yield of USGS Gage Station #01576500 on the Conestoga River. The Q₇₋₁₀ and drainage area at the gage are 38.6 cfs and 324 mi², respectively. These values are taken from the USGS document "Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania". The Q₇₋₁₀ runoff rate at the gage station was calculated as follows:

$$\text{Yield} = (38.6 \text{ cfs}) / 324 \text{ mi}^2 = 0.12 \text{ cfs/mi}^2$$

The drainage area at the discharge point, taken from USGS PA StreamStats = 1.68 mi²

The Q₇₋₁₀ at the discharge point = 1.68 mi² x 0.12 cfs/mi² = 0.20 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia And Phosphorus	Activated Sludge	Chlorine With Dechlorination	0.012
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.012	34.23	Not Overloaded		

Changes Since Last Permit Issuance: None

Other Comments: This treatment facility consists of: an equalization basin, two aeration basins, a secondary clarifier, a chlorine disinfection unit, and outfall 001 to Brubaker Run.

Compliance History	
Summary of DMRs:	A summary of past DMR effluent data is presented on the next page of this fact sheet.
Summary of Inspections:	4/8/2021: A routine inspection was conducted. The clarifier contents appeared mostly clear with fine pin floc. The clarifier effluent trough appeared clear with some algae accumulation. The final pump station contents appeared clear. The effluent at Outfall 001 appeared clear. Fields samples were within permitted limits.

Other Comments: There are currently no open violations associated with the Applicant.

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	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
Dissolved Oxygen	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	XXX	XXX	XXX	25.0	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	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
Ammonia-Nitrogen Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	8-Hr Composite
Ammonia-Nitrogen May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	10	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	605	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	0.0	XXX	XXX	XXX	XXX	1/month	Calculation

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

at Outfall 001

Compliance History

DMR Data for Outfall 001 (from March 1, 2024 to February 28, 2025)

Parameter	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24	MAR-24
Flow (MGD) Average Monthly	0.00202	0.0019	0.00196	0.00225	0.00177	0.00268	0.00249	0.00245	0.00392	0.00522	0.00337	0.00298
Flow (MGD) Daily Maximum	0.0034	0.0029	0.0029	0.0031	0.0026	0.0053	0.0047	0.0041	0.0087	0.0093	0.0063	0.0074
pH (S.U.) Minimum	7.50	7.52	7.50	7.51	7.50	7.40	7.38	7.50	7.51	7.34	7.51	7.55
pH (S.U.) Maximum	7.69	7.72	7.70	7.79	7.69	7.64	7.68	7.74	7.81	7.81	7.77	7.89
DO (mg/L) Minimum	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.2	7.3	7.3	7.0
TRC (mg/L) Average Monthly	0.055	0.055	0.057	0.064	0.057	0.051	0.059	0.065	0.065	0.075	0.073	0.076
CBOD5 (mg/L) Average Monthly	< 2.0	< 2.6	5.15	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 58.0	< 19.0	< 3.2
TSS (mg/L) Average Monthly	< 3.5	97.0	< 4.5	1.5	< 5.0	5.5	2.5	2.5	4.5	9.5	7.0	< 1.0
Fecal Coliform (No./100 ml) Geometric Mean	16.7	15.2	< 83.7	< 2	< 8.9	12.8	< 8.2	< 3.2	< 14.7	141.1	< 3.7	< 3.7
Fecal Coliform (No./100 ml) Instantaneous Maximum	40	23	3500	< 2	40	33	34	5	108	664	7	7
Nitrate-Nitrite (mg/L) Average Monthly	17.6	8.02	11.31	4.87	5.06	17.05	5.52	5.69	5.61	5.64	4.36	4.91
Nitrate-Nitrite (lbs) Total Monthly	10.12	3.12	5.68	1.81	1.90	9.03	3.35	3.04	6.57	7.14	2.74	3.76
Total Nitrogen (mg/L) Average Monthly	< 18.1	9.26	< 11.96	5.89	5.97	< 17.55	6.13	< 6.32	< 6.44	6.81	< 5.32	< 5.62
Total Nitrogen (lbs) Effluent Net Total Monthly	< 10.42	3.67	< 6.03	2.17	2.23	< 9.29	3.72	< 3.38	< 7.31	8.71	< 3.33	< 4.35
Total Nitrogen (lbs) Total Monthly	< 10.42	3.67	< 6.03	2.17	2.23	< 9.29	3.72	< 3.38	< 7.31	8.71	< 3.33	< 4.35
Total Nitrogen (lbs) Effluent Net Total Annual						< 60						

NPDES Permit Fact Sheet
Mt Hope Nazarene Retirement Community

NPDES Permit No. PA0261572

Total Nitrogen (lbs)						< 60					
Total Annual											
Ammonia (mg/L)											
Average Monthly	< 0.02	0.505	< 0.04	0.38	0.44	0.065	0.235	0.335	0.085	0.075	0.13
Ammonia (lbs)											
Total Monthly	< 0.012	0.239	< 0.02	0.128	0.163	0.036	0.144	0.185	0.062	0.094	0.083
Ammonia (lbs)						< 0.9					
Total Annual											
TKN (mg/L)											
Average Monthly	< 0.5	1.24	< 0.66	1.02	0.91	< 0.5	0.61	< 0.64	< 0.83	1.17	< 0.96
TKN (lbs)											
Total Monthly	< 0.3	0.55	< 0.35	0.36	0.33	< 0.26	0.37	< 0.34	< 0.74	1.58	< 0.59
Total Phosphorus (mg/L)											
Average Monthly	0.46	0.225	0.395	0.175	0.235	0.17	0.12	0.12	0.42	0.13	0.21
Total Phosphorus (lbs)											
Effluent Net Total Monthly	0.254	0.096	0.201	0.063	0.088	0.09	0.073	0.065	0.685	0.159	0.129
Total Phosphorus (lbs)											
Total Monthly	0.254	0.096	0.201	0.063	0.088	0.09	0.073	0.065	0.685	0.159	0.129
Total Phosphorus (lbs)											
Effluent Net Total Annual						0.0					
Total Phosphorus (lbs)											
Total Annual						3					

Compliance History

Effluent Violations for Outfall 001, from: April 1, 2024 To: February 28, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
CBOD5	05/31/24	Avg Mo	< 58.0	mg/L	25.0	mg/L
TSS	01/31/25	Avg Mo	97.0	mg/L	30.0	mg/L

Development of Effluent Limitations				
Outfall No.	001	Design Flow (MGD)	.012	
Latitude	40° 12' 1"	Longitude	76° 27' 57"	
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

CBOD₅, NH₃-N

Pursuant to 40 CFR § 122.44(d)(1)(i), more stringent requirements should be considered when pollutants are discharged at the levels which have the reasonable potential to cause or contribute to excursions above water quality standards.

WQM 7.0 ver. 1.1b is a water quality model designed to assist DEP in determining appropriate water quality based effluent limits (WQBELs) for carbonaceous biochemical oxygen demand (CBOD₅), ammonia (NH₃-N) and dissolved oxygen (D.O.). DEP's Technical Guidance No. 391-2000-007 provides the technical methods contained in WQM 7.0 for determining wasteload allocations and for determining recommended NPDES effluent limits for point source discharges. The model was utilized for this permit renewal. The model output indicated a CBOD₅ average monthly limit of 25 mg/l, an NH₃-N average monthly limit of 25 mg/l, and a D.O. minimum limit of 5.0 mg/l were protective of water quality. The flow data used to run the model was acquired from USGS PA StreamStats and is included as an attachment. The existing ammonia-nitrogen limit of 5 mg/l is more stringent and will remain in the permit. The CBOD₅ limit of 25 mg/l is the same as the existing limit, which will remain in the permit.

There are no industrial/commercial users contributing industrial wastewater to the system and Mt. Hope Nazarene Community does not currently have an EPA-approved pretreatment program. Accordingly, evaluating reasonable potential of toxic pollutants is not necessary as effluent levels of toxic pollutants are expected to be insignificant.

Additional Considerations

Chesapeake Bay Total Maximum Daily Load (TMDL)

DEP developed a strategy to comply with the EPA and Chesapeake Bay Foundation requirements by reducing point source loadings of Total Nitrogen (TN) and Total Phosphorus (TP). This strategy can be located in the *Pennsylvania Chesapeake Watershed Implementation Plan* (WIP), dated January 11, 2011. Subsequently, an update to the WIP was published as the Phase 2 WIP. As part of the Phase 2 WIP, a *Phase 2 Watershed Implementation Plan Wastewater Supplement* (Phase 2 Supplement) was developed, providing an update on TMDL implementation for point sources and DEP's current implementation strategy for wastewater. A new update to the WIP was published as the Phase 3 WIP in August 2019. As

part of the Phase 3 WIP, a *Phase 3 Watershed Implementation Plan Wastewater Supplement* (Phase 3 Supplement) was developed, and was most recently revised on December 17, 2019, and is the basis for the development of any Chesapeake Bay related permit parameters. Sewage discharges have been prioritized based on their design flow to the Bay. The highest priority (Phases 1, 2, and 3) dischargers will receive annual Cap Loads based on their design flow on August 29, 2005 and concentrations of 6 mg/l TN and 0.8 mg/l TP. These limits may be achieved through a combination of treatment technology, credits, or offsets. For Phase 4 and 5 facilities, Cap Loads are not currently being implemented for renewed or amended permits for facilities that do not increase design flow.

This facility is considered a Phase 5 non-significant facility with a design flow less than 0.2 MGD but greater than 0.002 MGD. According to the Phase 3 WIP, TN and TP monitoring is recommended for this facility, which is consistent with the existing permit. TN monitoring and a TP limit are already included in the existing permit and will remain in the permit.

Chiques Creek Alternate Restoration Plan

This facility discharges to Chiques Creek. Chiques Creek was included on Pennsylvania's 1996 303(d) List of Impaired Waters due to nutrient impairments. A Total Maximum Daily Load (TMDL) for the Chiques Creek Watershed was approved by the United States Environmental Protection Agency (EPA) on April 9, 2001. Due to several deficiencies within the TMDL, it was withdrawn with approval from EPA on October 28, 2015. DEP, Susquehanna River Basin Commission (SRBC) and watershed stakeholders have been in the process of developing a large scale monitoring and restoration plan. The goal of this Alternate Restoration Plan (ARP) is to address impacts to the Chiques Creek Watershed due to suspended solids/siltation and nutrient pollution. During the ongoing ARP development, this discharge permit will be renewed to conform with existing guidance. This permit will include a Total Phosphorus (TP) limit of 2.0 mg/l. The TP limit of 2.0 mg/l is derived from 25 Pa. Code § 96.5(c). This section states that "when it is determined that the discharge of phosphorus, alone or in combination with the discharge of other pollutants, contributes or threatens to impair existing or designated uses in a free flowing surface water, phosphorus discharges from point source discharges shall be limited to an average monthly concentration of 2 mg/l." This is consistent with existing limits for other dischargers to the Chiques Creek Watershed. This limit is included in the existing permit, and will remain in the renewal. A continued evaluation of dischargers to Chiques Creek will be performed as described in the NPDES Part C Conditions.

Fecal Coliform

PA Code § 92a.47.(a)(4) requires a monthly average limit of 200/100 mL as a geometric mean and an instantaneous maximum limit not greater than 1,000/100 mL from May through September for fecal coliform. PA Code § 92a.47.(a)(5) requires a monthly average limit of 2,000/100 mL as a geometric mean and an instantaneous maximum limit not greater than 10,000/100 mL from October through April for fecal coliform. This is consistent with the existing permit limits.

E. Coli

PA Code § 92a.61 requires IMAX reporting of E. Coli. Per DEP's SOP No. BCW-PMT-033, sewage dischargers with a design flow of 0.002 – 0.05 mgd will include E. Coli monitoring with a frequency of 1/year. This parameter has been added to the renewal permit.

Total Residual Chlorine

The attached computer printout utilizes the equations and calculations as presented in the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (TRC) (ID No. 391-2000-015) for developing chlorine limitations. The Guidance references Chapter 92, Section 92.2d (3) which establishes a standard BAT limit of 0.5 mg/l unless a facility-specific BAT has been developed. The attached printout indicates that a water quality limit of 0.5 mg/l would be needed to prevent toxicity concerns. This is the same of the existing permit limit which will remain.

Sampling Frequency & Sample Type

The monitoring requirements were established based on BPJ and/or Table 6-3 of DEP's Technical Guidance No. 362-0400-001.

Anti-Degradation

The effluent limits for this discharge have been developed to ensure that existing instream water uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality Waters are impacted by this discharge. No Exceptional Value Waters are impacted by this discharge.

303(d) Listed Streams

The discharge is located on a stream segment that is listed as impaired, with an aquatic life impairment for siltation due to agriculture.

Class A Wild Trout Fisheries

No Class A Wild Trout Fisheries are impacted by this discharge.

Anti-Backsliding

Pursuant to 40 CFR § 122.44(l)(1), all proposed permit requirements addressed in this fact sheet are at least as stringent as the requirements implemented in the existing NPDES permit unless any exceptions are addressed by DEP in this fact sheet.

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (386-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) ⁽¹⁾		Concentrations (mg/L)				Minimum ⁽²⁾ Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	5.0 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	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
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	15.0	XXX	30	2/month	8-Hr Composite
Ammonia May 1 - Oct 31	XXX	XXX	XXX	5.0	XXX	10	2/month	8-Hr Composite
Total Phosphorus	XXX	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite

Compliance Sampling Location: Outfall 001

Other Comments: None

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

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
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Net Total Nitrogen	Report	605	XXX	XXX	XXX	XXX	1/month	Calculation
Net Total Phosphorus	Report	0.0	XXX	XXX	XXX	XXX	1/month	Calculation

Compliance Sampling Location: Outfall 001

Other Comments: None

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment [REDACTED])
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment [REDACTED])
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [REDACTED])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: BCW-PMT-033
<input type="checkbox"/>	Other: [REDACTED]

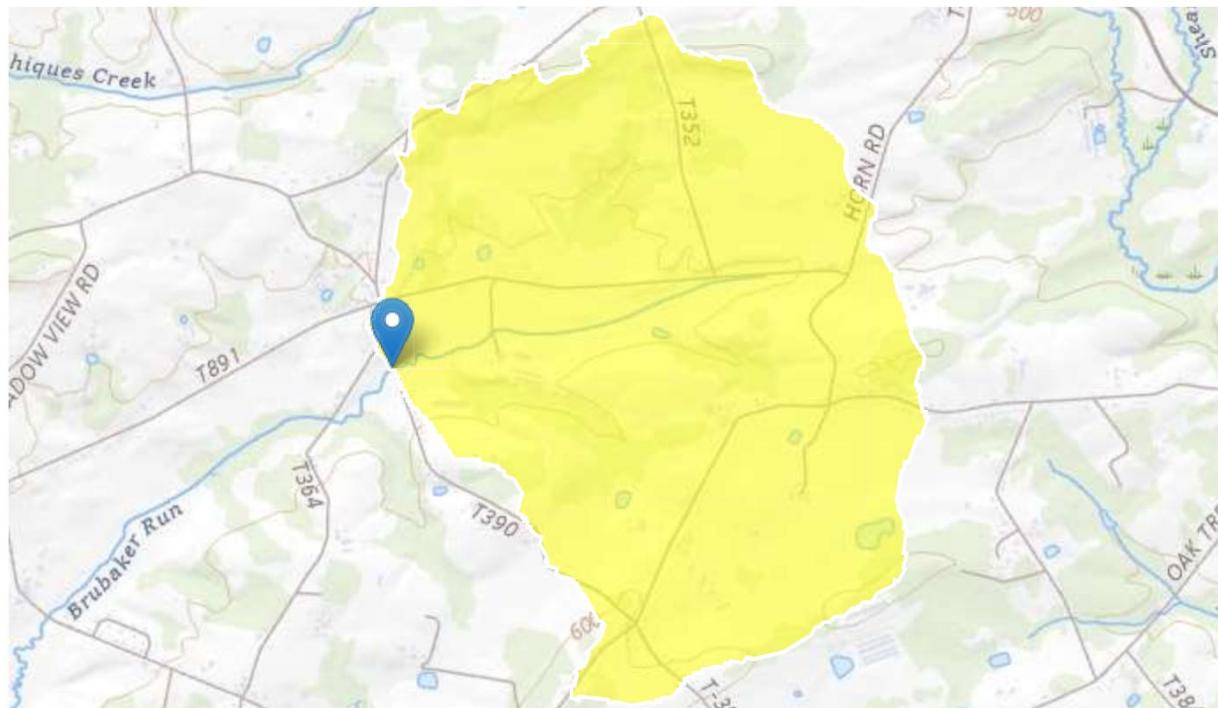
Mt. Hope Nazarene Retirement Community PA0261572 Outfall 001

Region ID: PA

Workspace ID: PA20250512181642692000

Clicked Point (Latitude, Longitude): 40.20031, -76.46607

Time: 2025-05-12 14:17:13 -0400



 [Collapse All](#)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.3521	degrees
DRNAREA	Area that drains to a point on a stream	1.68	square miles
ROCKDEP	Depth to rock	3.3	feet
URBAN	Percentage of basin with urban development	0.0621	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.3521	degrees	1.7	6.4
DRNAREA	Drainage Area	1.68	square miles	4.78	1150
ROCKDEP	Depth to Rock	3.3	feet	4.13	5.21
URBAN	Percent Urban	0.0621	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0459	ft^3/s
30 Day 2 Year Low Flow	0.0803	ft^3/s
7 Day 10 Year Low Flow	0.0124	ft^3/s
30 Day 10 Year Low Flow	0.0239	ft^3/s
90 Day 10 Year Low Flow	0.0579	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/>)

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Application Version: 4.28.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

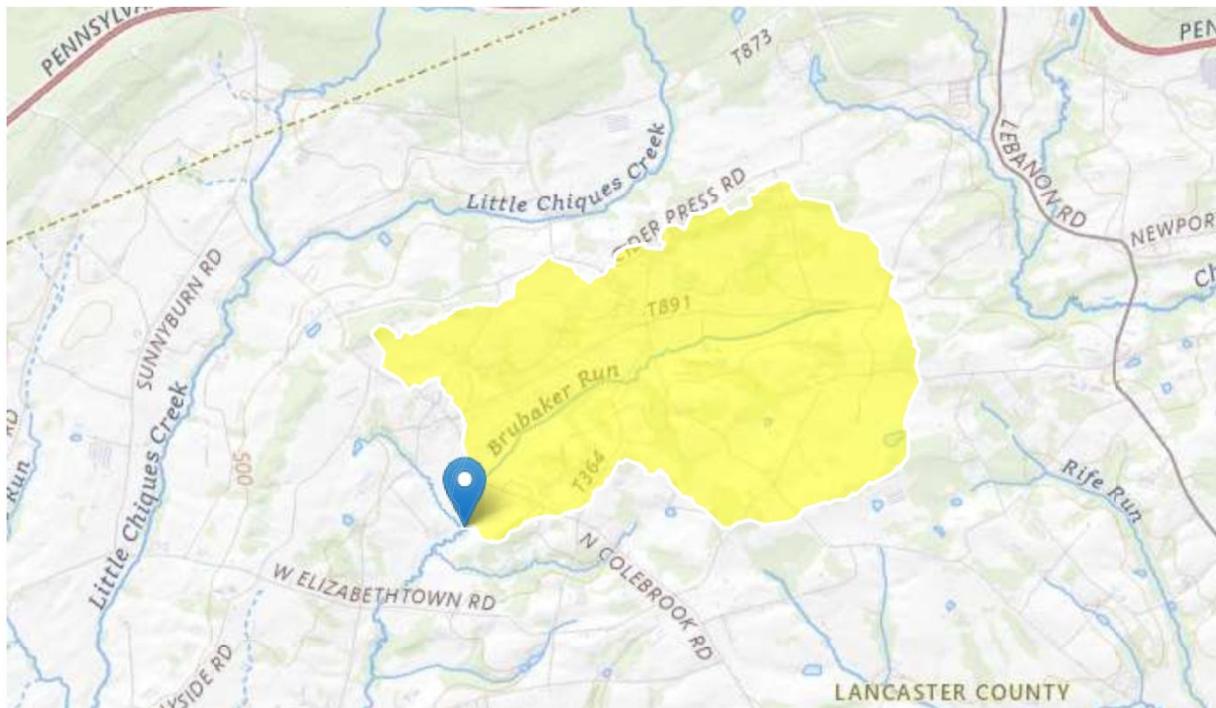
Mt. Hope Nazarene Retirement Community RMI = 2.7

Region ID: PA

Workspace ID: PA20250512182430188000

Clicked Point (Latitude, Longitude): 40.18766, -76.48448

Time: 2025-05-12 14:24:59 -0400



 [Collapse All](#)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.7007	degrees
DRNAREA	Area that drains to a point on a stream	3.22	square miles
ROCKDEP	Depth to rock	3.4	feet
URBAN	Percentage of basin with urban development	0.1521	percent

➤ Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region 1]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
BSLOPD	Mean Basin Slope degrees	3.7007	degrees	1.7	6.4
DRNAREA	Drainage Area	3.22	square miles	4.78	1150
ROCKDEP	Depth to Rock	3.4	feet	4.13	5.21
URBAN	Percent Urban	0.1521	percent	0	89

Low-Flow Statistics Disclaimers [Low Flow Region 1]

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 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.114	ft^3/s
30 Day 2 Year Low Flow	0.191	ft^3/s
7 Day 10 Year Low Flow	0.0337	ft^3/s
30 Day 10 Year Low Flow	0.0615	ft^3/s
90 Day 10 Year Low Flow	0.138	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/>)

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Application Version: 4.28.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

TRC_CALC

1A	B	C	D	E	F	G			
2 TRC EVALUATION									
3 Input appropriate values in B4:B8 and E4:E7									
4	0.2	= Q stream (cfs)		0.5	= CV Daily				
5	0.012	= Q discharge (MGD)		0.5	= CV Hourly				
6	30	= no. samples		1	= AFC_Partial Mix Factor				
7	0.3	= Chlorine Demand of Stream		1	= CFC_Partial Mix Factor				
8	0	= Chlorine Demand of Discharge		15	= AFC_Criteria Compliance Time (min)				
9	0.5	= BAT/BPJ Value		720	= CFC_Criteria Compliance Time (min)				
	0	= % Factor of Safety (FOS)			= Decay Coefficient (K)				
10	Source	Reference	AFC Calculations	Reference	CFC Calculations				
11	TRC	1.3.2.iii	WLA_afc = 3.456	1.3.2.iii	WLA_cfc = 3.362				
12	PENTOXSD TRG	5.1a	LTAMULT_afc = 0.373	5.1c	LTAMULT_cfc = 0.581				
13	PENTOXSD TRG	5.1b	LTA_afc = 1.288	5.1d	LTA_cfc = 1.954				
14									
15	Source	Effluent Limit Calculations							
16	PENTOXSD TRG	5.1f	AML MULT = 1.231						
17	PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ					
18			INST MAX LIMIT (mg/l) = 1.635						
<p>WLA_afc $(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd)*e(-k*AFC_tc)]... + Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$</p> <p>LTAMULT_afc $EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)$</p> <p>LTA_afc $wla_afc*LTAMULT_afc$</p> <p>WLA_cfc $(.011/e(-k*CFC_tc)) + [(CFC_Yc*Qs*.011/Qd)*e(-k*CFC_tc)]... + Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)$</p> <p>LTAMULT_cfc $EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)$</p> <p>LTA_cfc $wla_cfc*LTAMULT_cfc$</p> <p>AML MULT $EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))$</p> <p>AVG MON LIMIT $MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)$</p> <p>INST MAX LIMIT $1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)$</p>									

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																																	
07G	7955 BRUBAKER RUN				4.100	443.00	1.68	0.00000	0.00	<input checked="" type="checkbox"/>																																	
Stream Data																																											
Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Stream Temp (°C)																																	
<table> <tr> <td>Q7-10</td><td>0.100</td><td>0.00</td><td>0.20</td><td>0.000</td><td>0.000</td><td>0.0</td><td>0.00</td><td>0.00</td><td>20.00</td><td>7.00</td></tr> <tr> <td>Q1-10</td><td></td><td>0.00</td><td>0.00</td><td>0.000</td><td>0.000</td><td></td><td></td><td></td><td></td><td></td></tr> <tr> <td>Q30-10</td><td></td><td>0.00</td><td>0.00</td><td>0.000</td><td>0.000</td><td></td><td></td><td></td><td></td><td></td></tr> </table>											Q7-10	0.100	0.00	0.20	0.000	0.000	0.0	0.00	0.00	20.00	7.00	Q1-10		0.00	0.00	0.000	0.000						Q30-10		0.00	0.00	0.000	0.000					
Q7-10	0.100	0.00	0.20	0.000	0.000	0.0	0.00	0.00	20.00	7.00																																	
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																																		
Mt. Hope		PA0261572		0.0120	0.0120	0.0120	0.000	25.00	7.00																																		
Parameter Data																																											
				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				5.00	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
07G		7955 BRUBAKER RUN			2.700	407.00	3.22	0.00000	0.00	<input checked="" type="checkbox"/>
Stream Data										
Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Stream Temp (°C)
Q7-10 0.100 0.00 0.39 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										
				Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)			
CBOD5 Dissolved Oxygen NH3-N				25.00	2.00	0.00	1.50			
				3.00	8.24	0.00	0.00			
				25.00	0.00	0.00	0.70			

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>			<u>Stream Code</u>			<u>Stream Name</u>							
07G			7955			BRUBAKER RUN							
RMI	Stream Flow	PWS Wth	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH	
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)		
Q7-10 Flow													
4.100	0.20	0.00	0.20	.0186 0.00487	.399	6.87	17.23	0.08	1.072	20.42	7.00		
Q1-10 Flow													
4.100	0.13	0.00	0.13	.0186 0.00487	NA	NA	NA	0.06	1.341	20.63	7.00		
Q30-10 Flow													
4.100	0.27	0.00	0.27	.0186 0.00487	NA	NA	NA	0.09	0.914	20.32	7.00		

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
07G		7955	BRUBAKER 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
	4.100 Mt. Hope	15.9	50	15.9	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
	4.100 Mt. Hope	1.85	25	1.85	25	0	0
Dissolved Oxygen Allocations							
RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>	
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)
	4.10 Mt. Hope	25	25	25	25	5	5
						0	0

WQM 7.0 D.O.Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
07G	7955	BRUBAKER RUN		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
4.100	0.012	20.425	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
6.869	0.399	17.228	0.080	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
3.95	0.519	2.12	0.723	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
7.968	22.081	Owens	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
1.072	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.107	3.74	1.96	8.18
	0.214	3.53	1.82	8.18
	0.322	3.33	1.68	8.18
	0.429	3.15	1.56	8.18
	0.536	2.98	1.44	8.18
	0.643	2.81	1.33	8.18
	0.750	2.66	1.23	8.18
	0.858	2.51	1.14	8.18
	0.965	2.37	1.06	8.18
	1.072	2.24	0.98	8.18

WQM 7.0 Effluent Limits

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
07G	7955	BRUBAKER 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)
4.100	Mt. Hope	PA0261572	0.012	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5