

Application Type Renewal
Facility Type Non-Municipal
Major / Minor Minor

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. PA0081299
APS ID 1949
Authorization ID 1496828

Applicant and Facility Information

Applicant Name	<u>Model Enterprises Inc.</u>	Facility Name	<u>Rolling Hills MHP</u>
Applicant Address	<u>630 Delp Road</u> <u>Lancaster, PA 17601-3077</u>	Facility Address	<u>1640 Kinderhook Road</u> <u>Columbia, PA 17512</u>
Applicant Contact	<u>Stuart Loss</u>	Facility Contact	<u>Stuart Loss</u>
Applicant Phone	<u>717-278-6872</u>	Facility Phone	<u>717-278-6872</u>
Client ID	<u>285</u>	Site ID	<u>450058</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Rapho Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Lancaster</u>
Date Application Received	<u>August 26, 2024</u>	EPA Waived?	<u>No</u>
Date Application Accepted	<u>September 18, 2024</u>	If No, Reason	<u>Chiques Creek Alternate TMDL</u>
Purpose of Application	<u>NPDES Renewal</u>		

Summary of Review

Model Enterprises Inc. 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 February 25, 2020, and became effective on March 1, 2020, authorizing discharge of treated sewage from the Rolling Hills MHP wastewater treatment plant (WWTP) into Chiques Creek. The existing permit expiration date was February 28, 2025, and the permit has been administratively extended since that time.

Changes in this renewal: E. Coli monitoring has been added to the permit. The existing TRC limit has been removed, and a UV Transmittance monitoring requirement has been added.

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*, 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		Benjamin R. Lockwood Benjamin R. Lockwood / Environmental Engineering Specialist	May 30, 2025
X		Maria D. Bebenek for Daniel W. Martin, P.E. / Environmental Engineer Manager	June 30, 2025

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	.02
Latitude	40° 4' 11"	Longitude	76° 30' 0"
Quad Name		Quad Code	
Wastewater Description:		Sewage Effluent	
Receiving Waters	Chiques Creek (WWF, MF)	Stream Code	7919
NHD Com ID	57464203	RMI	3.4
Drainage Area	62.6 mi ²	Yield (cfs/mi ²)	0.12
Q ₇₋₁₀ Flow (cfs)	7.51	Q ₇₋₁₀ Basis	USGS Gage # 01576500
Elevation (ft)	271	Slope (ft/ft)	
Watershed No.	7-G	Chapter 93 Class.	WWF, MF
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, Habitat Alterations, Eutrophication, Pathogens		
Source(s) of Impairment	Agriculture, Habitat Modification – Other Than Hydromodification, Agriculture, Source Unknown		
TMDL Status	Tentative	Name	Chiques Creek Alternate TMDL
Nearest Downstream Public Water Supply Intake	Columbia Water Company		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI		Distance from Outfall (mi)	5.9

Changes Since Last Permit Issuance: A drainage area of 62.6 mi² and a Q₇₋₁₀ flow of 7.51 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 = 62.6 mi²

The Q₇₋₁₀ at the discharge point = 62.6 mi² x 0.12 cfs/mi² = 7.51 cfs

Other Comments: None

Treatment Facility Summary				
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Hypochlorite	0.02
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.02		Not Overloaded	Sludge Holding	Other WWTP

Changes Since Last Permit Issuance: The treatment facility consists of: Comminutor, EQ Tank, Two Aeration Tanks, Clarifiers, Sand Filter, Ultraviolet Disinfection System, Outfall 001 to Chiques Creek

Other Comments: None

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:	<p>6/25/2020: An administrative inspection was conducted. Treatment units were operable, and there were no outstanding needs.</p> <p>3/9/2021: An administrative inspection was conducted due to an odor complaint. The operator stated that no changes had been made that would result in excessive odors.</p> <p>1/29/2025: A routine inspection was conducted. The clarifiers had a clear appearance with minimal surface scum. The filters appeared clear of solids and the tank had a clear appearance. Light solids dusting was observed within the UV flume. The effluent from Outfall 001 appeared clear and field results were within permitted limits.</p>

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

Compliance History

DMR Data for Outfall 001 (from April 1, 2024 to March 31, 2025)

Parameter	MAR-25	FEB-25	JAN-25	DEC-24	NOV-24	OCT-24	SEP-24	AUG-24	JUL-24	JUN-24	MAY-24	APR-24
Flow (MGD) Average Monthly	0.005	0.007	0.007	0.006	0.006	0.007	0.006	0.005	0.005	0.005	0.005	0.006
Flow (MGD) Daily Maximum	0.009	0.014	0.010	0.009	0.009	0.008	0.007	0.007	0.007	0.008	0.008	0.008
pH (S.U.) Instantaneous Minimum	7.67	7.97	7.77	7.82	7.75	7.55	7.52	7.48	7.43	7.53	7.43	7.31
pH (S.U.) Instantaneous Maximum	8.32	8.55	8.27	8.18	8.45	8.23	8.07	8.01	8.20	8.65	8.6	8.18
DO (mg/L) Instantaneous Minimum	6.5	7.01	5.08	5.33	5.95	6.34	5.60	6.34	5.91	5.39	5.46	4.67
TRC (mg/L) Average Monthly	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
TRC (mg/L) Instantaneous Maximum	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
CBOD5 (mg/L) Average Monthly	< 2.3	4.65	4.45	4.25	4.45	3.3	4.7	4.3	3.55	8.5	3.7	5.35
TSS (mg/L) Average Monthly	< 5	< 5	< 5.5	< 5.5	8.5	7	11	7.5	7	6	< 5	< 5
Fecal Coliform (No./100 ml) Geometric Mean	< 12.09	< 5	129	20.2	< 1.41	4.8	< 1	2	< 1.41	8.94	< 1.0	2
Fecal Coliform (No./100 ml) Instantaneous Maximum	> 12098	< 5	136	136	2	23	2	4	2	12	1	4
Nitrate-Nitrite (mg/L) Average Monthly	7.4	19.5	22.6	< 17.5	36.6	24.4	37.7	8.15	32.8	< 27.9	< 11.85	28.9
Total Nitrogen (lbs/day) Average Monthly	0.963	1.73	2.05	< 1.04	< 1.882	1.55	1.94	0.473	< 1.42	< 1.555	< 0.982	1.496
Total Nitrogen (mg/L) Average Monthly	23.1	29.55	35.15	< 20.8	< 37.6	26.55	38.85	11.35	< 33.95	< 37.3	< 23.55	< 29.9
Total Nitrogen (lbs) Total Annual				< 579.4								

NPDES Permit Fact Sheet
Rolling Hills MHP

NPDES Permit No. PA0081299

Ammonia (mg/L) Average Monthly	19.33	10.11	13.38	16.9	< 0.60	0.84	< 0.50	2.52	< 1.13	7.66	11.87	0.39
TKN (mg/L) Average Monthly	15.65	10.05	12.55	18.8	< 1.0	2.15	< 1.15	3.2	< 2.3	< 8.95	11.7	< 1.0
Total Phosphorus (lbs/day) Average Monthly	0.014	0.019	0.022	0.017	0.023	0.027	0.024	0.032	0.036	0.035	0.043	0.029
Total Phosphorus (mg/L) Average Monthly	0.33	0.33	0.38	0.33	0.465	0.47	0.48	0.77	0.86	0.85	1.04	0.57
Total Phosphorus (lbs) Total Annual				10.42								

Compliance History

Effluent Violations for Outfall 001, from: May 1, 2024 To: March 31, 2025

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	03/31/25	IMAX	> 12098	No./100 ml	10000	No./100 ml

Existing Effluent Limitations and Monitoring Requirements

Outfall 001

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
Dissolved Oxygen	XXX	XXX	5.0 Inst Min	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	XXX	50	2/month	8-Hr Composite
Total Suspended Solids	XXX	XXX	XXX	30	XXX	60	2/month	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Ammonia-Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Kjeldahl Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Nitrate-Nitrite as N	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	XXX	XXX	2.0	XXX	4.0	2/month	8-Hr Composite
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Total Phosphorus (lbs)	XXX	122 Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation

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

at Outfall 001

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	.02
Latitude	40° 4' 11"	Longitude	76° 30' 0"
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. DEP's SOP No. BCW-PMT-033 states that, "for existing discharges, when WQM modeling results for summer indicates that an average monthly limit of 25 mg/l is acceptable, the application manager will generally establish a year-round monitoring requirement for ammonia-nitrogen, at a minimum." A monitoring requirement is included in the existing permit which is consistent with this requirement. 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 Model Enterprises Inc. 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.

Dissolved Oxygen (D.O.)

A minimum D.O. limit of 5.0 mg/L is a D.O. water quality criterion found in 25 Pa. Code § 93.7(a). This limit is included in the existing NPDES permit. This limit will continue to be included in the permit to ensure that the facility continues to achieve compliance with DEP water quality standards.

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.

UV Monitoring

DEP's SOP No. BPNPSM-PMT-033 recommends at a minimum, routine monitoring of UV transmittance, dosage, or intensity when the facility is utilizing a UV disinfection system. The monitoring should occur at the same frequency as would be used for TRC. This recommendation was implemented as a part of the proper operation and maintenance requirement specified in Part B of the NPDES permit, requesting permittees to demonstrate the effectiveness of UV disinfection system. This is a reasonable approach and has been assigned to other facilities equipped with similar technology. During this permit cycle, Model Enterprises removed their chlorination/dechlorination system, and installed a UV disinfection system.

Therefore, a monitoring requirement for UV Transmittance has been included in the permit, and the existing TRC limit has been removed.

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. There is a recreational impairment for pathogens from an unknown source. There is an aquatic life impairment for siltation from agriculture, habitat alterations from habitat modification – other than hydromodification, and eutrophication from 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
UV Transmittance (%)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Measured
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	8-Hr Composite
TSS	XXX	XXX	XXX	30	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
Nitrate-Nitrite	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Nitrogen (lbs)	XXX	Report Total Annual	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite
TKN	XXX	XXX	XXX	Report	XXX	XXX	2/month	8-Hr Composite

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	Minimum	Average Monthly	Maximum	Instant. Maximum		
Total Phosphorus	Report	XXX	XXX	2.0	XXX	4	2/month	8-Hr Composite
Total Phosphorus (lbs)	XXX	122 Total Annual	XXX	XXX	XXX	XXX	1/year	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 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 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]

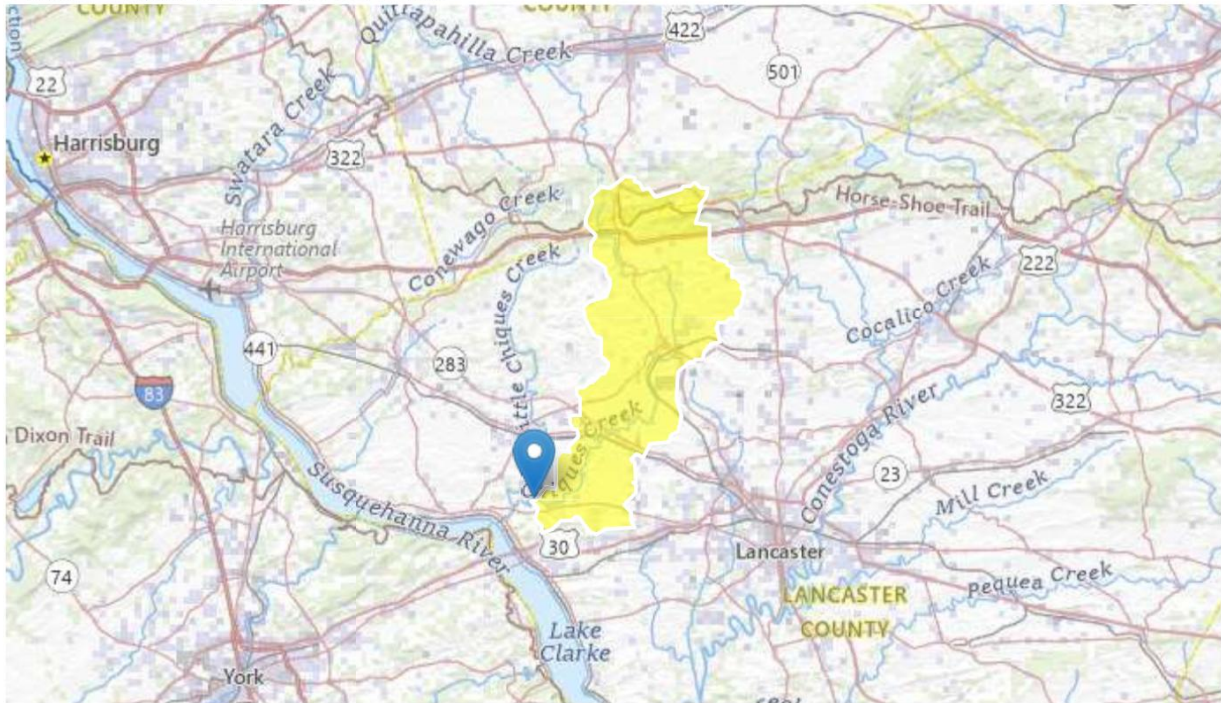
Rolling Hills MHP PA0081299 Outfall 001

Region ID: PA

Workspace ID: PA20250530115731383000

Clicked Point (Latitude, Longitude): 40.06962, -76.50010

Time: 2025-05-30 07:57:56 -0400



Collapse All

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.6454	degrees
DRNAREA	Area that drains to a point on a stream	62.6	square miles
ROCKDEP	Depth to rock	4.6	feet
URBAN	Percentage of basin with urban development	5.511	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	3.6454	degrees	1.7	6.4
DRNAREA	Drainage Area	62.6	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.6	feet	4.13	5.21
URBAN	Percent Urban	5.511	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	8.96	ft^3/s	46	46
30 Day 2 Year Low Flow	12.3	ft^3/s	38	38
7 Day 10 Year Low Flow	4.13	ft^3/s	51	51
30 Day 10 Year Low Flow	5.75	ft^3/s	46	46
90 Day 10 Year Low Flow	9.87	ft^3/s	41	41

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: 4.29.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

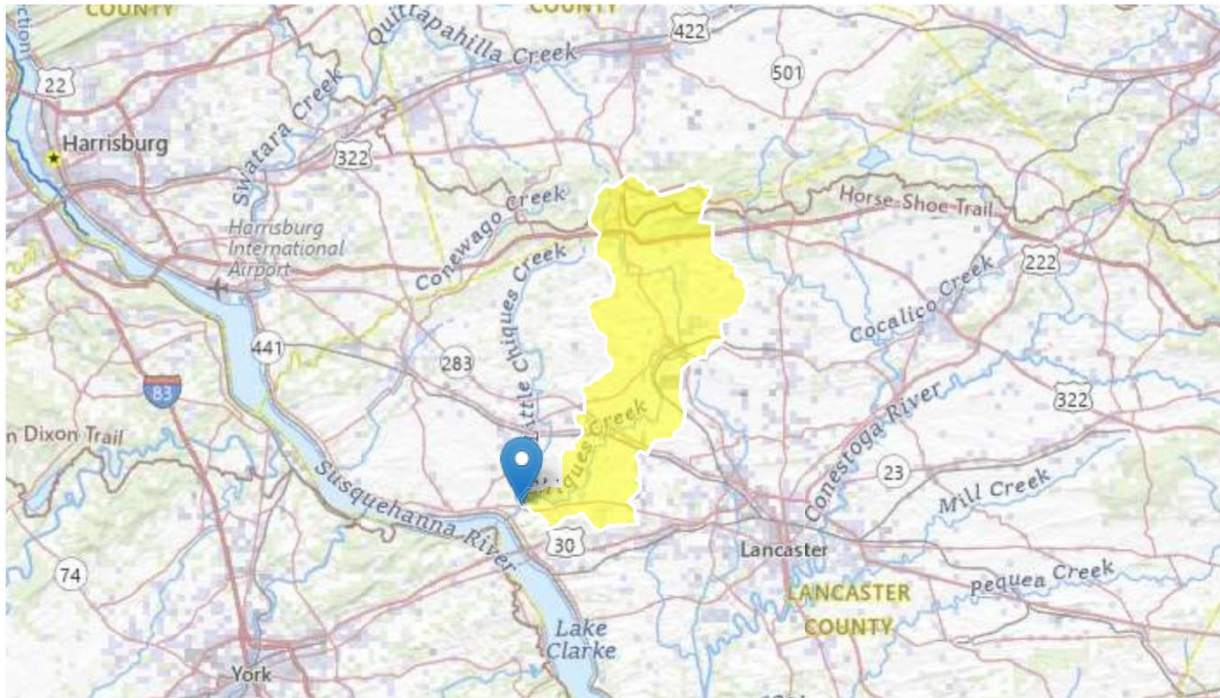
Rolling Hills MHP PA0021890 RMI = 1.49

Region ID: PA

Workspace ID: PA20250530120059111000

Clicked Point (Latitude, Longitude): 40.06375, -76.51484

Time: 2025-05-30 08:01:21 -0400



[+ Collapse All](#)

➤ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	3.658	degrees
DRNAREA	Area that drains to a point on a stream	63.4	square miles
ROCKDEP	Depth to rock	4.6	feet
URBAN	Percentage of basin with urban development	5.4422	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	3.658	degrees	1.7	6.4
DRNAREA	Drainage Area	63.4	square miles	4.78	1150
ROCKDEP	Depth to Rock	4.6	feet	4.13	5.21
URBAN	Percent Urban	5.4422	percent	0	89

Low-Flow Statistics Flow Report [Low Flow Region 1]

PIL: Lower 90% Prediction Interval, PIU: Upper 90% Prediction Interval, ASEp: Average Standard Error of Prediction, SE: Standard Error, PC: Percent Correct, RMSE: Root Mean Squared Error, PseudoR^2: Pseudo R Squared (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	9.11	ft^3/s	46	46
30 Day 2 Year Low Flow	12.5	ft^3/s	38	38
7 Day 10 Year Low Flow	4.2	ft^3/s	51	51
30 Day 10 Year Low Flow	5.84	ft^3/s	46	46
90 Day 10 Year Low Flow	10	ft^3/s	41	41

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: 4.29.1

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

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	7919	CHICKIES CREEK	3.400	271.00	62.60	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)						Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	7.51	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
Rolling Hills	PA0081299	0.0200	0.0200	0.0200	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	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	7919	CHICKIES CREEK	1.490	259.00	63.40	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
	(cfsm)	(cfs)	(cfs)				(ft)	(ft)	Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	7.61	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

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
07G		7919				CHICKIES CREEK						
RMI	Stream Flow	PWS With	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												
3.400	7.51	0.00	7.51	.0309	0.00119	.744	43.58	58.59	0.23	0.502	20.02	7.00
Q1-10 Flow												
3.400	4.81	0.00	4.81	.0309	0.00119	NA	NA	NA	0.18	0.643	20.03	7.00
Q30-10 Flow												
3.400	10.21	0.00	10.21	.0309	0.00119	NA	NA	NA	0.28	0.423	20.02	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		7919		CHICKIES 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		
3.400	Rolling Hills	16.72	50	16.72	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		
3.400	Rolling Hills	1.89	25	1.89	25	0	0		
Dissolved Oxygen Allocations									
RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
3.40	Rolling Hills	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	7919	CHICKIES CREEK		
<u>RM1</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
3.400	0.020	20.021	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
43.575	0.744	58.591	0.233	
<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>	
2.09	0.052	0.10	0.701	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.230	2.632	Tsivoglou	5	
<u>Reach Travel Time (days)</u>	Subreach Results			
0.502	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.050	2.09	0.10	8.24
	0.100	2.08	0.10	8.24
	0.150	2.08	0.09	8.24
	0.201	2.07	0.09	8.24
	0.251	2.07	0.09	8.24
	0.301	2.06	0.08	8.24
	0.351	2.06	0.08	8.24
	0.401	2.05	0.08	8.24
	0.451	2.05	0.07	8.24
	0.502	2.04	0.07	8.24

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
07G		7919	CHICKIES 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)
3.400	Rolling Hills	PA0081299	0.020	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5