pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0080284**
Facility Type	**Non-Municipal**	APS ID	**598257**
Major / Minor	**Minor**	Authorization ID	**1432844**

Applicant and Facility Information

Applicant Name	**New Oxford MHC, LLC**	Facility Name	**New Oxford Mobile Home Village**
Applicant Address	524 Meadow Avenue Loop	Facility Address	510 Dauberton Drive
	Banner Elk, NC 28604		New Oxford, PA 17350-9073
Applicant Contact	Matthew Raynor	Facility Contact	Fred Walton
Applicant Phone	(919) 270-4831	Facility Phone	(484) 643-0024
Client ID	250421	Site ID	249461
Ch 94 Load Status	Not Overloaded	Municipality	Mount Pleasant Township
Connection Status		County	Adams
Date Application Received	March 21, 2023	EPA Waived?	Yes
Date Application Accepted	March 29, 2023	If No, Reason	

Purpose of Application: NPDES permit renewal

Summary of Review

New Oxford MHC, LLC (Permittee) applied to the Pennsylvania Department of Environmental Protection (DEP) for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit for New Oxford MHC WWTP. This permit renewal application was received on March 21, 2023. The permit was last reissued on September 24, 2018, authorizing discharge of treated sewage from the existing treatment plant located in Mount Pleasant Borough, Adams County into UNT to South Branch Conewago Creek in watershed 7-F. The permit expires on September 30, 2023.

The average annual design flow and hydraulic design capacity is 0.01885 MGD and the organic loading capacity is 38.0 lbs BOD_5/day. The renewal application indicated the STP receives its 100% from the New Oxford MHC.

The WQM Part II permit No. 0100408 original was issued on 4/13/2001, 0100408 T-1 ownership transfer was issued on 11/17/2006.

Sludge use and disposal description and location(s): N/A because sludge hauling.

Changes from the previous permit: The E. Coli. monitoring and report requirements will add to the proposed permit.

Based on the review outlined in this fact sheet, it is recommended that the permit be drafted. A public notice of the draft permit will be published in the *Pennsylvania Bulletin* for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	August 11, 2023
X		*Maria D. Bebenek for* Daniel W. Martin, P.E. / Environmental Engineer Manager	September 19, 2023

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.01885
Latitude	39º 51' 46.80"	Longitude	-77º 5' 14.11"
Quad Name	McSherrystown	Quad Code	2029
Wastewater Description:	Sewage Effluent		
Receiving Waters	Unnamed Tributary to South Branch Conewago Creek (WWF)	Stream Code	08827
NHD Com ID	57473655	RMI	1.0
Drainage Area	0.05 mi.^{2}	Yield (cfs/mi^2)	See comments below
Q_{7-10} Flow (cfs)	See comments below	Q_{7-10} Basis	See comments below
Elevation (ft)	554.3 at POFU	Slope (ft/ft)	
Watershed No.	7-F	Chapter 93 Class.	WWF
Existing Use	none	Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s): Aquatic Life and Fish Consumption Non-attaining use Recreational		
Cause(s) of Impairment	Pathogen		
Source(s) of Impairment	Unknown		
TMDL Status	None proposed	Name	
Nearest Downstream Public Water Supply Intake	Wrightsville Boro Water System York County		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	
PWS RMI	28.51 miles	Distance from Outfall (mi)	Approximate 67.44 miles

Changes Since Last Permit Issuance:

Drainage Area

The discharge is to UNT to South Branch Conewago Creek at RMI 1.0 miles. A drainage area upstream of the discharge is estimated to be 0.05 mi.^{2}, according to USGS PA StreamStats available at https://streamstats.usgs.gov/ss/.

Streamflow

The nearest USGS Streamgage is 01574000 in Manchester, PA which is approximately 51.5 miles downstream of the discharge point hence is not representative. Moreover, stream flow data collected from USGS StreamStats indicated some parameters are outside of the recommended range for regression analysis to calculate low flows. The drainage area was found to be 512 mi^2 at the gage, Q_{7-10}, and Q_{30-10} values at this gage are 39.2 cfs, and 52.0 cfs. In absence of both Streamgage and StreamStats data, the calculations from previous fact sheet was used. Previous fact sheet indicated the low flow yield for the whole Conewago Creek watershed is 0.077 cfs/mi^2. The drainage area at the Point of First Use (POFU) was found to be 0.05 mi^2. The default Q_{1-10}: Q_{7-10} and Q_{30-10}: Q_{7-10} are 0.64 and 1.36, respectively, per 391-2000-007.

$$\text{Yield} = 39.2 \text{ cfs}/512 \text{ mi}^2 = 0.077 \text{ cfs/mi}^2$$
$$Q_{7-10} = 0.077 \text{ cfs/mi}^2 * 0.05 \text{ mi}^2 = 0.00385 \text{ cfs}$$
$$Q_{30-10} = 0.00385 \text{ cfs} * 1.36 = 0.0052 \text{ cfs}$$
$$Q_{1-10} = 0.00385 \text{ cfs} * 0.64 = 0.0025 \text{ cfs}$$

303d Listed Streams:

The discharge from this facility is in UNT to South Branch Conewago Creek at 1.0 RMI which is attaining its designated uses of Fish Consumption and Aquatic Life but impaired for Recreation use due to pathogens from unknown source. The discharge from this facility is expected not to contribute to the existing impairment.

Public Water Supply

The nearest downstream public water supply intake is for Wrightsville Boro Water Systems in York County on Susquehanna River, approximately 67.44 miles downstream of this discharge. Considering distance and dilution, the discharge is not expected to impact the water supply.

Treatment Facility Summary

Treatment Facility Name: New Oxford MHC, LLC

WQM Permit No.	Issuance Date
0100408 T-1	11/17/2006
0100408	4/13/2001

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Tertiary	Extended Aeration With Solids Removal	Hypochlorite	0.01885

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.01885	38	Not Overloaded	Aerobic Digestion	Other WWTP

Changes Since Last Permit Issuance:

Other Comments:
The receiving stream is dry at discharge point. A Point of First Use (POFU) survey was conducted in March 15, 1995 which identified the POFU was approximately 300 m downstream of the then proposed discharge point. Effluent limits will be developed per dry stream guidance (391-2000-014).

The treatment facility consists of the following units:

- One grease trap
- One bar screen
- Two EQ tanks
- Three aeration tanks
- One chlorine contact tank
- One dechlorination
- One dosing tank
- Two sand beds
- One sludge holding tank

Chemical used:
Soda ash is used for pH control at 25 lbs/day. Sodium Hypochlorite is used for disinfection at 4 gpd. Sodium Bisulfite is used for chlorine removal at 4 gpd.

Biosolids:
Liquid sludge is hauled off from site.

Industrial/Commercial Users:
There is no industrial or commercial contributor to the treatment plant.

Compliance History	
Summary of DMRs:	A summary of past 12-month DMRs is presented on pages 5 & 6.
Summary of Inspections:	**8/02/22:** Mr. Hoy, DEP Environmental Trainee, conducted a compliance evaluation inspection. There were violations noted during inspection. The field test results were within permit limits. Recommendations were to replace deteriorating tank grates and increase frequency of weeding and raking of the sand beds. **12/3/2020**: Mr. Bettinger, DEP Environmental Trainee, conducted an administrative inspection to follow up on a previous Notice of Violation. There were no violations noted during inspection.
Other Comments:	There were two violations against the permittee or applicant. - 8/2/2022- NPDES-Failure to properly operate and maintain all facilities which are installed or used by the permittee to achieve compliance, and failure to collect representative samples.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from July 1, 2022 to June 30, 2023)

Parameter	JUN-23	MAY-23	APR-23	MAR-23	FEB-23	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22
Flow (MGD) Average Monthly	0.0080	0.0114	0.0100	0.0095	0.0095	0.0107	0.0130	0.0100	0.0129	0.0084	0.0085	0.0070
Flow (MGD) Daily Maximum	0.0114	0.0354	0.0232	0.0167	0.0129	0.0155	0.0385	0.0155	0.0595	0.0345	0.0284	0.0098
pH (S.U.) Daily Minimum	7.91	7.38	7.68	7.31	7.43	7.43	6.45	7.52	7.33	7.87	7.75	8.00
pH (S.U.) Daily Maximum	8.33	8.28	8.25	8.13	8.14	7.98	8.10	8.21	8.21	8.24	8.41	8.56
DO (mg/L) Daily Minimum	8.1	8.9	9.5	5.9	10.5	10.4	6.8	8.9	7.3	7.3	7.9	7.7
TRC (mg/L) Average Monthly	0.006	0.006	0.010	0.010	0.007	0.004	0.009	0.006	0.012	0.005	0.005	0.008
TRC (mg/L) IMAX	0.050	0.020	0.050	0.060	0.040	0.040	0.050	0.040	0.050	0.050	0.030	0.040
CBOD5 (mg/L) Average Monthly	3.5	5.1	< 2.9	7.4	< 4.70	< 2.4	< 2.9	< 2.4	< 2.6	< 2.40	< 5.2	< 2.4
TSS (mg/L) Average Monthly	9.0	< 6.50	9.5	3.5	4.5	4.0	4.5	6.0	12.5	3.0	1.5	1.5
Fecal Coliform (No./100 ml) Geometric Mean	58	13	7	26	< 4	8	< 2	3	< 49	54	24	7
Fecal Coliform (No./100 ml) IMAX	308	34.5	18	110	16	30	3	5	> 2420	> 2420	579	54
Nitrate-Nitrite (mg/L) Average Quarterly	< 15.40			< 46.40			< 43.40			< 5.60		
Nitrate-Nitrite (lbs) Total Quarterly	< 69.16			< 316.8			< 293			< 31.28		
Total Nitrogen (mg/L) Average Quarterly	< 15.90			< 46.90			< 43.90			< 0.37		
Total Nitrogen (lbs) Total Quarterly	< 71.89			< 320.4			< 297			< 34.04		
Total Nitrogen (lbs) Total Annual										< 379		
Ammonia (mg/L) Average Monthly	< 0.11	< 0.24	< 0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Ammonia (mg/L) Average Quarterly	< 0.16			< 0.10			< 0.10			< 0.10		

Ammonia (lbs) Total Quarterly	< 1.33			< 6.12			< 0.74			< 0.92		
Ammonia (lbs) Total Annual										< 5		
TKN (mg/L) Average Quarterly	< 0.50			< 0.50			< 0.50			< 0.50		
TKN (lbs) Total Quarterly	< 2.28			< 3.6			< 3.68			< 10.12		
Total Phosphorus (mg/L) Average Quarterly	4.20			3.20			2.30			0.45		
Total Phosphorus (lbs) Total Quarterly	13.65			21.6			15.64			2.74		
Total Phosphorus (lbs) Total Annual										66		

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.01885
Latitude 39º 51' 46.80" **Longitude** -77º 5' 14.11"
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)

Comments: DEP's guidance document titled "Implementation Guidance for Evaluating Wastewater Discharges to Drainage Ditches and Swales" or Dry Stream guidance, document ID 391-2000-014 will be used along with TBEL, WQBEL, and BPJ to develop effluent limits.

Dry Stream Guidance Limitations:

Dry stream guidance (391-2000-014, Final April 12, 2008, page 6) indicates advanced treatment is required "For discharges to intermittent and ephemeral streams, drainage channels and swales, and storm sewers, a high degree of treatment is required to compensate for the lack of available assimilative capacity and to minimize the potential for nuisance conditions. Effluent limits will be determined by the regional permit engineer on a case-by-case basis, but for discharges of treated sewage and similar oxygen-consuming wastes, effluent limits should include and be at least as stringent as these, or equivalent:

$CBOD_5$ – 10 mg/L as monthly average;
TSS – 10 mg/L as monthly average;
Total N – 5 mg/L as a monthly average;
Dissolved oxygen – minimum 6 mg/L at all times;
Phosphorus – 0.5 mg/L as a monthly average"

However, the guidance postdates the issuance of the original NPDES permit for this facility. The existing permit doesn't contain limits for TN and Phosphorous. Section I of the 2008 guidance states that the policy is for new or expanded discharges. Since this is not new or expanding the existing limits developed according to Section IV of the 1997 guidance. These limits are as follows:

$CBOD_5$ and TSS - 10 mg/L as a monthly average;
20 mg/L as IMAX
NH_3-N - 3 mg/L as a monthly average;
Dissolved oxygen – 3 mg/L or greater, monthly average
Bacteria – 200/100 ml summertime; 2000/100 ml wintertime

These values will be compared to TBELS, WQBELs, and BPJ, and most stringent limitations will be applied in the permit.

Water Quality-Based Limitations

NH_3-N:
The attached WQM 7.0 modeling (version 1.1) suggested NH_3-N limit of 1.69 mg/L as monthly average and 3.38 mg/L as instantaneous maximum limit is necessary to protect the water quality of the stream. However, the existing NH_3-N limit of 1.5 mg/L as monthly average and 3.0 mg/L as instantaneous maximum limit during summer are more stringent and will remain in the proposed permit. The winter season limits are calculated by multiplying summer limits by a factor of 3, and average monthly and IMAX limits are 4.5 mg/L and 9.0 mg/L, respectively. The summer limits are more stringent compared to applicable 1997 dry stream guidance. Minimum monitoring frequency will remain 2/month per 362-0400-001 Chapter 6 Page 10.

$CBOD_5$:
The attached WQM 7.0 modeling (version 1.1) indicates that a monthly average limit of 25.0 mg/L, or secondary treatment, is adequate to protect the water quality of the stream. However, the existing summer limit of 10 mg/L AML is more stringent and will remain in the proposed permit. Dry stream limits are the same as WQM suggested limit. A multiplication factor of 2 will be used to calculate Instantaneous Maximum (IMAX) value. Winter limits Minimum monitoring frequency will be 2/month.

Dissolved Oxygen (D.O.):
The D.O. goal is 6.0 mg/L. However, a minimum D.O. of 5.0 mg/L is required per 25 Pa. Code § 93.7. It is recommended that this limit be maintained in the proposed permit to ensure the protection of water quality standards. This approach is consistent with DEP's current Standard Operating Procedure (SOP) No. BCW-PMT-033, version 1.9 revised March 22, 2021, and has been applied to other point source dischargers throughout the state.

pH:
The effluent discharge pH should remain above 6.0 and below 9.0 standard units according to 25 Pa. Code § 95.2(1).

Fecal Coliform:
The recent coliform guidance in 25 Pa. Code § 92a.47.(a)(4) requires a summer technology limit of 200/100 ml as a geometric mean and an instantaneous maximum not greater than 1,000/100ml and § 92a.47.(a)(5) requires a winter limit of 2,000/100ml as a geometric mean and an instantaneous maximum not greater than 10,000/100ml.

E. Coli:
As recommended by DEP's SOP No. BCW-PMT-033, version 1.9 revised March 22, 2021, a routine monitoring for E. Coli will be included in the proposed permit under 25 Pa. Code § 92a.61. This requirement applies to all sewage dischargers greater than 0.002 MGD in their new and reissued permits. A monitoring frequency of 1/year will be included in the permit to be consistent with the recommendation from this SOP.

Total Residual Chlorine (TRC):
Based on the attached TRC Excel Spreadsheet calculator, which uses the equations and calculations from the Department's May 1, 2003 Implementation Guidance for Total Residual Chlorine (ID No. 391-2000-015), the facility's discharge must meet a monthly average limit of 0.028 mg/L and an instantaneous maximum limit of 0.092 mg/L for a design flow of 0.01885 MGD. The existing limit of 0.027 mg/L AML & 0.089 mg/L IMAX are more stringent and will remain in the proposed permit. Minimum monitoring frequency will be 1/day. These limits are the same as are in existing permit.

Toxics:
Minor sewage facilities with a design flow less than 0.1 MGD are not required to submit toxic data in application form. Due to the lack of data, toxics monitoring or limit requirement could not be evaluated.

Total Suspended Solids (TSS):
There is no water quality criterion for TSS. The limits of 10 mg/L average monthly and 20 mg/L instantaneous maximum will be placed in the permit based on dry stream guidance as indicated in page 8 of this report. Minimum monitoring frequency remain 2/month.

Stormwater:
There is no known stormwater outfall associated with this facility.

WETT:
Minor facilities and facilities without a formal EPA approved pretreatment program are exempted from WETT.

Total Dissolved Solids (TDS)
The facility is not required to report TDS since reporting TDS is not mandatory for flow less than 0.1 MGD

Total Phosphorus (local):
Phosphorus limitations are based on the Department's Implementation Guidance for Section 96.5 Phosphorus Discharges to Free flowing Streams, dated 10/27/97 (ID No. 391-2000-018). Total phosphorus loading from this discharge would be 8.34 x 10 mg/L x 0.01885 MGD or 1.57 lbs/day. Using the equation that was documented in EPA's Chesapeake Bay Management Report, Total P @ Y = Total P x 0.99^{Y}, where Y = stream miles to PA-MD line, the actual loading to the critical part of the Susquehanna River would be 0.599 lbs/day at an estimated distance of 95.95 miles. This loading represents 0.599 lbs/day ÷ 3,814 lbs/day or 0.016% of the total phosphorus loading of all discharges in the Lower Susquehanna River Basin. According to the above phosphorus guidance, phosphorus removal will be required if this percentage is > 0.25%. Therefore, since 0.016% is < 0.25%, phosphorus limitations will not be required.

Chesapeake Bay Strategy:
According to DEP's Chesapeake Bay Phase II Watershed Implementation Plan (WIP) Wastewater Supplement, this facility is considered a phase 5 non-significant sewage discharger with design flow less than 0.2 MGD but greater than 0.002 MGD. In general, DEP will issue permits for all phase 5 facilities with monitoring and reporting for Total Nitrogen (TN) and Total Phosphorus (TP) throughout the permit term at a frequency no less than annually. Furthermore, DEP's SOP No. BPNPSM-PMT-033 states that in general, at a minimum, monitoring for TN and TP should be included in new and reissued permits for sewage discharges with design flows > 2,000 gpd. At this time, the Department is not requiring a total maximum annual nitrogen or phosphorus loading cap. Ammonia-Nitrogen, Nitrate-Nitrite as N, Total Kjeldahl Nitrogen, TN, and TP monitoring is already included in the existing permit and will remain in the proposed renewal.

The quarterly "Monitor & Report" requirements for Ammonia-Nitrogen, Nitrate-Nitrite as N, and Total Kjeldahl Nitrogen; and annual calculation "Monitor & Report" for Ammonia-Nitrogen, TN, & TP will remain in the proposed permit.

Antidegradation (93.4):
The effluent limits for this discharge have been developed to ensure that existing in-stream 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.

Anti-Backsliding:
The proposed limits will be as stringent as existing limits; therefore, anti-backsliding is not applied in this permit term.

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

303(d) Listed Streams:
The discharge from this facility is to a stream segment that is attaining its designated use(s).

<u>WQM 7.0:</u>
The following data were used in the attached computer model (WQM 7.0) of the stream:

• Discharge pH	7.0	(Default)
• Discharge Temperature	25°C	(Default per 391-2000-013)
• Stream pH	7.0	(Default per 391-2000-013)
• Stream Temperature	20°C	(Default per 391-2000-013)

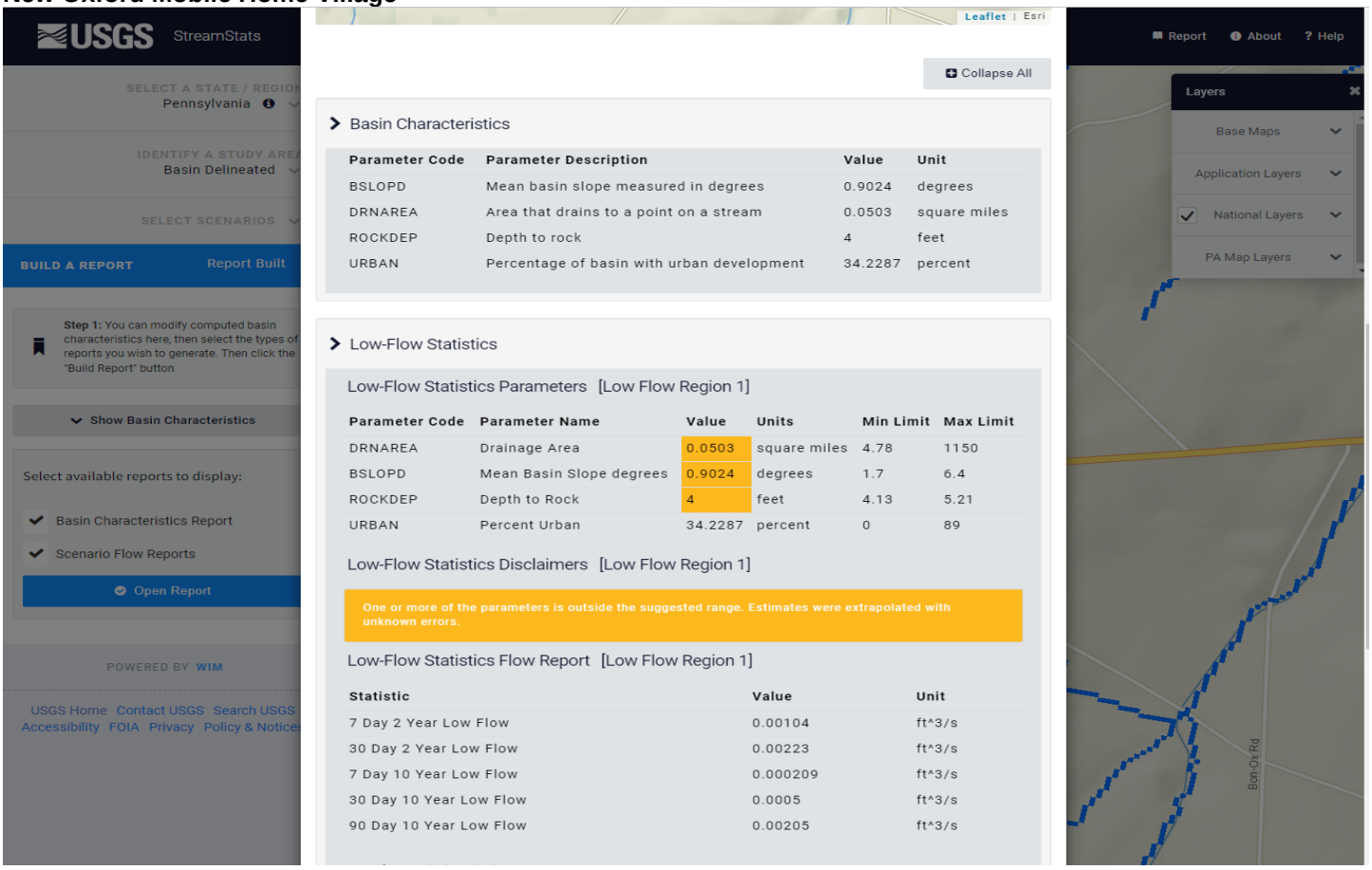
The following two nodes were used in modeling:

Node 1: At POFU Unnamed Tributary to South Branch Conewago Creek (08827)

Elevation:	554.3 ft. (USGS)
Drainage Area:	0.05 mi^2 (USGS StreamStats)
River Mile Index:	1.000
Low Flow Yield:	0.077 cfs/mi^2
Discharge Flow:	0.01885 MGD

Node 2: At the confluence with S. Branch Conewago Creek (08813)

Elevation:	451.2 ft. (USGS)
Drainage Area:	0.4 mi^2 (USGS StreamStats)
River Mile Index:	0.001
Low Flow Yield:	0.077 cfs/mi^2
Discharge Flow:	0.00 MGD


USGS StreamStats
Pennsylvania
Basin Delineated
BUILD A REPORT
Report Built
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 0.9024 | degrees
DRNAREA | Area that drains to a point on a stream | 0.0503 | square miles
ROCKDEP | Depth to rock | 4 | feet
URBAN | Percentage of basin with urban development | 34.2287 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 0.0503 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 0.9024 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4 | feet | 4.13 | 5.21
URBAN | Percent Urban | 34.2287 | 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 | 0.00104 | ft^3/s
30 Day 2 Year Low Flow | 0.00223 | ft^3/s
7 Day 10 Year Low Flow | 0.000209 | ft^3/s
30 Day 10 Year Low Flow | 0.0005 | ft^3/s
90 Day 10 Year Low Flow | 0.00205 | ft^3/s
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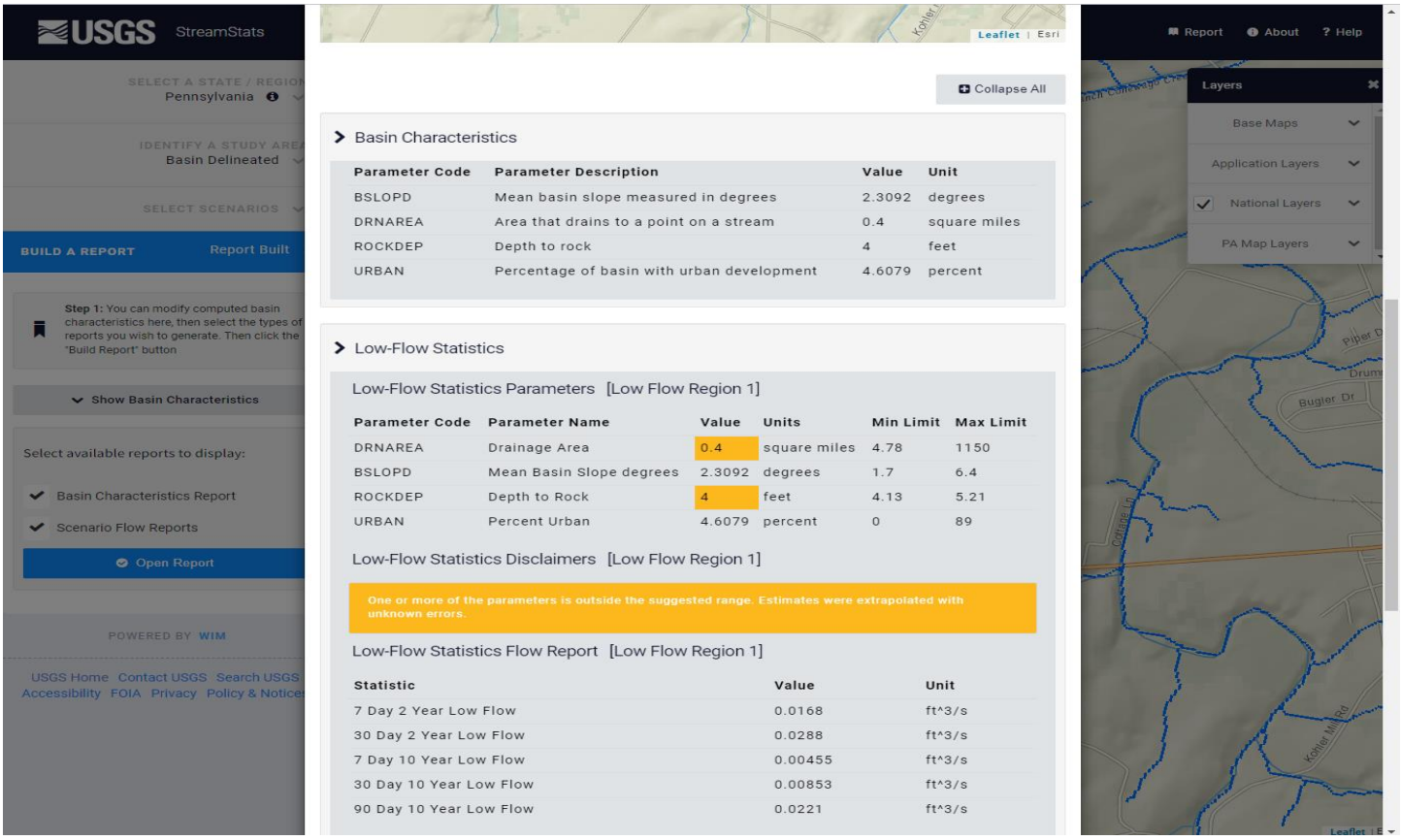
USGS StreamStats
Pennsylvania
Basin Delineated
BUILD A REPORT
Report Built
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 2.3092 | degrees
DRNAREA | Area that drains to a point on a stream | 0.4 | square miles
ROCKDEP | Depth to rock | 4 | feet
URBAN | Percentage of basin with urban development | 4.6079 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 0.4 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 2.3092 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4 | feet | 4.13 | 5.21
URBAN | Percent Urban | 4.6079 | 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 | 0.0168 | ft^3/s
30 Day 2 Year Low Flow | 0.0288 | ft^3/s
7 Day 10 Year Low Flow | 0.00455 | ft^3/s
30 Day 10 Year Low Flow | 0.00853 | ft^3/s
90 Day 10 Year Low Flow | 0.0221 | ft^3/s
Report
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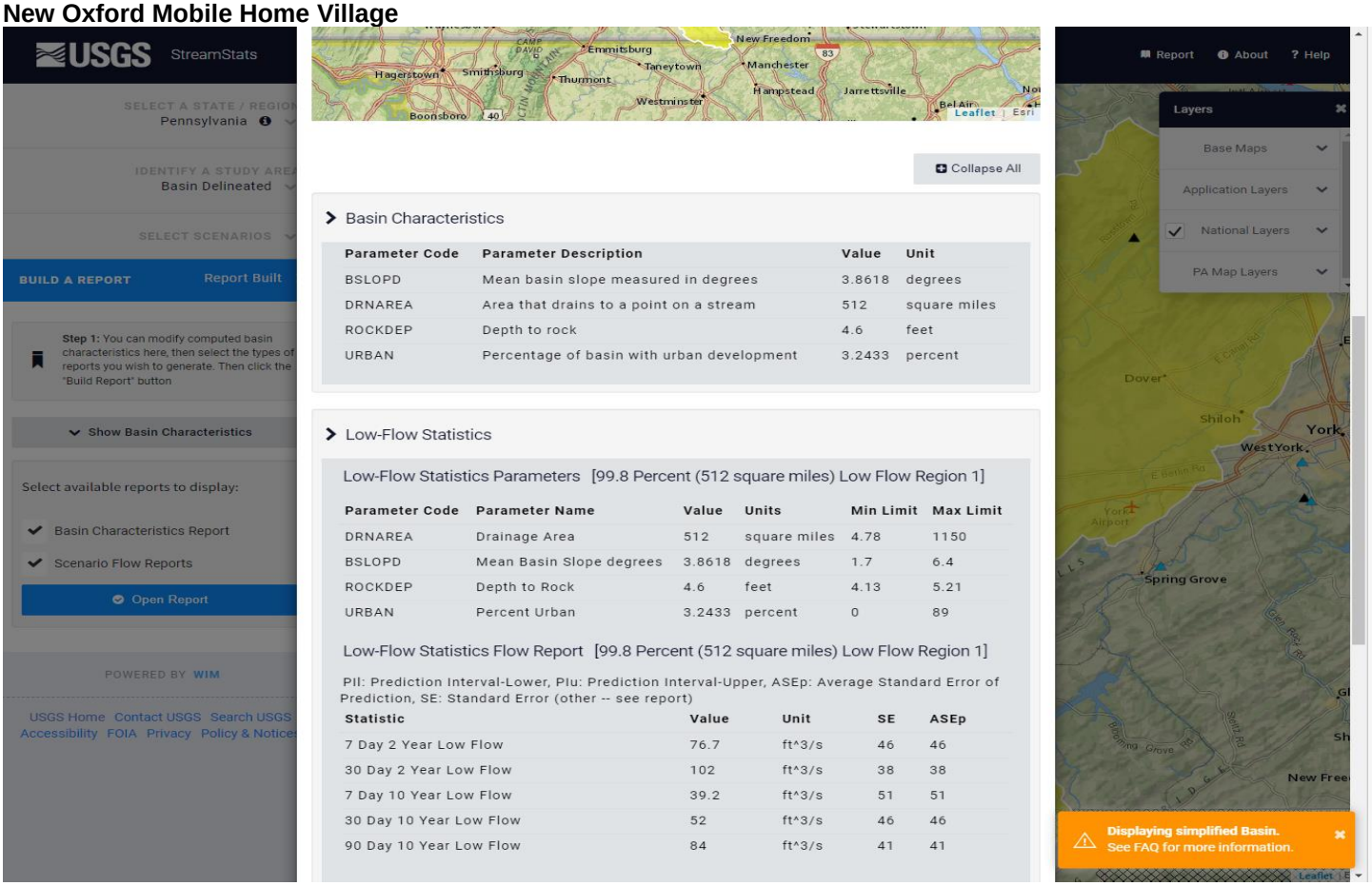
Application Layers
National Layers
PA Map Layers
Bugler Dr
Leaflet | Esri


USGS StreamStats
Pennsylvania
Basin Delineated
BUILD A REPORT
Report Built
Step 1: You can modify computed basin characteristics here, then select the types of reports you wish to generate. Then click the "Build Report" button
Show Basin Characteristics
Select available reports to display:
Basin Characteristics Report
Scenario Flow Reports
Open Report
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Accessibility FOIA Privacy Policy & Notices
Emmitsburg
New Freedom
Hagerstown
Smithsburg
Thurmont
Taneytown
Manchester
Hampstead
Jarrettsville
Westminster
Boonsboro
Leaflet | Esri
Collapse All
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
BSLOPD | Mean basin slope measured in degrees | 3.8618 | degrees
DRNAREA | Area that drains to a point on a stream | 512 | square miles
ROCKDEP | Depth to rock | 4.6 | feet
URBAN | Percentage of basin with urban development | 3.2433 | percent
Low-Flow Statistics
Low-Flow Statistics Parameters [99.8 Percent (512 square miles) Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 512 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 3.8618 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 4.6 | feet | 4.13 | 5.21
URBAN | Percent Urban | 3.2433 | percent | 0 | 89
Low-Flow Statistics Flow Report [99.8 Percent (512 square miles) Low Flow Region 1]
PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)
Statistic | Value | Unit | SE | ASEp
7 Day 2 Year Low Flow | 76.7 | ft^3/s | 46 | 46
30 Day 2 Year Low Flow | 102 | ft^3/s | 38 | 38
7 Day 10 Year Low Flow | 39.2 | ft^3/s | 51 | 51
30 Day 10 Year Low Flow | 52 | ft^3/s | 46 | 46
90 Day 10 Year Low Flow | 84 | ft^3/s | 41 | 41
Report
About
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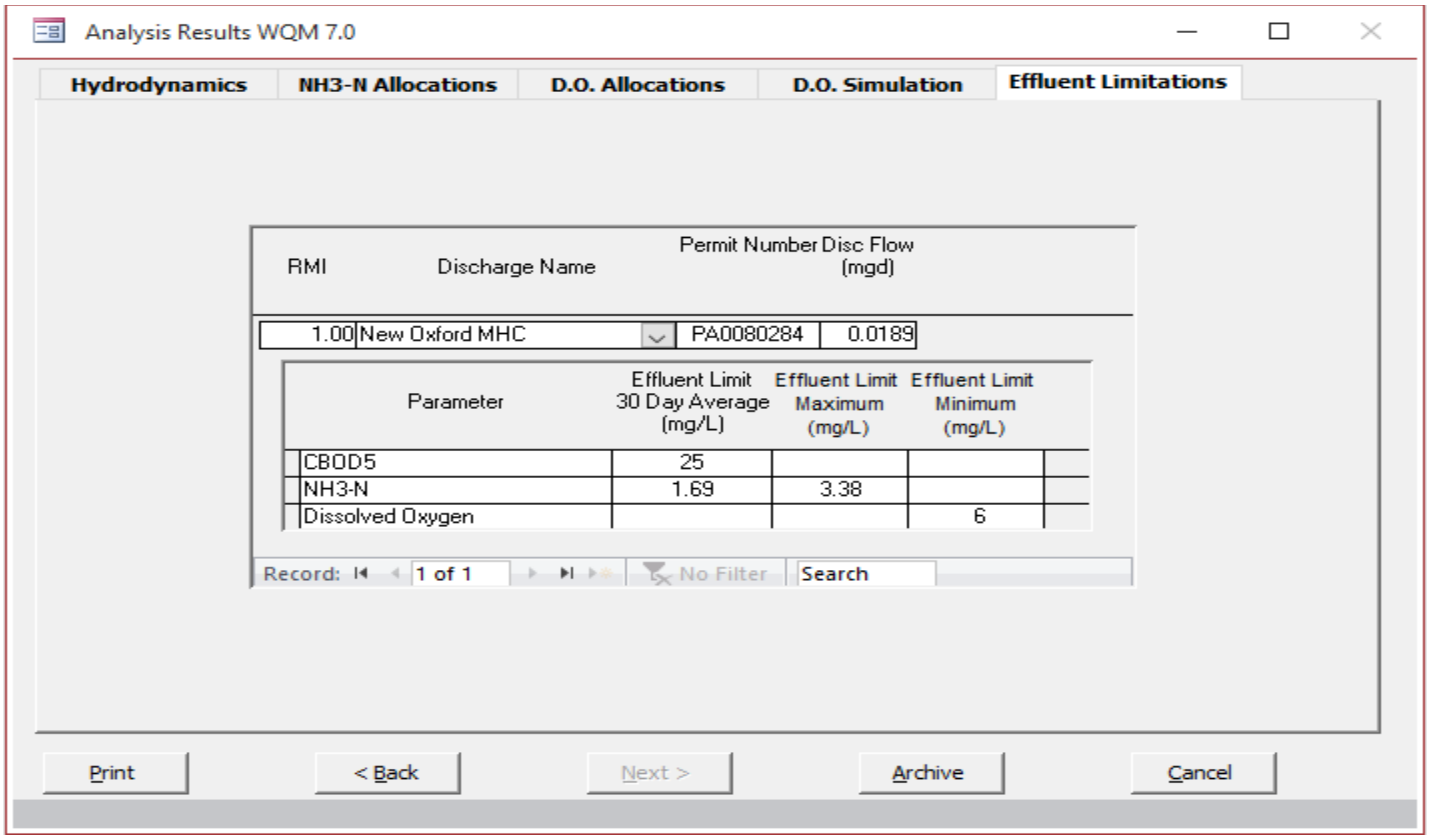
Layers
Base Maps
Application Layers
National Layers
PA Map Layers
Dover
Shiloh
York
West York
Spring Grove
Displaying simplified Basin.
See FAQ for more information.
Leaflet


Analysis Results WQM 7.0
Hydrodynamics
NH3-N Allocations
D.O. Allocations
D.O. Simulation
Effluent Limitations
RMI
Discharge Name
Permit Number
Disc Flow (mgd)
1.00
New Oxford MHC
PA0080284
0.0189
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
1.69
3.38
Dissolved Oxygen
6
Record: 1 of 1
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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07F	8827	Trib 08827 to S Branch Conewago Cr

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
1.000	New Oxford MHC	PA0080284	0.019	CBOD5	25		
				NH3-N	1.69	3.38	
				Dissolved Oxygen			6

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07F	8827	Trib 08827 to S Branch Conewago Cr

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
1.000	New Oxford MHC	11.44	12.4	11.44	12.4	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
1.000	New Oxford MHC	1.44	1.69	1.44	1.69	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
1.000	New Oxford MHC	25	25	1.69	1.69	6	6	0	0

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rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
07F	8827	Trib 08827 to S Branch Conewago Cr

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.000	0.019	24.417	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WD Ratio**	**Reach Velocity (fps)**
1.475	0.332	4.437	0.067
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.232	1.461	1.30	0.983
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.262	30.322	Owens	6
Reach Travel Time (days)			
0.907			

Subreach Results

Travel time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.091	18.98	1.37	6.47
0.181	16.13	1.25	6.75
0.272	13.72	1.14	6.99
0.363	11.66	1.05	7.20
0.453	9.92	0.96	7.38
0.544	8.43	0.88	7.53
0.635	7.17	0.80	7.65
0.725	6.10	0.73	7.75
0.816	5.18	0.67	7.83
0.907	4.41	0.61	7.89

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rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted WD Ratio	☐
Q1-10/Q1-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q1-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin: 07F | Stream Code: 8827 | Stream Name: Trib 08827 to S Branch Conewago Cr

RM	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												
1.000	0.00	0.00	0.00	.0262	0.01255	.332	1.47	4.44	0.07	0.907	24.42	7.00
Q1-10 Flow												
1.000	0.00	0.00	0.00	.0262	0.01255	NA	NA	NA	0.07	0.929	24.61	7.00
Q30-10 Flow												
1.000	0.01	0.00	0.01	.0262	0.01255	NA	NA	NA	0.07	0.886	24.24	7.00

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rptGeneral

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RM	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07F	8827	Trib 08827 to S Branch Conewago Cr	1.000	554.30	0.05	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.07 7	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
New Oxford MHC	PA0080284	0.0189	0.0189	0.0189	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

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rptGeneral

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RM	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
07F	8827	Trib 08827 to S Branch Conewago Cr	0.001	451.20	0.40	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	0.07 7	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
New Oxford MHC	PA0080284	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	5.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

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TRC EVALUATION

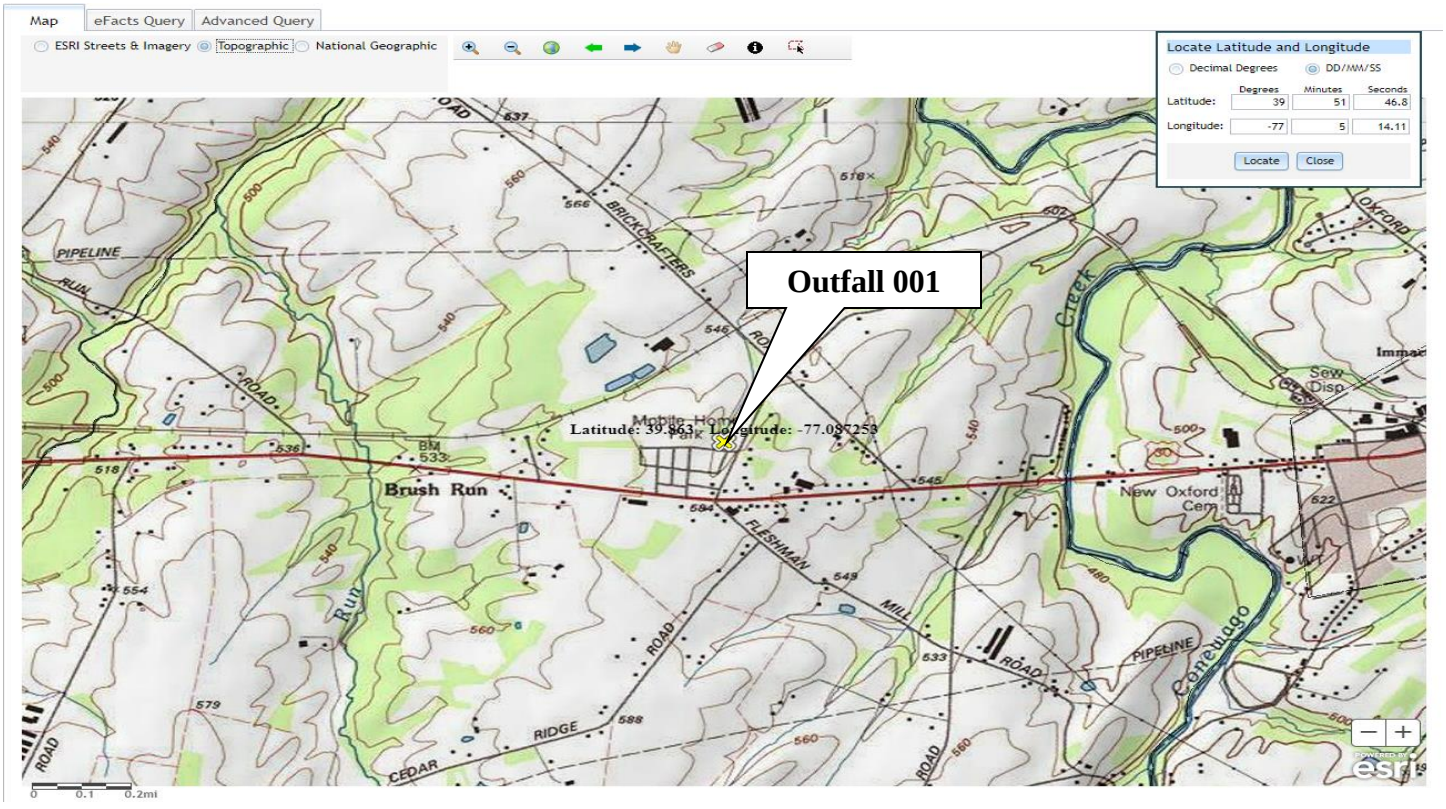
Input appropriate values in A3:A9 and D3:D9

0.00385	= Q stream (cfs)	0.5	= CV Daily
0.01885	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.061	1.3.2.iii	WLA cfc =	0.052
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.023	5.1d	LTA_cfc =	0.030

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.028	AFC
		INST MAX LIMIT (mg/l) =	0.092	

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...** **...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...** **...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**



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 Daily Min	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0 Daily Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.027	XXX	0.089	1/day	Grab
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9	2/month	24-Hr Composite

Existing Effluent Limitations and Monitoring Requirements

Chesapeake Bay Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) [1]		Concentrations (mg/L)				Minimum [2] Measurement Frequency	Required Sample Type
	Quarterly	Annual	Monthly	Quarterly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/quarter	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite

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	XXX	9.0 Daily Max	XXX	1/day	Grab
DO	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.027	XXX	0.089	1/day	Grab
CBOD5 May 1 - Oct 31	XXX	XXX	XXX	10.0	XXX	20.0	2/month	24-Hr Composite
CBOD5 Nov 1 - Apr 30	XXX	XXX	XXX	20.0	XXX	40.0	2/month	24-Hr Composite
TSS	XXX	XXX	XXX	10.0	XXX	20.0	2/month	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	2/month	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/year	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	1.5	XXX	3.0	2/month	24-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	4.5	XXX	9.0	2/month	24-Hr Composite

Compliance Sampling Location:

Other Comments:

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
	Quarterly	Annual	Monthly	Quarterly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/quarter	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location:

Other Comments:

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
☒	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
☐	Pennsylvania CSO Policy, 386-2000-002, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 386-2000-008, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
☐	Implementation Guidance Design Conditions, 386-2000-007, 9/97.
☒	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.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
☒	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
☒	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 10/97.
☐	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.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 3/99.
☐	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.
☐	Design Stream Flows, 386-2000-003, 9/98.
☐	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.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
☒	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: BCW-PMT-033
☐	Other: