pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0024961**
Facility Type	**Municipal**	APS ID	**211**
Major / Minor	**Minor**	Authorization ID	**1307647**

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Applicant and Facility Information

Applicant Name	**Oley Township Municipal Authority** **Berks County**	Facility Name	**Oley Township STP**
Applicant Address	1 Rose Virginia Road, PO Box 19 Oley, PA 19547-8605	Facility Address	94 Tollhouse Road Oley, PA 19547
Applicant Contact	Shirley Moyer	Facility Contact	Mike Eshbach
Applicant Phone	(610) 987-3423	Facility Phone	(484) 650-0980
Client ID	69639	Site ID	445562
Ch 94 Load Status	Not Overloaded	Municipality	Oley Township
Connection Status	No Exceptions Allowed	County	Berks
Date Application Received	February 24, 2020	EPA Waived?	Yes
Date Application Accepted	March 6, 2020	If No, Reason	

Purpose of Application: NDPES permit renewal.

Summary of Review

Spotts, Stevens and McCoy, on behalf of the Oley Township Municipal Authority, has applied to the Pennsylvania Department of Environmental Protection (DEP) for issuance of the NPDES permit. The flow design is 0.4 MGD, and hydraulic capacity design is 0.5 MGD. This facility serves the areas of Oley Township (100%). The permit was reissued on October 26, 2015 and became effective on November 1, 2015. The permit expired on October 31, 2020 but the terms and conditions of the permit have been extended since that time.

The first amendment WQM Part II No. 0672403 A-1 was issued on June 26, 1998. The second amendment WQM Part II No. 0672403 09-1 was issued 0n April 17, 2009. The third amendment WQM Part II No. 067203 12-1 was issued on March 5, 2013. The fourth amendment WQM Part II No. 0672403 A-4 was issued on December 5, 2019.

Sludge use and disposal description and location(s): N/A due to the sludge is hauled away by Jesse Baro, Inc's Services.

This discharge may also be subject to effluent limitations and conditions as developed and required by the Delaware River Basin Commission (DRBC). The DRBC limits may be more stringent. The permittee shall comply with any more stringent effluent limitations or standards contained in their docket, in accordance with 25 Pa. Code § 92a.12(b). Please contact the DRBC for more information at (690) 883-9500.

The last docket was issued on March 12, 2014 and will expire on March 12, 2024 by the Delaware River Basin Commission (DRBC) for this facility: D-2001-036 CP-2. According to the DRBC docket, four municipal wells provide water in the service area. The DRBC will be copied on the draft permit so they will have an opportunity to review and comment.

Changes from the previous permit: Unit of Fecal Coliform changed from CFU/100 ml to No./100 ml. The E. Coli. monitoring and report requirements will add to the proposed permit.

Based on the review outline in this fact sheet, it is recommended that the permit be drafted and published in the Pennsylvania Bulletin for public comments for 30 days.

Approve	Deny	Signatures	Date
X		*Hilaryle* Hilary H. Le / Environmental Engineering Specialist	October 8, 2021
X		*Maria D. Bebenek for Daniel W. Martin* Daniel W. Martin, P.E. / Environmental Engineer Manager	October 13, 2021

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	001	Design Flow (MGD)	0.4
Latitude	40º 22' 30.74"	Longitude	-75º 44' 4.75"
Quad Name	Manatawny	Quad Code	
Wastewater Description:	Sewage Effluent		
Receiving Waters	Manatawny Creek (CWF)	Stream Code	01655
NHD Com ID	25981186	RMI	15.8 miles
Drainage Area	48.6 mi.^{2}	Yield (cfs/mi^2)	0.3
Q_{7-10} Flow (cfs)	14.3	Q_{7-10} Basis	UGSG StreamStats
Elevation (ft)	302	Slope (ft/ft)	
Watershed No.	3-D	Chapter 93 Class.	CWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	PA American Water Company at E. Vincent Twp.		
PWS Waters	Schuylkill River	Flow at Intake (cfs)	
PWS RMI	47 miles	Distance from Outfall (mi)	Approximate 24 miles

Changes Since Last Permit Issuance:

Drainage Area
The discharge is to Manatawny Creek at RMI 15.8 miles. A drainage area upstream of the discharge is estimated to be 48.6 mi.^{2}, according to USGS StreamStats available at https://streamstats.usgs.gov/ss/.

Stream Flow
According to StreamStats, the point of first use has a Q_{7-10} of 14.3 cfs and a drainage area of 48.6 mi.^{2}, which results in a Q_{7-10} low flow yield of 0.3 cfs/mi.^{2}. This information is used to obtain a chronic or 30-day (Q_{30-10}), and an acute or 1-day (Q_{1-10}) exposure stream flow for the discharge point as follows (Guidance No. 391-2000-023):

Q_{7-10} = 14.3 cfs
Low Flow Yield = 14.3 cfs / 48.6 mi.^{2} = 0.3 cfs/mi.^{2}
Q_{30-10} = 1.36 * 14.3 cfs = 19.45 cfs
Q_{1-10} = 0.64 * 14.3 cfs = 9.15 cfs

The resulting Q_{7-10} dilution ratio is: Q_{stream} / $Q_{discharge}$ = 14.3 cfs / [0.4 MGD * (1.547 cfs/MGD)] =23.1:1

Manatawny Creek
25 Pa. Code § 93.9f classifies Manatawny Creek as Cold-Water Fishes (CWF) surface water. Based on the 2020 Integrated Report, Manatawny Creek, assessment unit IDs 6002; 19190; & 19191, is not impaired. A TMDL currently does not exist for this stream segment, therefore, no TMDL has been taken into consideration during this review.

Public Water Supply
The nearest downstream public water supply intake is the PA American Water Company at E. Vincent Twp. on Schuylkill river, approximately 24 miles downstream of this discharge. Given the nature and dilution, the discharge is not expected to significantly impact the water supply.

Treatment Facility Summary

Treatment Facility Name: Oley Township STP

WQM Permit No.	Issuance Date
0672403 A-1	6/26/1998
0672403 09-1	4/17/2009
0672403 12-1	3/05/2013
0672403 A-4	12/05/2019

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Sequencing Batch Reactor	Gas Chlorine	0.4

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.5	576	Not Overloaded		Combination of methods

Changes Since Last Permit Issuance: The WQM Part II No. 0672403 A-4 amendment issued on 12/5/2019 as follows.

- Removed the existing grinder and four submersible influent pumps;
- Installed a dry well with three suction lift influent pumps, each with 700 gpm capacity, one as stand-by;
- Variable frequency drives and motors for new pumps and associated fittings, alarms, and controls;
- Added a vertical mechanically-cleaned screen in the influent wet well with guide rails to vertically lift the screen;
- Active ventilation of dry well and controls area and of existing wet well;
- Relocated the influent composite sampler and added an influent meter to the manhole upstream of the influent wet well (Manhole 1).

The WWTP consists:

One Sewage Pump Station, one muffin monster grinder, one influent lift station, two SBR tanks, two aerobic digesters, two chlorine contact tanks, one high flow effluent pump, one volute sludge press, four reed beds, outfall.

Chemical:

Uses Alum (Aluminum Sulfate) for Phosphorus removal and for settling. Uses polymer for sludge thickening. Uses Chlorine for disinfection.

Compliance History	
Summary of DMRs:	The DMRs reported from August 1, 2020 to July 31, 2021 are summarized in the Table below (Pages # 5 & 6).
Summary of Inspections:	8/5/2020: DEP WQS conducted inspection due to Oley Township STP notified the Department of flooding, influent overflow, and failure as a result of receiving over 6" of rainfall on 8/4/2020. There were no violations noted during inspection. Mr. Eshbach stated that the wet well and one digester was pumped yesterday morning by Klines prior to flooding. Stream was almost level with chlorine contact tank which experienced overflow. Composite samples were collected throughout the event. 5/31/2019: DEP ECS conducted routine inspection. There were violations noted such as: Final effluent was discolored brown. A high concentration of suspended solids was observed discharging through the chlorine contact tank. Biosolids were observed on the ground outside belt filter press room overhead door. On 5/13/2019 – plant operation log entry "Cl_2 tank overflowed". On 5/14/2019-plant operation log entry "effluent dirty, did not start sampler". Recommend notify the Department when the plant enters storm mode. 11/30/2017- DEP ECS conducted a compliance evaluation inspection. There were no violations noted during inspection. There were recommendations such as notify the Department when return line piping in modified, or a pump or treatment unit will be taken offline for an extended period. Field test results were within the permit limits.
Other Comments:	There is currently no open violation associated with the permit.

Other Comments:

Compliance History

DMR Data for Outfall 001 (from August 1, 2020 to July 31, 2021)

Parameter	JUL-21	JUN-21	MAY-21	APR-21	MAR-21	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20
Flow (MGD) Average Monthly	0.225	0.199	0.183	0.267	0.476	0.331	0.303	0.380	0.211	0.167	0.163	0.291
Flow (MGD) Daily Maximum	0.372	0.243	0.283	0.389	1.078	0.895	0.554	0.999	0.545	0.189	0.185	0.649
pH (S.U.) Minimum	7.2	7.2	7.2	6.8	7.7	7.1	7.0	6.6	6.4	6.7	6.7	7.1
pH (S.U.) Instantaneous Maximum	7.9	8.1	7.9	7.9	6.9	7.8	7.8	7.8	7.9	8.0	8.0	7.8
DO (mg/L) Minimum	5.1	5.2	5.3	5.9	5.2	6.0	5.3	5.4	6.3	7.2	5.5	5.5
TRC (mg/L) Average Monthly	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.4	0.2	0.2
TRC (mg/L) Instantaneous Maximum	0.48	0.52	0.88	0.45	0.54	0.78	0.66	0.77	0.5	0.61	0.6	1.14
CBOD5 (lbs/day) Average Monthly	< 7	5	11	9	< 10	< 7	< 5	< 10	< 3.0	4.0	6	12
CBOD5 (lbs/day) Weekly Average	11	6	33	13	20	13	< 7	15	6	4.0	11	25
CBOD5 (mg/L) Average Monthly	< 4	3	7	4	< 2	< 3	2.0	< 4	< 2.0	3.0	4	4
CBOD5 (mg/L) Weekly Average	6	4	19	5	3	4	3	5.6	3	3.0	6	6
BOD5 (lbs/day) Influent Average Monthly	236	184	198	257	379	540	256	698	338	277	541	413
BOD5 (mg/L) Influent Average Monthly	132	111	131	127	105	175	105	258	214	215	343	179
TSS (lbs/day) Average Monthly	< 10	< 7	< 6	< 8	< 16	< 11	< 9	< 10	< 6	< 5.0	< 6	< 20
TSS (lbs/day) Influent Average Monthly	362	210	227	409	456	502	305	661	453	321	909	912
TSS (lbs/day) Weekly Average	15	7	7	< 10	< 25	< 14	< 14	< 15	< 7	< 6.0	< 10	55
TSS (mg/L) Average Monthly	< 5	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 7

TSS (mg/L) Influent Average Monthly	203	< 129	149	217	123	164	126	252	284	249	580	326
TSS (mg/L) Weekly Average	10	< 4	4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	13
Total Dissolved Solids (lbs/day) Average Monthly		799			926			749			1001	
Total Dissolved Solids (mg/L) Average		420			398			538			566	
Fecal Coliform (CFU/100 ml) Geometric Mean	< 3	< 5	< 4	3	< 1	< 1	< 1	< 1	< 2	4	9	23
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	11	64	22	8	2	< 1	4	1	8	15	186	180
Total Nitrogen (lbs/day) Average Monthly	8	< 7	13	14	19	12	4.28	10	9	5.0	< 8	16
Total Nitrogen (mg/L) Average Monthly	4.2	4.26	8.49	7.26	4.63	4.72	9	3.83	3.53	4.16	< 3.21	5.07
Ammonia (lbs/day) Average Monthly	< 0.2	< 0.3	8	10	5	3	5	4	4	< 0.9	< 6	< 8
Ammonia (mg/L) Average Monthly	< 1	0.18	5	5	1	1	2	2	< 1	< 1	< 1	< 2
Total Phosphorus (lbs/day) Average Monthly	2.3	2.6	1.5	1.0	1.7	2.1	1.7	1.6	3.0	1.2	2.3	1.4
Total Phosphorus (mg/L) Average Monthly	1.3	1.5	1.0	0.5	0.4	0.9	0.8	0.6	0.8	0.9	1.5	0.5

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.4
Latitude 40º 22' 30.00" **Longitude** -75º 44' 6.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments:

Water Quality-Based Limitations

Ammonia (NH_3-N):
NH_3N calculations are based on the Department's Implementation Guidance of Section 93.7 Ammonia Criteria, dated 11/4/97 (ID No. 391-2000-013). The following data is necessary to determine the in-stream NH_3-N criteria used in the attached WQM 7.0 computer model of the stream:

*	Discharge pH	=	7.0	(Default)
*	Discharge Temperature	=	25°C	(Default)
*	Stream pH	=	7.0	(Default)
*	Stream Temperature	=	20ºC	(Default)
*	Background NH_3-N	=	0 mg/L	(Default)

Regarding NH_3-N limits, the attached computer printout of the WQM 7.0 stream model (version 1.1) indicates that a limit of 25.0 mg/L as a monthly average and 50.0 mg/L IMAX are necessary to protect the aquatic life from toxicity effects at the point of discharge. The DRBC Ammonia limit of 20.0 mg/L is therefore imposed, the same as in the previous NPDES permit. Then, the existing limits of 20.0 mg/L monthly average & 40.0 mg/L IMAX are more stringent and will remain in the proposed permit. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 20.0 mg/L x 0.4 MGD x 8.34 = 66.7 (67.0) lbs/day

Carbonaceous Biochemical Oxygen Demand ($CBOD_5$):
The attached computer printout of the WQM 7.0 stream model (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 limits of 25.0 mg/L monthly average (AML), 40.0 mg/L weekly average, and 50.0 mg/L instantaneous maximum (IMAX) will remain in the proposed permit as per guidance document 391-2000-014. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 25.0 mg/L x 0.4 MGD x 8.34 = 83.4 (83.0) lbs/day
Average weekly mass limit: 40.0 mg/L x 0.4 MGD x 8.34 = 133.4 (133.0) lbs/day

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

Dissolved Oxygen (D.O.):
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. BPNPSM-PMT-033 and has been applied to other point source dischargers throughout the state.

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 1,000/100 ml and 25 Pa. Code § 92a.47.(a)(5) requires a winter limit of 2,000/100 ml as a geometric mean and an instantaneous maximum not greater than 10,000/100 ml.

E. Coli:
As recommended by DEP's SOP no. BPNPSM-PMT-033, 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/week will be included in the permit to be consistent with the recommendation from this SOP.

Total Suspended Solids (TSS):
The existing technology-based limits of 30.0 mg/L average monthly, 45.0 mg/L weekly average, and 60.0 mg/L instantaneous maximum will remain in the proposed permit based on the minimum level of effluent quality attainable by secondary treatment based on 25 Pa. Code § 92a.47. Recent DMRs and inspection reports show that the facility has been consistently achieving these limits. Mass limits are calculated as follows:

Average monthly mass limit: 30.0 mg/L x 0.4 MGD x 8.34 = 100.0 lbs/day
Average weekly mass limit: 45.0 mg/L x 0.4 MGD x 8.34 = 150.1 (150.0) lbs/day

Total Phosphorus:
Previous permit had average monthly concentration monitoring requirement 2.0 mg/l and instantaneous maximum limit of 4.0 mg/l. Accordingly, existing TP limits will remain in the proposed permit. See the EPA guidance, Nutrient Criteria Technical Guidance Manual – Rivers and Streams, 07/2000 EPA-822-B-00-002, for more information about nutrient impacts on streams. Mass limits are calculated as follows:

Average monthly mass limit: 2.0 mg/L x 0.4 MGD x 8.34 = 6.7 lbs/day

Biosolids Management:
Sludge is digested on-site, via an aerobic sludge digester, and removed by a certified hauler.

Additional Considerations

Flow Monitoring
Flow monitoring is recommended by the permit guidance and is also required by 25 Pa. Code §§ 92a.27 and 92a.61.

Influent Monitoring
As a result of negotiation with EPA, influent monitoring of TSS and BOD_5 are required for any POTWs; therefore, influent sampling of BOD_5 and TSS will be included in the draft permit. A 24-hr composite sample type will be required to be consistent with the proposed sampling frequency for TSS and $CBOD_5$ in the effluent.

Total Dissolved Solids (TDS)
The DRBC regulation [18 CFR Part 410] includes an effluent limit for TDS of 1,000 mg/L, because eight rounds of sampling per the application resulted in an average concentration of 466.0 mg/L for TDS (page 6), the Department contents that there is not a "reasonable potential" for the effluent to exceed this limit and is not imposing a limit. Additionally, State regulations [25 Pa. Code § 95.10] do not require a TDS limit until existing permittees increase their TDS mass load to less than or equal 5,000 lbs/day. Mass limits are calculated as follows:

Average monthly mass limit: 466.0 mg/L x 0.4 MGD x 8.34 = 1,554.6 lbs/day

The TDS mass load average monthly is 1,554.6 lbs/day and is well below 5,000 lbs/day. Due to DRBC's requirements, then the TDS monitoring and report (1/quarter) requirements will remain in the proposed permit.

Total Nitrogen

Monitoring requirements for Total Nitrogen are being added to all NPDES permits in the State if the permit does not already include them, as authorized by 25 Pa. Code § 92a.61. Controlling nutrients in waterways requires data collection. The existing minimum monitoring and report calculation of monthly for Total Nitrogen permit will be remain in the proposed permit

Toxics

DEP utilizes a Toxics Management Spreadsheet (last modified on March 2021 ver. 1.3) to facilitate calculations necessary for completing a reasonable potential analysis and determining WQBELs for toxic pollutants. The effluent testing information renewal application (page 6) indicates that there are no toxic pollutants of concern.

Class A Wild Trout Fisheries

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

Anti-Backsliding

No limits have been included in the renewal permit that are less stringent than in the previous permit.

Antidegradation (Chapter 93.4)

The effluent limits for this discharge have been developed to ensure that existing stream uses and the level of water quality necessary to protect the existing uses are maintained and protected. No High Quality (HQ) or Exceptional Value (EV) waters are impacted by this discharge.

WQM 7.0 Data:

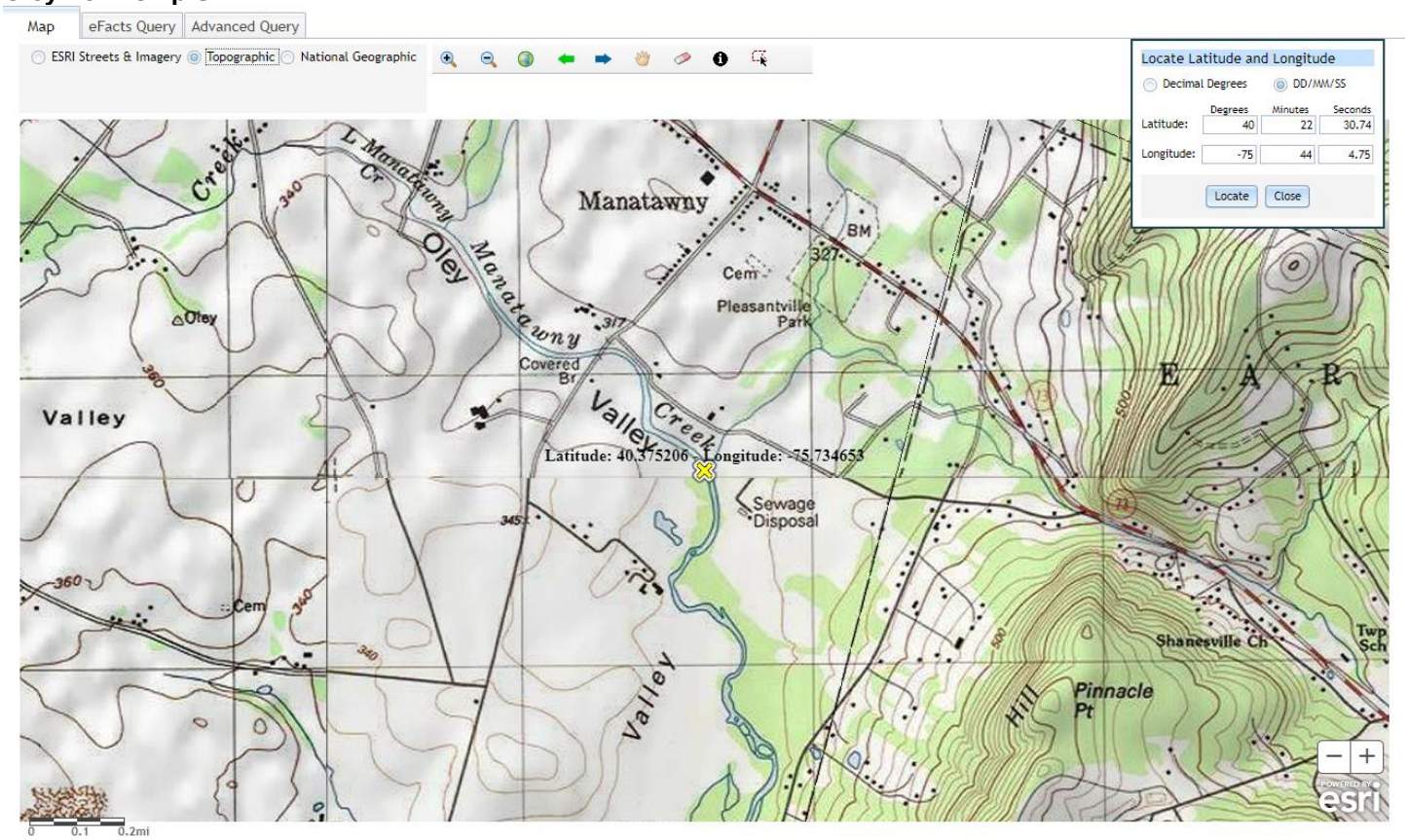
D.O. Goal: 6.0 mg/L

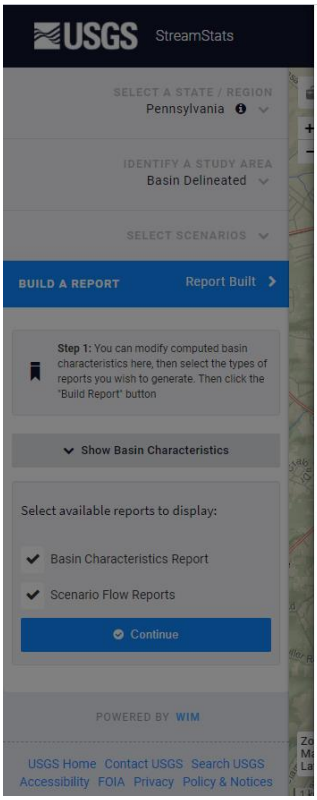
Node 1: Manatawny Creek (01655)

Elevation:	302 ft (USGS National Map Viewer)
Drainage Area:	48.6 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	15.8 (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	0.4 MGD (NPDES Application)

Node 2: Just before confluence with Furnace Run

Elevation:	287 ft (USGS National Map Viewer)
Drainage Area:	49.9 $mi.^2$ (USGS PA StreamStats)
River Mile Index:	13.9 (PA DEP eMapPA)
Low Flow Yield:	0.3 $cfs/mi.^2$
Discharge Flow:	0.000 MGD





Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	48.6	square miles
BSLOPD	Mean basin slope measured in degrees	6.6066	degrees
ROCKDEP	Depth to rock	5.2	feet
URBAN	Percentage of basin with urban development	1.6025	percent

Low-Flow Statistics Parameters [99.8 Percent (48.4 square miles) Low Flow Region 1]

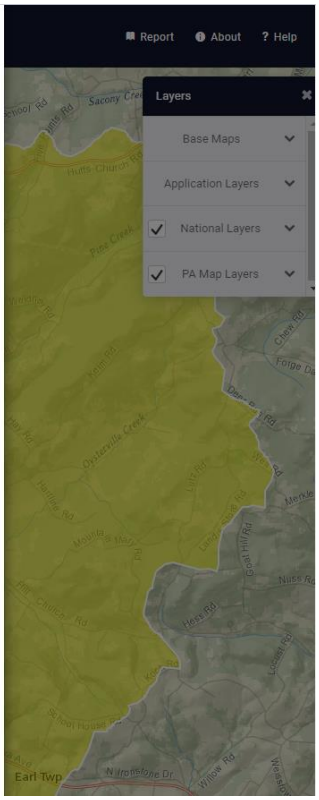
Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	48.6	square miles	4.78	1150
BSLOPD	Mean Basin Slope degrees	6.6066	degrees	1.7	6.4
ROCKDEP	Depth to Rock	5.2	feet	4.13	5.21
URBAN	Percent Urban	1.6025	percent	0	89

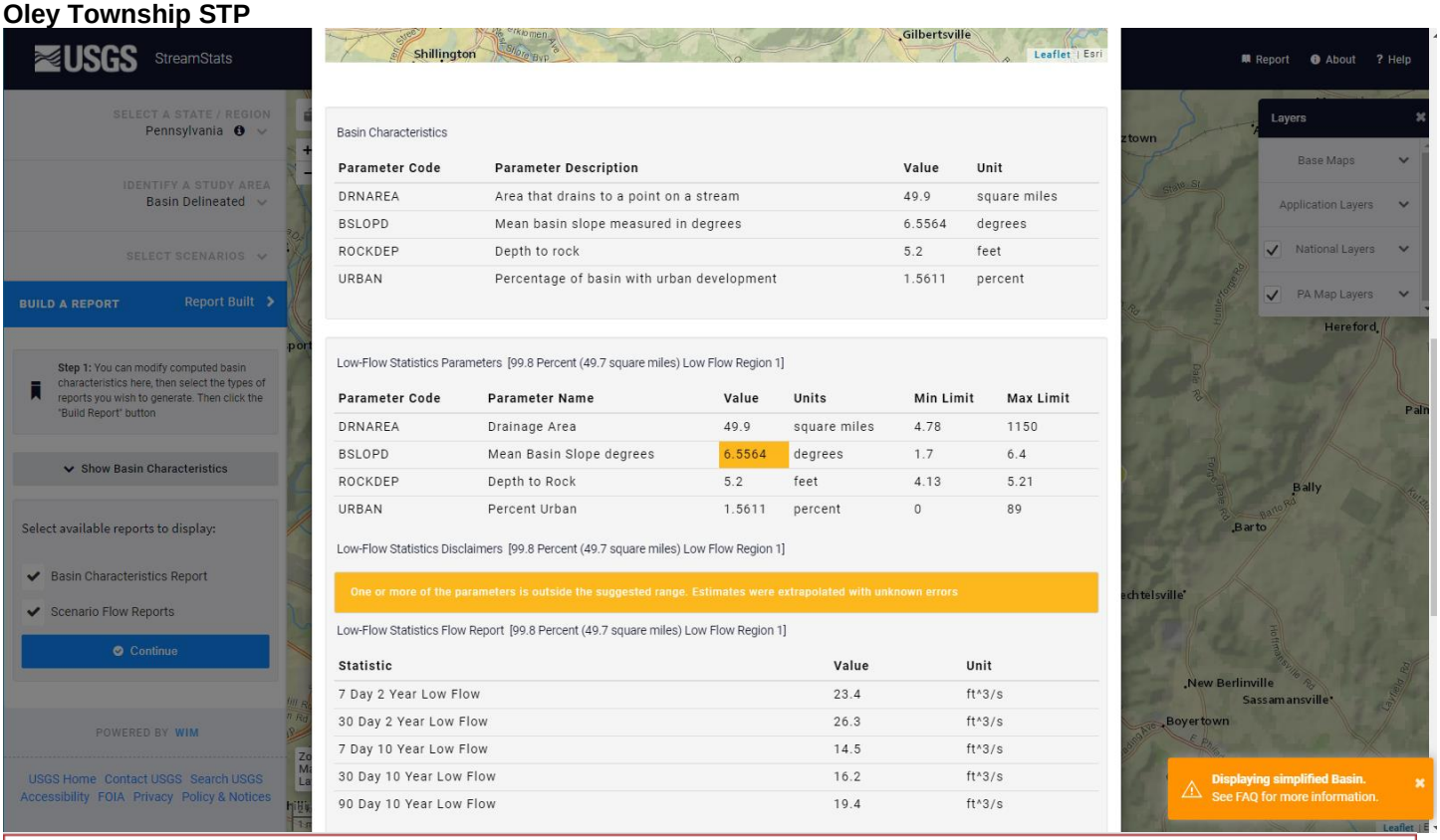
Low-Flow Statistics Disclaimers [99.8 Percent (48.4 square miles) Low Flow Region 1]

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

Low-Flow Statistics Flow Report [99.8 Percent (48.4 square miles) Low Flow Region 1]

Statistic	Value	Unit
7 Day 2 Year Low Flow	23.1	ft^3/s
30 Day 2 Year Low Flow	25.9	ft^3/s
7 Day 10 Year Low Flow	14.3	ft^3/s
30 Day 10 Year Low Flow	15.9	ft^3/s
90 Day 10 Year Low Flow	19	ft^3/s




USGS StreamStats
SELECT A STATE / REGION
Pennsylvania
IDENTIFY A STUDY AREA
Basin Delineated
SELECT SCENARIOS
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
Continue
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Accessibility FOIA Privacy Policy & Notices
Shillington
Gilbertsville
Leaflet | Esri
Basin Characteristics
Parameter Code | Parameter Description | Value | Unit
DRNAREA | Area that drains to a point on a stream | 49.9 | square miles
BSLOPD | Mean basin slope measured in degrees | 6.5564 | degrees
ROCKDEP | Depth to rock | 5.2 | feet
URBAN | Percentage of basin with urban development | 1.5611 | percent
Low-Flow Statistics Parameters [99.8 Percent (49.7 square miles) Low Flow Region 1]
Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit
DRNAREA | Drainage Area | 49.9 | square miles | 4.78 | 1150
BSLOPD | Mean Basin Slope degrees | 6.5564 | degrees | 1.7 | 6.4
ROCKDEP | Depth to Rock | 5.2 | feet | 4.13 | 5.21
URBAN | Percent Urban | 1.5611 | percent | 0 | 89
Low-Flow Statistics Disclaimers [99.8 Percent (49.7 square miles) 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 [99.8 Percent (49.7 square miles) Low Flow Region 1]
Statistic | Value | Unit
7 Day 2 Year Low Flow | 23.4 | ft^3/s
30 Day 2 Year Low Flow | 26.3 | ft^3/s
7 Day 10 Year Low Flow | 14.5 | ft^3/s
30 Day 10 Year Low Flow | 16.2 | ft^3/s
90 Day 10 Year Low Flow | 19.4 | ft^3/s
Report
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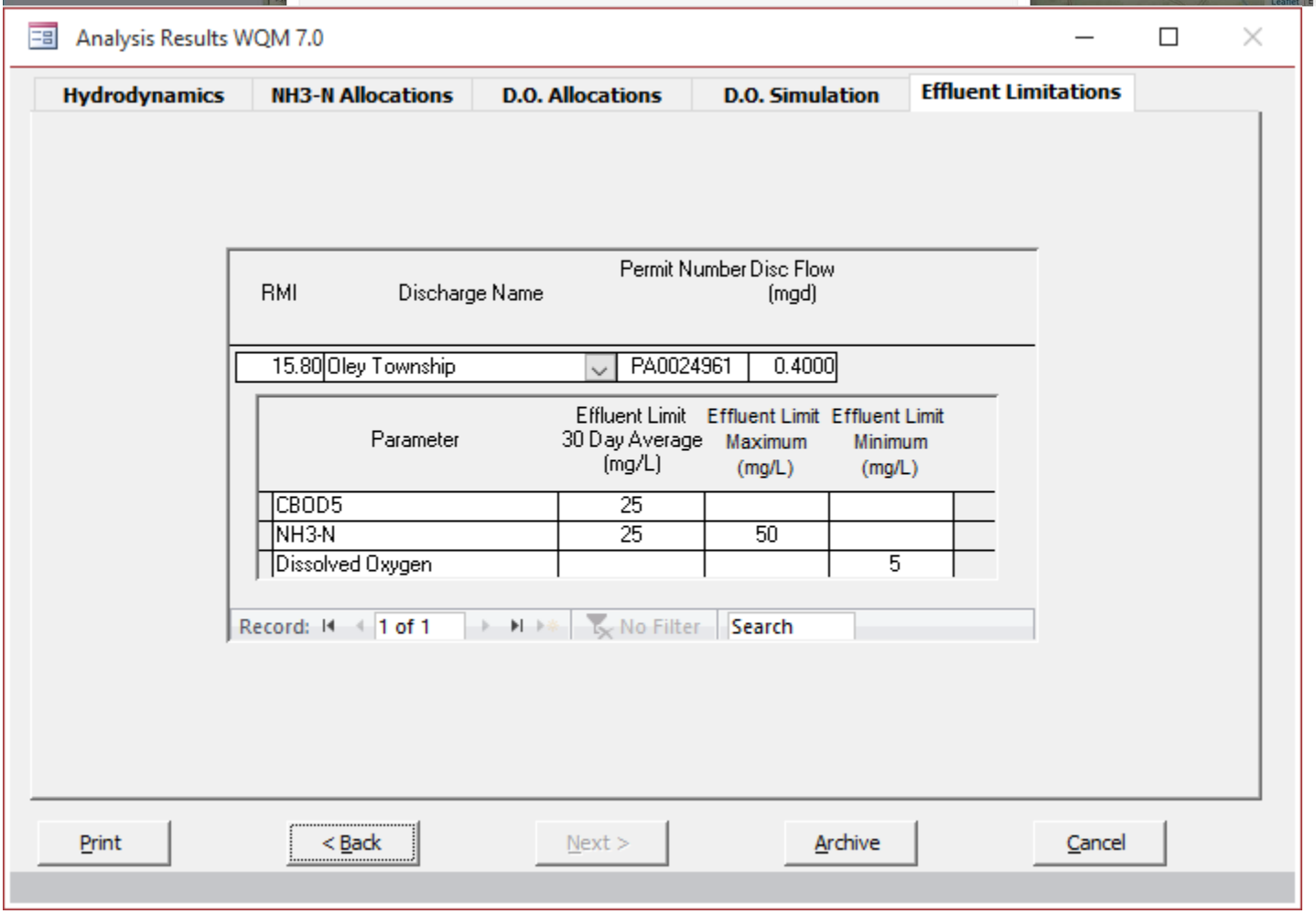
Hereford
Bally
Barto
New Berlinville
Sassamansville
Boyertown
Displaying simplified Basin.
See FAQ for more information.


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)
15.80
Oley Township
PA0024961
0.4000
Parameter
Effluent Limit 30 Day Average (mg/L)
Effluent Limit Maximum (mg/L)
Effluent Limit Minimum (mg/L)
CBOD5
25
NH3-N
25
50
Dissolved Oxygen
5
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rptEffLimits

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
03D	1855	MANATAWNY CREEK

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)
15.800	Oley Township	PA0024961	0.400	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			5

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rpt_WLA

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
03D	1855	MANATAWNY 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
15.800	Oley Township	16.33	50	16.33	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
15.800	Oley Township	1.87	25	1.87	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
15.80	Oley Township	25	25	25	25	5	5	0	0

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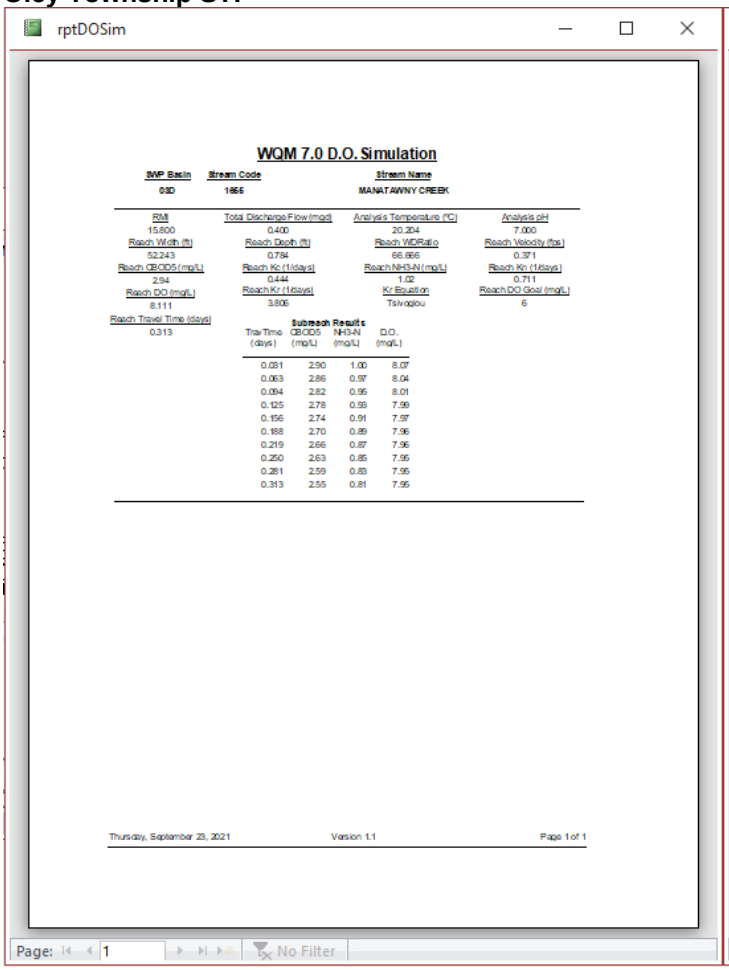
rptDOSim

WQM 7.0 D.O. Simulation

SWP Basin	Stream Code	Stream Name
03D	1665	MANATAWNY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
15.800	0.400	20.204	7.000
Reach Width (ft)	Reach Depth (ft)	Reach W/D Ratio	Reach Velocity (fps)
52.243	0.794	66.966	0.371
Reach CBOD5 (mg/L)	Reach Kc (1/days)	Reach NH3-N (mg/L)	Reach Kn (1/days)
2.94	0.444	1.02	0.711
Reach DO (mg/L)	Reach Kr (1/days)	Kr Equation	Reach DO Goal (mg/L)
8.111	3.806	Tsivoglou	6
Reach Travel Time (days)			
0.313			

Subreach Results

Trav Time (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.031	2.90	1.00	8.07
0.063	2.86	0.97	8.04
0.094	2.82	0.95	8.01
0.125	2.78	0.93	7.99
0.156	2.74	0.91	7.97
0.188	2.70	0.89	7.96
0.219	2.66	0.87	7.96
0.250	2.63	0.85	7.95
0.281	2.59	0.83	7.95
0.313	2.55	0.81	7.95

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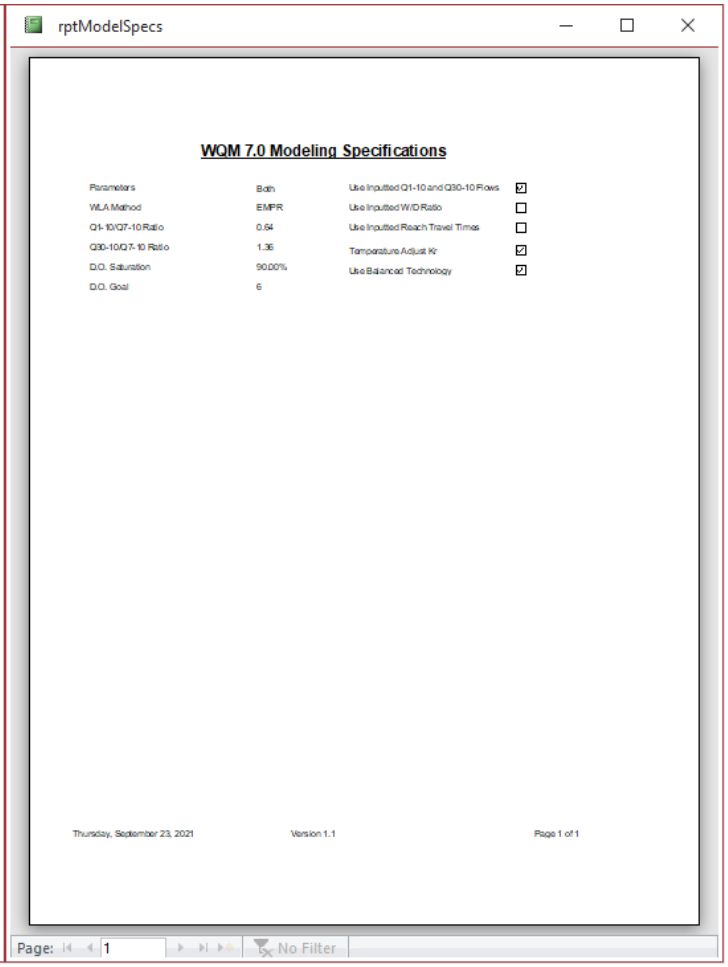
rptModelSpecs

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows ☑
WLA Method	EMPR	Use Inputted W/D Ratio ☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times ☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr ☑
D.O. Saturation	90.00%	Use Balanced Technology ☑
D.O. Goal	6	

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rptHydro

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
03D	1655	MANATAWNY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
15.800	14.58	0.00	14.58	.6188	0.00150	.784	52.24	66.67	0.37	0.313	20.20	7.00
Q1-10 Flow												
15.800	9.33	0.00	9.33	.6188	0.00150	NA	NA	NA	0.29	0.397	20.31	7.00
Q30-10 Flow												
15.800	19.83	0.00	19.83	.6188	0.00150	NA	NA	NA	0.44	0.265	20.15	7.00

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rptGeneral

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
03D	1655	MANATAWNY CREEK	15.800	302.00	48.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.300	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
Oley Township	PA0024961	0.4000	0.4000	0.4000	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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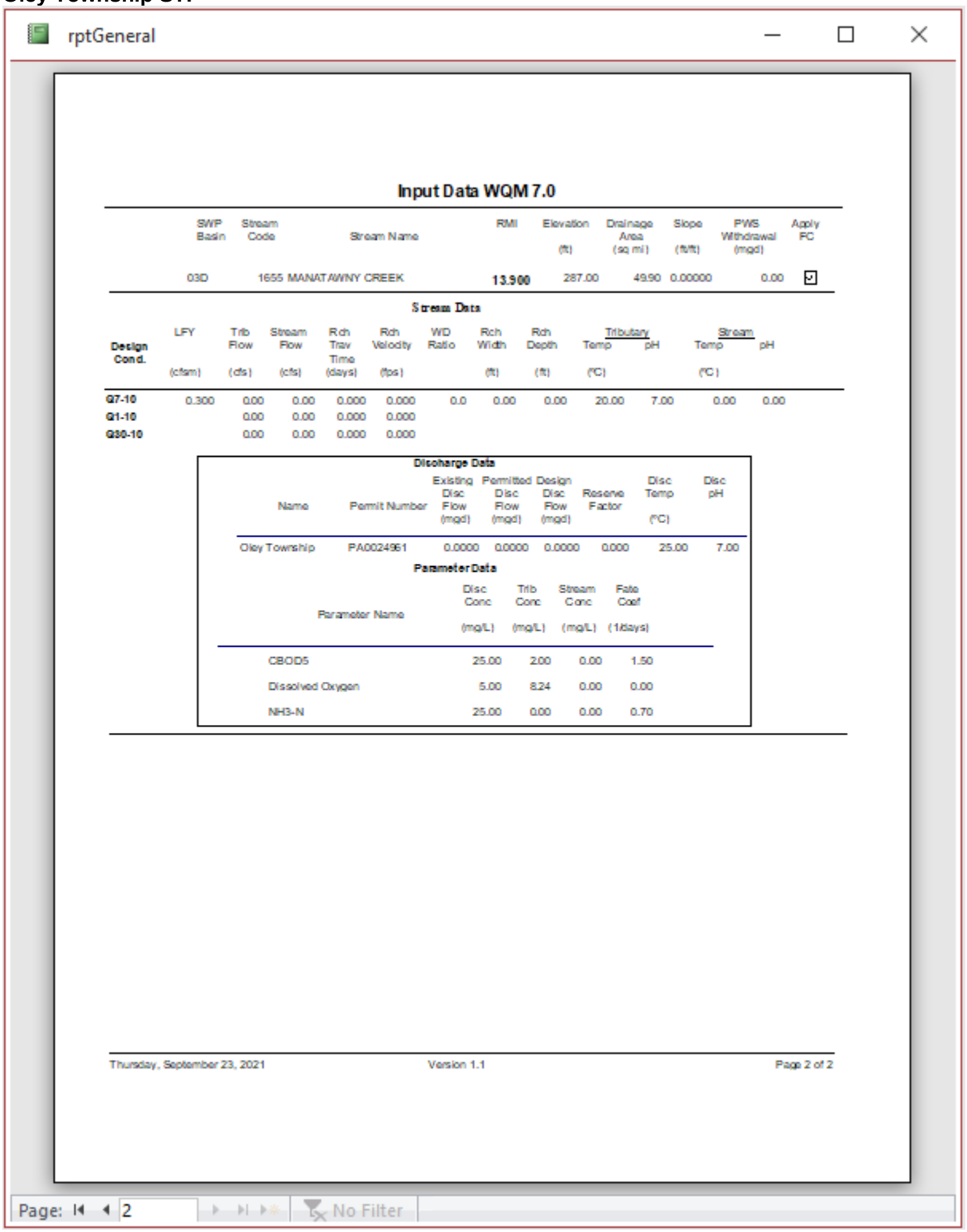

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
03D	1655	MANATAWNY CREEK	13.900	287.00	49.90	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	0.300	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
Oley Township	PA0024961	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

14.3	= Q stream (cfs)	0.5	= CV Daily
0.4	= 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 = 7.391	1.3.2.iii	WLA cfc = 7.198
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2.754	5.1d	LTA_cfc = 4.185

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ
		INST MAX LIMIT (mg/l) = 1.635	

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	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	83	133	XXX	25	40	50	1/week	24-Hr Composite
TSS	100	150	XXX	30	45	60	1/week	24-Hr Composite
BOD5 Effluent Net	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Effluent Net	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
Total Dissolved Solids	Report Average	XXX	XXX	Report Average	XXX	XXX	1/quarter	24-Hr Composite
Ammonia	67	XXX	XXX	20	XXX	40	1/week	24-Hr Composite
Total Phosphorus	6.7	XXX	XXX	2.0	XXX	4.0	1/week	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

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

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
D.O.	XXX	XXX	5.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	83.0	133.0 Wkly Avg	XXX	25.0	40.0	50.0	1/week	24-Hr Composite
TSS	100.0	150.0 Wkly Avg	XXX	30.0	45.0	60.0	1/week	24-Hr Composite
BOD5 Effluent Net	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Effluent Net	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1,000	1/week	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2,000 Geo Mean	XXX	10,000	1/week	Grab
E. Coli (No./100 ml)	XXX	XXX	XXX	XXX	XXX	Report	1/week	Grab
Ammonia	67.0	XXX	XXX	20.0	XXX	40.0	1/week	24-Hr Composite
Total Phosphorus	6.7	XXX	XXX	2.0	XXX	4.0	1/week	24-Hr Composite
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/month	Calculation
Total Dissolved Solids	Report Avg Qrtly	XXX	XXX	Report Avg Qrtly	XXX	XXX	1/quarter	24-Hr Composite

Compliance Sampling Location:

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, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☒	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 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, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 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, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☒	Other: DRBC