

Application Type Renewal  
Facility Type Municipal  
Major / Minor Minor

**NPDES PERMIT FACT SHEET  
INDIVIDUAL SEWAGE**

Application No. PA0050393  
APS ID 1031187  
Authorization ID 1341025

**Applicant and Facility Information**

Applicant Name	<u>Worcester Township</u>	Facility Name	<u>Valley Green STP</u>
Applicant Address	<u>1721 Valley Forge Road, P. O. Box 767</u> <u>Worcester, PA 19490-0767</u>	Facility Address	<u>Valley Forge Road &amp; Defford Road</u> <u>Worcester, PA 19490</u>
Applicant Contact	<u>Tommy Ryan</u>	Facility Contact	<u>Tommy Ryan</u>
Applicant Phone	<u>(610) 584-1410</u>	Facility Phone	<u>(610) 584-1410</u>
Client ID	<u>43063</u>	Site ID	<u>458764</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Worcester Township</u>
Connection Status		County	<u>Montgomery</u>
Date Application Received	<u>January 21, 2021</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted		If No, Reason	
Purpose of Application	<u>Permit renewal.</u>		

**Summary of Review**

The applicant requests a renewal of their NPDES permit to discharge 0.22 MGD of treated sewage from Valley Green STP into Zacharias Creek. The STP is a package type treatment plant with two separate trains. Plant consists influent pump station, comminution with bypass bar screens, flow equalization basins, extended aeration activated sludge process, secondary clarification, chemical flocculation chambers, settling chambers, gravity filtration and UV disinfection. Waste sludge to holding tank and then offsite for disposal at Warminster NAWC WWTP.

The effluent from the STP is generally in compliance with existing permit limits. Effluent limits for all the parameters will remain the same in this permit renewal.

Following are the effluent limits:

Parameter	Effluent Limit (Av. mo. mg/l)	Basis
CBOD5	10	WQM Model
Total Suspended Solids	16	Existing limit
Ammonia-Nitrogen	2.0	WQM Model
Dissolved Oxygen	6.0	WQM Model
Fecal Coliform (No./100 ml)	200 Geo Mean	Pa Code 92a.47
pH (SU)	6.0 to 9.0	Pa Code 92a.47, 95.2
Ultraviolet light intensity ( $\mu\text{w}/\text{cm}^2$ )	Report	Pa Code 92a.47-48
Total Nitrogen	Report	Pa Code 92a.61
Total Phosphorus	0.61	Existing limit-previous Skippack TMDL
Total Dissolved Solids	Report	DRBC

Approve	Deny	Signatures	Date
X		<i>Ketan Thaker</i> Ketan Thaker / Project Manager	April 20, 2021
X		<i>Pravin Patel</i> Pravin C. Patel, P.E. / Environmental Engineer Manager	04/20/2021

Summary of Review

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
03E	1048	ZACHARIAS 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)
2.600	Valley Green ST	PA0050393	0.000	CBOD5	10		
				NH3-N	1.72	3.44	
				Dissolved Oxygen			6

Summary of Review

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
03E	1048	ZACHARIAS CREEK	2.600	210.00	3.61	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary		Stream	
									Temp (°C)	pH	Temp (°C)	pH
Q7-10	0.100	0.00	0.05	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
Valley Green ST	PA0050393	0.0000	0.2200	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	10.00	2.00	0.00	1.50
Dissolved Oxygen	6.00	8.24	0.00	0.00
NH3-N	2.00	0.00	0.00	0.70

Summary of Review

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
03E	1048	ZACHARIAS CREEK	0.000	150.00	8.19	0.00000	0.00	<input checked="" type="checkbox"/>

Stream Data

Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Tributary pH	Stream Temp	Stream pH
	(cfs)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.100	0.00	0.14	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

**Summary of Review**

**WQM 7.0 Hydrodynamic Outputs**

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
03E		1048				ZACHARIAS 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)	
<b>Q7-10 Flow</b>												
2.600	0.05	0.00	0.05	.3403	0.00437	.439	9.62	21.89	0.09	1.713	24.34	7.00
<b>Q1-10 Flow</b>												
2.600	0.03	0.00	0.03	.3403	0.00437	NA	NA	NA	0.09	1.761	24.56	7.00
<b>Q30-10 Flow</b>												
2.600	0.07	0.00	0.07	.3403	0.00437	NA	NA	NA	0.10	1.669	24.14	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	6		

Summary of Review

**WQM 7.0 D.O.Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
03E	1048	ZACHARIAS CREEK		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
2.600	0.220	24.341	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
9.620	0.439	21.893	0.093	
<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>	
8.95	0.716	1.49	0.978	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
6.296	22.382	Owens	6	
<u>Reach Travel Time (days)</u>	<b>Subreach Results</b>			
1.713	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
	0.171	7.70	1.26	7.62
	0.343	6.63	1.07	7.62
	0.514	5.71	0.90	7.62
	0.685	4.91	0.76	7.62
	0.857	4.23	0.65	7.62
	1.028	3.64	0.55	7.62
	1.199	3.13	0.46	7.62
	1.371	2.70	0.39	7.62
	1.542	2.32	0.33	7.62
	1.713	2.00	0.28	7.62

Sludge use and disposal description and location(s): Warminster NAWC WWTP.

Act-14 Notifications to Worcester Township and Montgomery County Commissioners on December 29, 2020 by certified mail.

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.

**Discharge, Receiving Waters and Water Supply Information**

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.22</u>
Latitude	<u>40° 11' 55.73"</u>	Longitude	<u>-75° 20' 48.40"</u>
Quad Name	<u></u>	Quad Code	<u></u>
Wastewater Description: <u>Sewage Effluent</u>			

Receiving Waters	<u>Zacharias Creek (TSF, MF)</u>	Stream Code	<u>01048</u>
NHD Com ID	<u>25979108</u>	RMI	<u>2.6</u>
Drainage Area	<u>3.61</u>	Yield (cfs/mi <sup>2</sup> )	<u></u>
Q <sub>7-10</sub> Flow (cfs)	<u>0.0517 cfs</u>	Q <sub>7-10</sub> Basis	<u>streamstats</u>
Elevation (ft)	<u>210 ft</u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>3-E</u>	Chapter 93 Class.	<u>TSF, MF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>

Assessment Status	<u>Impaired</u>
Cause(s) of Impairment	<u>FLOW REGIME MODIFICATION, SILTATION, SILTATION</u>
Source(s) of Impairment	<u>RURAL (RESIDENTIAL AREAS), SOURCE UNKNOWN, URBAN RUNOFF/STORM SEWERS</u>

TMDL Status	<u>Final</u>	Name	<u>Skipack Creek Watershed TMDL - withdrawn</u>
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Background/Ambient Data	Data Source
pH (SU)	<u></u>
Temperature (°F)	<u></u>
Hardness (mg/L)	<u></u>
Other:	<u></u>

Nearest Downstream Public Water Supply Intake	
PWS Waters	<u></u> Flow at Intake (cfs) <u></u>
PWS RMI	<u></u> Distance from Outfall (mi) <u></u>

Treatment Facility Summary				
<b>Treatment Facility Name:</b> Valley Green STP				
<b>WQM Permit No.</b>	<b>Issuance Date</b>			
4697418	09/02/1998			
4605404	06/24/2005			
4613403	07/17/2013			
4614402	09/02/2014			
4613404	5/2015			
<b>Waste Type</b>	<b>Degree of Treatment</b>	<b>Process Type</b>	<b>Disinfection</b>	<b>Avg Annual Flow (MGD)</b>
Sewage	Tertiary	Extended Aeration With Solids Removal	Ultraviolet	0.22
<b>Hydraulic Capacity (MGD)</b>	<b>Organic Capacity (lbs/day)</b>	<b>Load Status</b>	<b>Biosolids Treatment</b>	<b>Biosolids Use/Disposal</b>
0.22	477	Not Overloaded		



Compliance History

DMR Data for Outfall 001 (from March 1, 2020 to February 28, 2021)

Parameter	FEB-21	JAN-21	DEC-20	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20
Flow (MGD) Average Monthly	0.1263	0.11	0.1307	0.1104	0.1102	0.1054	0.1177	0.1167	0.1129	0.1203	0.1271	0.1212
Flow (MGD) Daily Maximum	0.201	0.17	0.2603	0.1541	0.2206	0.1546	0.2516	0.2022	0.161	0.1623	0.2177	0.1976
pH (S.U.) Instantaneous Minimum	6.64	6.37	6.56	6.94	6.18	6.23	6.33	6.26	6.2	6.08	6.27	6.26
pH (S.U.) Instantaneous Maximum	8.6	8.4	8.16	8.41	7.93	8.48	8.33	8.46	8.02	8.56	7.72	7.23
DO (mg/L) Instantaneous Minimum	10.21	9.74	6.58	9.02	8.69	7.84	6.46	7.13	7.34	7.67	8.86	7.71
CBOD5 (lbs/day) Average Monthly	< 2.3	< 1.8	< 2.3	< 2.5	3.9	< 3.0	< 3.0	< 8.0	10.1	6.8	6.3	8.0
CBOD5 (lbs/day) Weekly Average	2.8	< 2.1	2.9	3.5	5.3	5.3	4.5	24.2	17.7	8.8	10.2	11.2
CBOD5 (mg/L) Average Monthly	< 2.2	< 2.0	< 2.4	< 3.0	4.2	< 3.6	< 3.2	< 7.9	11.7	8.0	5.8	8.5
CBOD5 (mg/L) Weekly Average	3.0	< 2.0	4.0	4.0	6.0	6.0	5.0	24.0	23.0	11.0	10.0	10.0
BOD5 (lbs/day) Raw Sewage Influent   Average Monthly	235	196	196	179	300	198	288	298	255	232	265	231
BOD5 (mg/L) Raw Sewage Influent   Average Monthly	230	214	219.9	223	324	250.7	283	302	280	271	249.1	221
TSS (lbs/day) Average Monthly	< 4.2	1.4	< 3.0	4.3	< 2.5	5.8	2.3	< 2.5	2.4	6.1	7.3	4.4
TSS (lbs/day) Raw Sewage Influent   Average Monthly	318	202	167	291	212	187	186	183	282	205	191	172

**NPDES Permit Fact Sheet  
Valley Green STP**

**NPDES Permit No. PA0050393**

TSS (lbs/day) Weekly Average	7.0	3.1	4.9	8.5	6.3	14.7	3.8	6.0	5.4	11.1	16.2	3.1
TSS (mg/L) Average Monthly	< 4.3	1.5	< 2.8	5.3	< 2.8	7.2	2.3	< 2.8	2.8	7.0	6.0	4.6
TSS (mg/L) Raw Sewage Influent   Average Monthly	317	223	199	353	229	223	192	183	298	243	179	178
TSS (mg/L) Weekly Average	8.0	3.0	4.0	10.0	7.0	16.0	3.0	7.0	7.0	11.0	11.0	8.0
Total Dissolved Solids (mg/L) Daily Maximum			598			651			598			520
Fecal Coliform (No./100 ml) Geometric Mean	< 7	< 7	< 11	< 3	< 2	< 3	< 2	< 5	< 4	< 2	< 2	< 2
Fecal Coliform (No./100 ml) Instantaneous Maximum	76	30	109	8	< 2	8	< 2	11	30	< 2	< 2	< 2
UV Intensity (µw/cm <sup>2</sup> ) Daily Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.01	0.01
Total Nitrogen (mg/L) Average Monthly	< 27.07	< 33.41	< 27.71	< 36.87	< 40.73	< 37.29	< 34.87	< 34.78	< 29.51	< 38.01	< 33.39	< 34.63
Ammonia (lbs/day) Average Monthly	< 0.1	< 0.3	< 0.1	< 0.1	< 0.1	< 0.2	< 0.2	< 0.1	0.2	0.3	< 0.1	< 0.2
Ammonia (mg/L) Average Monthly	< 0.1	< 0.3	< 0.12	< 0.14	< 0.12	< 0.21	< 0.19	< 0.11	0.21	0.37	< 0.11	< 0.19
Total Phosphorus (lbs/day) Average Monthly	0.3	0.2	0.3	0.2	0.2	0.4	0.3	0.4	0.3	0.4	0.4	0.2
Total Phosphorus (mg/L) Average Monthly	0.27	0.18	0.25	0.26	0.18	0.45	0.34	0.43	0.34	0.46	0.30	0.23

**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) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	6.0 Inst Min	XXX	XXX	XXX	1/day	Grab
CBOD5	18.3	27.5	XXX	10.0	15.0	20	1/week	24-Hr Composite
BOD5 Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS Raw Sewage Influent	Report	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
TSS	29.0	44.0	XXX	16.0	24.0	32	1/week	24-Hr Composite
Total Dissolved Solids	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/quarter	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
UV Intensity (µw/cm²)	XXX	XXX	Report	XXX	XXX	XXX	1/day	Metered
Total Nitrogen	XXX	XXX	XXX	Report	XXX	XXX	1/week	24-Hr Composite
Ammonia	3.7	XXX	XXX	2.0	XXX	4	1/week	24-Hr Composite

Outfall001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) <sup>(1)</sup>		Concentrations (mg/L)				Minimum <sup>(2)</sup> Measurement Frequency	Required Sample Type
	Average Monthly	Weekly Average	Daily Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Total Phosphorus	1.1	XXX	XXX	0.61	XXX	1	1/week 24-Hr Composite	