pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0110485**
Facility Type	**Non-Municipal**	APS ID	**1103475**
Major / Minor	**Minor**	Authorization ID	**1466757**

Applicant and Facility Information

Applicant Name	**Veolia Water PA, Inc.**	Facility Name	**Columbia County Industrial Park WWTP**
Applicant Address	6310 Allentown Boulevard Suite 104 Harrisburg, PA 17112-2739	Facility Address	90 Irondale Road Bloomsburg, PA 17815-8501
Applicant Contact	Larry Finnicum	Facility Contact	Tate Hunsinger
Applicant Phone	(302) 258-6425	Facility Phone	(570) 784-4487
Client ID	64718	Site ID	442578
Ch 94 Load Status	Not Overloaded	Municipality	South Centre Township
Connection Status	No Limitations	County	Columbia
Date Application Received	December 27, 2023	EPA Waived?	Yes
Date Application Accepted	January 2, 2024	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit

Summary of Review

This facility is a sewage treatment plant treating only sewage from commercial and industrial establishments in South Centre Township, Columbia County.

A map showing the discharge location is attached.

Sludge use and disposal description and location(s): The facility's sludge is sent to other WWTPs for further processing. Per the application 3.603 tons were removed in the past year.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
✓		Keith C. Allison Keith C. Allison / Project Manager	June 12, 2024
✓		N. W. H. Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	June 12, 2024

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.035
Latitude	41º 1' 46.01"	Longitude	-76º 19' 34.13"
Quad Name	Mifflinville, PA	Quad Code	1035
Wastewater Description:	Sewage Effluent		
Receiving Waters	Susquehanna River (WWF, MF)	Stream Code	6685
NHD Com ID	65639851	RMI	155.77
Drainage Area	10,541	Yield (cfs/mi^2)	0.0998
Q_{7-10} Flow (cfs)	1,052	Q_{7-10} Basis	Streamgage No. 0154050, Susquehanna River @ Danville, PA
Elevation (ft)	460	Slope (ft/ft)	0.00008
Watershed No.	5-D	Chapter 93 Class.	WWF, MF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Impaired		
Cause(s) of Impairment	MERCURY, POLYCHLORINATED BIPHENYLS (PCBS), Siltation, Aluminum, and Iron		
Source(s) of Impairment	SOURCE UNKNOWN, Agriculture, Acid Mine Drainage		
TMDL Status	Name **Susquehanna River TMDLs**		
Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,120
PWS RMI	138.06	Distance from Outfall (mi)	17.01

Changes Since Last Permit Issuance: None. The above stream and discharge characteristics were determined for previous reviews and remain adequate.

Other Comments:

The discharge is not expected to have any impact on the impacts to the River for mercury and PCBs and has received no wasteload allocations in the Susquehanna River TMDL. The facility consistently meets its TSS limits and therefore is not expected to be affecting the impairment by siltation. In addition, given the size and nature of this STP discharge it is not expected that it is contributing to the noted impairment by Aluminum and Iron.

The discharge is not expected to affect any downstream water supply with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: Veolia Water PA Inc.

WQM Permit No.	Issuance Date
1979402	12/24/1980
1979402 T-1	9/21/1998

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Activated Sludge	Hypochlorite	0.035

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

Changes Since Last Permit Issuance: None

Other Comments: The facilities as permitted under WQM Permit No. 1979402 consists of bar screen, equalization, aeration, clarification, chlorination, and sludge storage.

Compliance History

DMR Data for Outfall 001 (from May 23, 2023 to April 30, 2024)

Parameter	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23	SEP-23	AUG-23	JUL-23	JUN-23	MAY-23
Flow (MGD) Average Monthly	0.0048	0.0062	0.0065	0.0064	0.0074	0.0089	0.0109	0.0132	0.0137	0.0084	0.0096	0.0077
pH (S.U.) Instantaneous Minimum	7.3	7.6	7.0	7.74	7.3	7.3	7.7	7.6	7.4	7.6	7.6	7.6
pH (S.U.) Instantaneous Maximum	7.9	8.0	7.9	8.4	8.0	8.2	8.1	8.1	8.0	8.1	7.8	7.9
DO (mg/L) Instantaneous Minimum	4.5	5.71	3.16	7.95	5.57	4.52	4.52	5.31	5.51	3.35	4.77	5.2
TRC (mg/L) Average Monthly	0.04	0.05	0.04	0.04	0.10	0.05	0.04	0.04	0.04	0.03	0.05	0.10
TRC (mg/L) Instantaneous Maximum	0.09	0.08	0.07	0.09	0.51	0.15	0.07	0.15	0.18	0.11	0.11	0.16
CBOD5 (mg/L) Average Monthly	1.2	9.0	7.0	< 2.0	3.35	1.9	0.2	< 6.0	< 6.0	< 6.0	6.0	< 6.0
CBOD5 (mg/L) Instantaneous Maximum	3.0	11.5	12.1	2.0	4.1	2.3	1.9	< 6.0	< 6.0	< 6.0	8.2	< 6.0
TSS (mg/L) Average Monthly	10.5	12.0	11.0	18.5	6.5	6.5	4.0	< 4.0	8.5	12.0	9.0	12.0
TSS (mg/L) Instantaneous Maximum	15.0	17.0	13.0	20.0	9.0	7.0	4.0	7.0	10.0	13.0	10.0	15.0
Fecal Coliform (No./100 ml) Geometric Mean	7.0	7.0	3.0	86.0	20.0	8.0	5.0	< 1.0	4.0	3.0	< 4.0	35.0
Fecal Coliform (No./100 ml) Instantaneous Maximum	8.6	49.5	4.1	193.5	21.1	21.8	6.3	1.0	5.2	5.2	13.4	48.7
Ammonia (mg/L) Average Monthly	1.75	< 0.1	3.1	6.1	< 0.2	< 0.1	0.2	< 0.02	< 0.2	< 0.20	1.85	3.5
Ammonia (mg/L) Instantaneous Maximum	3.4	< 0.1	6.1	10.1	< 0.2	< 0.1	0.3	< 0.02	< 0.2	< 0.20	3.5	4.1

Compliance History, Cont'd	
Summary of Inspections:	The facility has been inspected approximately annually by the Department over the past permit term. The most recent inspection on July 11, 2023 identified no violations at the time of inspection.
Other Comments:	There are no open violations for Veolia Water PA, Inc. in eFACTS

Effective 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	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	4/week	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	4/week	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.5	4/week	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000.0	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab
Total Phosphorus	XXX	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** .035
Latitude 41º 1' 49.00" **Longitude** -76º 19' 38.00"
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)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
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: The above limitations are applicable and are included in the existing permit.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed and verifies that the above technology-based limitations are adequate (Attachment B).

Total Residual Chlorine

The Department uses a modeling spreadsheet to analyze the toxicity of a discharge's Total Residual Chlorine (TRC) in a receiving stream. The attached modeling shows that the above technology-based limit of 0.5 mg/L is adequate to protect the receiving stream. See Attachment C.

Water Quality Toxics Management

No further "Reasonable Potential Analysis" has been performed at this time to determine whether additional toxic pollutants are candidates for monitoring or limitations for this minor sewage treatment plant with no industrial contributors.

Chesapeake Bay/Nutrient Requirements

According to the Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, this facility is considered a Phase 5 Chesapeake Bay sewage discharger, and as such requires no nutrient loading limits. The permittee performed regular nutrient sampling under the current permit term and the Total Nitrogen has averaged 13.7 mg/L and the Total Phosphorus has averaged 2.7 mg/L. Because the nutrients levels in the discharge have adequately been characterized through at least two (2) years of nutrient monitoring, no additional regular Total Nitrogen and Total Phosphorus monitoring will not be included in this proposed draft permit.

Best Professional Judgment (BPJ) Limitations

Comments: No BPJ limitations are necessary at this time beyond the technology and water quality-based limits listed above.

Anti-Backsliding

No limitations in this proposed draft permit have been made less stringent consistent with the anti-backsliding requirements of the Clean Water Act and 40 CFR 122.44(l).

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: Startup of New or Upgraded Facilities 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	XXX	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.5	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000.0 Geo Mean	XXX	10000.0	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200.0 Geo Mean	XXX	1000.0	2/month	Grab
Ammonia	XXX	XXX	XXX	Report	XXX	Report	2/month	Grab
E. Coli	XXX	XXX	XXX	XXX	Report Daily Max	XX	1/year	Grab

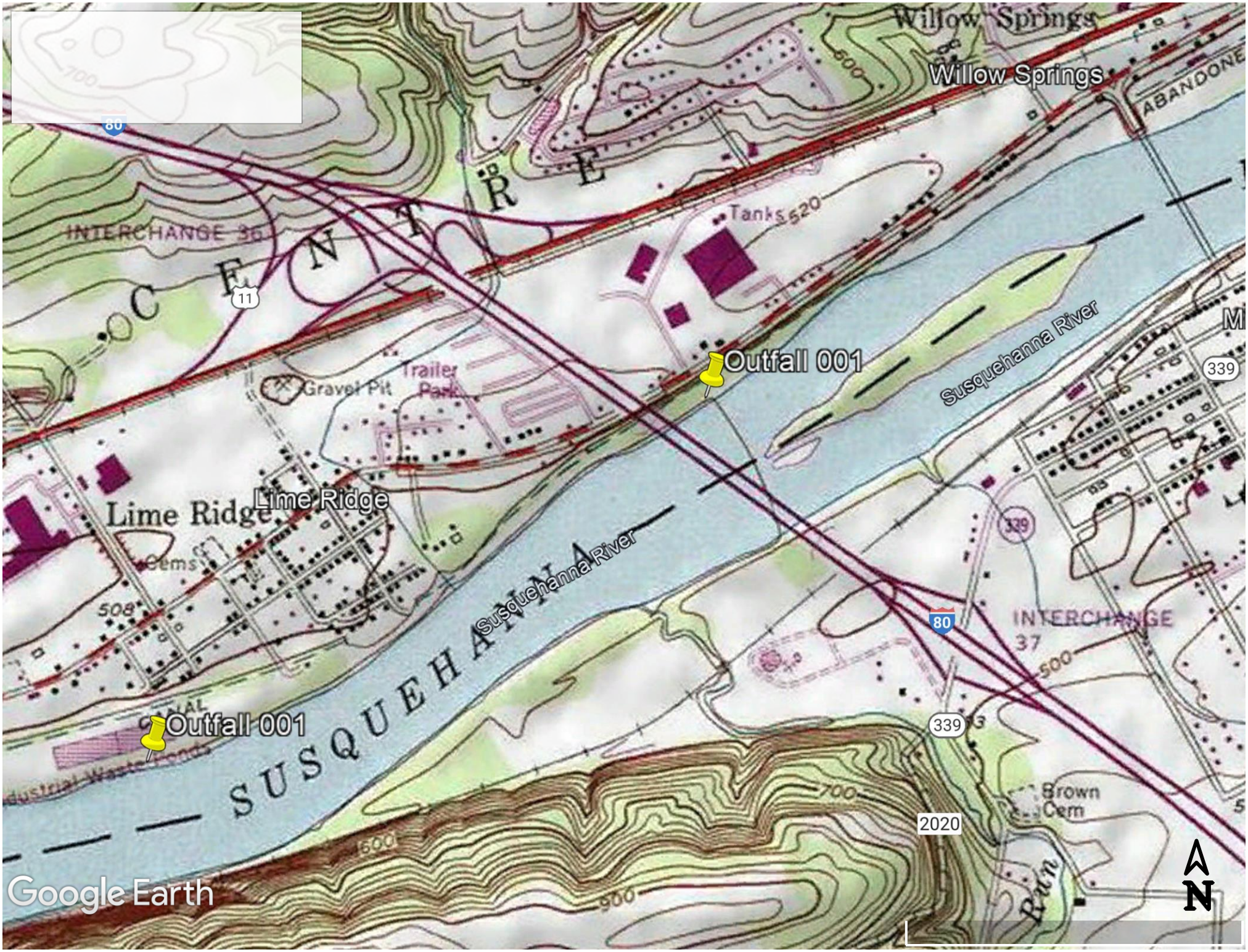
Compliance Sampling Location: Outfall 001

Other Comments: E. Coli monitoring is new consistent with recent changes to Chapter 93 of the Department's regulations and current Department policy. Total Nitrogen and Total Phosphorus monitoring have been removed as mentioned above. Because the facility receives flow daily the monitoring frequencies for pH, DO, and TRC have been updated from 4/week to daily consistent with Department guidance.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	Toxics Management Spreadsheet (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	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:
☐	Other:

Attachment:

A. Discharge Location Map
B. WQM7.0 Model
C. TRC Model


Willow Springs
Willow Springs
ABANDONE
INTERCHANGE 36
CENTRE
Tanks 520
Outfall 001
Susquehanna River
Gravel Pit
Trailer Park
Lime Ridge
Lime Ridge
Cems
508
SUSQUEHANNA
Susquehanna River
INTERCHANGE 37
500
339
339
Outfall 001
700
600
900
2020
Brown Cem
Run
N
Google Earth

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
07K	6685	SUSQUEHANNA RIVER	**155.770**	460.00	10541.90	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	0.100	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
Veolia Columbia	PA0110485	0.0350	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

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
07K	6685	SUSQUEHANNA RIVER	**155.530**	459.90	10551.50	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	0.100	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
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	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 (ºC)	Analysis pH
Q7-10 Flow												
155.770	1054.19	0.00	1054.19	.0541	0.00008	1.157	776.72	671.5	1.17	0.012	20.00	7.00
Q1-10 Flow												
155.770	674.68	0.00	674.68	.0541	0.00008	NA	NA	NA	0.91	0.016	20.00	7.00
Q30-10 Flow												
155.770	1433.70	0.00	1433.70	.0541	0.00008	NA	NA	NA	1.39	0.011	20.00	7.00

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	5		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
155.770	0.035	20.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
776.716	1.157	671.501	1.173
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.001	0.00	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	0.432	Tsivoglou	5
Reach Travel Time (days)			
0.012			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	2.00	0.00	8.24
0.002	2.00	0.00	8.24
0.004	2.00	0.00	8.24
0.005	2.00	0.00	8.24
0.006	2.00	0.00	8.24
0.007	2.00	0.00	8.24
0.009	2.00	0.00	8.24
0.010	2.00	0.00	8.24
0.011	2.00	0.00	8.24
0.012	2.00	0.00	8.24

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

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
155.770	Veolia Columbia	16.76	50	16.76	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
155.770	Veolia Columbia	1.89	25	1.89	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)		
155.77	Veolia Columbia	25	25	25	25	3	3	0	0

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

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)
155.770	Veolia Columbia	PA0110485	0.035	CBOD5	25		
				NH3-N	25	50	
				Dissolved Oxygen			3

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

1052	= Q stream (cfs)	0.5	= CV Daily
0.035	= 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 = 6197.969	1.3.2.iii	WLA cfc = 6042.526
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 2309.511	5.1d	LTA_cfc = 3512.841

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)