

Application Type Renewal
Facility Type Municipal
Major / Minor Minor

**NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE**

Application No. PA0228192
APS ID 1002917
Authorization ID 1290528

Applicant and Facility Information

Applicant Name	<u>Wallaceton Borough & Boggs Township Municipal Authority Clearfield County</u>	Facility Name	<u>Wallaceton-Boggs Municipal Authority Sewage Treatment Facility</u>
Applicant Address	<u>PO Box 97 59 Blue Ball Road West Decatur, PA 16878-0097</u>	Facility Address	<u>110 Blue Ball Road West Decatur, PA 16878</u>
Applicant Contact	<u>Ben Burns, Chairman</u>	Facility Contact	<u>Dennis Knepp, Operator</u>
Applicant Phone	<u>(814) 342-0725</u>	Facility Phone	<u>(814) 342-0725</u>
Client ID	<u>140753</u>	Site ID	<u>529177</u>
Ch 94 Load Status	<u>Not Overloaded</u>	Municipality	<u>Boggs Township</u>
Connection Status	<u>No Limitations</u>	County	<u>Clearfield</u>
Date Application Received	<u>September 30, 2019</u>	EPA Waived?	<u>Yes</u>
Date Application Accepted	<u>October 3, 2019</u>	If No, Reason	<u></u>
Purpose of Application	<u>Renewal of a NPDES Permit</u>		

Summary of Review

The subject facility is a Publicly Owned Treatment Works (POTW) serving Wallaceton Borough and a portion of Boggs Township. A map of the discharge location is attached.

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 / Project Manager	January 16, 2020
		Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	<u>001</u>	Design Flow (MGD)	<u>0.125</u>
Latitude	<u>40° 55' 40.58"</u>	Longitude	<u>-78° 16' 38.51"</u>
Quad Name	<u>Wallaceton, PA</u>	Quad Code	<u>1119</u>
Wastewater Description: <u>Sewage Effluent</u>			
Receiving Waters	<u>Laurel Run (CWF)</u>	Stream Code	<u>25853</u>
NHD Com ID	<u>61831495</u>	RMI	<u>3.33</u>
Drainage Area	<u>6.77 mi²</u>	Yield (cfs/mi ²)	<u>0.132</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.895</u>	Q ₇₋₁₀ Basis	<u>USGS Gage 01542000, Moshannon Creek @ Osceola Mills</u>
Elevation (ft)	<u>1500</u>	Slope (ft/ft)	<u>0.00794</u>
Watershed No.	<u>8-D</u>	Chapter 93 Class.	<u>CWF</u>
Existing Use	<u>N/A</u>	Existing Use Qualifier	<u>N/A</u>
Exceptions to Use	<u>None</u>	Exceptions to Criteria	<u>None</u>
Assessment Status	<u>Impaired</u>		
Cause(s) of Impairment	<u>METALS, PH, SILTATION</u>		
Source(s) of Impairment	<u>ACID MINE DRAINAGE, RURAL (RESIDENTIAL AREAS)</u>		
TMDL Status	<u>Final</u>	Name	<u>Laurel Run Clearfield County, Moshannon Creek Watershed</u>
Nearest Downstream Public Water Supply Intake	<u>PA-American Water Company @ Milton, PA</u>		
PWS Waters	<u>West Branch Susquehanna River</u>	Flow at Intake (cfs)	<u>8,500,000</u>
PWS RMI	<u>10.8</u>	Distance from Outfall (mi)	<u>Approx. 163</u>

Changes Since Last Permit Issuance: None. The stream and drainage characteristics determined for the prior review are adequate and unchanged here.

Other Comments: The discharge is not expected to be a significant contributor to the above-listed impairments to Laurel Run. The Laurel Run Clearfield County TMDL (April 2, 1007) and Moshannon Creek Watershed TMDL (May 27, 2009) both address impacts from Acid Mine Drainage (AMD). This municipal discharge is not listed in either TMDL as a contributor. Monitoring for Total Aluminum, Total Manganese, and Total Iron was required in the previous permit. The resulting average concentrations for Total Aluminum, Total Manganese, and Total Iron were 0.087, 0.11, and 0.062 mg/L, respectively, which are all below the instream criteria for these parameters. Therefore, this monitoring will be removed from the proposed permit.

The discharge TSS is typically under 10 mg/L and therefore, it is not expected to be contributing substantially the impairment by siltation in Laurel Creek.

No downstream water supply is expected to be affected by this discharge at this time with the limitations and monitoring proposed.

Treatment Facility Summary				
Treatment Facility Name: Wallaceton Boggs Sewage Treatment Facility				
WQM Permit No.		Issuance Date		
1799404		March 30, 2000		
1799404 A-1		October 14, 2016		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Extended Aeration	Gas Chlorine	0.125
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.125	250	Not Overloaded	Dewatering	Landfill

Changes Since Last Permit Issuance: The permittee replaced their former sludge bagging and conditioning with a filter press under WQM permit 1799404 Amendment No. 1.

Other Comments: Treatment consists of comminution, equalization, extended aeration, clarification, chlorination and filter press.

The facility does not serve any significant industrial users.

Hauled in Waste
Per the application, the permittee has not received any trucked-in waste in the past three years and does not anticipate receiving any over the next permit term.

Sludge/Biosolids Disposal
The facility's pressed sludge is disposed at the Greentree Landfill in Kersey, PA. Per the application, 8.2 tons of sludge was disposed in the prior year.

Compliance History

DMR Data for Outfall 001 (from December 1, 2018 to November 30, 2019)

Parameter	NOV-19	OCT-19	SEP-19	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18
Flow (MGD) Average Monthly	0.033	0.032	0.031	0.031	0.05	0.05	0.053	0.049	0.048	0.052	0.044	0.044
Flow (MGD) Daily Maximum	0.058	0.064	0.071	0.036	0.75	0.078	0.114	0.094	0.082	0.097	0.098	0.075
pH (S.U.) Minimum	6.4	6.4	6.0	6.8	6.4	6.9	7.1	7.1	6.4	6.5	6.4	6.3
pH (S.U.) Maximum	7.5	7.4	7.6	7.7	7.8	7.8	7.7	7.7	7.2	7.0	7.0	7.1
DO (mg/L) Minimum	1.6	1.0	1.8	1.7	1.6	1.7	1.7	1.5	1.6	1.5	1.6	1.5
TRC (mg/L) Average Monthly	0.40	0.40	0.40	0.40	0.50	0.50	0.4	0.4	0.4	0.4	0.5	0.4
TRC (mg/L) Instantaneous Maximum	0.66	0.65	0.65	0.64	0.64	0.87	0.6	0.6	0.6	0.6	0.6	0.7
CBOD5 (lbs/day) Average Monthly	1	1	< 1	0.66	< 1	2	1	1	1	1	1	1
CBOD5 (lbs/day) Weekly Average	2	2	< 1	0.68	< 1	2	1	1	2	1	1	1
CBOD5 (mg/L) Average Monthly	2	2	3	2.4	2	2	2	2	3	3	2	2
CBOD5 (mg/L) Weekly Average	2	2	3	2.4	2.4	3	2	2	4	3	3	2
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	24	25	23	28	18	22	31	33	26	34	22	24
BOD5 (lbs/day) Raw Sewage Influent Daily Maximum	31	43	47	61	24	41	45	51	39	47	29	34
BOD5 (mg/L) Raw Sewage Influent Average Monthly	85	97	88	102	49	49	79	104	77	89	71	67
TSS (lbs/day) Average Monthly	1	1	1	0.61	1	2	2	2	1	2	1	1
TSS (lbs/day) Raw Sewage Influent Average Monthly	25	31	28	33	17	24	4	24	28	27	25	27

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TSS (lbs/day) Raw Sewage Influent Daily Maximum	41	69	74	75	23	47	56	34	44	32	41	38
TSS (lbs/day) Weekly Average	2	2	3	1.4	2	2	4	2	2	3	1	2
TSS (mg/L) Average Monthly	4	3	4	3	3	2	4	5	4	5	3	3
TSS (mg/L) Raw Sewage Influent Average Monthly	90	122	105	118	49	53	84	76	84	74	75	80
TSS (mg/L) Weekly Average	6	6	5	5	5	4	6	8	6	10	6	6
Fecal Coliform (CFU/100 ml) Geometric Mean	1	< 2	2	2	2	4	8.4	1.32	4.44	3.5	2.7	3.44
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	3.1	7.4	3	5.2	3	14.8	2419.6	3	7.5	7.4	7.4	8.5
Ammonia (lbs/day) Average Monthly		< 1	< 1	0.06	0.06	0.3	0.1					
Ammonia (lbs/day) Weekly Average		< 1	< 1	1.4	0.085	0.49	0.1					
Ammonia (mg/L) Average Monthly	0.43	< 1	< 1	0.2	0.09	0.5	0.24	1.06	0.85	0.27	0.20	0.29
Ammonia (mg/L) Weekly Average		< 1	< 1	0.4	0.027	0.8	0.33					

Compliance History

Summary of Inspections:		The facility has been inspected approximately annually over the past permit term. The most recent inspection on January 10, 2020, by Clarissa Alcorn, WQS, identified a prior Fecal Coliform effluent violation for May 2019 but no operational violations at the time of inspection.
Other Comments:		A query in WMS found no open violations in eFACTS for the Wallaceton-Boggs Municipal Authority. The permittee began using the eDMR system for the June 2019 reporting month.

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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.68	XXX	1.7	1/day	Grab
CBOD5	26	42	XXX	25	40	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	31	47	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Total Nitrogen	Report	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	Report	XXX	XXX	1/month	8-Hr Composite
Ammonia May 1 - Oct 31	13	19	XXX	12	18	24	1/week	8-Hr Composite
Total Phosphorus	Report	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Total Aluminum	XXX	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Total Iron	XXX	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite
Total Manganese	XXX	XXX	XXX	Report	XXX	XXX	1/year	8-Hr Composite

Development of Effluent Limitations

Outfall No. <u>001</u>	Design Flow (MGD) <u>0.125</u>
Latitude <u>40° 55' 40.90"</u>	Longitude <u>-78° 16' 38.40"</u>
Wastewater Description: <u>Sewage Effluent</u>	

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: The above limits are applicable and included in the existing permit except that the discharge has an existing water quality-based limit for TRC of 0.68 mg/L. The technology-based TRC limit of 0.5 mg/L from Chapter 92a is applicable and will be included in the permit at this time.

Water Quality-Based Limitations

CBOD₅, DO, and NH₃-N

The WQM7.0 model allows the Department to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD (CBOD₅), and ammonia nitrogen (NH₃-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH₃-N in the stream and the mixing and consumption of DO in the stream due to the degradation of CBOD₅ and NH₃-N. WQM7.0 modeling has been performed for the discharge and shows that the existing limits are adequate to protect the receiving stream. See the attached modeling inputs/outputs (Attachment B). The facility has an existing NH₃-N limit of 12 mg/L which remains adequate. For the modeling an effluent DO of 1.0 mg/L was input due the lower levels seen in the effluent as shown in the data on page 4 of this Fact Sheet. Ammonia-nitrogen monitoring will now be weekly year-round consistent with the Department's typical requirements for 0.125 MGD facilities.

TRC

The Department has determined that the above Total Residual Chlorine limit from 92a.48(b)(2) is applicable to the facility. The Department uses a modeling spreadsheet to determine necessary WQBELs for TRC toxicity based on available instream dilution. The attached modeling results (See attachment C) show that the BAT limit of 0.5 mg/l is adequate to protect the receiving stream. Based on the existing DMR data, it appears that the limit of 0.5 mg/L is currently achievable.

Toxics Management

No further "Reasonable Potential Analysis" was performed to determine additional parameters as candidates for limitations for this 0.125 MGD facility sewage treatment facility receiving no industrial influent.

Chesapeake Bay/Nutrient Requirements

A portion of the Chesapeake Bay and many of its tidal tributaries have been listed as impaired under Section 303(d) of the Water Pollution Control Act, 33 U.S.C. §1313(d). Total Nitrogen and Total Phosphorus cap loads have been established for significant dischargers in Pennsylvania in order to reduce the total nutrient load to the Bay and meet State of Maryland

Water Quality Standards. The Wallaceton-Boggs treatment plant is considered an existing Phase 5, insignificant Chesapeake Bay discharger per the Phase II Watershed Implementation Plan (WIP) and thus will receive no Cap Loads under the Chesapeake Bay WIP. Per a review of the facility DMRs over the past permit term the Total Nitrogen has averaged 11.8 mg/L and 3.6 pounds per day and the Total Phosphorus has averaged 2.1 mg/L and 0.61 pounds per day. Consistent with the Phase II WIP wastewater supplement and because the permittee has adequately characterized the pollutant loadings in the discharge at this time no further nutrient monitoring will be required in the proposed draft permit.

Best Professional Judgment (BPJ) Limitations

Comments: No additional BPJ limitations are necessary beyond the water quality and technology-based limits noted above.

Anti-Backsliding

No water quality-based or BPJ limits were made less stringent consistent with the anti-backsliding requirements of 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" (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	Weekly Average	Minimum	Average Monthly	Weekly Average	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Measured
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	1/day	Grab
DO	XXX	XXX	Report Inst Min	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	26	42	XXX	25	40	50	1/week	8-Hr Composite
BOD5 Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
TSS	31	47	XXX	30	45	60	1/week	8-Hr Composite
TSS Raw Sewage Influent	Report	Report Daily Max	XXX	Report	XXX	XXX	1/week	8-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	1/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	1/week	Grab
Ammonia Nov 1 - Apr 30	Report	Report	XXX	Report	Report	XXX	1/week	8-Hr Composite
Ammonia May 1 - Oct 31	13	19	XXX	12	18	24	1/week	8-Hr Composite

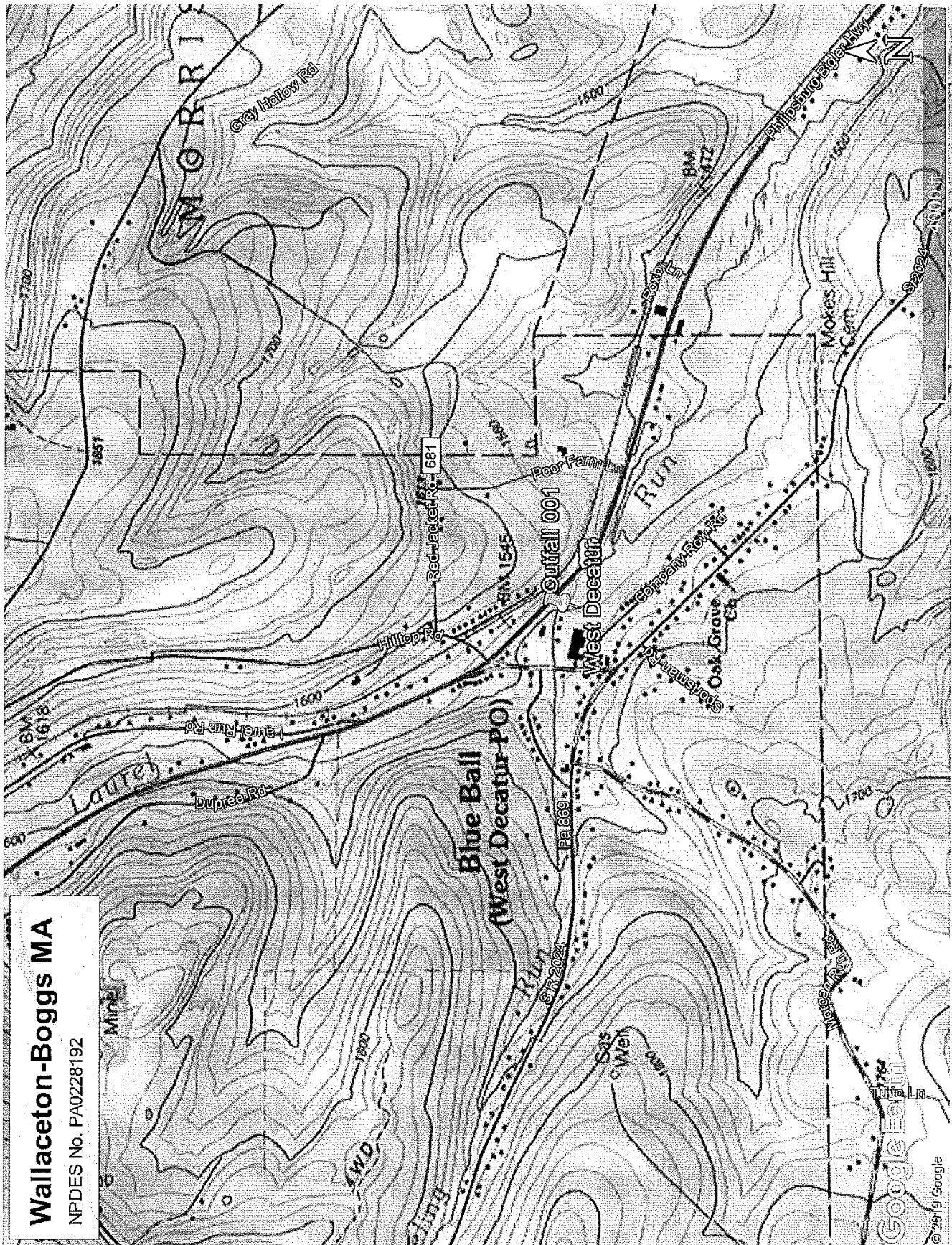
Compliance Sampling Location: Outfall 001

Other Comments: The above limits and monitoring are unchanged from the existing permit except for the more stringent TRC limit, more frequent ammonia-nitrogen monitoring in the months of November through April, and the removal of monitoring for Total Nitrogen, Total Phosphorus, Aluminum, Iron, and Manganese as all mentioned above.

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment B)
<input type="checkbox"/>	PENTOXSD for Windows Model (see Attachment [redacted])
<input checked="" type="checkbox"/>	TRC Model Spreadsheet (see Attachment C)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Toxics Screening Analysis Spreadsheet (see Attachment [redacted])
<input type="checkbox"/>	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
<input checked="" type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
<input checked="" type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 385-2000-011, 9/08.
<input type="checkbox"/>	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
<input type="checkbox"/>	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
<input checked="" type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input checked="" type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input checked="" type="checkbox"/>	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
<input checked="" type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
<input checked="" type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
<input type="checkbox"/>	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
<input type="checkbox"/>	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
<input checked="" type="checkbox"/>	Design Stream Flows, 391-2000-023, 9/98.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
<input checked="" type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 8/23/13
<input type="checkbox"/>	Other: [redacted]

Attachments:

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



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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
08D	25853	LAUREL RUN	3.330	1500.00	6.77	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
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.132	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
Wallaceton-B	PA0228192	0.1250	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	1.00	8.24	0.00	0.00
NH3-N	12.00	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
08D	25853	LAUREL RUN	1.660	1430.00	18.90	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
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)		(°C)	
Q7-10	0.132	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

Permit No. PA0228192

WQM 7.0 Hydrodynamic Outputs

<u>SWP Basin</u>		<u>Stream Code</u>				<u>Stream Name</u>						
08D		25853				LAUREL RUN						
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 (°C)	Analysis pH
Q7-10 Flow												
3.330	0.89	0.00	0.89	.1934	0.00794	.513	14.12	27.53	0.15	0.680	20.89	7.00
Q1-10 Flow												
3.330	0.57	0.00	0.57	.1934	0.00794	NA	NA	NA	0.12	0.827	21.26	7.00
Q30-10 Flow												
3.330	1.22	0.00	1.22	.1934	0.00794	NA	NA	NA	0.17	0.588	20.69	7.00

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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		

WQM 7.0 Wasteload Allocations

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>
08D	25853	LAUREL RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.330	Wallaceton-B	8.83	24	8.83	24	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
3.330	Wallaceton-B	1.82	12	1.82	12	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
3.33	Wallaceton-B	25	25	12	12	1	1	0	0

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WQM 7.0 D.O. Simulation

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>			
08D	25853	LAUREL RUN			
<hr/>					
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>		<u>Analysis pH</u>	
3.330	0.125	20.889		7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>		<u>Reach Velocity (fps)</u>	
14.117	0.513	27.535		0.150	
<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>	
6.09	0.917	2.13		0.750	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>		<u>Reach DO Goal (mg/L)</u>	
6.954	11.571	Tsivoglou		6	
<u>Reach Travel Time (days)</u>					
0.680					
	<u>Subreach Results</u>				
	<u>TravTime</u>	<u>CBOD5</u>	<u>NH3-N</u>	<u>D.O.</u>	
	(days)	(mg/L)	(mg/L)	(mg/L)	
	0.068	5.71	2.03	7.34	
	0.136	5.35	1.93	7.56	
	0.204	5.01	1.83	7.70	
	0.272	4.70	1.74	7.80	
	0.340	4.40	1.65	7.88	
	0.408	4.13	1.57	7.95	
	0.476	3.87	1.49	8.01	
	0.544	3.62	1.42	8.07	
	0.612	3.40	1.35	8.11	
	0.680	3.18	1.28	8.11	

Permit No. PA0228192

WQM 7.0 Effluent Limits

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
08D		25853	LAUREL RUN				
<u>RMI</u>	<u>Name</u>	<u>Permit Number</u>	<u>Disc Flow (mgd)</u>	<u>Parameter</u>	<u>Eff. Limit 30-day Ave. (mg/L)</u>	<u>Eff. Limit Maximum (mg/L)</u>	<u>Eff. Limit Minimum (mg/L)</u>
3.330	Wallaceton-B	PA0228192	0.125	CBOD5	25		
				NH3-N	12	24	
				Dissolved Oxygen			1

2020.xls

TRC EVALUATION				
Input appropriate values in A3:A9 and D3:D9				
0.895	= Q stream (cfs)		0.5	= CV Daily
0.125	= 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
TRC	1.3.2.iii	WLA afc = 1.495		1.3.2.iii
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373		5.1c
PENTOXSD TRG	5.1b	LTA_afc= 0.557		5.1d
				WLA cfc = 1.450
				LTAMULT cfc = 0.581
				LTA_cfc = 0.843
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)			