

Application Type Renewal
Facility Type Municipal
Major / Minor Major

NPDES PERMIT FACT SHEET INDIVIDUAL SEWAGE

Application No. PA0027570
APS ID 1052633
Authorization ID 1377918

Applicant and Facility Information

<p>Applicant Name <u>Western Westmoreland Municipal Authority</u></p> <p>Applicant Address <u>12441 Route 993</u> <u>North Huntingdon, PA 15642-4264</u></p> <p>Applicant Contact <u>Stan Gorski, Jr.</u></p> <p>Applicant Phone <u>(724) 864-0452</u></p> <p>Applicant Email <u>sgorski@wwmaweb.com</u></p> <p>Client ID <u>65426</u></p> <p>Ch 94 Load Status <u>Projected Hydraulic Overload</u></p> <p>Connection Status <u>Dept. Imposed Connection Prohibitions</u></p> <p>Date Application Received <u>December 2, 2021</u></p> <p>Date Application Accepted _____</p> <p>Purpose of Application <u>NPDES permit renewal for discharges of treated sewage from a publicly owned treatment works.</u></p>	<p>Facility Name <u>Brush Creek STP</u></p> <p>Facility Address <u>12441 Route 993</u> <u>North Huntingdon, PA 15642-4264</u></p> <p>Facility Contact <u>***same as applicant***</u></p> <p>Facility Phone <u>***same as applicant***</u></p> <p><u>***same as applicant***</u></p> <p>Site ID <u>263851</u></p> <p>Municipality <u>North Huntingdon Township</u></p> <p>County <u>Westmoreland</u></p> <p>EPA Waived? <u>No</u></p> <p>If No, Reason <u>Major Facility</u></p>
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Summary of Review



On behalf of Western Westmoreland Municipal Authority (WWMA), Wade Trim, Inc. submitted an application dated December 1, 2021 to renew NPDES Permit PA0027570 for discharges from WWMA's Brush Creek STP (Brush Creek STP). The application was received by DEP on December 2, 2021 through DEP's OnBase system. The permit currently in effect was issued on May 26, 2017 with an effective date of June 1, 2017 and an expiration date of May 31, 2022. The renewal application was submitted 180 days before the permit expired (i.e., on or before December 2, 2021), so the terms and conditions of the 2017 permit were automatically extended past May 31, 2022.

Changes for this NPDES permit renewal include the following:

- marginal reductions in the mass loading limits for CBOD5 and TSS at Outfall 001 consistent with DEP's rounding guidelines
- a monthly reporting requirement for *E. Coli* is added to Outfall 001 based on new water quality criteria for *E. Coli* in 25 Pa. Code Chapter 93 (approved by U.S. EPA in March 2021) and related permitting policy updates
- new water quality-based effluent limits are imposed for Free Cyanide and new water quality-based reporting requirements are imposed for Total Boron, Dissolved Iron, and Dichlorobromomethane

A schedule of compliance is included in the permit for the new limits for Free Cyanide.

Sludge use and disposal description and location(s): Sludge thickening, anaerobic digestion, and centrifuge dewatering. Sludge is hauled to Valley Landfill for disposal.

Approve	Deny	Signatures	Date
✓		 Ryan C. Decker, P.E. / Environmental Engineer	April 14, 2023
✓		 Mahbuba Iasmin, Ph.D., P.E. / Environmental Engineer Manager	May 4, 2023

Summary of Review

Hydraulic Overload and SSO Elimination

On September 26, 2011, DEP, WWMA and Manor Borough entered into a Consent Order and Agreement (2011 COA) to control Combined Sewer Overflows (CSOs) and eliminate Sanitary Sewer Overflows (SSOs) from WWMA's sewer system. In the 2011 COA, DEP stated that it had determined that the Brush Creek STP is hydraulically overloaded and, among other things, the 2011 COA required WWMA to eliminate all SSOs within six years of execution of the 2011 COA (i.e., by September 26, 2017).

On March 4, 2010, DEP approved WWMA's Long-Term Control Plan (LTCP). The LTCP included a Task Implementation Compliance Schedule to bring WWMA into compliance with EPA's CSO Control Policy. Before June 2010, WWMA's sewer system had two CSOs in Manor Borough, Outfall 005 and Outfall 006, and one CSO located in Irwin Borough, Outfall 004. Prior to execution of the 2011 COA, Manor Borough indicated that its sewer system contributing to Outfall 006 was not a combined system. In addition, Irwin Borough separated its combined system contributing to Outfall 004. Therefore, the 2011 COA identifies Outfalls 004 and 006 as SSOs. Discharges of untreated sewage from SSOs are illegal. In the 2011 COA, Manor Borough committed to separate its combined sewer system contributing to the last remaining CSO in WWMA's sewer system, Outfall 005.

On October 1, 2010, WWMA submitted a Corrective Action Plan (CAP) and Tap Allocation Plan Request (TAPR) to DEP that identified tasks to be implemented to reduce (but not eliminate) the occurrence of SSOs from WWMA's sewer system. Owing to continued SSO discharges from former CSO outfalls and from the bypass at the STP's headworks (SSO-002), a Revised CAP and TAPR was submitted to DEP on September 6, 2011. Among other things, the Revised CAP identified plans for new wet weather operating procedures; flow monitoring and modeling; manhole and regulator inspections, repairs, and modifications; and provisions for structural changes to the STP and sewer system in response to data gathered from WWMA's investigations.

On January 8, 2014, WWMA requested to extend the schedule for SSO elimination in the Revised CAP due to difficulties acquiring property necessary for implementation. On April 24, 2014, DEP, WWMA, and Manor Borough entered into the First Amendment to the 2011 COA that extended the deadline for SSO elimination to six years from the date of execution of the First Amendment (i.e., by April 24, 2020).

On December 21, 2017, WWMA again requested to extend the schedule for SSO elimination in the Revised CAP due to difficulties implementing Phases I and II of the Revised CAP. WWMA submitted a proposed revised CAP schedule with its extension request. On May 3, 2018, DEP and WWMA entered into the Second Amendment to the 2011 COA that incorporated the revised CAP schedule and extended the deadline for SSO elimination to March 31, 2022. Also, on or about January 31, 2018, DEP granted Manor Borough's request to terminate the borough's obligations under the 2011 COA pursuant to the completion of Manor Borough's obligations including the separation of its combined sewer system. Pursuant to Paragraph CC of the 2011 COA, upon the completion of Manor Borough's Outfall 005 Separation Plan and Schedule, WWMA's LTCP was considered null and void because WWMA's sewer system was entirely separate at that time. All subsequent overflow events from former CSO outfalls are classified as unauthorized SSOs.

On April 17, 2019, WWMA again requested to extend the schedule for SSO elimination in the Revised CAP due to ongoing difficulties implementing Phases I and II of the Revised CAP. WWMA submitted a proposed revised CAP schedule to DEP on September 20, 2020. On July 15, 2021, DEP and WWMA entered into the Third Amendment to the 2011 COA that incorporated the revised CAP schedule and extended the deadline for SSO elimination to December 31, 2023.

The Revised CAP—as memorialized in the amended 2011 COA—will address the Brush Creek STP's hydraulic overload condition. On May 8, 2015, DEP issued an amendment to Water Quality Management Permit 6572410 (Amendment No. 4) authorizing the proposed construction work under Phases 1, 2, and 3 of the CAP. Refer to pp.12 and 13 of this Fact Sheet for more information on the authorized construction work.

Industrial User/Pretreatment

WWMA does not meet the specific regulatory criteria in 40 CFR § 403.8(a) that require Publicly Owned Treatment Works (POTW) to establish pretreatment programs because the design flow of the Brush Creek STP is 4.4 MGD, which is less than the 5.0 MGD threshold in § 403.8(a).

WWMA has one industrial user, Valley Landfill, which is a Significant Industrial User that contributes approximately 76,600 gallons per day of landfill leachate to the Brush Creek STP. There are no federal Pretreatment Standards for landfill leachate.

Summary of Review

Section 11.6.1 of the “Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category” states the following with respect to EPA’s decision not to establish national Pretreatment Standards for landfill leachate:

EPA estimates that there are 756 Subtitle D landfill facilities in the U.S. that discharge landfill wastewater to a POTW. The Agency did not establish pretreatment standards for existing sources (PSES) for the Non-Hazardous landfill subcategory. The Agency decided not to establish PSES for this subcategory after an assessment of the effect of landfill leachate on receiving POTWs and the cost of pretreatment standards.

EPA looked at three measures of effects on POTWs: biological inhibition levels, contamination of POTW biosolids, and a comparison of BAT and POTW removals. For the proposed rule, following procedures outlined above, the removal comparison suggested that one pollutant, ammonia, would pass through in the Non-Hazardous subcategory. However, EPA concluded that ammonia was susceptible to treatment and did not interfere with POTW operations. Therefore, the Agency did not propose to establish national pretreatment standards for ammonia.

In Section 11.6.1.1 of the Development Document, EPA further explained its decision not to establish pretreatment standards for ammonia:

EPA has decided not to establish ammonia pretreatment standards for several reasons. First, while EPA’s removal comparison suggests that ammonia in landfill leachate is not as amenable to POTW treatment as to pretreatment, in reality, EPA has concluded that ammonia is susceptible to POTW treatment on a national basis. Further, landfill discharges will not result in POTW upsets or interfere with POTW operations. The Public Record indicates that POTWs are not currently experiencing any difficulty in adequately treating ammonia discharges from Subtitle D landfills. No POTWs commenting on the proposal cited any persistent POTW upsets associated with landfill leachate discharges. Finally, EPA has determined that pretreatment standards for ammonia for landfill indirect dischargers would be extremely costly, given the high levels of removal currently observed. In these circumstances, EPA has concluded that ammonia is susceptible to treatment by POTWs and national pretreatment standards are not required.

Notwithstanding EPA’s reasoning, WWMA reported in its application that high levels of nitrogen in Valley Landfill’s untreated leachate caused ammonia toxicity issues at the STP as exhibited by WET test failures and WWMA’s subsequent Phase I TRE indicating that elevated ammonia-nitrogen concentrations (>10 mg/L) were the probable causes of the test failures. In response to the TRE, WWMA switched the STP back to operating in a conventional activated sludge mode from contact stabilization mode, which the plant had switched to and operated under in 2018, 2019, and 2020. In addition, magnesium hydroxide is now used to improve alkalinity and enhance nitrogen removal.

WWMA’s switch to conventional activated sludge operation is consistent with the operating mode of most POTWs, which EPA determined to be able to manage landfill leachate without experiencing upsets.

Summary of Whole Effluent Toxicity (WET) Tests

The NPDES permit issued in 2017 for the Brush Creek STP required WWMA to collect discharge samples and perform annual WET tests to generate chronic survival and reproduction data for the cladoceran (water flea), *Ceriodaphnia dubia*, and chronic survival and growth data for the fathead minnow, *Pimephales promelas*. The dilution series used for the tests was: 100%, 97%, 93%, 47%, and 23%. The Target Instream Waste Concentration (TIWC) used to analyze the results was 93%.

As summarized in the Whole Effluent Toxicity (WET) section of this Fact Sheet, in August 2017, the STP failed the chronic reproduction WET test for *Ceriodaphnia dubia*. Later, in September and October 2020, the STP failed chronic reproduction WET tests for *Ceriodaphnia dubia*. The initial test failure in September 2020 followed by the re-test failure in October triggered the requirement for a Phase I TRE. As explained above, the STP switched back to operating in a conventional activated sludge mode and now adds magnesium hydroxide to improve alkalinity and enhance nitrogen removal. After making the changes, the STP passed the four subsequent quarterly WET tests conducted in February 2021, May 2021, August 2021, and October 2021 and returned to normal annual WET testing. The STP passed its annual WET tests for 2022 conducted in September 2022.

The TIWC in the renewed permit will be 88%. The dilution series in the renewed permit will be: 100%, 94%, 88%, 44%, and 22%. Annual WET testing will be required.

Summary of Review
<p><u>Public Participation</u></p> <p>DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the <i>Pennsylvania Bulletin</i> in accordance with 25 Pa. Code § 92a.82. Upon publication in the <i>Pennsylvania Bulletin</i>, 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 <i>Pennsylvania Bulletin</i> at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.</p>

Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>001</u>	Design Flow (MGD)	<u>4.4</u>
Latitude	<u>40° 20' 27.75"</u>	Longitude	<u>-79° 43' 20.23"</u>
Quad Name	<u>Irwin</u>	Quad Code	<u>1608</u>
Wastewater Description: <u>Treated sewage effluent</u>			

Receiving Waters	<u>Brush Creek (TSF)</u>	Stream Code	<u>37246</u>
NHD Com ID	<u>99408116</u>	RMI	<u>7.72</u>
Drainage Area	<u>45.5 sq. mi.</u>	Yield (cfs/mi ²)	<u>0.0195</u>
Q ₇₋₁₀ Flow (cfs)	<u>0.89</u>	Q ₇₋₁₀ Basis	<u>USGS StreamStats</u>
Elevation (ft)	<u></u>	Slope (ft/ft)	<u></u>
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>TSF</u>
Existing Use	<u></u>	Existing Use Qualifier	<u></u>
Exceptions to Use	<u></u>	Exceptions to Criteria	<u></u>

Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment	<u></u>		
Source(s) of Impairment	<u></u>		
TMDL Status	<u>Final (January 28, 2005), Final (June 29, 2009)</u>	Name	<u>Brush Creek (Westmoreland), Turtle Creek Watershed</u>

<u>Background/Ambient Data</u>	<u>Data Source</u>
pH (SU)	<u>7.0 †</u>
Temperature (°F)	<u>70.34</u>
Hardness (mg/L)	<u>317</u>
Iron, Dissolved (mg/L)	<u>10.21</u>
Iron, Total (mg/L)	<u>14.29</u>
Manganese, Diss. (mg/L)	<u>0.606</u>
Manganese, Total (mg/L)	<u>0.632</u>
Aluminum, Diss. (mg/L)	<u><0.015</u>
Aluminum, Total (mg/L)	<u>0.0649</u>

Nearest Downstream Public Water Supply Intake	<u>Pennsylvania American Water Company – Pittsburgh</u>		
PWS ID	<u>5020039</u>	PWS Withdrawal (MGD)	<u>69.0 (60 MGD safe yield)</u>
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1,230</u>
PWS RMI	<u>4.46</u>	Distance from Outfall (mi)	<u>20.61</u>

† Hold time exceeded.

Changes Since Last Permit Issuance: Treatment system operating mode changed, but no substantive changes to the outfall.

Other Comments:

USGS StreamStats - Basin Delineation for Outfall 001

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StreamStats

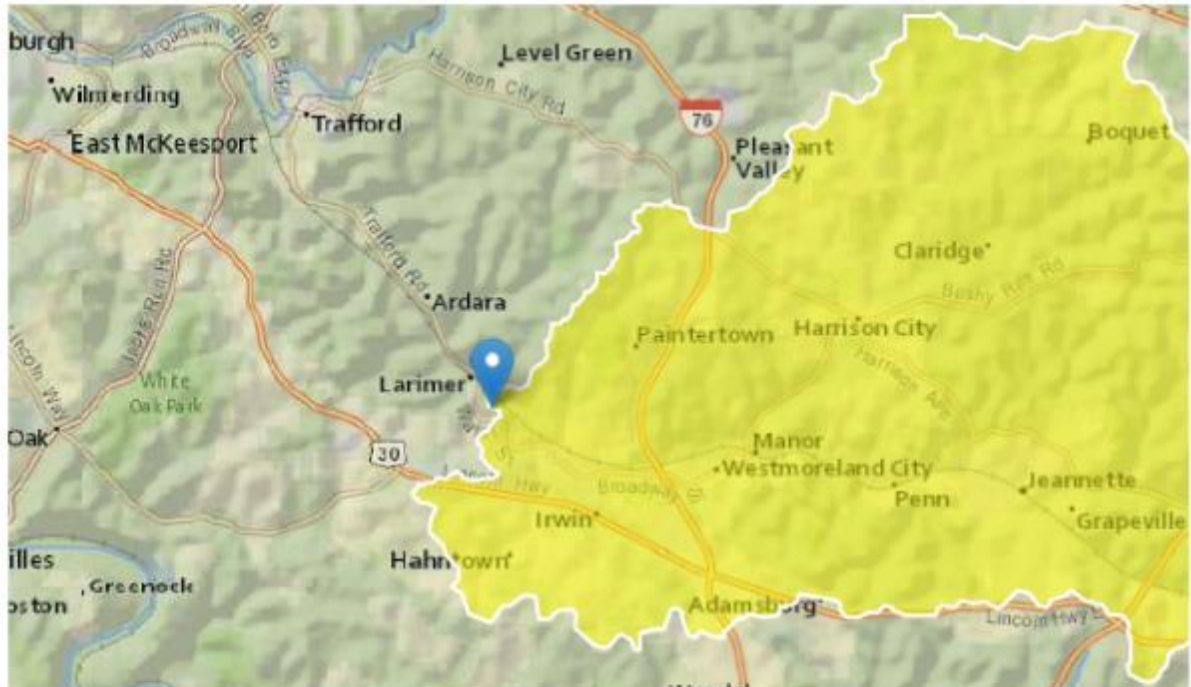
StreamStats Report

Region ID: PA

Workspace ID: PA20211214223036815000

Clicked Point (Latitude, Longitude): 40.34090, -79.72218

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	45.5	square miles
ELEV	Mean Basin Elevation	1151	feet

Low-Flow Statistics Parameters [100.0 Percent (45.5 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	45.5	square miles	2.26	1400

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StreamStats

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
ELEV	Mean Basin Elevation	1151	feet	1050	2580

Low-Flow Statistics Flow Report [100.0 Percent (45.5 square miles) Low Flow Region 4]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	ASEp
7 Day 2 Year Low Flow	2.1	ft ³ /s	43	43
30 Day 2 Year Low Flow	3.38	ft ³ /s	38	38
7 Day 10 Year Low Flow	0.89	ft ³ /s	66	66
30 Day 10 Year Low Flow	1.42	ft ³ /s	54	54
90 Day 10 Year Low Flow	2.4	ft ³ /s	41	41

Low-Flow Statistics Citations

Stuckey, M.H., 2006, Low-flow, base-flow, and mean-flow regression equations for Pennsylvania streams: U.S. Geological Survey Scientific Investigations Report 2006-5130, 84 p. (<http://pubs.usgs.gov/sir/2006/5130/>)

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Application Version: 4.6.2

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

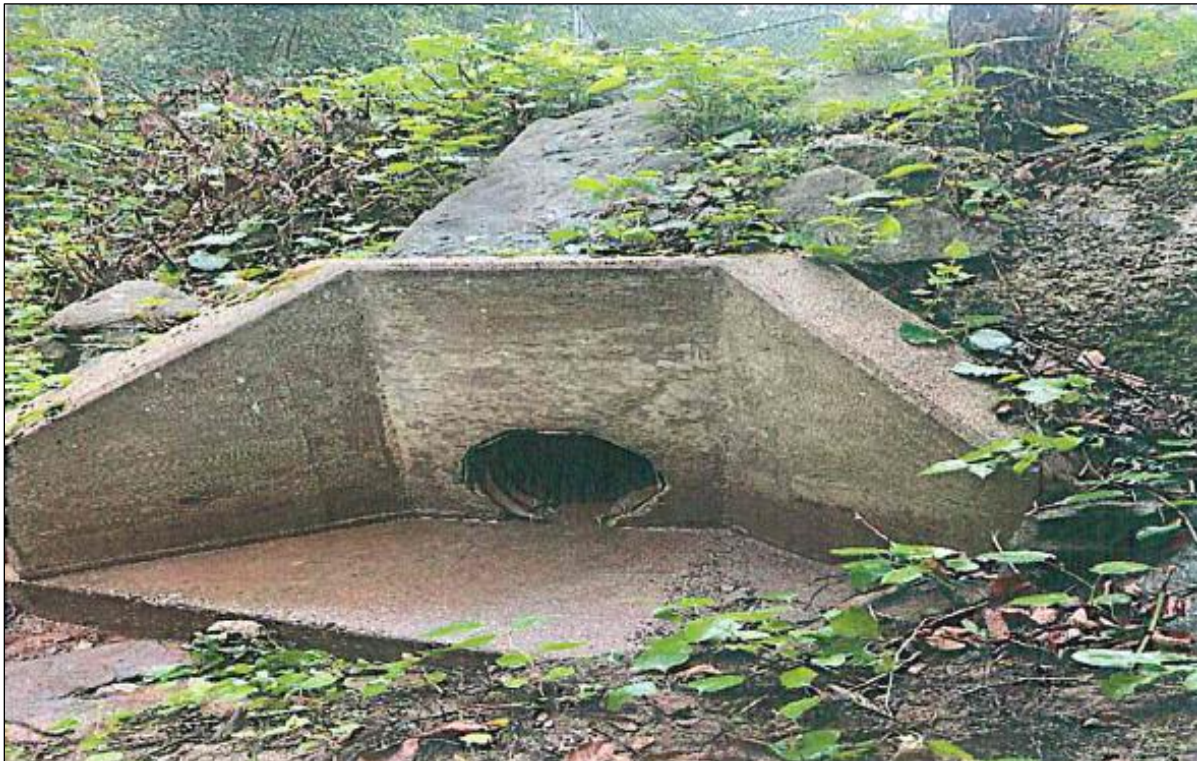
Discharge, Receiving Waters and Water Supply Information

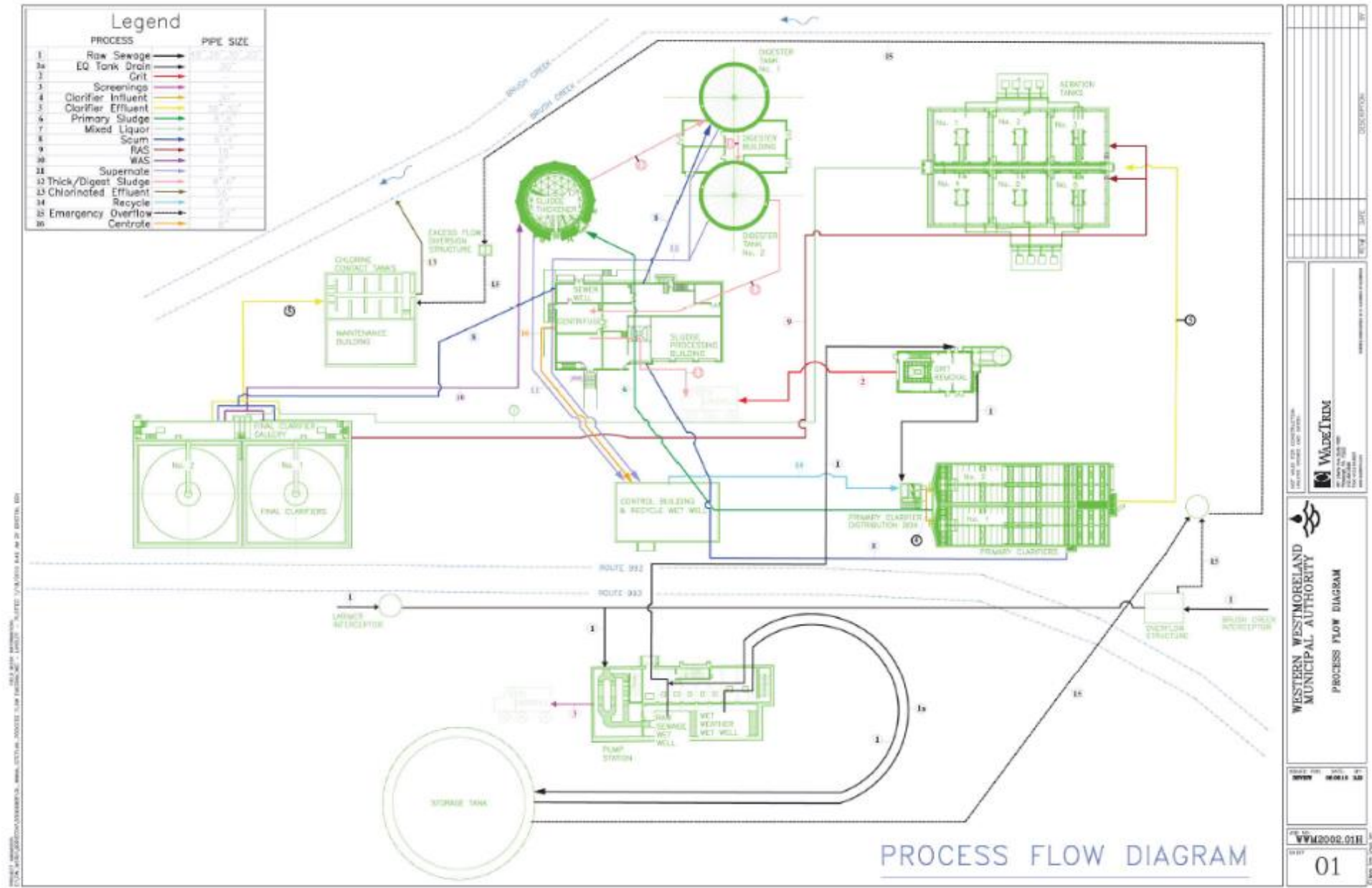
Outfall No.	<u>101 (SW-001)</u>	Design Flow (MGD)	<u>Variable</u>
Latitude	<u>40° 20' 23.20"</u>	Longitude	<u>-79° 43' 21.12"</u>
Quad Name	<u>Irwin</u>	Quad Code	<u>1608</u>
Wastewater Description: <u>Storm water runoff from the plant</u>			
Receiving Waters <u>Brush Creek (TSF)</u>		Stream Code	<u>37246</u>
NHD Com ID	<u>99408080</u>	RMI	<u>7.67</u>
Drainage Area		Yield (cfs/mi ²)	
Q ₇₋₁₀ Flow (cfs)		Q ₇₋₁₀ Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>TSF</u>
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	<u>Final (January 28, 2005), Final (June 29, 2009)</u>	Name	<u>Brush Creek (Westmoreland), Turtle Creek Watershed</u>
Nearest Downstream Public Water Supply Intake	<u>Pennsylvania American Water Company – Pittsburgh</u>		
PWS ID	<u>5020039</u>	PWS Withdrawal (MGD)	<u>69.0 (60 MGD safe yield)</u>
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1,230</u>
PWS RMI	<u>4.46</u>	Distance from Outfall (mi)	<u>20.56</u>



Discharge, Receiving Waters and Water Supply Information

Outfall No.	<u>102 (SW-002)</u>	Design Flow (MGD)	<u>Variable</u>
Latitude	<u>40° 20' 27.60"</u>	Longitude	<u>-79° 43' 19.70"</u>
Quad Name	<u>Irwin</u>	Quad Code	<u>1608</u>
Wastewater Description: <u>Storm water runoff from the plant</u>			
Receiving Waters <u>Brush Creek (TSF)</u>		Stream Code	<u>37246</u>
NHD Com ID	<u>99408080</u>	RMI	<u>7.76</u>
Drainage Area		Yield (cfs/mi ²)	
Q ₇₋₁₀ Flow (cfs)		Q ₇₋₁₀ Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	<u>19-A</u>	Chapter 93 Class.	<u>TSF</u>
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	<u>Attaining Use(s)</u>		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	<u>Final (January 28, 2005), Final (June 29, 2009)</u>	Name	<u>Brush Creek (Westmoreland), Turtle Creek Watershed</u>
Nearest Downstream Public Water Supply Intake	<u>Pennsylvania American Water Company – Pittsburgh</u>		
PWS ID	<u>5020039</u>	PWS Withdrawal (MGD)	<u>69.0 (60 MGD safe yield)</u>
PWS Waters	<u>Monongahela River</u>	Flow at Intake (cfs)	<u>1,230</u>
PWS RMI	<u>4.46</u>	Distance from Outfall (mi)	<u>20.65</u>













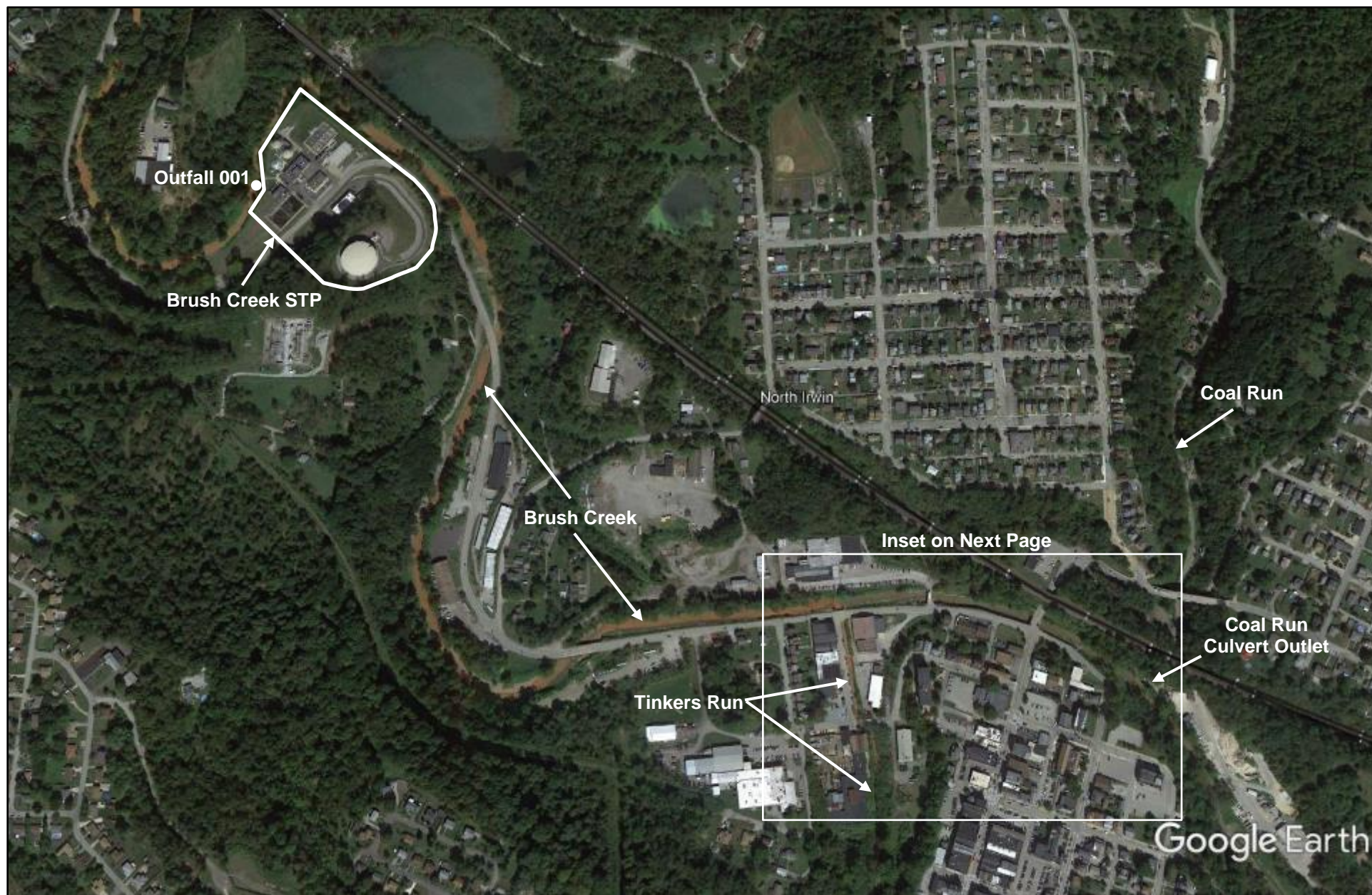


Image Source and Date: Google Earth Pro, September 17, 2019.

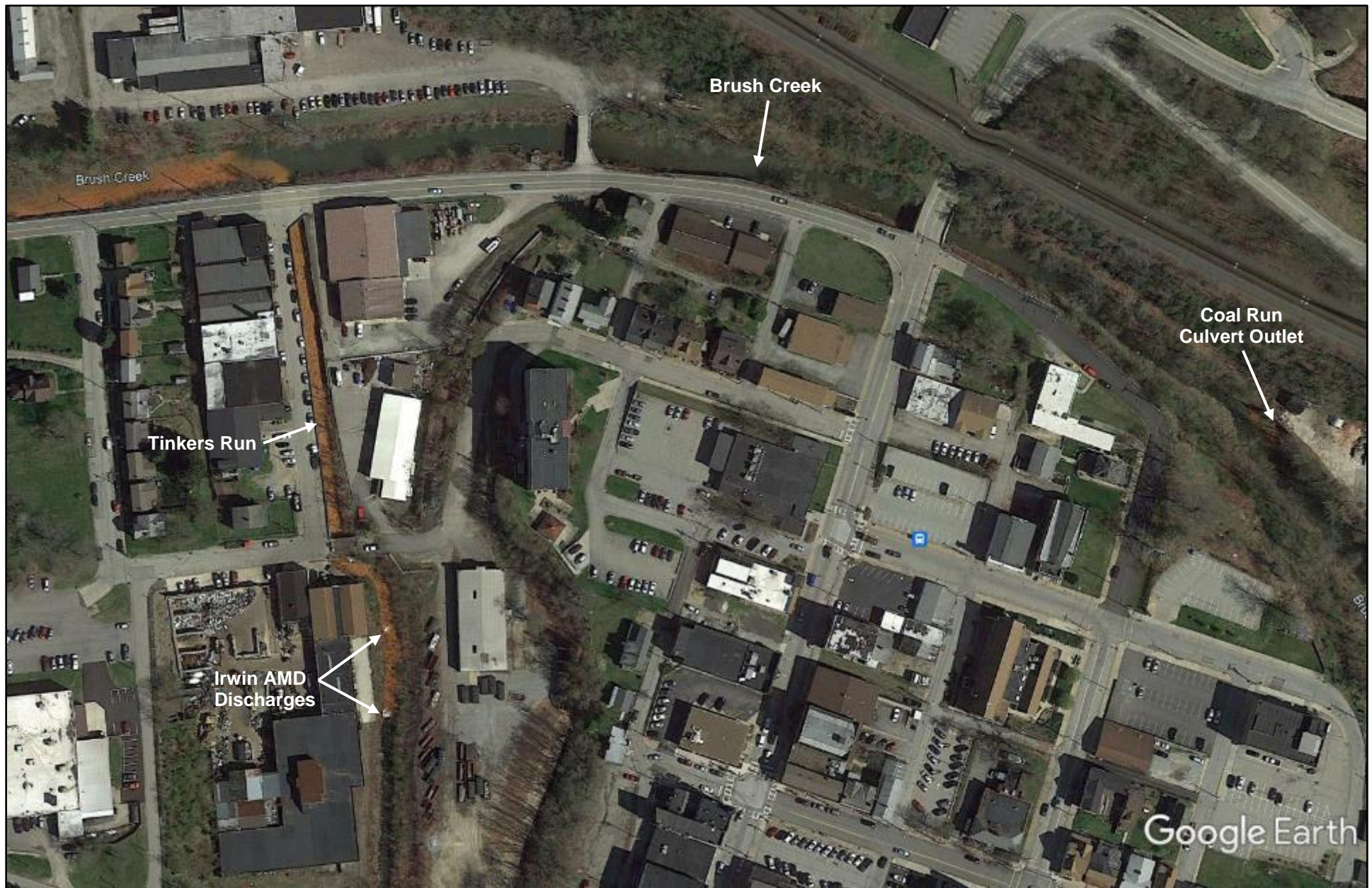


Image Source and Date: Google Earth Pro, April 17, 2016.

Treatment Facility Summary		
Treatment Facility: Brush Creek STP – 4.4 MGD annual average design flow		
WQM Permit No.	Issuance Date	Purpose
6572410	November 27, 1972	Permit issued to the Western Westmoreland Municipal Authority by the Pennsylvania DER for sewage treatment facilities.
6572410 (Amendment)	November 15, 1977	Permit amendment issued to the Western Westmoreland Municipal Authority by the Pennsylvania DER for sewage treatment facilities.
6572410 A-1	June 9, 1987	Permit amendment issued to the Western Westmoreland Municipal Authority by the Pennsylvania DER for sewage treatment facilities.
6572410 A-2	November 30, 2004	<p>Permit amendment issued to the Western Westmoreland Municipal Authority by the Pennsylvania DEP for STP upgrades to improve treatment of wet weather flows including upgrades to the three raw sewage pumps to increase the peak flow pumping capacity from 12 MGD to about 15 MGD; upgrades to process controls; and upgrades to the STP's aeration tanks and blowers.</p> <p>The two existing variable seep pumps were retrofitted with new impellers to maximize their pumping capacity to 4,800 gpm each. The third constant speed pump used as a lag pump during wet weather was replaced with a larger 5,600 gpm variable speed pump installed in parallel with the two variable speed pumps. The total pumping capacity was increased to 10,400 gpm (14.976 MGD).</p> <p>Fine bubble aeration was installed in the unused secondary aeration treatment train to treat wet weather flows. "Anaerobic selector zones" were created at the front ends of the two aeration treatment trains by installing geomembrane baffles across the leading aeration tanks. The anaerobic zones occupy 0.10 million gallons at the front end of the two aeration trains and are intended to improve sludge settling characteristics and prevent wet weather washouts. The fine bubble aeration grid in the primary aeration train was upgraded to accommodate the anaerobic selector zone.</p> <p>Eight new blowers with variable speed drives controlled by DO-probes in each compartment were installed to provide air to the two aeration treatment trains—one blower for each compartment in each aeration treatment train plus a backup blower for each train.</p>
6572410 A-3	July 30, 2010	Permit amendment issued to the Western Westmoreland Municipal Authority by the Pennsylvania DEP for solid waste management upgrades. The anaerobic digester complex was upgraded by increasing the height of the digester walls, replacing the digester covers, replacing the existing Pearth gas mixing units with external draft tube mixers, replacing the sludge feed and withdrawal piping, installing two new hot water boilers, and evaluating gas co-generation for gas generated by the anaerobic digesters. The two belt filter presses used for sludge dewatering were abandoned and replaced with a centrifuge dewatering system. A new laboratory was constructed. New waste activated sludge (WAS) pumps were installed in the final clarifier gallery (previously wasted by gravity) to pump WAS to either the sludge thickener or directly to the anaerobic digester while maintaining existing WAS withdrawal points as a backup to the new WAS pumps. The four existing motor control centers were replaced with a new SCADA system.
6572410 A-4	May 8, 2015	Permit amendment issued to the Western Westmoreland Municipal Authority by the Pennsylvania DEP to authorize construction under Phases 1, 2 and 3 of a six-year Corrective Action Plan (per a September 2011 Consent Order and Agreement) to eliminate raw sewage discharges from the STP and all points in the WWMA interceptor sewer system. [cont'd...]

		Phase 1 included a 7.0-million-gallon storage tank; a combined dry-weather-wet-weather pump station with a total capacity of 45 MGD; a 24" diameter force main and pump station to the storage tank; two (2) new 25-MGD mechanical bar screens and bypass channel; and ancillary equipment (piping, valves, controls, etc.). Phase 2 included Brush Creek Interceptor upgrades including installation of 4,600 linear feet of 48" diameter sanitary sewer pipe; 6,760 linear feet of 42" diameter sanitary sewer pipe; 8,400 linear feet of 36" diameter sanitary sewer pipe; and 380 feet of 18" diameter sanitary sewer pipe with required manholes and appurtenances. Phase 3 included upgrades to the Bushy Run, Paintertown, and Manor interceptor sewers including installation of 7,800 linear feet of 30" diameter sanitary sewer pipe; 1,010 linear feet of 18" diameter sanitary sewer pipe; and 8,000 linear feet of 15" diameter sanitary sewer pipe with all required manholes and appurtenances.		
6572410 A-5	December 10, 2019	Permit issued to the Western Westmoreland Municipal Authority by the Pennsylvania DEP to authorize relocations of the Bushy Run, Paintertown, and Manor interceptor sewers (authorized by 6572410 A-4) to avoid construction in unfavorable geological conditions (rock). The sewer locations authorized by 6572410 A-4 were mostly parallel to and offset from the existing interceptors. This amendment authorized relocation of the proposed replacement interceptors to the existing interceptors' locations.		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary	Screening, grit removal, primary clarification, aeration, final clarification, and disinfection	Chlorine	3.11
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
4.4 (average) 15.0 (peak)	7,490	Projected Hydraulic Overload	N/A	Landfill

Treatment Facility Summary				
Treatment Facility: Interceptor sewer and two pump stations for North Huntingdon (Ardara-Cavettsville area)				
WQM Permit No.	Issuance Date	Purpose		
6573410	December 13, 1973	Permit issued to the Western Westmoreland Municipal Authority by the Pennsylvania Department of Environmental Resources for about two miles of interceptor sewer ranging in size from 8-inches to 15-inches in diameter. The interceptor starts in Ardara near the intersection of Nehrig Hill Road and Water Street in North Huntingdon and travels to the Northwest along Route 993 and Brush Creek into Trafford Borough near the intersection of Mahaffey Hill Road and Wallace Avenue. The interceptor continues into Trafford Borough until it connects with the ALCOSAN interceptor near the Trafford Borough border with Monroeville.		
6573410 T-1	March 3, 2017	Permit transferred from the Western Westmoreland Municipal Authority to the North Huntingdon Township Municipal Authority		
Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	N/A	Collection System	N/A	N/A
Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
N/A	N/A	N/A	N/A	N/A

Compliance History

DMR Data for Outfall 001 (from February 1, 2022 to January 31, 2023)

Parameter	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22
Flow (MGD) Average Monthly	4.50	2.87	2.97	2.51	2.74	2.71	2.55	2.81	4.65	3.88	3.38	5.77
Flow (MGD) Daily Maximum	10.09	4.95	7.06	4.88	5.16	4.11	4.49	6.09	12.89	8.94	4.50	14.10
pH (S.U.) Minimum	6.5	6.4	6.2	6.3	6.5	6.5	6.5	6.2	6.2	6.3	6.5	6.5
pH (S.U.) Maximum	7.1	8.0	6.8	7.2	7.4	7.5	7.0	7.0	7.3	7.0	7.4	8.9
DO (mg/L) Minimum	5.1	6.4	6.6	6.3	6.4	6.6	6.2	6.9	7.1	6.8	6.9	5.8
TRC (mg/L) Average Monthly	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.2
TRC (mg/L) Instantaneous Maximum	0.6	0.5	0.7	0.5	0.6	0.6	0.5	0.5	0.5	0.6	0.7	0.4
CBOD5 (lbs/day) Average Monthly	258	195	193	218	217	145	112	123	178	275	287	570
CBOD5 (lbs/day) Weekly Average	319	270	268	247	363	169	138	162	233	471	393	967
CBOD5 (mg/L) Average Monthly	9.1	8.0	8.0	9.0	7.5	6.0	5.3	5.4	6.0	10.0	11.0	14.0
CBOD5 (mg/L) Weekly Average	11.5	11.0	12.5	12.0	9.5	8.5	6.0	7.5	8.0	20.5	15.5	20.0
BOD5 (lbs/day) Raw Sewage Influent Average Monthly	3838	4221	3832	4406	4484	4418	3952	4079	4326	4566	4455	5050
BOD5 (lbs/day) Raw Sewage Influent Weekly Average	4100	4757	4365	4905	5178	5534	4135	4669	4998	5429	5073	6493
BOD5 (mg/L) Raw Sewage Influent Average Monthly	130	179	162	192	162	183	190	184	147	159	162	126
BOD5 (mg/L) Raw Sewage Influent Weekly Average	140	207	224	214	193	229	201	220	185	219	200	155
TSS (lbs/day) Average Monthly	294	277	254	217	396	216	120	129	146	233	358	588
TSS (lbs/day) Raw Sewage Influent Average Monthly	3291	3191	3211	3912	4594	4582	3504	3025	3284	3588	3514	5019

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570

Parameter	JAN-23	DEC-22	NOV-22	OCT-22	SEP-22	AUG-22	JUL-22	JUN-22	MAY-22	APR-22	MAR-22	FEB-22
TSS (lbs/day) Raw Sewage Influent Weekly Average	3741	3498	5246	5544	7160	7445	4108	4680	3809	4121	4731	7725
TSS (lbs/day) Weekly Average	671	479	593	349	839	337	217	229	246	361	861	892
TSS (mg/L) Average Monthly	11	11	10	10	12.6	9.7	6.0	5.5	4.8	8.5	14	14
TSS (mg/L) Raw Sewage Influent Average Monthly	113	135	133	174	156	181	167	136	111	123	128	123
TSS (mg/L) Raw Sewage Influent Weekly Average	128	149	182	270	198	248	182	217	132	179	163	150
TSS (mg/L) Weekly Average	25	19	19	17	22.0	17.0	9.5	10.5	7.0	15.5	34	16.5
Fecal Coliform (No./100 ml) Geometric Mean	51	55	67	> 144	80	84	101	131	130	62	> 265	> 1476
Fecal Coliform (No./100 ml) Instantaneous Maximum	153	1300	1733	> 2420	488	687	345	435	387	461	> 2420	> 2420
Total Nitrogen (mg/L) Daily Maximum		36.6			29.7			46.4			35.4	
Ammonia (mg/L) Average Monthly	5.8	3.6	3.0	1.9	0.4	0.7	0.4	0.3	2.9	10.3	21.0	12.6
Ammonia (mg/L) Weekly Average	6.6	4.5	5.6	3.8	0.7	1.4	0.7	0.5	6.3	16.7	29.7	20.7
Total Phosphorus (mg/L) Daily Maximum		0.78			3.5			4.2			3.3	

Compliance History

Effluent Violations for Outfall 001, from: January 1, 2022 To: November 30, 2022

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Fecal Coliform	01/31/22	Geo Mean	> 2420	No./100 ml	2000	No./100 ml
Fecal Coliform	02/28/22	Geo Mean	> 1476	No./100 ml	2000	No./100 ml
Fecal Coliform	10/31/22	Geo Mean	> 144	No./100 ml	2000	No./100 ml
Fecal Coliform	03/31/22	Geo Mean	> 265	No./100 ml	2000	No./100 ml
Fecal Coliform	03/31/22	IMAX	> 2420	No./100 ml	10000	No./100 ml
Fecal Coliform	10/31/22	IMAX	> 2420	No./100 ml	10000	No./100 ml
Fecal Coliform	02/28/22	IMAX	> 2420	No./100 ml	10000	No./100 ml
Fecal Coliform	01/31/22	IMAX	> 2420	No./100 ml	10000	No./100 ml

Summary of Inspections:

Other Comments:

Development of Effluent Limitations

Outfall No.	001	Design Flow (MGD)	4.4
Latitude	40° 20' 25.75"	Longitude	-79° 43' 20.23"
Wastewater Description:	Treated sewage effluent		

The STP consists of raw sewage pumps, headworks screening, grit removal, two primary clarifiers in parallel, six aeration tanks (two trains with three tanks each), two final clarifiers, and chlorine contact tanks.

001.A. Technology-Based Effluent Limitations (TBELs)

25 Pa. Code § 92a.47 – Sewage Permits

Regulations at 25 Pa. Code § 92a.47 specify TBELs and effluent standards that apply to sewage discharges. Section 92a.47(a) requires that sewage be given a minimum of secondary treatment with significant biological treatment that achieves the following:

Table 1. Regulatory TBELs for Sanitary Wastewaters

Parameter	Average Monthly (mg/L)	Weekly Average (mg/L)	Instant. Max (mg/L)	Basis
CBOD5	25	40 [†]	50 ^{††}	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(a)(4)(i) & (ii)
Total Suspended Solids	30	45	60 ^{††}	25 Pa. Code § 92a.47(a)(1), (a)(2) & 40 CFR §§ 133.102(b)(1) & (b)(2)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	N/A	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	N/A	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	N/A	1.6 (or facility-specific)	25 Pa. Code § 92a.47(a)(8) & § 92a.48(b)(2)
pH (s.u.)	not less than 6.0 and not greater than 9.0			25 Pa. Code § 92a.47(a)(7) & § 95.2(1), & 40 CFR § 133.102(c)

[†] Outfall 001 is currently subject to a more stringent CBOD5 weekly average limit of 38 mg/L.

^{††} Limit is calculated as two times the monthly average in accordance with Chapter 2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001].

The CBOD5, TSS, and pH limits in § 92a.47(a) are the same as those in EPA's secondary treatment regulation (40 CFR § 133.102). Outfall 001 is currently subject to a more stringent average weekly CBOD5 limit of 38 mg/L. That limit will be maintained in the renewed permit pursuant to EPA's anti-backsliding regulation (40 CFR § 122.44(l)).

Average monthly and maximum daily flows must be reported pursuant to 25 Pa. Code § 92a.61(d)(1). The existing minimum dissolved oxygen limit of 4.0 mg/L will be maintained at Outfall 001 pursuant to 40 CFR § 122.44(l) (regarding anti-backsliding) and 25 Pa. Code § 92a.61(b) (regarding reasonable monitoring requirements).

In accordance with Section I of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits" [SOP No. BCW-PMT-033, Version 1.9, March 22, 2021] and under the authority of 25 Pa. Code § 92a.61(b), quarterly reporting for Total Nitrogen and Total Phosphorus is required for sewage discharges with design flows greater than 2,000 gpd to help evaluate treatment effectiveness and to monitor nutrient loading to the receiving watershed. Pursuant to that same SOP and under the authority of § 92a.61(b), a monthly reporting requirement for *E. coli* will be added to Outfall 001 because the design flow of the STP exceeds 1 MGD. *E. coli* was recently added to the bacteria water quality criteria in 25 Pa. Code § 93.7(a). The *E. coli* monitoring will be used to determine whether *E. coli* require additional controls.

Mass Limits

In accordance with Table 5-3 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" and Section IV of DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits", mass limits are calculated for CBOD5 and TSS.

Average monthly and average weekly mass limits (in units of pounds per day) are calculated using the most stringent concentration TBELs and the Brush Creek STP's 4.4 MGD design flow with the following formula:

Design flow (average annual) (MGD) × concentration limit (mg/L) at design flow × conversion factor (8.34) = mass limit (lb/day)

Table 2. Mass TBELs for Sanitary Wastewaters

Parameter	Average Monthly (lb/day)	Average Weekly (lb/day)
CBOD5	915.0	1390.0
Total Suspended Solids	1100.0	1650.0

Pursuant to Chapter 5, Section C.2 of DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" mass limits for conventional pollutants with a magnitude greater than 60.0 are rounded down to the nearest 5.0. The mass limits in Table 2 account for this rounding convention.

001.B. Water Quality-Based Effluent Limitations (WQBELs)

DEP cited 25 Pa. Code § 95.5 in its Fact Sheet for the current NPDES permit as the basis for imposing secondary treatment standards on discharges from Outfall 001 without developing WQBELs. 25 Pa. Code § 95.5(a)(1) states the following:

- (a) For wastes discharged to waters polluted by abandoned coal mine drainage, so that the applicable water quality criteria are not being met and designated water uses are not being achieved to the extent that aquatic communities are essentially excluded, and where the pollution cannot be remedied by controlling known, active discharges, the following degrees of treatment shall be provided: [...]
- (1) Sewage, as defined in The Clean Streams Law (35 P. S. §§ 691.1—691.1001), shall receive secondary treatment, as defined by this chapter.

Pursuant to § 95.5, to be eligible for the AMD-related variance, all the following conditions must exist:

- effluent must be discharged to waters polluted by abandoned coal mine drainage
- water quality criteria are not being met
- designated aquatic life uses are not being achieved, and
- pollution cannot be remediated by controlling known, active discharges

Brush Creek is polluted by abandoned coal mine drainage. The main contributors to Brush Creek's impairment are two sets of deep mine discharges: the Irwin Discharges and the Coal Run Discharges.

According to the January 28, 2005 TMDL for Brush Creek and a December 31, 2005 report prepared by Hedin Environmental for the Turtle Creek Watershed Association regarding the potential for passive treatment of the Irwin Discharges, the Irwin Discharges are comprised of two separate pipes that discharge into a tributary of Brush Creek called Tinkers Run. The Irwin Discharges flow into Tinkers Run about 750 feet upstream of the mouth of Tinkers Run. Tinkers Run flows into Brush Creek at river mile index 8.70, about one mile upstream of WWMA's Outfall 001 on Brush Creek (RMI 7.72). The Irwin Discharges are the largest mine discharges in Westmoreland County, with an average total flow of over 6,000 gpm (8.64 MGD). The discharges are located along the outcrop line behind a light industrial building in Irwin, PA. The discharges originate in the South Mine and flow through an old mine drainage way installed in the early 1900s. The drainage way drains much of the shallow groundwater entering the Irwin coal basin between Export and Irwin. As the mine drainage exits the mine it is conveyed beneath the building via a six-foot wide timber box that flows into a 30" diameter pipe. Somewhere beneath the building the 30" diameter pipe empties into a sump pump from which a 30" diameter pipe and a 15" diameter pipe direct the mine drainage to Tinkers Run.

Coal Run empties into Brush Creek at river mile index 8.97, which is about ¼-mile upstream of Tinkers Run's mouth. Coal Run flows through a stone culvert that runs beneath Legislative Route 64209 and the Pennsylvania Railroad corridor. About one-third of the way inside this culvert from the north end, two twelve-inch diameter pipes protrude from the east wall. These pipes become clogged with iron oxide formations resulting in very erratic flow rates. The average flow rate is estimated to be 700 gpm (1 MGD). In addition to those two piped discharges, upstream of the culvert there is evidence of mine drainage seeping from the stream bank. Upstream of Coal Run, Brush Creek has low concentrations of metals. The Coal Run Discharges are small relative to the Irwin Discharges to Tinkers Run.

Analyses of samples collected in 2021 at sites on Brush Creek located upstream and downstream of Outfall 001 suggest that the water quality criterion for total iron is not met at either location. The results showed an instantaneous maximum result of 12 mg/L upstream and 14 mg/L downstream versus a 30-day average criterion of 1.5 mg/L. Other analyzed parameters were not present in significant concentrations (see **Attachment A**) indicating that iron is the main cause of Brush Creek's impairment.

Brush Creek is on Pennsylvania's 303(d) list of impaired waters with an impaired aquatic life use caused by acid mine drainage. The designated aquatic life use of Brush Creek is not achieved. Brush Creek empties into Turtle Creek, which empties into the Monongahela River. Turtle Creek's designated aquatic life use is impaired by acid mine drainage. The Monongahela River's aquatic life use has not been assessed, but its potable water supply and fish consumption uses are both impaired and its aquatic life use also might be impaired. To the extent they have been assessed, none of the waters hierarchically downstream of Outfall 001 are attaining their designated aquatic life uses.

Section 95.5 does not clarify what is meant by "active discharges" with respect to the provision that "pollution cannot be remedied by controlling known, active discharges." The Irwin and Coal Run Discharges are known discharges that are actively discharging. However, "active" likely refers to NPDES-permitted discharges from facilities that are currently operating (e.g., an active deep mining operation) and for which pollution controls can be enforced through an NPDES permit as opposed to unpermitted discharges from abandoned sites with no existing responsible parties. If all it took was the identification of actively flowing discharges (including abandoned mine discharges) with the control of those discharges an assumed possibility (i.e., the pollution *can* be remedied, but not necessarily *will* be remedied), then § 95.5 would not apply in any situation.

No treatment facilities currently exist for the Irwin or Coal Run Discharges. The Irwin Discharges were evaluated for passive treatment in 2005, but no facilities have been installed. In late 2020, the Turtle Creek Watershed Association was allocated \$75,560 through DEP's Growing Greener Plus Grants Program and the Abandoned Mine Drainage (AMD) Set-Aside Program for AMD reclamation projects in the Turtle Creek Hydrologic Unit. The Irwin and Coal Run Discharges may be treated eventually with additional AMD Set-Aside Program funding allocated if/when sampling facilitated by the 2020 grant results in Turtle Creek's designation as a Qualified Hydrologic Unit, which will allow for the expenditure of additional Set-Aside Program monies for AMD abatement. Controlling the Irwin and Coal Run Discharges will substantially abate pollution in Brush Creek. However, the Irwin and Coal Run Discharges are not "active" discharges as described above, and no abatement or improvement in Brush Creek's water quality is expected in the forthcoming permit term.

WWMA's Brush Creek STP is eligible for a § 95.5 variance because all the regulatory criteria are achieved for that variance. However, the variance only applies to "aquatic communities" (i.e. aquatic life water quality criteria). In addition, analyses of stream samples show that water quality criteria for pollutants other than iron are achieved in-stream.¹ Other than Potable Water Supply use (discussed below), Brush's Creek's other designated uses are not impaired. If the Irwin Discharges are treated, a greater degree of treatment may be required for the Brush Creek STP's discharge pursuant to § 95.5(b)(1); aquatic life criteria would apply at that time.

Water quality criteria for ammonia-nitrogen and dissolved oxygen are aquatic life criteria, so modeling using DEP's WQM 7.0 model, which is used to determine WQBELs for ammonia-nitrogen, CBOD-5, and dissolved oxygen is not performed. WQBELs for toxic and non-conventional pollutants are evaluated using DEP's Toxics Management Spreadsheet. Fish criteria are not applied for that evaluation because of the § 95.5 variance. However, threshold and cancer risk level human health criteria are applied because § 95.5 only relates to aquatic communities.

Potable Water Supply Criteria

25 Pa. Code § 93.9v deletes 'Potable Water Supply' (PWS) as a protected use in the Brush Creek basin. The effect of deleting the PWS protected use is that numerical water quality criteria promulgated to protect the PWS use of waters of the Commonwealth do not apply to those waters.

25 Pa. Code §§ 96.3(c) and (d) state the following:

- (c) To protect existing and designated surface water uses, the water quality criteria described in Chapter 93 (relating to water quality standards), including the criteria in §§ 93.7 and 93.8a(b) (relating to specific water quality criteria; and toxic substances) shall be achieved in all surface waters at least 99% of the time, unless otherwise specified in this title. The general water quality criteria in § 93.6 (relating to general water quality criteria) shall be achieved in surface waters at all times at design conditions.

¹ Even though there are no aquatic life criteria for Specific Conductivity, Total Dissolved Solids, Total Nitrogen, and Total Phosphorus, analytical results from DEP's stream survey in 2021 suggest that those pollutants are stressors for aquatic life in Brush Creek.

- (d) As an exception to subsection (c), the water quality criteria for total dissolved solids, nitrite-nitrate nitrogen, phenolics, chloride, sulfate and fluoride established for the protection of potable water supply shall be met at least 99% of the time at the point of all existing or planned surface potable water supply withdrawals unless otherwise specified in this title.

Pursuant to 25 Pa. Code §§ 93.9v and 96.3(d), water quality criteria for total dissolved solids, nitrite-nitrate nitrogen, phenolics, chloride, sulfate, and fluoride do not apply to the Brush Creek watershed. However, the inapplicability of those criteria and the deletion of the PWS protected use does not eliminate from consideration other water quality criteria based on threshold human health effects and cancer risk.²

Toxics Management Spreadsheet Water Quality Modeling Program and Procedures for Evaluating Reasonable Potential

WQBELs are developed pursuant to Section 301(b)(1)(C) of the Clean Water Act and, per 40 CFR § 122.44(d)(1)(i), are imposed to “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.” The Department of Environmental Protection developed the DEP Toxics Management Spreadsheet (TMS) to facilitate calculations necessary to complete a reasonable potential (RP) analysis and determine WQBELs for discharges of toxic and some nonconventional pollutants.

The TMS is a single discharge, mass-balance water quality modeling program for Microsoft Excel® that considers mixing, first-order decay, and other factors to determine WQBELs for toxic and nonconventional pollutants. Required input data including stream code, river mile index, elevation, drainage area, discharge flow rate, low-flow yield, and the hardness and pH of both the discharge and the receiving stream are entered into the TMS to establish site-specific discharge conditions. Other data such as reach dimensions, partial mix factors, and the background concentrations of pollutants in the stream also may be entered to further characterize the discharge and receiving stream. The pollutants to be analyzed by the model are identified by inputting the maximum concentration reported in the permit application or Discharge Monitoring Reports, or by inputting an Average Monthly Effluent Concentration (AMEC) calculated using DEP’s TOXCONC.xls spreadsheet for datasets of 10 or more effluent samples. Pollutants with no entered concentration data and pollutants for which numeric water quality criteria in 25 Pa. Code Chapter 93 have not been promulgated are excluded from the modeling.

The TMS evaluates each pollutant by computing a Wasteload Allocation for each applicable criterion, determining the most stringent governing WQBEL, and comparing that governing WQBEL to the input discharge concentration to determine whether permit requirements apply in accordance with the following RP thresholds:

- Establish limits in the permit where the maximum reported effluent concentration or calculated AMEC equals or exceeds 50% of the WQBEL. Use the average monthly, maximum daily, and instantaneous maximum (IMAX) limits for the permit as recommended by the TMS (or, if appropriate, use a multiplier of 2 times the average monthly limit for the maximum daily limit and 2.5 times the average monthly limit for IMAX).
- For non-conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 25% - 50% of the WQBEL.
- For conservative pollutants, establish monitoring requirements where the maximum reported effluent concentration or calculated AMEC is between 10% - 50% of the WQBEL.

In most cases, pollutants with effluent concentrations less than DEP’s Target Quantitation Limits are eliminated as candidates for WQBELs and water quality-based monitoring.

² Most of the PWS criteria found in Chapter 93, Table 3 are for substances that are generally considered to be non-toxic to humans and are subject to specific “Add” or “Delete” exceptions. PWS criteria are intended to protect surface waters such that they will be available now and in the future for use as a drinking water supply and a public water supplier should only need to use conventional treatment to produce finished/potable water (i.e., water that complies with safe drinking water standards – Maximum Contaminant Levels (MCLs) and Secondary MCLs). Most of Chapter 93’s PWS criteria are based on or equivalent to drinking water MCLs or SMCLs and were established for aesthetic purposes only (i.e., to prevent laundry staining, taste/odor issues, etc.). The point of compliance for many of the PWS criteria is at the point of a PWS withdrawal rather than in all surface waters. There are a few exceptions such as certain phenolic compounds, color, iron, and manganese, which do still apply in all surface waters.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Table 3. 001 TMS Inputs

Discharge Characteristics	
Parameter	Value
River Mile Index	7.72
Discharge Flow (MGD)	4.4
Basin/Stream Characteristics	
Parameter	Value
Area in Square Miles	45.5
Q ₇₋₁₀ (cfs)	0.89
Low-flow yield (cfs/mi ²)	0.0195
Elevation (ft)	851.24
Slope (ft/ft)	0.001
Stream Width (ft)	30.0
Width/Depth Ratio	10.0

The TMS model is run for Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 3. Pollutants for which water quality criteria have not been promulgated (e.g., TSS, oil and grease, etc.) are excluded from the modeling. Pursuant to the preceding discussion, only acute and chronic human health criteria are applied.

Initially, discharges from Outfall 001 were modeled using the maximum concentrations reported on the permit renewal application. From that analysis, DEP determined that reporting requirements were necessary for Total Arsenic, Total Boron, and Dissolved Iron and that WQBELs were necessary for Free Cyanide, Total Thallium, Acrolein, Carbon Tetrachloride, Dichlorobromomethane, 1,3-Dichloropropylene, Hexachlorobutadiene, and 1,2,4-Trichlorobenzene.

The WQBELs for Acrolein, Carbon Tetrachloride, 1,3-Dichloropropylene, Hexachlorobutadiene, and 1,2,4-Trichlorobenzene were the result of WWMA's attainment of analytical reporting limits that were less stringent (i.e., higher) than DEP's target quantitation limits (Target QLs). Even though the results were reported as less than analytical reporting limits, the reporting limits used by WWMA's lab

were too high to rule out the possibility that discharges will result in excursions above Pennsylvania's water quality criteria. In those situations, DEP allows dischargers to collect additional samples and analyze them using reporting limits that are no greater than the Target QLs identified in the Instructions for DEP's "NPDES Application for Individual Permit to Discharge Sewage Effluent for Major Sewage Facilities".

On February 8, 2022, DEP sent a letter notifying WWMA of the anticipated new WQBELs. A pre-draft permit survey was attached to the letter. Completion of a pre-draft survey is intended to help DEP develop a draft NPDES permit and allow DEP to understand a permittee's current capabilities or plans to treat or control the pollutants subject to WQBELs. The pre-draft survey letter also allowed WWMA to collect additional samples and analyze those samples for the parameters previously reported using insufficiently sensitive methods. WWMA submitted a pre-draft survey by emailed dated March 8, 2022 and opted to collect seven additional samples once per week for seven weeks. Seven samples were collected so that when those results were combined with the three analytical results reported in the application, the resulting dataset of ten effluent samples would allow the use of DEP's TOXCONC spreadsheet to calculate average monthly effluent concentrations to use as the modeled discharge concentrations in the TMS spreadsheet rather than maximum concentrations. Results from the additional sample analyses were submitted to DEP on August 26, 2022 and are summarized in Table 4 along with original application results.

Table 4. Summary of Application Results and Additional

Parameter	Application Results			Resampling Results							Target QL
	Week 1	Week 2	Week 3	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	
Arsenic	2	2	2	<2	2.05	<2	2.59	2.84	2.24	2.87	3
Boron	443	385	440	720	400	520	590	590	680	660	200
Thallium, Total	0.5	0.04	<0.4	<2	<2	<2	<2	<2	<2	<2	2
Iron, Dissolved	49	62	71	40	40	40	40	180	50	50	20
Acrolein	<2.5	<2.5	<2.5	<1	<1	<1	<1	<1	<1	<1	2
1,3-Dichloropropylene	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Carbon Tetrachloride	<1	<1	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5
Dichlorobromomethane	<0.5	1.1	1.2	0.85	<0.5	<0.5	<0.5	1.3	1.23	<0.5	0.5
Hexachlorobutadiene	<2.9	<3.3	<3.2	<0.0837	<0.0828	<0.0828	<0.258	†	†	†	0.5
1,2,4-Trichlorobenzene	<2.9	<3.3	<3.2	<0.0949	<0.0939	<0.0939	<0.265	†	†	†	0.5
Cyanide, Free	10	10	9	3	8	3	4	3	3	8	1

† Samples were not analyzed for this parameter.

Modeling was revised to include the updated results. Based on the updated data, acrolein, 1,3-dichloropropylene, carbon tetrachloride, hexachlorobutadiene, and 1,2,4-trichlorobenzene are eliminated as pollutants of concern. WWMA did not analyze samples collected in Weeks 5 through 7 for hexachlorobutadiene and 1,2,4-trichlorobenzene, but the additional results from Weeks 1 through 4 with non-detect results at reporting limits one-half or less than DEP's Target QLs are adequate to justify the elimination of those pollutants as pollutants of concern.

Long-term average effluent concentrations calculated using the full ten-sample datasets for the remaining parameters are summarized in Table 5 with applicable permit requirements.

Table 5. WQBELs and Water Quality-based Reporting Requirements for Outfall 001

Parameter	Concentration Limit (µg/L)			Long-Term Average (µg/L) †	Target QL (µg/L)	Governing Criterion
	Avg Mo.	Max Daily	IMAX			
Arsenic, Total	—	—	—	<2.26	3.0	N/A
Boron, Total	Report	Report	—	544	200	THH
Cyanide, Free	4.52	7.05	11.3	6.23	1.0	THH
Iron, Dissolved	Report	Report	—	61.1	20	THH
Thallium, Total	—	—	—	<1.74	2.0	N/A
Dichlorobromomethane	Report	Report	—	<0.75	0.5	CRL

† For datasets containing mixed results of detected and not-detected values, the less-than symbol "<" is applied to the average.

THH = Threshold Human Health; CRL = Cancer Risk Level

Output from the TMS model run is included in **Attachment B**. As explained previously, the TMS compares the input discharge concentrations to the calculated WQBELs using DEP's Reasonable Potential thresholds to evaluate the need to impose WQBELs or monitoring requirements in the permit. The results of the modeling indicate that WQBELs are needed for free cyanide. Reporting also is required for total boron, dissolved iron, and dichlorobromomethane.

Schedule of Compliance for Cyanide WQBELs

DEP recently adopted a new approach to determine the need for, and duration of, schedules of compliance by sending a survey to applicants prior to publishing a draft permit. As explained above, WWMA submitted a pre-draft survey based on the derivation of WQBELs from DEP's initial water quality modeling. WWMA reported in the survey that Free Cyanide and Dichlorobromomethane are suspected disinfection byproducts and that WWMA was uncertain whether the WQBELs could be achieved upon permit issuance. Pursuant to 25 Pa. Code § 92a.51(a), schedules of compliance are permissible when an existing discharge is not in compliance with effluent limitations (or will not comply on the permit effective date).

According to Section III.2 of DEP's "Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers Standard Operating Procedure" [SOP No. BCW-PMT-037, May 20, 2021, Version 1.5], when a permittee is uncertain about when compliance with a new WQBEL is achievable, a maximum three-year compliance schedule is included in the permit. During those three years, the permittee must collect site-specific data, conduct a Toxics Reduction Evaluation, and submit a Final WQBEL Compliance Report. DEP may respond to the Final WQBEL Compliance Report in one of the following ways:

- Request additional research, studies or clarification if the permittee concludes that it cannot achieve final WQBELs by the WQBEL Effective Date or compliance is infeasible and DEP disagrees with this conclusion or believes that additional efforts are necessary before reaching this conclusion. The permittee shall comply with the schedule provided by DEP in writing for such additional efforts or an alternative agreed upon schedule.
- Issue a draft Major Amendment to the permit that modifies the WQBELs in response to site-specific data or modifies the WQBEL Effective Date, for public comment.
- Deny the application for a Major Amendment to the permit or place review of the application on hold until additional research or studies requested by DEP are complete.
- Notify the permittee that DEP will consider a time extension to achieve the final WQBELs under 25 Pa. Code § 95.4 for the discharge upon the receipt of a request submitted by the permittee using Form No. 3800-FM-BCW0302, if it can be demonstrated that the criteria for a time extension under § 95.4 are met.
- Notify the permittee that DEP will consider the submission of a site-specific criterion study (SSCS) to further modify WQBELs, where applicable. The permittee shall comply with the requirements set forth in DEP's notification letter for completion of a SSCS, including submission of a SSCS work plan.

Total Maximum Daily Loads

A Total Maximum Daily Load (“TMDL”) for Brush Creek was completed on January 28, 2005 and approved by U.S. EPA on March 17, 2005 for the control of acid mine drainage pollutants including aluminum, iron, manganese, sediment, and pH. Separately, a TMDL for the Turtle Creek Watershed—of which Brush Creek is a part—was completed on June 29, 2009 and approved by U.S. EPA on July 7, 2009 for the control of aluminum, iron, and pH.

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7. The Turtle Creek Watershed TMDL does not state that it supersedes the Brush Creek TMDL even though the Turtle Creek Watershed TMDL includes allocations for Brush Creek. Therefore, to the extent necessary, the most stringent requirements between the two TMDLs are imposed at Outfall 001.

The Brush Creek TMDL includes TMDLs for each impaired stream segment with allocations specified at the downstream point of each segment. The TMDL equation consists of a waste load allocation (WLA), load allocation (LA), and a margin of safety (MOS). The WLA is the portion of the allowable load assigned to point sources. The LA is the portion of the allowable load assigned to non-point sources. The margin of safety is applied to account for uncertainties in the computational process. The margin of safety may be expressed implicitly (documenting conservative processes in the computations) or explicitly (setting aside a portion of the allowable load). Absent a TMDL revision, loads included in the MOS cannot be reallocated to either the WLA or LA portion of the TMDL.

TMDLs for Outfall 001 under the Brush Creek TMDL are governed by allocations at BRSH10 – Brush Creek downstream of Unnamed Tributary 37266 located about 0.21 miles (1,100 feet) downstream of Outfall 001.

Table 6. Brush Creek TMDL for Segment BRSH10.

BRSH10 – Brush Creek downstream of Unnamed Tributary 37266						
Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction (%)
Fe	2,736.4	246.3	0.0	246.3	0.0	0
Mn	134.5	134.5	NA	NA	0.0	0
Al	ND	NA	NA	NA	0.0	0
Acidity	0.0	0.0	NA	NA	0.0	0

In the context of the Brush Creek TMDL, acid mine drainage is considered a nonpoint source, so all point and nonpoint source discharges of acid mine drainage are regulated by the LA portion of the TMDL. Point source discharges of industrial waste and sewage are regulated by WLAs. The TMDL assigns a WLA of 0.0 lbs/day for point source discharges of total iron into this segment of Brush Creek, which effectively prohibits the discharge of total iron from point source discharges other than discharges of acid mine drainage. No load reductions were deemed necessary for Manganese, Aluminum, or Acidity (as a surrogate for pH) in this segment of Brush Creek.

The Turtle Creek Watershed TMDL also includes TMDLs for each impaired stream segment in the Turtle Creek Watershed with allocations imposed at the downstream point of each segment. TMDLs for Outfall 001 under the Turtle Creek Watershed TMDL are governed by allocations at BC2 – Brush Creek at SR4019 near Ardara in Acerman Natural Area. BC2 is located about 3.3 miles downstream of Outfall 001.

Table 7. Turtle Creek Watershed TMDL for Segment BC2.

BC-2 – Brush Creek at SR4019 near Ardara in Acerman Natural Area						
Parameter	Existing Load (lbs/day)	TMDL Allowable Load (lbs/day)	WLA (lbs/day)	LA (lbs/day)	Load Reduction (lbs/day)	Percent Reduction (%)
Aluminum	105.42	5.27	1.12	4.15	100.15*	95*
Iron	1522.85	258.88	4.50	254.38	0*	0*
Acidity	-9091.71	-9091.71	NA	NA	NA	NA

* Accounts for load reductions from upstream sources.

The Turtle Creek Watershed TMDL identifies aluminum and iron WLAs for point source discharges in segment BC2 of the watershed. Data from DEP’s eMapPA web application indicate that there are a few other point source discharges in

segment BC2 of the watershed—a discharge from a single residence sewage treatment plant (PA0255742) and industrial storm water discharges from XPO Logistics Freight (PAR806179) and Waste Management's North Huntingdon Hauling Division (PAR506107). The TMDL does not identify the Brush Creek STP's outfall or the other point sources in that segment of the watershed and does not apportion the aluminum and iron WLAs among those point sources. The Brush Creek TMDL does not have any allocations for aluminum. The Turtle Creek Watershed TMDL does have an aluminum WLA, but the discharge load of aluminum from the Brush Creek STP alone exceeds the aluminum WLA for segment BC2. The effluent aluminum concentration reported on the application based on one sample was 0.196 mg/L with a load of 4.35 pounds per day.

Even though the Turtle Creek Watershed TMDL has a WLA for iron that could be apportioned among the effluent sources, the Brush Creek TMDL's WLA of 0.0 lbs/day for iron is more stringent and consequently supersedes the Turtle Creek Watershed TMDL.

TMDL Permitting Requirements

Notwithstanding the fact that the Brush Creek STP discharges more aluminum load than the TMDL allows, DEP notes that the TMDL endpoint for aluminum is an in-stream concentration of 0.75 mg/L—the acute water quality criterion of aluminum in 25 Pa. Code § 93.8c. The reported effluent concentration of aluminum in Outfall 001's effluent is 0.196 mg/L. Even though the Brush Creek STP is adding aluminum load to Brush Creek, the concentration of aluminum in the discharge does not exhibit a reasonable potential to cause or contribute to excursions above the 0.75 mg/L criterion. That is, assuming an end-of-pipe concentration limit of 0.75 mg/L applies, the discharge concentration of aluminum at Outfall 001 is not within 50% of the WQBEL. Aluminum in Outfall 001's effluent is not contributing to the impairment—even with discharge loadings in excess of the Turtle Creek TMDL's WLA of 1.12 pounds per day.

Similarly, it is unreasonable and unnecessary for WWMA to achieve zero discharge of total iron (e.g., through the installation of additional treatment technologies or the elimination of treated sewage discharges) based on the Brush Creek TMDL. In circumstances where load contributions from existing point sources were not included in a TMDL's WLAs, DEP allows discharges to meet effluent limits equivalent to water quality criteria. A discharge that complies with water quality criteria at the point of discharge cannot cause or contribute to excursions above criteria in-stream. This methodology will be applied for aluminum and iron at Outfall 001.

In accordance with 40 CFR § 122.44(d)(1)(vii)(B), when developing WQBELs, the permitting authority shall ensure that effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation (WLA) for the discharge prepared by the State and approved by EPA pursuant to 40 CFR § 130.7. The Brush Creek STP's discharge was not provided enough WLA for either aluminum or iron even though the discharge existed before the TMDL was developed. Therefore, pursuant to § 122.44(d)(1)(vii)(B), WQBELs will be imposed at Outfall 001 based on the most stringent water quality criteria for those pollutants.

The methods used to implement water quality criteria are described in 25 Pa. Code §§ 96.3 and 96.4. Also, DEP's "Water Quality Toxics Management Strategy" [Doc. No. 361-2000-003] addresses design conditions in detail (Table 1 in that document), including the appropriate durations to assign to water quality criteria. The design duration for Criteria Maximum Concentration (CMC) criteria is 1 hour (acute). The design duration for Criteria Continuous Concentration (CCC) criteria is 4 days (chronic). The design duration for Threshold Human Health (THH) criteria is 30 days (chronic). The design duration for Cancer Risk Level (CRL) criteria is 70 years (chronic).

The 750 µg/L aluminum criterion in 25 Pa. Code § 93.8c is a CMC (acute) criterion. Therefore, 750 µg/L is imposed as a maximum daily limit. There is no CCC criterion for aluminum necessitating the imposition of a more stringent average limit. Imposing 750 µg/L as both a maximum daily and average limit is protective of water quality uses.

The 1.5 mg/L iron criterion is given as a 30-day average in 25 Pa. Code § 93.7(a). Therefore, 1.5 mg/L is imposed as an average limit and the maximum daily effluent limit is calculated using a multiplier of two times the average limit based on DEP's "Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits" [Doc. No. 362-0400-001, Chapter 3, pp. 15, 16].

Since the allocated concentrations are equivalent to water quality criteria, WWMA's compliance with concentration limits for aluminum and iron will not result in excursions above water quality criteria and the permit will be consistent with the TMDL's WLAs. Consequently, load limits do not need to be imposed. However, reporting of aluminum and iron loads will be required. The WQBELs for Outfall 001 based on the TMDL are summarized in the table below.

Table 8. TMDL WQBELs for Outfall 001

Parameter	Average Quarterly (lbs/day)	Maximum Daily (lbs/day)	Average Quarterly (mg/L)	Maximum Daily (mg/L)
Aluminum, Total	Report	Report	0.75	0.75
Iron, Total	Report	Report	1.5	3.0

Even though the TMDL WQBELs in Table 8 are derived based on the premise that the average limits are average monthly limits, the average limits are imposed as average quarterly limits because DEP will only require quarterly sampling and analyses for Total Aluminum and Total Iron at Outfall 001. The reduced monitoring frequency (compared to DEP's normal 1/week monitoring frequency for parameters with WQBELs) reflects the results of DEP's water quality analysis in **Attachment B**, which did not identify Total Aluminum and Total Iron in Outfall 001's discharges as pollutants exhibiting a reasonable potential to cause or contribute to excursions above water quality criteria. DEP notes that the imposition of TMDL WQBELs for Total Aluminum and Total Iron and the reporting of results for those parameters to evaluate compliance with the TMDL WQBELs is still obligated by the TMDL irrespective of DEP's localized water quality analysis.

Application data indicate that the TMDL WQBELs can be achieved without a schedule of compliance (consistent with the lack of "reasonable potential"). Therefore, the TMDL WQBELs will take effect on the Permit Effective Date.

001.C. Influent Monitoring

Pursuant to Section IV.E.8 of DEP's "Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications" [SOP No. BCW-PMT-002, Version 1.9, January 6, 2020], for POTWs with design flows greater than 2,000 GPD, influent BOD₅ and TSS monitoring is established in the permit with the same sample frequency and sample type used for the effluent. As explained below, effluent from the Brush Creek STP must be analyzed for CBOD₅ and TSS 2/week using 24-hour composite sampling. Therefore, influent samples must be analyzed for BOD and TSS 2/week using 24-hour composite sampling.

001.D. Effluent Limits

In accordance with 25 Pa. Code §§ 92a.12 and 92a.61 and anti-backsliding requirements under 40 CFR § 122.44(l)³ (incorporated by reference in Pennsylvania regulations at 25 Pa. Code § 92a.44), effluent limits that apply at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements developed for this permit renewal; and effluent limits and monitoring requirements from the previous permit, subject to any exceptions to anti-backsliding discussed previously in this Fact Sheet.

Table 9. Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Weekly Average	Average Monthly	Weekly Average	Instant. Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
CBOD ₅	915.0	1390.0	25.0	38.0	50.0	25 Pa. Code § 92a.47(a)(1)
Total Suspended Solids	1100.0	1650.0	30.0	45.0	60.0	25 Pa. Code § 92a.47(a)(1)
BOD ₅ (Influent)	Report	Report (Daily Max)	Report	Report	—	25 Pa. Code § 92a.61(b)
TSS (Influent)	Report	Report (Daily Max)	Report	Report	—	25 Pa. Code § 92a.61(b)
Fecal Coliform (No. /100mL) May 1 – September 30	—	—	200	—	1000	25 Pa. Code § 92a.47(a)(4) & 40 CFR § 122.44(l)
Fecal Coliform (No. /100mL) October 1 – April 30	—	—	2000	—	10000	25 Pa. Code § 92a.47(a)(5) & 40 CFR § 122.44(l)
E. Coli	—	—	—	Report (Daily Max)	—	25 Pa. Code § 92.61(b)

³ *Reissued permits.* (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under § 122.62.)

Table 9 (continued). Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Weekly Average	Average Monthly	Weekly Average	Instant. Maximum	
Dissolved Oxygen	—	—	4.0 (Min.)	—	—	CWA § 402(a)(1); BPJ TBEL
Total Residual Chlorine	—	—	0.5	—	1.6	25 Pa. Code § 92a.47(a)(8)
Ammonia-Nitrogen	—	—	Report	Report	—	25 Pa. Code § 92.61(b)
Total Nitrogen	—	—	—	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Total Phosphorus	—	—	—	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Aluminum, Total	Report (Average Quarterly)	Report (Daily Max)	0.75 (Average Quarterly)	0.75	—	TMDL WQBELs: 40 CFR § 122.44(d)(1)(vii)(B)
Boron, Total	—	—	Report	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Cyanide, Free (Interim) (µg/L) †	—	—	Report	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Cyanide, Free (Final) (µg/L)	—	—	4.52	7.05 (Daily Max)	11.3	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Iron, Dissolved	—	—	Report	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
Iron, Total	Report (Average Quarterly)	Report (Daily Max)	1.5 (Average Quarterly)	3.0	—	TMDL WQBELs: 40 CFR § 122.44(d)(1)(vii)(B)
Dichlorobromomethane (µg/L)	—	—	Report	Report (Daily Max)	—	25 Pa. Code § 92.61(b)
pH (standard units)	not less than 6.0 nor greater than 9.0 standard units					25 Pa. Code § 92a.47(a)(7) & § 95.2(1)

† Parameter is subject to interim three-year monitoring.

Monitoring frequencies and sample types are established pursuant to Table 6-3 in DEP's "Technical Guidance for the Development and Specification of Effluent Limitations, and Other Permit Conditions in NPDES Permits" and DEP's "Standard Operating Procedure for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits". Dissolved oxygen, TRC, and pH must be sampled 1/day using grab sampling. CBOD5, TSS, and ammonia-nitrogen will have a monitoring frequency of 2/week using 24-hour composite sampling. Fecal coliform will have a monitoring frequency of 2/week using grab sampling. *E. Coli* will have a monitoring frequency of 1/month using grab sampling. Total nitrogen and Total Phosphorus will have a monitoring frequency of 1/quarter using 24-hour composite sampling. Free Cyanide will have a monitoring frequency of 1/week using 24-hour composite sampling. Total Boron, Dissolved Iron, and Dichlorobromomethane will have a reduced monitoring frequency of 2/month using 24-hour composite sampling (Table 6-3 directs 1/week) and Total Aluminum and Total Iron will have a monitoring frequency of 2/quarter using 24-hour composite sampling. Flow must be measured continuously using a flow meter.

Development of Effluent Limitations

Outfall Nos.	<u>101 & 201</u>	Design Flow (MGD)	<u>Variable</u>
Latitude	<u>40° 20' 23.20"; 40° 20' 27.60"</u>	Longitude	<u>-79° 43' 21.12"; -79° 43' 19.70"</u>
Wastewater Description:	<u>Storm water runoff from the plant</u>		

The permittee is authorized to discharge non-polluting stormwater from its site, alone or in combination with other wastewaters through Outfalls 101 and 102.

Whole Effluent Toxicity (WET)

For Outfall 001, ☐ **Acute** ☒ **Chronic** WET Testing was completed:

- ☐ For the permit renewal application (4 tests).
- ☐ Quarterly throughout the permit term.
- ☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
- ☒ Other: Annually throughout the permit term. A TRE was conducted followed by four quarterly tests.

The dilution series used for the tests was: 100%, 97%, 93%, 47%, and 23%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 93%.

Summary of Five Most Recent Test Results

(NOTE – Enter results into one table, depending on which data analysis method was used).

TST Data Analysis

(NOTE – In lieu of recording information below, the application manager may attach the DEP WET Analysis Spreadsheet).

Test Date	Test Frequency	Ceriodaphnia Results (Pass/Fail)		Pimephales Results (Pass/Fail)	
		Survival	Reproduction	Survival	Growth
22 February 2021	Post-TRE Quarterly Test	PASS	PASS	—	—
23 February 2021		—	—	PASS	PASS
17 May 2021	Post-TRE Quarterly Test	PASS	PASS	—	—
18 May 2021		—	—	PASS	PASS
22 August 2021	Post-TRE Quarterly Test	PASS	PASS	—	—
24 August 2021		—	—	PASS	PASS
18 October 2021	Post-TRE Quarterly Test	PASS	PASS	—	—
19 October 2021		—	—	PASS	PASS
5 September 2022	Regular Annual Test	PASS	PASS	PASS	PASS

exhibited when the calculated *t* value ("T-Test Result") is greater than the critical *t* value. A "failing" result is exhibited when the calculated *t* value ("T-Test Result") is less than the critical *t* value.

Is there reasonable potential for an excursion above water quality standards based on the results of these tests? (NOTE – In general, reasonable potential is determined anytime there is at least one test failure in the previous four tests).

☐ YES ☒ NO

Comments: WWMA's permit requires the authority to conduct annual WET testing of the Brush Creek STP's effluent. In 2017, the STP failed the chronic reproduction WET test for *Ceriodaphnia dubia* and later failed chronic reproduction WET tests for *Ceriodaphnia dubia* in September and October 2020. The NPDES permit requires WWMA to conduct a Phase I TRE when there is one WET endpoint failure followed by a re-test that confirms the failure for the same species. When the TRE process is triggered, quarterly WET testing must be initiated for both *Ceriodaphnia dubia* and *Pimephales promelas* until there are four consecutive passing results for all endpoints. If all four quarterly WET tests produce passing results for all endpoints during the Phase I TRE process, performance of a Phase II TRE is not required, and annual WET testing may resume.

The Brush Creek STP previously transitioned from operating in a conventional activated sludge mode to a contact stabilization mode to address operational issues during wet weather. In August 2017, after failing the chronic reproduction WET test for *Ceriodaphnia dubia*, WWMA began a detailed sampling program of the STP's influent and effluent ammonia. Detailed modeling of the STP's operations also was conducted using existing data. Based on the results of field testing, analyses of ammonia levels at the plant, and modeling, it was determined that ammonia was the probable cause of the observed toxicity. Studies indicated that ammonia concentrations exceeding 10 mg/L generate a toxic environment that can affect *Ceriodaphnia dubia* reproduction. As stated above, in September and October 2020, the STP failed chronic reproduction WET tests for *Ceriodaphnia dubia*. The initial test failure followed by the re-test failure triggered the requirement for a Phase I TRE.

In December 2020, after the two consecutive WET test failures, operational changes to the plant's biological treatment process were initiated based on sampling data and modeling results. The plant also switched from operating in a contact stabilization mode back to a conventional activated sludge mode. In addition, magnesium hydroxide is now fed to the aeration tanks to control alkalinity, which has significantly improved ammonia nitrification. Due to the improved ammonia removal, the plant successfully passed the four WET tests conducted in February, May, August, and October 2021. Since WWMA passed those quarterly WET tests, a Phase II TRE was not required and normal annual WET testing resumed.

WWMA passed its first annual post-TRE WET tests in September 2022.

Evaluation of Test Type, IWC and Dilution Series for Renewed Permit

Acute Partial Mix Factor (PMFa): **1.0**

Chronic Partial Mix Factor (PMFc): **1.0**

1. Determine IWC – Acute (IWCa):

$$(Q_d \times 1.547) / ((Q_{7-10} \times \text{PMFa}) + (Q_d \times 1.547))$$

$$[(4.4 \text{ MGD} \times 1.547) / ((0.89 \text{ cfs} \times 1) + (4.4 \text{ MGD} \times 1.547))] \times 100 = \mathbf{88\%}$$

Is IWCa < 1%? ☐ YES ☒ NO (YES - Acute Tests Required OR NO - Chronic Tests Required)

If the discharge is to the tidal portion of the Delaware River, indicate how the type of test was determined:

NOT APPLICABLE

Type of Test for Permit Renewal: **Chronic**

2a. Determine Target IWCa (If Acute Tests Required)

$$\text{TIWCa} = \text{IWCa} / 0.3 = \quad \% \text{ — } \mathbf{ACUTE TEST NOT REQUIRED}$$

2b. Determine Target IWCc (If Chronic Tests Required)

$$(Q_d \times 1.547) / (Q_{7-10} \times \text{PMFc}) + (Q_d \times 1.547)$$

$$[(4.4 \text{ MGD} \times 1.547) / ((0.89 \text{ cfs} \times 1) + (4.4 \text{ MGD} \times 1.547))] \times 100 = \mathbf{88\%}$$

3. Determine Dilution Series

(NOTE – check Attachment C of WET SOP for dilution series based on TIWCa or TIWCc, whichever applies).

Dilution Series = **100%, 94%, 88%, 44%, and 22%.**

WET Limits

Has reasonable potential been determined? ☐ YES ☒ NO

Will WET limits be established in the permit? ☐ YES ☒ NO

If WET limits will be established, identify the species and the limit values for the permit (TU).

NOT APPLICABLE

If WET limits will not be established, but reasonable potential was determined, indicate the rationale for not establishing WET limits:

NOT APPLICABLE

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 three years after the Permit Effective 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	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	915.0	1390.0	XXX	25.0	38.0 Wkly Avg	50.0	2/week	24-Hr Composite
Total Suspended Solids	1100.0	1650.0	XXX	30.0	45.0 Wkly Avg	60.0	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report Wkly Avg	XXX	2/week	24-Hr Composite
Aluminum, Total	Report Avg Qrtly	Report Daily Max	XXX	0.75 Avg Qrtly	0.75	XXX	2/quarter	24-Hr Composite
Boron, Total (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite

Outfall 001, Effective Period: Permit Effective Date through three years after the Permit Effective 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	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Cyanide, Free (ug/L)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Iron, Dissolved (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite
Iron, Total	Report Avg Qrtly	Report Daily Max	XXX	1.5 Avg Qrtly	3.0	XXX	2/quarter	24-Hr Composite
Dichlorobromomethane (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	4 Grabs/24 Hours

Compliance Sampling Location:

Other Comments:

Proposed Effluent Limitations and Monitoring Requirements

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

Outfall 001, Effective Period: three years after the 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	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Recorded
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	1/day	Grab
Dissolved Oxygen	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
Total Residual Chlorine (TRC)	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
Carbonaceous Biochemical Oxygen Demand (CBOD5)	915.0	1390.0	XXX	25.0	38.0 Wkly Avg	50.0	2/week	24-Hr Composite
Total Suspended Solids	1100.0	1650.0	XXX	30.0	45.0 Wkly Avg	60.0	2/week	24-Hr Composite
Biochemical Oxygen Demand (BOD5) Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Total Suspended Solids Raw Sewage Influent	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/week	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/week	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	XXX	Report	XXX	1/quarter	24-Hr Composite
Ammonia-Nitrogen	XXX	XXX	XXX	Report	Report Wkly Avg	XXX	2/week	24-Hr Composite
Aluminum, Total	Report Avg Qrtly	Report Daily Max	XXX	0.75 Avg Qrtly	0.75	XXX	2/quarter	24-Hr Composite
Boron, Total (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite

Outfall 001, Effective Period: three years after the 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	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Cyanide, Free (ug/L)	XXX	XXX	XXX	4.52	7.05	11.3	1/week	24-Hr Composite
Iron, Dissolved (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	24-Hr Composite
Iron, Total	Report Avg Qrtly	Report Daily Max	XXX	1.5 Avg Qrtly	3.0	XXX	2/quarter	24-Hr Composite
Dichlorobromomethane (ug/L)	XXX	XXX	XXX	Report	Report	XXX	2/month	4 Grabs/24 Hours

Tools and References Used to Develop Permit	
<input type="checkbox"/>	WQM for Windows Model (see Attachment)
<input type="checkbox"/>	Toxics Management Spreadsheet (see Attachment B)
<input type="checkbox"/>	TRC Model Spreadsheet (see Attachment)
<input type="checkbox"/>	Temperature Model Spreadsheet (see Attachment)
<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 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 type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
<input 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 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 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 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 type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input checked="" type="checkbox"/>	Standard Operating Procedure (SOP) for Clean Water Program Establishing Effluent Limitations for Individual Sewage Permits, SOP No. BCW-PMT-033, Version 1.9, March 22, 2021
<input checked="" type="checkbox"/>	Standard Operating Procedure (SOP) for Clean Water Program New and Reissuance Sewage Individual NPDES Permit Applications, SOP No. BCW-PMT-002, Version 2.0, February 3, 2022

ATTACHMENT A

Upstream and Downstream Analytical Results for Brush Creek – April 2021

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570



Date of Issue: 01/07/2022 11:02:48

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Water Quality Protection

Sample ID: 0725 290

Date Collected: 04/20/2021 10:00:00 AM

Lab Sample ID: I2021007524

Status: Completed

Name of Sample Collector: Jamie Detweiler

Date Received: 04/21/2021

County: Westmoreland

State:

Municipality: NOT INDICATED

MP ID: BRUSUP 169669

MP Type: Stream

MP Location Description: Brush Creek upstream STP

* Alias ID	Project / Facility
BRUSUP	SWALUS21

Sample Medium: Surface Water

Sample Medium Type: Water

Location: NOT INDICATED

Reason: Routine Sampling

Project: SWALUS21 Southwest Regional Office Aquatic Life Use Surveys 2021

Standard Analysis: 087

Matrix: Water

Field Tests		
pH	6.85	pH units
Temperature	11.9	C
Dissolved Oxygen	9.91	mg/L
Specific Conductance	1117	umhos/cm

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570

Analytical Report For
Water Quality Protection

Sample ID: 0725 290

Date Collected: 04/20/2021 10:00:00 AM

Lab Sample ID: I2021007524

Status: Completed

Stream Condition:

Sample Comment: Brush Creek, upstream of the Brush Creek Wastewater STP discharge Zac Flannigan

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
00410 ALKALINITY AS CaCO3 @ pH 4.5	106.2 mg/L	04/21/2021 03:09 PM	JAHOUE	SM 2320B
01106H ALUMINUM, DISSOLVED (WATER & WASTE) BY ICPMS	<15.0 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
01105H ALUMINUM, TOTAL (WATER & WASTE) ICPMS	64.900 ug/L	04/22/2021 03:31 PM	SCHOY	EPA 200.8
00608A AMMONIA DISSOLVED AS NITROGEN	0.2830 mg/L	04/29/2021 01:49 PM	MTUZINSKI	EPA 350.1
** Comment ** Answer Rechecked By Analyst				
00610A AMMONIA TOTAL AS NITROGEN	0.22 mg/L	04/29/2021 01:51 PM	MTUZINSKI	EPA 350.1
** Comment ** Answer Rechecked By Analyst				
01007A BARIUM, TOTAL (WATER & WASTE) BY ICP	58.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01022K BORON, TOTAL (WATER & WASTE) BY ICP	<200. ug/L (U)	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01025H CADMIUM, DISSOLVED (WATER & WASTE) BY ICPMS	<0.200 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
00916A CALCIUM, TOTAL (WATER & WASTE) BY ICP	85.910 mg/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01040H COPPER, DISSOLVED (WATER & WASTE) BY ICPMS	<4.00 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
01042H COPPER, TOTAL (WATER & WASTE) BY ICPMS	<4.00 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
00631A Dissolve Nitrate & Nitrite Nitrogen	0.75 mg/L	04/21/2021 09:54 AM	TBEAR	EPA 353.2
** Comment ** Answer Rechecked By Analyst				
00671A Dissolve Ortho Phosphorus	<.01 mg/L (U)	04/21/2021 02:09 PM	LBENT	EPA 365.1
00602A Dissolved Nitrogen as N	1.661 mg/L	04/26/2021 04:05 PM	TBEAR	SM 4500-NC
** Comment ** Answer Rechecked By Analyst				
00666A Dissolved Phosphorus as P	0.025 mg/L	05/03/2021 03:22 PM	LBENT	EPA 365.1
00900 HARDNESS, TOTAL (CALCULATED)	317 mg/L	04/23/2021 01:32 PM	ATAPSOBA	SM 2340 B
** Comment ** Accredited by NJ only - accreditation not available from PA				
01046A IRON, DISSOLVED (WATER & WASTE) BY ICP	10210.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01045A IRON, TOTAL (WATER & WASTE) BY ICP	14290.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01049H LEAD, DISSOLVED (WATER & WASTE) BY ICPMS	<1.00 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
01051H LEAD, TOTAL (WATER & WASTE) BY ICPMS	<1.00 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
01130A LITHIUM, DISSOLVED (WATER & WASTE) BY ICP	26.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01132A LITHIUM, TOTAL (WATER & WASTE) BY ICP	27.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
99020 Low Bromide by IC	59.68 ug/L	04/26/2021 11:55 PM	MAMCNULTY	EPA 300.1 B
00927A MAGNESIUM, TOTAL (WATER & WASTE) BY ICP	24.81 mg/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7

Analytical Report For
Water Quality Protection

Sample ID: 0725 290

Date Collected: 04/20/2021 10:00:00 AM

Lab Sample ID: I2021007524

Status: Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
01056A MANGANESE, DISSOLVED (WATER & WASTE) BY ICP	606.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01055A MANGANESE, TOTAL (WATER & WASTE) BY ICP	632.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01065A NICKEL, DISSOLVED (WATER & WASTE) BY ICP	<50.0 ug/L (U)	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01067A NICKEL, TOTAL (WATER & WASTE) BY ICP	<50.0 ug/L (U)	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
82550 OSMOTIC PRESSURE, MOSM/KG	15 mosm/kg	04/21/2021 10:32 AM	SSPUHLER	BOL 4034
00403 pH, Lab (Electrometric)	7.0 pH units	04/21/2021 03:09 PM	JAHOUE	SM 4500-H+ B
** Comment ** Holding Time Exceeded				
00937A POTASSIUM, TOTAL (WATER & WASTE) BY ICP	3.18 mg/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
01147H SELENIUM, TOTAL (WATER & WASTE) BY ICPMS	<7.00 ug/L (U)	04/22/2021 03:31 PM	SCHOY	EPA 200.8
00929A SODIUM, TOTAL (WATER & WASTE) BY ICP	98.76 mg/L	05/04/2021 03:37 PM	ATAPSOBA	EPA 200.7
00095 SPECIFIC CONDUCTIVITY @ 25.0 C	1092.00 umhos/cm	04/21/2021 07:29 PM	MTUZINSKI	SM 2510B
01082A STRONTIUM, TOTAL (WATER & WASTE) BY ICP	764.00 ug/L	04/23/2021 01:32 PM	ATAPSOBA	EPA 200.7
00403T Temperature at which pH is measured	21.30 C	04/21/2021 03:09 PM	JAHOUE	SM 4500-H+ B
00940 Total Chloride-Ion Chromatograph	139.13 mg/L	04/22/2021 05:16 PM	TVOROBAYCH	EPA 300.0
70300U TOTAL DISSOLVED SOLIDS @ 180C BY USGS-I-1750	676 mg/L	04/21/2021 09:03 AM	MOBERCASH	USGS I-1750
00630A Total Nitrate & Nitrite Nitrogen	0.64 mg/L	04/21/2021 09:53 AM	TBEAR	EPA 353.2
** Comment ** Answer Rechecked By Analyst				
00600A Total Nitrogen as N	1.04 mg/L	04/26/2021 04:03 PM	TBEAR	SM 4500-NC
** Comment ** Answer Rechecked By Analyst				
00680 Total Organic Carbon	2.13 mg/L	04/24/2021 07:40 AM	MAMCNULTY	SM 5310 C
70507A Total Ortho Phosphorus as P	<0.01 mg/L (U)	04/21/2021 02:07 PM	LBENT	EPA 365.1
00665A Total Phosphorus as P	0.091 mg/L	05/03/2021 03:20 PM	LBENT	EPA 365.1
00945 Total Sulfate-Ion Chromatograph	227.23 mg/L	04/22/2021 05:16 PM	TVOROBAYCH	EPA 300.0
00530 TOTAL SUSPENDED SOLIDS	10 mg/L	04/21/2021 02:20 PM	MARMANIOUS	USGS I-3765
01090A ZINC, DISSOLVED (WATER & WASTE) BY ICP	119.000 ug/L	05/04/2021 03:32 PM	ATAPSOBA	EPA 200.7
ANSWER RECHECKED BY ANALYST				
01092A ZINC, TOTAL (WATER & WASTE) BY ICP	<30.0 ug/L (U)	05/04/2021 03:28 PM	ATAPSOBA	EPA 200.7
ANSWER RECHECKED BY ANALYST				

Analytical Report For
Water Quality Protection

Sample ID: 0725 290 Date Collected: 04/20/2021 10:00:00 AM Lab Sample ID: I2021007524 Status: Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2016 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

U - Indicates analysis was performed for the test but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Dr. Pamela Higgins, Technical Director, Bureau of Laboratories



Date of Issue: 01/07/2022 11:02:35

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Water Quality Protection

Sample ID: 0725 292

Date Collected: 04/20/2021 11:30:00 AM

Lab Sample ID: I2021007525

Status: Completed

Name of Sample Collector: Jamie Detweiler

Date Received: 04/21/2021

County: Westmoreland

State:

Municipality: NOT INDICATED

MP ID: BRUSDN 169668

MP Type: Stream

MP Location Description: Brush Creek downstream STP

* Alias ID	Project / Facility
BRUSDN	SWALUS21

Sample Medium: Surface Water

Sample Medium Type: Water

Location: Brush Creek downstream STP

Reason: Routine Sampling

Project: SWALUS21 Southwest Regional Office Aquatic Life Use Surveys 2021

Standard Analysis: 087

Matrix: Water

Field Tests		
pH	6.81	pH units
Temperature	13.0	C
Dissolved Oxygen	9.82	mg/L
Specific Conductance	1113	umhos/cm

Analytical Report For
Water Quality Protection

Sample ID: 0725 292

Date Collected: 04/20/2021 11:30:00 AM

Lab Sample ID: I2021007525

Status: Completed

Stream Condition:

Sample Comment: Brush Creek Downstream of Brush Creek STP discharge Zac Flannigan Cause and Effect

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
00410 ALKALINITY AS CaCO3 @ pH 4.5	106.2 mg/L	04/21/2021 03:16 PM	JAHOUE	SM 2320B
01106H ALUMINUM, DISSOLVED (WATER & WASTE) BY ICPMS	22.500 ug/L	04/22/2021 03:41 PM	SCHOY	EPA 200.8
01105H ALUMINUM, TOTAL (WATER & WASTE) ICPMS	115.000 ug/L	04/22/2021 03:41 PM	SCHOY	EPA 200.8
00608A AMMONIA DISSOLVED AS NITROGEN	0.3290 mg/L	04/29/2021 01:53 PM	MTUZINSKI	EPA 350.1
00610A AMMONIA TOTAL AS NITROGEN	0.31 mg/L	04/29/2021 01:54 PM	MTUZINSKI	EPA 350.1
01007A BARIUM, TOTAL (WATER & WASTE) BY ICP	56.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01022K BORON, TOTAL (WATER & WASTE) BY ICP	<200. ug/L (U)	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01025H CADMIUM, DISSOLVED (WATER & WASTE) BY ICPMS	<0.200 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
00916A CALCIUM, TOTAL (WATER & WASTE) BY ICP	80.910 mg/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01040H COPPER, DISSOLVED (WATER & WASTE) BY ICPMS	<4.00 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
01042H COPPER, TOTAL (WATER & WASTE) BY ICPMS	<4.00 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
00631A Dissolve Nitrate & Nitrite Nitrogen	2.83 mg/L	04/21/2021 08:51 AM	TBEAR	EPA 353.2
00671A Dissolve Ortho Phosphorus	0.018 mg/L	04/21/2021 02:25 PM	LBENT	EPA 365.1
** Comment ** Possible Matrix Interference				
00602A Dissolved Nitrogen as N	3.835 mg/L	04/26/2021 04:09 PM	TBEAR	SM 4500-NC
00666A Dissolved Phosphorus as P	0.067 mg/L	05/03/2021 03:26 PM	LBENT	EPA 365.1
00900 HARDNESS, TOTAL (CALCULATED)	302 mg/L	04/23/2021 01:51 PM	ATAPSOBA	SM 2340 B
** Comment ** Accredited by NJ only - accreditation not available from PA				
01046A IRON, DISSOLVED (WATER & WASTE) BY ICP	7620.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01045A IRON, TOTAL (WATER & WASTE) BY ICP	12360.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01049H LEAD, DISSOLVED (WATER & WASTE) BY ICPMS	<1.00 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
01051H LEAD, TOTAL (WATER & WASTE) BY ICPMS	<1.00 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
01130A LITHIUM, DISSOLVED (WATER & WASTE) BY ICP	25.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01132A LITHIUM, TOTAL (WATER & WASTE) BY ICP	25.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
99020 Low Bromide by IC	85.14 ug/L	04/27/2021 12:37 AM	MAMCNULTY	EPA 300.1 B
00927A MAGNESIUM, TOTAL (WATER & WASTE) BY ICP	24.15 mg/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01056A MANGANESE, DISSOLVED (WATER & WASTE) BY ICP	566.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01055A MANGANESE, TOTAL (WATER & WASTE) BY ICP	575.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01065A NICKEL, DISSOLVED (WATER & WASTE) BY ICP	<50.0 ug/L (U)	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01067A NICKEL, TOTAL (WATER & WASTE) BY ICP	<50.0 ug/L (U)	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7

Analytical Report For
Water Quality Protection

Sample ID: 0725 292

Date Collected: 04/20/2021 11:30:00 AM

Lab Sample ID: I2021007525

Status: Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
82550 OSMOTIC PRESSURE, MOSM/KG	16 mosm/kg	04/21/2021 10:34 AM	SSPUHLER	BOL 4034
00403 pH, Lab (Electrometric)	7.2 pH units	04/21/2021 03:16 PM	JAHOGUE	SM 4500-H+ B
** Comment ** Holding Time Exceeded				
00937A POTASSIUM, TOTAL (WATER & WASTE) BY ICP	4.35 mg/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
01147H SELENIUM, TOTAL (WATER & WASTE) BY ICPMS	<7.00 ug/L (U)	04/22/2021 03:41 PM	SCHOY	EPA 200.8
00929A SODIUM, TOTAL (WATER & WASTE) BY ICP	93.60 mg/L	05/04/2021 03:51 PM	ATAPSOBA	EPA 200.7
00095 SPECIFIC CONDUCTIVITY @ 25.0 C	1096.00 umhos/cm	04/21/2021 07:31 PM	MTUZINSKI	SM 2510B
01082A STRONTIUM, TOTAL (WATER & WASTE) BY ICP	709.00 ug/L	04/23/2021 01:51 PM	ATAPSOBA	EPA 200.7
00403T Temperature at which pH is measured	20.95 C	04/21/2021 03:16 PM	JAHOGUE	SM 4500-H+ B
00940 Total Chloride-Ion Chromatograph	142.19 mg/L	04/22/2021 05:32 PM	TVOROBAYCH	EPA 300.0
70300U TOTAL DISSOLVED SOLIDS @ 180C BY USGS-I-1750	670 mg/L	04/21/2021 09:03 AM	MOBERCASH	USGS I-1750
00630A Total Nitrate & Nitrite Nitrogen	2.87 mg/L	04/21/2021 08:49 AM	TBEAR	EPA 353.2
00600A Total Nitrogen as N	3.50 mg/L	04/26/2021 04:07 PM	TBEAR	SM 4500-NC
00680 Total Organic Carbon	3.09 mg/L	04/24/2021 08:05 AM	MAMCNULTY	SM 5310 C
70507A Total Ortho Phosphorus as P	0.091 mg/L	04/21/2021 03:11 PM	LBENT	EPA 365.1
** Comment ** Possible Matrix Interference				
00665A Total Phosphorus as P	0.416 mg/L	05/03/2021 03:24 PM	LBENT	EPA 365.1
00945 Total Sulfate-Ion Chromatograph	218.40 mg/L	04/22/2021 05:32 PM	TVOROBAYCH	EPA 300.0
00530 TOTAL SUSPENDED SOLIDS	14 mg/L	04/21/2021 02:20 PM	MARMANIOUS	USGS I-3765
01090A ZINC, DISSOLVED (WATER & WASTE) BY ICP	<30.0 ug/L (U)	05/04/2021 03:47 PM	ATAPSOBA	EPA 200.7
01092A ZINC, TOTAL (WATER & WASTE) BY ICP	<30.0 ug/L (U)	05/04/2021 03:42 PM	ATAPSOBA	EPA 200.7

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2016 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.

* denotes tests that the laboratory is not accredited for

U - Indicates analysis was performed for the test but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, reported between Reporting Limit (RL) and Minimum Detection Limit (MDL).

Dr. Pamela Higgins, Technical Director, Bureau of Laboratories

ATTACHMENT B

Toxics Management Spreadsheet for Outfall 001



Discharge Information

Instructions Discharge Stream

Facility: WWMA Brush Creek STP NPDES Permit No.: PA0027570 Outfall No.: 001

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated sewage effluent

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q ₇₋₁₀	Q _n
4.4	182	7						

Discharge Pollutant	Units	Max Discharge Conc	0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
			Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	663								
	Chloride (PWS)	mg/L	158								
	Bromide	mg/L	0.265								
	Sulfate (PWS)	mg/L	53.6								
	Fluoride (PWS)	mg/L									
Group 2	Total Aluminum	µg/L	32								
	Total Antimony	µg/L	0.6								
	Total Arsenic	µg/L	< 2.26								
	Total Barium	µg/L	52								
	Total Beryllium	µg/L	< 1								
	Total Boron	µg/L	544								
	Total Cadmium	µg/L	< 0.4								
	Total Chromium (III)	µg/L	3								
	Hexavalent Chromium	µg/L	8.31								
	Total Cobalt	µg/L	< 2								
	Total Copper	µg/L	20								
	Free Cyanide	µg/L	8.01								
	Total Cyanide	µg/L	2								
	Dissolved Iron	µg/L	61.08								
	Total Iron	µg/L	106								
	Total Lead	µg/L	0.3								
	Total Manganese	µg/L	84								
	Total Mercury	µg/L	< 0.04								
	Total Nickel	µg/L	4								
	Total Phenols (Phenolics) (PWS)	µg/L	< 50								
	Total Selenium	µg/L	0.7								
	Total Silver	µg/L	< 1								
	Total Thallium	µg/L	< 1.73								
	Total Zinc	µg/L	39								
	Total Molybdenum	µg/L	< 2								
	Acrolein	µg/L	< 1								
	Acrylamide	µg/L	<								
	Acrylonitrile	µg/L	< 5								
	Benzene	µg/L	< 0.5								
	Bromoform	µg/L	< 0.5								

	2,6-Dinitrotoluene	µg/L	<	2.9																
	Di-n-Octyl Phthalate	µg/L	<	2.9																
	1,2-Diphenylhydrazine	µg/L	<	2.9																
	Fluoranthene	µg/L	<	1.5																
	Fluorene	µg/L	<	1.5																
	Hexachlorobenzene	µg/L	<	2.9																
	Hexachlorobutadiene	µg/L	<	0.5																
	Hexachlorocyclopentadiene	µg/L	<	2.9																
	Hexachloroethane	µg/L	<	2.9																
	Indeno(1,2,3-cd)Pyrene	µg/L	<	1.5																
	Isophorone	µg/L	<	2.9																
	Naphthalene	µg/L	<	1.5																
	Nitrobenzene	µg/L	<	2.9																
	n-Nitrosodimethylamine	µg/L	<	2.9																
	n-Nitrosodi-n-Propylamine	µg/L	<	2.9																
	n-Nitrosodiphenylamine	µg/L	<	2.9																
	Phenanthrene	µg/L	<	1.5																
	Pyrene	µg/L	<	1.5																
	1,2,4-Trichlorobenzene	µg/L	<	0.5																
Group 6	Aldrin	µg/L	<	0.04																
	alpha-BHC	µg/L	<	0.04																
	beta-BHC	µg/L	<	0.04																
	gamma-BHC	µg/L	<	0.04																
	delta BHC	µg/L	<	0.04																
	Chlordane	µg/L	<	0.4																
	4,4-DDT	µg/L	<	0.04																
	4,4-DDE	µg/L	<	0.04																
	4,4-DDD	µg/L	<	0.04																
	Dieldrin	µg/L	<	0.04																
	alpha-Endosulfan	µg/L	<	0.04																
	beta-Endosulfan	µg/L	<	0.04																
	Endosulfan Sulfate	µg/L	<	0.04																
	Endrin	µg/L	<	0.04																
	Endrin Aldehyde	µg/L	<	0.04																
	Heptachlor	µg/L	<	0.04																
	Heptachlor Epoxide	µg/L	<	0.04																
	PCB-1016	µg/L	<	0.5																
	PCB-1221	µg/L	<	0.5																
	PCB-1232	µg/L	<	0.5																
	PCB-1242	µg/L	<	0.5																
	PCB-1248	µg/L	<	0.5																
	PCB-1254	µg/L	<	0.5																
	PCB-1260	µg/L	<	0.5																
	PCBs, Total	µg/L	<																	
	Toxaphene	µg/L	<	0.4																
	2,3,7,8-TCDD	ng/L	<																	
Group 7	Gross Alpha	pCi/L																		
	Total Beta	pCi/L	<																	
	Radium 226/228	pCi/L	<																	
	Total Strontium	µg/L	<																	
	Total Uranium	µg/L	<																	
	Osmotic Pressure	mOs/kg																		



Stream / Surface Water Information

WWMA Brush Creek STP, NPDES Permit No. PA0027570, Outfall 001

Instructions Discharge **Stream**

Receiving Surface Water Name: **Brush Creek**

No. Reaches to Model: **1**

- ☒ Statewide Criteria
☐ Great Lakes Criteria
☐ ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi ²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037246	7.72	851.24	45.5	0.001		No
End of Reach 1	037246	6.72	841.66	47.2	0.001		No

Q₇₋₁₀

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	7.72	0.0195			10	30						317	7		
End of Reach 1	6.72	0.0195													

Q_h

Location	RMI	LFY (cfs/mi ²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	7.72														
End of Reach 1	6.72														



Model Results

WWMA Brush Creek STP, NPDES Permit No. PA0027570, Outfall 001

Instructions

Results

RETURN TO INPUTS

SAVE AS PDF

PRINT

☒ All

☐ Inputs

☐ Results

☐ Limits

☒ Hydrodynamics

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
7.72	0.89		0.89	6.807	0.001	1.031	30.	10.	0.249	0.246	0.496
6.72	0.92		0.92								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
7.72	6.69		6.69	6.807	0.001	1.32	30.	22.727	0.341	0.179	6.322
6.72	6.91		6.91								

☒ Wasteload Allocations

☐ AFC

CCT (min): 0.496

PMF: 1

Analysis Hardness (mg/l): 197.57

Analysis pH: 7.00

☐ CFC

CCT (min): 0.496

PMF: 1

Analysis Hardness (mg/l): 197.57

Analysis pH: 7.00

☒ THH

CCT (min): 0.496

PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	6.33	
Total Arsenic	0	0		0	10	10.0	11.3	
Total Barium	0	0		0	2,400	2,400	2,713	
Total Boron	0	0		0	3,100	3,100	3,504	
Total Cadmium	0	0		0	N/A	N/A	N/A	

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570

Total Chromium (III)	0	0		0	N/A	N/A	N/A
Hexavalent Chromium	0	0		0	N/A	N/A	N/A
Total Cobalt	0	0		0	N/A	N/A	N/A
Total Copper	0	0		0	N/A	N/A	N/A
Free Cyanide	0	0		0	4	4.0	4.52
Dissolved Iron	0	0		0	300	300	339
Total Iron	0	0		0	N/A	N/A	N/A
Total Lead	0	0		0	N/A	N/A	N/A
Total Manganese	0	0		0	1,000	1,000	1,130
Total Mercury	0	0		0	0.050	0.05	0.057
Total Nickel	0	0		0	610	610	690
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	0	0		0	0.24	0.24	0.27
Total Zinc	0	0		0	N/A	N/A	N/A
Acrolein	0	0		0	3	3.0	3.39
Acrylonitrile	0	0		0	N/A	N/A	N/A
Benzene	0	0		0	N/A	N/A	N/A
Bromoform	0	0		0	N/A	N/A	N/A
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A
Chlorobenzene	0	0		0	100	100.0	113
Chlorodibromomethane	0	0		0	N/A	N/A	N/A
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A
Chloroform	0	0		0	N/A	N/A	N/A
Dichlorobromomethane	0	0		0	N/A	N/A	N/A
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A
1,1-Dichloroethylene	0	0		0	33	33.0	37.3
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A
Ethylbenzene	0	0		0	68	68.0	76.9
Methyl Bromide	0	0		0	100	100.0	113
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A
Tetrachloroethylene	0	0		0	N/A	N/A	N/A
Toluene	0	0		0	57	57.0	64.4
1,2-trans-Dichloroethylene	0	0		0	100	100.0	113
1,1,1-Trichloroethane	0	0		0	10,000	10,000	11,303
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A
Trichloroethylene	0	0		0	N/A	N/A	N/A
Vinyl Chloride	0	0		0	N/A	N/A	N/A
2-Chlorophenol	0	0		0	30	30.0	33.9
2,4-Dichlorophenol	0	0		0	10	10.0	11.3
2,4-Dimethylphenol	0	0		0	100	100.0	113

4,6-Dinitro-o-Cresol	0	0		0	2	2.0	2.26	
2,4-Dinitrophenol	0	0		0	10	10.0	11.3	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	4,521	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	79.1	
Anthracene	0	0		0	300	300	339	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	226	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	0.11	
2-Chloronaphthalene	0	0		0	800	800	904	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthracene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	1,130	
1,3-Dichlorobenzene	0	0		0	7	7.0	7.91	
1,4-Dichlorobenzene	0	0		0	300	300	339	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	678	
Dimethyl Phthalate	0	0		0	2,000	2,000	2,261	
Di-n-Butyl Phthalate	0	0		0	20	20.0	22.6	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	22.6	
Fluorene	0	0		0	50	50.0	56.5	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	4.52	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	34	34.0	38.4	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	11.3	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	

n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	22.6	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	0.079	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	4.75	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	22.6	
beta-Endosulfan	0	0		0	20	20.0	22.6	
Endosulfan Sulfate	0	0		0	20	20.0	22.6	
Endrin	0	0		0	0.03	0.03	0.034	
Endrin Aldehyde	0	0		0	1	1.0	1.13	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☒ CRL

CCT (min): 6.322

PMF: 1

Analysis Hardness (mg/l): N/A

Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	N/A	N/A	N/A	
Total Arsenic	0	0		0	N/A	N/A	N/A	
Total Barium	0	0		0	N/A	N/A	N/A	
Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Free Cyanide	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	

Total Nickel	0	0		0	N/A	N/A	N/A
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A
Total Selenium	0	0		0	N/A	N/A	N/A
Total Silver	0	0		0	N/A	N/A	N/A
Total Thallium	0	0		0	N/A	N/A	N/A
Total Zinc	0	0		0	N/A	N/A	N/A
Acrolein	0	0		0	N/A	N/A	N/A
Acrylonitrile	0	0		0	0.06	0.06	0.12
Benzene	0	0		0	0.58	0.58	1.15
Bromoform	0	0		0	7	7.0	13.9
Carbon Tetrachloride	0	0		0	0.4	0.4	0.79
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	1.59
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A
Chloroform	0	0		0	5.7	5.7	11.3
Dichlorobromomethane	0	0		0	0.95	0.95	1.88
1,2-Dichloroethane	0	0		0	9.9	9.9	19.6
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	1.78
1,3-Dichloropropylene	0	0		0	0.27	0.27	0.54
Ethylbenzene	0	0		0	N/A	N/A	N/A
Methyl Bromide	0	0		0	N/A	N/A	N/A
Methyl Chloride	0	0		0	N/A	N/A	N/A
Methylene Chloride	0	0		0	20	20.0	39.7
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	0.4
Tetrachloroethylene	0	0		0	10	10.0	19.8
Toluene	0	0		0	N/A	N/A	N/A
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1.09
Trichloroethylene	0	0		0	0.6	0.6	1.19
Vinyl Chloride	0	0		0	0.02	0.02	0.04
2-Chlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A
2-Nitrophenol	0	0		0	N/A	N/A	N/A
4-Nitrophenol	0	0		0	N/A	N/A	N/A
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A
Pentachlorophenol	0	0		0	0.030	0.03	0.059
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2.97
Acenaphthene	0	0		0	N/A	N/A	N/A
Anthracene	0	0		0	N/A	N/A	N/A

Benzidine	0	0		0	0.0001	0.0001	0.0002
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.002
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.0002
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.002
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	0.02
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	0.059
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	0.63
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A
Chrysene	0	0		0	0.12	0.12	0.24
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	0.0002
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	0.099
Diethyl Phthalate	0	0		0	N/A	N/A	N/A
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A
2,4-Dinitrotoluene	0	0		0	0.05	0.05	0.099
2,6-Dinitrotoluene	0	0		0	0.05	0.05	0.099
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	0.059
Fluoranthene	0	0		0	N/A	N/A	N/A
Fluorene	0	0		0	N/A	N/A	N/A
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.0002
Hexachlorobutadiene	0	0		0	0.01	0.01	0.02
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	0.2
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.002
Isophorone	0	0		0	N/A	N/A	N/A
Naphthalene	0	0		0	N/A	N/A	N/A
Nitrobenzene	0	0		0	N/A	N/A	N/A
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.001
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.01
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	6.54
Phenanthrene	0	0		0	N/A	N/A	N/A
Pyrene	0	0		0	N/A	N/A	N/A
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A
Aldrin	0	0		0	0.0000008	8.00E-07	0.000002
alpha-BHC	0	0		0	0.0004	0.0004	0.0008
beta-BHC	0	0		0	0.008	0.008	0.016
gamma-BHC	0	0		0	N/A	N/A	N/A
Chlordane	0	0		0	0.0003	0.0003	0.0006
4,4-DDT	0	0		0	0.00003	0.00003	0.00006

[illegible]

The following pollutants do not require effluent limits or monitoring based on water quality because reasonable potential to exceed water quality criteria was not determined and the discharge concentration was less than thresholds for monitoring, or the pollutant was not detected and a sufficiently sensitive analytical method was used (e.g., \leq Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570

Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum		µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	6.33	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	2,713	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Cadmium		µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)		µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium		µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt		µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper		µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Total Iron		µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead		µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	1,130	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	0.057	µg/L	Discharge Conc < TQL
Total Nickel	690	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable
Total Selenium		µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver		µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	0.27	µg/L	Discharge Conc < TQL
Total Zinc		µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	3.39	µg/L	Discharge Conc < TQL
Acrylonitrile	0.12	µg/L	Discharge Conc < TQL
Benzene	1.15	µg/L	Discharge Conc < TQL
Bromoform	13.9	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	0.79	µg/L	Discharge Conc < TQL
Chlorobenzene	113	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	1.59	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether		µg/L	Discharge Conc < TQL
Chloroform	11.3	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	19.6	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	37.3	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1.78	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	0.54	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	76.9	µg/L	Discharge Conc < TQL
Methyl Bromide	113	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride		µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	39.7	µg/L	Discharge Conc ≤ 25% WQBEL

NPDES Permit Fact Sheet
Western Westmoreland Municipal Authority – Brush Creek STP

NPDES Permit No. PA0027570

1,1,2,2-Tetrachloroethane	0.4	µg/L	Discharge Conc < TQL
Tetrachloroethylene	19.8	µg/L	Discharge Conc < TQL
Toluene	64.4	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	113	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	11,303	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1.09	µg/L	Discharge Conc < TQL
Trichloroethylene	1.19	µg/L	Discharge Conc < TQL
Vinyl Chloride	0.04	µg/L	Discharge Conc < TQL
2-Chlorophenol	33.9	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	11.3	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	113	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	2.26	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	11.3	µg/L	Discharge Conc < TQL
2-Nitrophenol		µg/L	Discharge Conc < TQL
4-Nitrophenol		µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol		µg/L	Discharge Conc < TQL
Pentachlorophenol	0.059	µg/L	Discharge Conc < TQL
Phenol	4,521	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2.97	µg/L	Discharge Conc < TQL
Acenaphthene	79.1	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	339	µg/L	Discharge Conc < TQL
Benzidine	0.0002	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.002	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.0002	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.002	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	0.02	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	0.059	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	226	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	0.63	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether		µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	0.11	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	904	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	0.24	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	0.0002	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,130	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	7.91	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	339	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	0.099	µg/L	Discharge Conc < TQL
Diethyl Phthalate	678	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	2,261	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	22.6	µg/L	Discharge Conc < TQL

2,4-Dinitrotoluene	0.099	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	0.099	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	0.059	µg/L	Discharge Conc < TQL
Fluoranthene	22.6	µg/L	Discharge Conc < TQL
Fluorene	56.5	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.0002	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	0.02	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	4.52	µg/L	Discharge Conc < TQL
Hexachloroethane	0.2	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.002	µg/L	Discharge Conc < TQL
Isophorone	38.4	µg/L	Discharge Conc < TQL
Naphthalene		µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	11.3	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.001	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.01	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	6.54	µg/L	Discharge Conc < TQL
Phenanthrene		µg/L	Discharge Conc < TQL
Pyrene	22.6	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	0.079	µg/L	Discharge Conc < TQL
Aldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-BHC	0.0008	µg/L	Discharge Conc < TQL
beta-BHC	0.016	µg/L	Discharge Conc < TQL
gamma-BHC	4.75	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.0006	µg/L	Discharge Conc < TQL
4,4-DDT	0.00006	µg/L	Discharge Conc < TQL
4,4-DDE	0.00004	µg/L	Discharge Conc < TQL
4,4-DDD	0.0002	µg/L	Discharge Conc < TQL
Dieldrin	0.000002	µg/L	Discharge Conc < TQL
alpha-Endosulfan	22.6	µg/L	Discharge Conc < TQL
beta-Endosulfan	22.6	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	22.6	µg/L	Discharge Conc < TQL
Endrin	0.034	µg/L	Discharge Conc < TQL
Endrin Aldehyde	1.13	µg/L	Discharge Conc < TQL
Heptachlor	0.00001	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.00006	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS
Toxaphene	0.001	µg/L	Discharge Conc < TQL

ATTACHMENT C

WET Testing Results

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic		Facility Name	Brush Creek STP	
Species Tested	Ceriodaphnia				
Endpoint	Survival				
TIWC (decimal)	0.93				
No. Per Replicate	1		Permit No.	PA0027570	
TST b value	0.75				
TST alpha value	0.2				

Test Completion Date		
5/17/2021		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail PASS

Test Completion Date		
8/22/2021		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	1	1
5	1	
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	10	9

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail PASS

Test Completion Date		
10/18/2021		
Replicate No.	Control	TIWC
1	1	1
2	1	1
3	1	1
4	0	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	0.900	1.000
Std Dev.	0.316	0.000
# Replicates	10	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail PASS

Test Completion Date		
9/5/2022		
Replicate No.	Control	TIWC
1		1
2	1	1
3	1	1
4	1	1
5	1	1
6	1	1
7	1	1
8	1	1
9	1	1
10	1	1
11		
12		
13		
14		
15		
Mean	1.000	1.000
Std Dev.	0.000	0.000
# Replicates	9	10

T-Test Result
Deg. of Freedom
Critical T Value
Pass or Fail PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet

Type of Test	Chronic	Facility Name		
Species Tested	Ceriodaphnia	Brush Creek STP		
Endpoint	Reproduction	Permit No.	PA0027570	
TIWC (decimal)	0.93			
No. Per Replicate	1			
TST b value	0.75			
TST alpha value	0.2			

Test Completion Date			Test Completion Date		
Replicate	5/17/2021		Replicate	8/22/2021	
No.	Control	TIWC	No.	Control	TIWC
1	29	26	1	29	30
2	38	37	2	28	31
3	34	38	3	22	29
4	32	35	4	24	30
5	35	41	5	25	
6	31	37	6	23	29
7	36	38	7	24	35
8	38	41	8	28	28
9	25	32	9	27	30
10	21	30	10	9	30
11			11		
12			12		
13			13		
14			14		
15			15		

Mean	31.900	35.500	Mean	23.900	30.222
Std Dev.	5.587	4.836	Std Dev.	5.744	1.986
# Replicates	10	10	# Replicates	10	9

T-Test Result	5.7203	T-Test Result	8.1193
Deg. of Freedom	17	Deg. of Freedom	16
Critical T Value	0.8633	Critical T Value	0.8647
Pass or Fail	PASS	Pass or Fail	PASS

Test Completion Date			Test Completion Date		
Replicate	10/18/2021		Replicate	9/5/2022	
No.	Control	TIWC	No.	Control	TIWC
1	24	18	1		31
2	19	22	2	25	28
3	9	18	3	30	28
4	13	21	4	22	30
5	25	18	5	23	28
6	27	18	6	27	26
7	21	15	7	28	24
8	25	22	8	26	29
9	19	12	9	25	26
10	11	18	10	27	31
11			11		
12			12		
13			13		
14			14		
15			15		

Mean	19.300	18.200	Mean	25.889	28.100
Std Dev.	6.360	3.084	Std Dev.	2.472	2.283
# Replicates	10	10	# Replicates	9	10

T-Test Result	2.0737	T-Test Result	9.1375
Deg. of Freedom	17	Deg. of Freedom	16
Critical T Value	0.8633	Critical T Value	0.8647
Pass or Fail	PASS	Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet					
Type of Test	Chronic		Facility Name		
Species Tested	Pimephales				
Endpoint	Survival		Brush Creek STP		
TIWC (decimal)	0.93		Permit No.		
No. Per Replicate	10		PA0027570		
TST b value	0.75				
TST alpha value	0.25				

Test Completion Date			Test Completion Date		
Replicate	5/18/2021		Replicate	8/24/2021	
No.	Control	TIWC	No.	Control	TIWC
1	0.8	1	1	1	1
2	1	1	2	1	1
3	1	1	3	1	1
4	0.9	1	4	1	1
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
15			15		

Mean	0.925	1.000	Mean	1.000	1.000
Std Dev.	0.096	0.000	Std Dev.	0.000	0.000
# Replicates	4	4	# Replicates	4	4

T-Test Result	14.3896	T-Test Result	
Deg. of Freedom	3	Deg. of Freedom	
Critical T Value	0.7649	Critical T Value	
Pass or Fail	PASS	Pass or Fail	PASS

Test Completion Date			Test Completion Date		
Replicate	10/19/2021		Replicate	9/5/2022	
No.	Control	TIWC	No.	Control	TIWC
1	0.1	0.9	1	1	1
2	0.2	1	2	1	1
3	1	0.9	3	1	1
4	0.2	1	4	1	1
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		
11			11		
12			12		
13			13		
14			14		
15			15		

Mean	0.375	0.950	Mean	1.000	1.000
Std Dev.	0.419	0.058	Std Dev.	0.000	0.000
# Replicates	4	4	# Replicates	4	4

T-Test Result	4.8372	T-Test Result	
Deg. of Freedom	4	Deg. of Freedom	
Critical T Value	0.7407	Critical T Value	
Pass or Fail	PASS	Pass or Fail	PASS

DEP Whole Effluent Toxicity (WET) Analysis Spreadsheet						
Type of Test	Chronic		Facility Name			
Species Tested	Pimephales		Brush Creek STP			
Endpoint	Growth		Permit No.			
TIWC (decimal)	0.93		PA0027570			
No. Per Replicate	10					
TST b value	0.75					
TST alpha value	0.25					
Test Completion Date			Test Completion Date			
Replicate	5/18/2021		Replicate	8/24/2021		
No.	Control	TIWC	No.	Control	TIWC	
1	0.286	0.363	1	0.387	0.459	
2	0.3678	0.392	2	0.322	0.439	
3	0.389	0.415	3	0.329	0.461	
4	0.317	0.447	4	0.421	0.419	
5			5			
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	0.340	0.404	Mean	0.365	0.445	
Std Dev.	0.047	0.036	Std Dev.	0.047	0.020	
# Replicates	4	4	# Replicates	4	4	
T-Test Result	5.9644		T-Test Result	8.4010		
Deg. of Freedom	5		Deg. of Freedom	5		
Critical T Value	0.7267		Critical T Value	0.7267		
Pass or Fail	PASS		Pass or Fail	PASS		
Test Completion Date			Test Completion Date			
Replicate	10/19/2021		Replicate	9/5/2022		
No.	Control	TIWC	No.	Control	TIWC	
1	0.286	0.287	1	0.414	0.386	
2	0.26	0.285	2	0.355	0.404	
3	0.292	0.3267	3	0.386	0.404	
4	0.25	0.299	4	0.397	0.392	
5			5			
6			6			
7			7			
8			8			
9			9			
10			10			
11			11			
12			12			
13			13			
14			14			
15			15			
Mean	0.272	0.299	Mean	0.388	0.397	
Std Dev.	0.020	0.019	Std Dev.	0.025	0.009	
# Replicates	4	4	# Replicates	4	4	
T-Test Result	7.8021		T-Test Result	10.2006		
Deg. of Freedom	5		Deg. of Freedom	5		
Critical T Value	0.7267		Critical T Value	0.7267		
Pass or Fail	PASS		Pass or Fail	PASS		

WET Summary and Evaluation

Facility Name	Brush Creek STP
Permit No.	PA0027570
Design Flow (MGD)	4.4
Q ₇₋₁₀ Flow (cfs)	0.89
PMF _a	1
PMF _c	1

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		5/17/21	8/22/21	10/18/21	9/5/22
Ceriodaphnia	Survival	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		5/17/21	8/22/21	10/18/21	9/5/22
Ceriodaphnia	Reproduction	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		5/18/21	8/24/21	10/19/21	9/5/22
Pimephales	Survival	PASS	PASS	PASS	PASS

Species	Endpoint	Test Results (Pass/Fail)			
		Test Date	Test Date	Test Date	Test Date
		5/18/21	8/24/21	10/19/21	9/5/22
Pimephales	Growth	PASS	PASS	PASS	PASS

Reasonable Potential? NO

Permit Recommendations

Test Type Chronic
 TIWC 88 % Effluent
 Dilution Series 22, 44, 88, 94, 100 % Effluent
 Permit Limit None
 Permit Limit Species