

Application Type New  
Facility Type Industrial  
Major / Minor Minor

**NPDES PERMIT FACT SHEET**  
**INDIVIDUAL INDUSTRIAL WASTE (IW)**  
**AND IW STORMWATER**

Application No. **PA0285358**  
APS ID **1116910**  
Authorization ID **1490624**

**Applicant and Facility Information**

Applicant Name	<b>Westmoreland Sanitary Landfill LLC</b>	Facility Name	<b>Sanitary Landfill</b>
Applicant Address	111 Conner Lane	Facility Address	111 Conner Lane
Applicant Contact	Belle Vernon, PA 15012	Facility Contact	Brad Minemyer
Applicant Phone	(412) 576-2236	Facility Phone	(814) 525-8899
Client ID	317513	Site ID	239963
SIC Code	4953	Municipality	Rostraver Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Westmoreland
Date Application Received	June 27, 2024	EPA Waived?	Yes
Date Application Accepted	July 11, 2024	If No, Reason	
Purpose of Application	New Individual Wastewater Permit to replace existing General Permit.		

**Summary of Review**

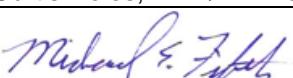
The Department received a New Individual Wastewater NPDES permit application from the Westmoreland Sanitary Landfill, LLC for the Sanitary Landfill located in Rostraver Township of Westmoreland County on June 27, 2024. The facility is a Municipal Waste Landfill with an SIC Code of 4953. Sanitary Landfill's stormwater discharges are currently authorized by NPDES General Permit PAG036349. The Individual Wastewater NPDES permit will replace the existing General Permit upon issuance. Sanitary Landfill has additional permits from the Department to operate the facility, Solid Waste Permit 100277 and Air Quality Title V Permit 65-00767.

Currently Sanitary Landfill sends the landfill leachate and condensate to a Wastewater Treatment Plant (WWTP) via hauling. This application is to permit the discharge of treated leachate and condensate at the facility, piping the discharge to the Monongahela River. Once this NPDES Permit is issued, Sanitary Landfill will then need to submit a WQM Part II Permit application to permit the treatment system. Once the treatment system is up and running and the Construction Certification is submitted, the facility will be authorized to discharge directly to the Monongahela River.

The facility has three (3) existing stormwater Outfalls 001, 002 and 003 along with the new proposed Outfall 004 for discharge of treated leachate and condensate.

**Outfall 001**

The drainage area of Stormwater Outfall 001 is 1,348,799 square feet and is 15.6% impervious. The drainage area consists of the Landfill Gas Flare, Landfill Gas Plant, and future landfill disposal area.

Approve	Deny	Signatures	Date
X		 Curtis Holes, P.E. / Environmental Engineer	January 23, 2025
X		 Michael E. Fifth, P.E. / Environmental Engineer Manager	January 23, 2025

### **Summary of Review**

#### ***Outfall 002***

The drainage area of Stormwater Outfall 002 is 3,070,960 square feet and is 4.9% impervious. The drainage area consists of the Office Building, Leachate Storage Tanks, Landfill Disposal Area, Truck Scale, and Hauling Vehicle Traffic.

#### ***Outfall 003***

The drainage area of Stormwater Outfall 003 is 1,545,890 square feet and is 22.4% impervious. The drainage area consists of the Maintenance Shop, Fueling Area, Landfill Disposal Area, Hauling Vehicle Traffic.

The Department by James Stewart last inspected the facility on April 25, 2023 with two (2) violations noted. 1. Failure to take necessary measures to prevent pollutants from reaching waters of the Commonwealth. 2. Failure to retain records required by the permit.

The client has 2 open Solid Waste Program violations from June 24, 2024, pertaining to intermediate cover.

Residual waste disposal must meet solid waste regulations.

Part C language in the draft permit provides controls on residual solids, Chemical Additives, Stormwater Discharges, and must submit Water Quality Part II permit application.

It is recommended that a draft permit be published for public comment in response to this application.

#### **Public Participation**

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

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

Outfall No.	001	Design Flow (MGD)	0.0 (varies)
Latitude	40° 08' 39"	Longitude	-79° 51' 28"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Speers Run (WWF)	Stream Code	39820
NHD Com ID	99409754	RMI	0.0600
Watershed No.	19-C	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH		
Source(s) of Impairment	ACID MINE DRAINAGE, ACID MINE DRAINAGE		

Changes Since Last Permit Issuance:

Other Comments:

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

Outfall No.	002	Design Flow (MGD)	0.0 (varies)
Latitude	40° 08' 38"	Longitude	-79° 51' 27"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Stormwater		
Receiving Waters	Unnamed Tributary of Speers Run (WWF)	Stream Code	39820
NHD Com ID	99409754	RMI	0.0600
Watershed No.	19-C	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH		
Source(s) of Impairment	ACID MINE DRAINAGE, ACID MINE DRAINAGE		

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	003	Design Flow (MGD)	0.0 (varies)
Latitude	40° 09' 02"	Longitude	-79° 50' 59"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Stormwater		
Receiving Waters	Speers Run (WWF)	Stream Code	39817
NHD Com ID	99409688	RMI	0.0300
Watershed No.	19-C	Chapter 93 Class.	WWF
Assessment Status	Impaired		
Cause(s) of Impairment	METALS, PH, SILTATION, SILTATION ACID MINE DRAINAGE, ACID MINE DRAINAGE, HIGHWAY/ROAD/BRIDGE RUNOFF (NON-CONSTRUCTION RELATED), RURAL (RESIDENTIAL AREAS)		
Source(s) of Impairment			

Changes Since Last Permit Issuance:

Other Comments:

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	004	Design Flow (MGD)	0.04
Latitude	40° 09' 40"	Longitude	-79° 51' 48"
Quad Name	Donora	Quad Code	1707
Wastewater Description:	Treated Leachate and Condensate		
Receiving Waters	Monongahela River (WWF)	Stream Code	37185
NHD Com ID	99409584	RMI	38.5
Drainage Area	5,220	Yield (cfs/mi <sup>2</sup> )	0.1054
Q <sub>7-10</sub> Flow (cfs)	550	Q <sub>7-10</sub> Basis	Army Corp. of Engineers
Elevation (ft)	731	Slope (ft/ft)	
Watershed No.	19-C	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired	POLYCHLORINATED BIPHENYLS (PCBS), POLYCHLORINATED BIPHENYLS (PCBS)	
Cause(s) of Impairment		SOURCE UNKNOWN, SOURCE UNKNOWN	
Source(s) of Impairment			
TMDL Status	Final	Name	Monongahela River TMDL
Background/Ambient Data		Data Source	
pH (SU)			
Temperature (°F)			
Hardness (mg/L)	98	National Water Quality	
Other:			
Nearest Downstream Public Water Supply Intake		PAWC – Pittsburgh (70 MGD)	
PWS Waters	Monongahela River	Flow at Intake (cfs)	550
PWS RMI	25.5	Distance from Outfall (mi)	13

Changes Since Last Permit Issuance: New proposed Outfall to discharge treated leachate and condensate, piped to the Monongahela River for discharge.

Other Comments:

Development of Effluent Limitations			
Outfall No.	001, 002, and 003	Design Flow (MGD)	0.0 (Varies)
Latitude		Longitude	
Wastewater Description:	Stormwater runoff.		

The Department's policy for stormwater discharges is to either (1) require that the stormwater is uncontaminated, (2) impose "Monitor and Report", to establish effluent goals and require the permittee to submit a Stormwater Pollution Prevention Plan (SWPPP), or (3) impose effluent limits. In all cases, a stormwater special condition is placed in the permit in Part C.

Stormwater effluent data reported in the application are compared to stream criteria, EPA's Multi-Sector General Permit "benchmark values", ELGs and other references while considering site specific conditions such as stream flow and location to determine if actual discharge concentrations of various pollutants in stormwater warrant further controls. If there is insufficient data available, or if pollutant levels are excessive, monitoring for specific pollutants and/or a SWPPP are required in the permit. Otherwise, the stormwater outfalls are simply listed as discharge points. In either case, a special condition is added to the permit to include some of the key components of the Department's General Permit (PAG-03) for Discharges of Stormwater Associated with Industrial Activities. The Industrial Activities of Sanitary Landfill are subject to Appendix C – Landfills and Land Application Sites.

#### **Outfall 001**

Outfall 001 is located at 40° 08' 39", -79° 51' 28". The drainage area of Stormwater Outfall 001 is 1,348,799 square feet and is 15.6% impervious. The drainage area consists of the Landfill Gas Flare, Landfill Gas Plant, and future landfill disposal area.

#### **Outfall 002**

Outfall 002 is located at 40° 08' 38", -79° 51' 27". The drainage area of Stormwater Outfall 002 is 3,070,960 square feet and is 4.9% impervious. The drainage area consists of the Office Building, Leachate Storage Tanks, Landfill Disposal Area, Truck Scale, and Hauling Vehicle Traffic.

#### **Outfall 003**

Outfall 003 is located at 40° 09' 02", -79° 51' 48". The drainage area of Stormwater Outfall 003 is 1,545,890 square feet and is 22.4% impervious. The drainage area consists of the Maintenance Shop, Fueling Area, Landfill Disposal Area, Hauling Vehicle Traffic.

Review of the stormwater data contained in the renewal application are summarized below in Tables 1-3.

**Table 1. Outfall 001 Application Data**

Pollutant	Application Result ( $\text{mg/L}$ )
Oil and Grease	<5
BOD <sub>5</sub>	7
COD	38
TSS	<b>967</b>
TKN	<1
Nitrate plus Nitrite Nitrogen	0.23
Total Phosphorus	0.92
Total Nitrogen	<1.23
pH	8.46
Ammonia Nitrogen	4.0
Iron	<b>21.5</b>

**Table 2. Outfall 002 Application Data**

Pollutant	Application Result ( $\text{mg/L}$ )
Oil and Grease	<5
BOD <sub>5</sub>	7
COD	67
TSS	<b>2,170</b>
TKN	<1
Nitrate plus Nitrite Nitrogen	1.48
Total Phosphorus	1.83
Total Nitrogen	<2.48
pH	8.35
Ammonia Nitrogen	1.73
Iron	<b>42</b>

**Table 3. Outfall 003 Application Data**

Pollutant	Application Result ( $\text{mg/L}$ )
Oil and Grease	<5
BOD <sub>5</sub>	13
COD	72
TSS	<b>1,070</b>
TKN	<1
Nitrate plus Nitrite Nitrogen	0.44
Total Phosphorus	0.85
Total Nitrogen	<1.44
pH	8.31
Ammonia Nitrogen	0.1
Iron	<b>27</b>

The monitoring protocols of the Department's NPDES General Permit use Total Suspended Solids (TSS) as an indicator parameter. Meaning if TSS is controlled other parameters of concern are also controlled. When TSS is elevated, Total Iron is also monitored at an elevated concentration. The General Permit uses Benchmark Values to evaluate Best Management Practices (BMPs). If sampling demonstrates exceedances of benchmark values for two or more consecutive monitoring periods at the same outfall for the same parameter, the facility is then required to submit a Corrective Action Plan (CAP). The CAP process evaluates existing BMPs to determine if altering existing BMPs or adding additional BMPs is required to achieve benchmark values. These procedures of the General Permit will be maintained in this Individual Wastewater Permit.

The monitoring requirements of the NPDES General Permit Appendix C will be imposed at Stormwater Outfalls 001, 002, and 003.

**Table 4. Effluent Limitations and Monitoring Requirements for Outfalls 001, 002, 003**

Parameter	Monitoring Requirements		Benchmark Value
	Minimum Frequency	Sample Type	
TSS ( $\text{mg/L}$ )	1/6 months	Grab	100.0
Total Nitrogen ( $\text{mg/L}$ )	1/6 months	Grab	XXX
Total Phosphorus ( $\text{mg/L}$ )	1/6 months	Grab	XXX
pH (S.U.)	1/6 months	Grab	9.0
Total Iron ( $\text{mg/L}$ )	1/6 months	Grab	XXX
COD ( $\text{mg/L}$ )	1/6 months	Grab	120.0
Ammonia-Nitrogen ( $\text{mg/L}$ )	1/6 months	Grab	XXX

The benchmark values listed above are not effluent limitations, and an exceedance does not constitute a permit violation. However, if the permittee's sampling demonstrates an exceedance of any benchmark value for two (2) consecutive monitoring periods, the permittee shall submit a Corrective Action Plan within 90-days of the end of the monitoring period triggering the plan.

**Development of Effluent Limitations**

Outfall No. 004  
Latitude 40° 09' 40"  
Wastewater Description: Treated Leachate and Condensate

Design Flow (MGD) 0.04  
Longitude -79° 51' 48"

**Technology-Based Limitations**

The primary objective of Technology-Based Effluent Limitations (TBEL) is to decrease the total pollution load to all streams, while dealing equitably with discharges in each class or category.

Technology-based effluent limitations (TBELs) aim to prevent pollution by requiring a minimum level of effluent quality that is attainable using demonstrated treatment technologies for reducing discharges of pollutants into the waters of the United States. TBELs are developed independently of water quality-based effluent limitations (WQBELs) which serve to preserve aquatic life and human health. The NPDES regulations at Title 40 of the *Code of Federal Regulations* (CFR) §125.3(a) require NPDES permit writers to develop technology-based treatment requirements, consistent with CWA section 301(b), that represent the minimum level of control that must be imposed in a permit.

The Sanitary Landfill is a municipal solid waste landfill with no other industrial activities at the site and not subject to Federal Effluent Limitation Guidelines (ELGs) as SIC Code 4953 is not listed under 40 CFR §445. The ELG addresses discharges directly to surface waters of the Commonwealth. The Best Practicable Control Technology (BPT) for RCRA Subtitle D Non-Hazardous Waste Landfill discharging directly to surface waters are summarized below in Table 5.

**Table 5. 40 CFR §445.21**

Parameter	Maximum Daily (mg/L)	Maximum Monthly (mg/L)
BOD	140	37
TSS	88	27
Ammonia (as N)	10	4.9
α-Terpineol	0.033	0.016
Benzoic acid	0.12	0.071
p-Cresol	0.025	0.014
Phenol	0.026	0.015
Zinc	0.20	0.11
pH	Range 6.0 to 9.0	

**Regulatory Effluent Standards and Monitoring Requirements**

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code §92a.48(a)(2) and 25 Pa.

Flow monitoring is required pursuant to 25 Pa. Code §92a.61(d)(1) and 25 Pa. Code § 95.2(1).

The facility does not use chlorination for treatment of the landfill leachate, and TRC is not present in the discharge therefore, no TRC limits are proposed.

Pursuant to 25 Pa. Code §95.2(ii) effluent standards for Oil and Grease.

Pursuant to 25 Pa. Code §95.10 – Treatment requirements for new and expanding mass loading of Total Dissolved Solids (TDS). Existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. New and expanding discharge loading of TDS equal to or less than 5,000 pounds per day, measured as an average daily discharge over the course of a calendar year, otherwise known as the annual average daily load. New and expanding mass loadings of TDS not addressed in subsections (a) and (b) may not contain more than 2,000 mg/L of TDS as a monthly average, unless a variance is approved by the Department under this section. For purposes of this subsection, any net increase in existing TDS loadings authorized after August 21, 2010, will be considered a new and expanding mass loading of TDS. The discharge of Outfall

004 is a new discharge, therefore, the requirements of 25 Pa. Code § 95.10(c) apply imposing 2,000  $\text{mg/L}$  monthly average limit with a 4,000  $\text{mg/L}$  daily maximum limit.

### Per- and Polyfluoroalkyl Substances (PFAS)

In February 2024, DEP implemented a new monitoring initiative for PFAS. PFAS are a family of thousands of synthetic organic chemicals that contain a chain of strong carbon-fluorine bonds. Many PFAS are highly stable, water- and oil-resistant, and exhibit other properties that make them useful in a variety of consumer products and industrial processes. PFAS are resistant to biodegradation, photooxidation, direct photolysis, and hydrolysis and do not readily degrade naturally; thus, many PFAS accumulate over time. According to the United States Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), the environmental persistence and mobility of some PFAS, combined with decades of widespread use, have resulted in their presence in surface water, groundwater, drinking water, rainwater, soil, sediment, ice caps, outdoor and indoor air, plants, animal tissue, and human blood serum across the globe. ATSDR also reported that exposure to certain PFAS can lead to adverse human health impacts.<sup>1</sup> Due to their durability, toxicity, persistence, and pervasiveness, PFAS have emerged as significant pollutants of concern.

In accordance with Section II.I of DEP's "Standard Operating Procedure (SOP) for Clean Water Program – Establishing Effluent Limitations for Individual Industrial Permits" [SOP No. BCW-PMT-032] and under the authority of 25 Pa. Code § 92a.61(b), DEP has determined that monitoring for a subset of common/well-studied PFAS including Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), Perfluorobutanesulfonic acid (PFBS), and Hexafluoropropylene oxide dimer acid (HFPO-DA) is necessary to help understand the extent of environmental contamination by PFAS in the Commonwealth and the extent to which point source dischargers are contributors. SOP BCW-PMT-032 directs permit writers to consider special monitoring requirements for PFOA, PFOS, PFBS, and HFPO-DA in the following instances:

- a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.
- b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.
- c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0  $\text{ng/L}$  for PFOA, 3.7  $\text{ng/L}$  for PFOS, 3.5  $\text{ng/L}$  for PFBS and 6.4  $\text{ng/L}$  for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of "GG" on DMRs.

Sanitary Landfill's application was submitted without PFOA, PFOS, PFBS, and HFPO-DA sample data, so there are no PFAS data to evaluate. However, the potential for PFAS to be present can be estimated based on studies of various industries by EPA. The Sanitary Landfill is a facility that ostensibly operates in one of the industries EPA expects to be a source for PFAS: landfilling.

As stated in Section II.I.C of the SOP, if non-detect values at or below DEP's Target QLs are reported for four consecutive monitoring periods (*i.e.*, four consecutive quarterly results in Sanitary Landfill's case), then the monitoring may be discontinued.

<sup>1</sup> ATSDR, "Toxicological Profile for Perfluoroalkyls". Patrick N. Breysse, Ph.D., CIH Director, National Center for Environmental Health and Agency for Toxic Substances and Disease Registry Centers for Disease Control and Prevention, May 2021.

Below is Table 6, which summarizes the TBELs from the ELG and regulation requirements.

**Table 6. TBELs**

Parameter	Monthly Avg.	Daily Max	Units
Flow	Report	Report	MGD
pH	6.0	9.0	S.U.
Oil and Grease	15.0	30.0	mg/L
BOD	37	140	mg/L
TSS	27	88	mg/L
Ammonia (as N)	4.9	10	mg/L
$\alpha$ -Terpineol	0.016	0.033	mg/L
Benzoic acid	0.071	0.12	mg/L
p-Cresol	0.014	0.025	mg/L
Phenol	0.015	0.026	mg/L
Zinc	0.11	0.20	mg/L
TDS	2,000	4,000	mg/L
PFOA	--	Report	$\mu$ g/L
PFOS	--	Report	$\mu$ g/L
HFPO-DA	--	Report	$\mu$ g/L
PFBS	--	Report	$\mu$ g/L

### Water Quality-Based Limitations

#### Toxics Management Analysis

WQBELs are designed to protect water quality by ensuring that water quality standards are met in the receiving water. The Department's Toxics Management Spreadsheet (TMS) was utilized to facilitate calculations necessary for completing a reasonable potential analysis and determine Water Quality-Based Effluent Limitations (WQBELs) for discharges containing toxic pollutant concentrations. TMS combines the functionality of two (2) of the Department's analysis tools, Toxics Screening Analysis Spreadsheet and PENTOXSD water quality model.

DEP's procedures for evaluating reasonable potential are as follows:

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation and may be taken from the permit application.
2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].
  - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.
  - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.
  - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

The Discharge from Outfall 004 are evaluated based on concentrations reported on the application data are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 7 below.

Table 7. TMS Inputs

Parameter	Value
<b>Discharge Inputs</b>	
Facility	Sanitary Landfill
Evaluation Type	Industrial
NPDES Permit No.	PA0285358
Wastewater Description	Landfill Leachate and Condensate
Outfall ID	004
Design Flow (MGD)	0.04
Hardness (mg/L)	1,240
pH (S.U.)	7.91
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q <sub>7-10</sub> (min)	
Q <sub>h</sub> (min)	
<b>Stream Inputs</b>	
Receiving Surface Water	Monongahela River
Number of Reaches to Model	1
Stream Code	037185
RMI	38.5
Elevation (ft)	731/731*
Drainage Area (mi <sup>2</sup> )	52,200
Slope (ft/ft)	
PWS Withdrawal (MGD)	70
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi <sup>2</sup> )	
Flows	
Stream (cfs)	550
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness (mg/L)	
Stream pH (S.U.)	

\* Denotes discharge location/downstream location values.

Table 8 below, is a summary of the recommendations of the TMS at Outfall 004. Analysis Report from the TMS run is included in Attachment B.

Table 8: TMS Model WQBELs

Parameter	Mass Load (lbs/day)		Concentration Limit (ug/L)	
	Average	Maximum Daily	Average	Maximum
Monthly			Monthly	Daily
Toxaphene	0.0006	0.0009	1.78	2.77

#### WQM 7.0 Model

WQM 7.0 for Windows determines wasteload allocations and effluent limitations for dissolved oxygen (DO), carbonaceous BOD (CBOD<sub>5</sub>), and ammonia nitrogen (NH<sub>3</sub>-N) for single and multiple point source discharge scenarios. To accomplish this, the model simulates two basic processes (NH<sub>3</sub>-N and DO modules). In the NH<sub>3</sub>-N module, the model simulates the mixing and degradation of NH<sub>3</sub>-N in the stream and compares calculated instream NH<sub>3</sub>-N concentrations to NH<sub>3</sub>-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of DBOD<sub>5</sub> and NH<sub>3</sub>-N, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.1 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

In addition to flow and load mixing, WQM 7.1 also models deoxygenation, reaeration, and nitrification in calculating instream NH<sub>3</sub>-N, CBOD<sub>5</sub>, and DO concentrations. Temperature effects in these processes are considered and two (2) models (Summary and Winter) are run. These models are setup to reflect the varying stream and discharge temperatures.

Discharges from Outfall 004 are evaluated based on the initial default values and TBELs (Discharge Temperature, CBOD<sub>5</sub>, DO, NH<sub>3</sub>-N, and Stream Temperature). The WQM 7.1 model is run with the discharge and receiving stream characteristics shown in Table 9.

**Table 9. WQM 7.1 Inputs**

Parameter		Basin/Stream Characteristics	
Parameter	Value	Parameter	Value
River Mile Index	38.5	Area (mi <sup>2</sup> )	52,200
Discharge Flow (MGD)	0.04	Q <sub>7-10</sub> (cfs)	550
Discharge Temp.		Low-flow yield (cfs/mi <sup>2</sup> )	
Summer (°C)	20.0	Elevation (ft)	731
Winter (°C)	15.0	Slope	
CBOD <sub>5</sub> (mg/L)	37.0	Stream Temp. (WWF)	
DO (mg/L)	4.0	Summer Temp. (°C)	25.0
NH <sub>3</sub> -N (mg/L)	4.9	Winter Temp. (°C)	5.0

WQM 7.1 modeling recommends effluent limits as summarized below in Table 10. Analysis Report from the WQM 7.1 model runs are included in Attachment C.

**Table 10. WQM 7.1 Effluent Limitations**

Parameter	Average Monthly
CBOD <sub>5</sub> (mg/L)	37.0
DO (mg/L)	4.0 (minimum)
NH <sub>3</sub> -N (mg/L)	4.9

#### Anti-Backsliding

Section 402(o) of the Clean Water Act (CWA), enacted in the Water Quality Act of 1987, establishes anti-backsliding rules governing two situations. The first situation occurs when a permittee seeks to revise a Technology-Based effluent limitation based on BPJ to reflect a subsequently promulgated effluent guideline which is less stringent. The second situation addressed by Section 402(o) arises when a permittee seeks relaxation of an effluent limitation which is based upon a State treatment standard of water quality standard.

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (1) *Reissued permits.* (1) Except as provided in paragraph (1)(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). (2) In the case of effluent limitations established based on Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits.

**Effluent Limitations and Monitoring Requirements for Outfall 004**

Effluent limits applicable at Outfall 004 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in Tables 6, 8 and 10. The applicable limits and monitoring requirements provided below are based on discussions above and those contained in Table 11 of this Fact Sheet.

**Table 11. Effluent Limits and Monitoring Requirements for Outfall 004**

Parameter	Concentration		Units	Basis
	Average Monthly	Daily Maximum		
Flow	Report	Report	MGD	25 Pa. Code §92a.61(d)(1) and § 95.2(1)
TSS	27.0	88.0	mg/L	40 CFR §445
Oil and Grease	15.0	30.0	mg/L	25 Pa. Code §95.2(ii)
BOD	37.0	140.0	mg/L	40 CFR §445
Ammonia (as N)	4.9	10.0	mg/L	40 CFR §445
α-Terpineol	0.016	0.033	mg/L	40 CFR §445
Benzoic acid	0.071	0.12	mg/L	40 CFR §445
p-Cresol	0.014	0.025	mg/L	40 CFR §445
Phenol	0.015	0.026	mg/L	40 CFR §445
Zinc	0.11	0.20	mg/L	40 CFR §445
pH	6.0	9.0 IMAX	S.U.	40 CFR §445
Toxaphene	1.78	2.77	mg/L	WQBEL
TDS	2,000	4,000	mg/L	25 Pa. Code §95.10
PFOA	--	Report	ng/L	25 Pa. Code § 952.a.61(b)
PFOS	--	Report	ng/L	25 Pa. Code § 952.a.61(b)
HFPO-DA	--	Report	ng/L	25 Pa. Code § 952.a.61(b)
PFBS	--	Report	ng/L	25 Pa. Code § 952.a.61(b)

**Monitoring Frequency for Outfall 004**

Monitoring requirements for the interim and final effluent limits are based on the previous permit's monitoring requirements for the facility and displayed in Table 12 below.

**Table 12: Monitoring Requirements for Outfall 004**

Parameter	Sample Type	Minimum Sample Frequency
Flow	Metered	2/month
TSS	Grab	2/month
Oil and Grease	Grab	2/month
BOD	Grab	2/month
Ammonia (as N)	Grab	2/month
α-Terpineol	Grab	2/month
Benzoic acid	Grab	2/month
p-Cresol	Grab	2/month
Phenol	Grab	2/month
Zinc	Grab	2/month
pH	I-S	2/month
Toxaphene	Grab	2/month
TDS	Grab	2/month
PFOA	Grab	1/quarter
PFOS	Grab	1/quarter
HFPO-DA	Grab	1/quarter
PFBS	Grab	1/quarter

Tools and References Used to Develop Permit	
<input checked="" type="checkbox"/>	WQM for Windows Model (see Attachment C)
<input checked="" 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 type="checkbox"/>	Technical Guidance for the Development and Specification of Effluent Limitations, 386-0400-001, 10/97.
<input type="checkbox"/>	Policy for Permitting Surface Water Diversions, 386-2000-019, 3/98.
<input type="checkbox"/>	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 386-2000-018, 11/96.
<input type="checkbox"/>	Technology-Based Control Requirements for Water Treatment Plant Wastes, 386-2183-001, 10/97.
<input type="checkbox"/>	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 386-2183-002, 12/97.
<input type="checkbox"/>	Pennsylvania CSO Policy, 386-2000-002, 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, 386-2000-008, 4/97.
<input type="checkbox"/>	Determining Water Quality-Based Effluent Limits, 386-2000-004, 12/97.
<input type="checkbox"/>	Implementation Guidance Design Conditions, 386-2000-007, 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, 386-2000-016, 6/2004.
<input type="checkbox"/>	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 386-2000-012, 10/1997.
<input type="checkbox"/>	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 386-2000-009, 3/99.
<input type="checkbox"/>	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 386-2000-015, 5/2004.
<input type="checkbox"/>	Implementation Guidance for Section 93.7 Ammonia Criteria, 386-2000-022, 11/97.
<input type="checkbox"/>	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 386-2000-013, 4/2008.
<input type="checkbox"/>	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 386-2000-011, 11/1994.
<input type="checkbox"/>	Implementation Guidance for Temperature Criteria, 386-2000-001, 4/09.
<input type="checkbox"/>	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 386-2000-021, 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, 386-2000-020, 10/97.
<input type="checkbox"/>	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 386-2000-005, 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, 386-2000-010, 3/1999.
<input type="checkbox"/>	Design Stream Flows, 386-2000-003, 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, 386-2000-006, 10/98.
<input type="checkbox"/>	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 386-3200-001, 6/97.
<input type="checkbox"/>	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
<input type="checkbox"/>	SOP:
<input type="checkbox"/>	Other:

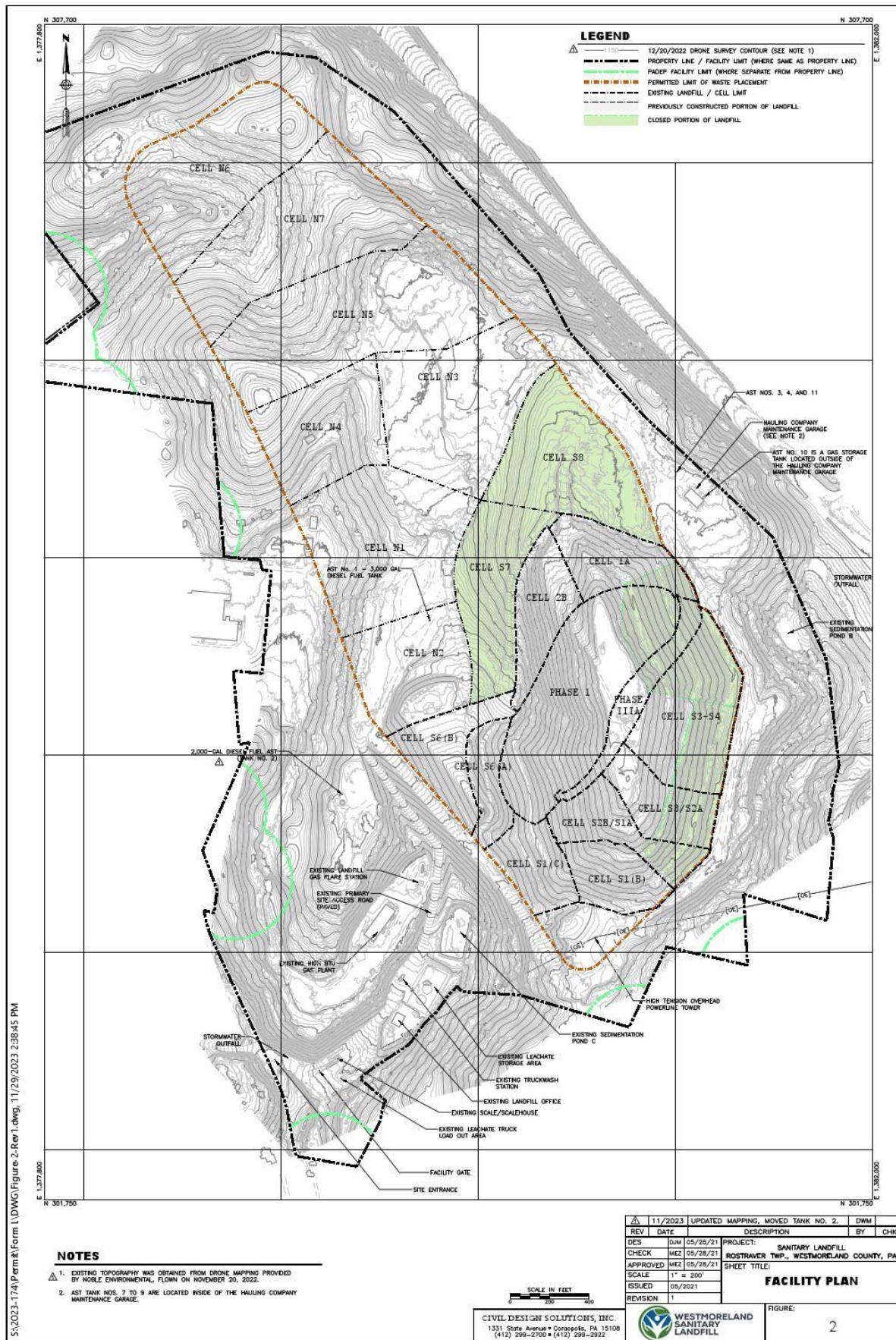
**Attachment A – Site Plans**

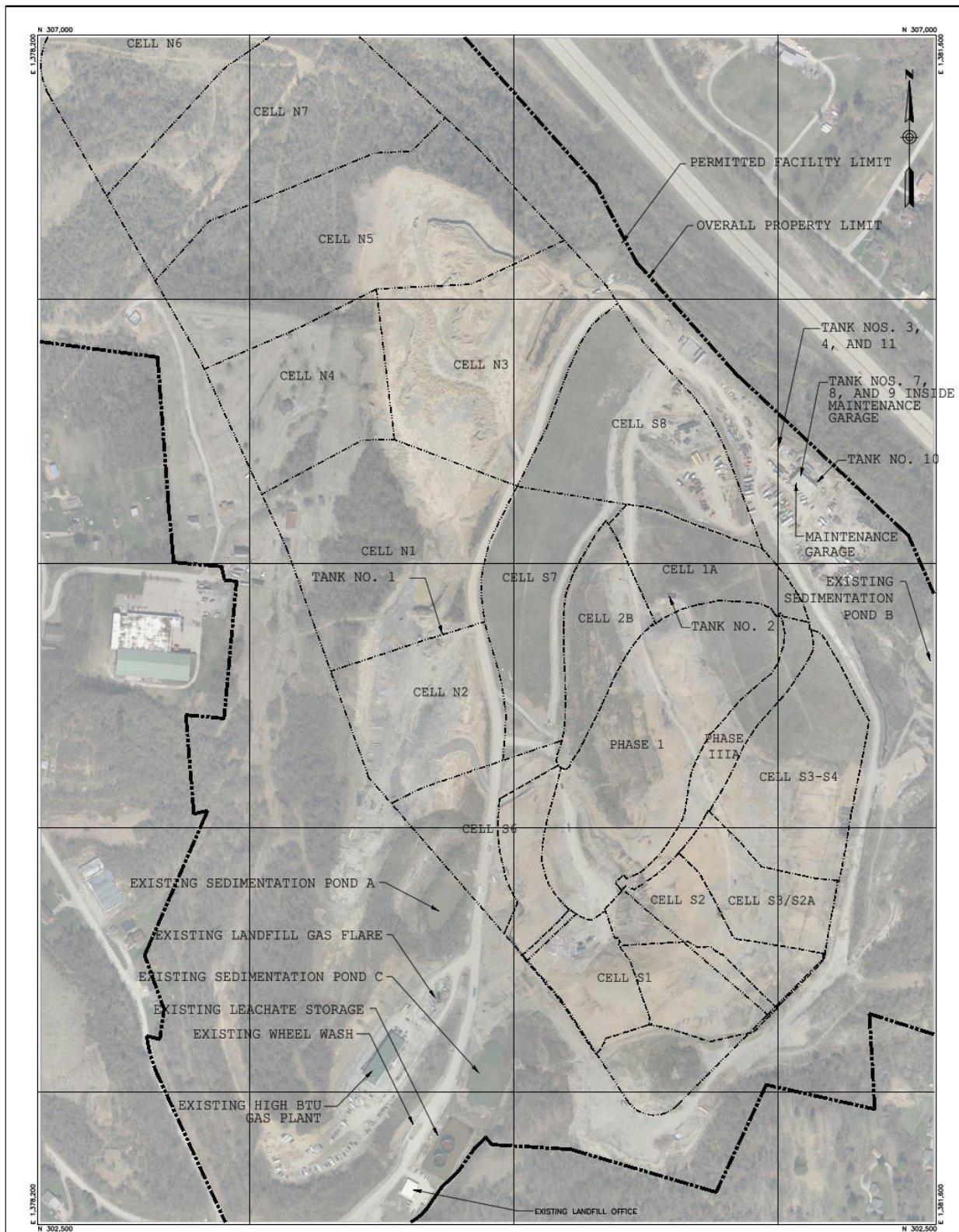
**Attachment B – TMS Model Output**

**Attachment C – WQM 7.1 Output**

**Attachment D -**

**Attachment A – Site Plans**





**NOTES**

1. EXISTING AERIAL IMAGERY WAS OBTAINED FROM AERIAL PHOTOGRAPHY ON MARCH 30, 2021 BY KEDAL AERIAL MAPPING.

**LEGEND**

- — — PROPERTY LINE / FACILITY LIMIT (WHERE SAME AS PROPERTY LINE)
- — — PERMITTED LANDFILL / CELL LIMIT
- — — EXISTING LANDFILL / CELL LIMIT

SCALE IN FEET  
100 200

REV	DATE	DESCRIPTION	BY	CHK
DES	DDG 05/28/21	PROJECT: SANITARY LANDFILL		
CHECK	DWM 05/28/21	ROSTRAVER TWP., WESTMORELAND COUNTY, PA		
APPROVED	DWM 05/28/21	SHEET TITLE:		
SCALE	1" = 160'			
ISSUED	05/2021			
REVISION	0			

**OVERALL SITE PLAN**



FIGURE:  
2



**Attachment B – TMS Model Output**



## Discharge Information

Instructions Discharge Stream

Facility: Westmoreland Sanitary Landfill NPDES Permit No.: PA0285358 Outfall No.: 004

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Treated Leachate and Condensate

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)			Complete Mix Times (min)		
			AFC	CFC	THH	CRL	Q <sub>7-10</sub>	Q <sub>h</sub>
0.04	1240	7.91						

				0 if left blank	0.5 if left blank		0 if left blank	1 if left blank				
	Discharge Pollutant	Units	Max Discharge Conc	Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L	11200									
	Chloride (PWS)	mg/L	5610									
	Bromide	mg/L	< 1									
	Sulfate (PWS)	mg/L	83.1									
	Fluoride (PWS)	mg/L	15.4									
Group 2	Total Aluminum	µg/L	88.5									
	Total Antimony	µg/L	100									
	Total Arsenic	µg/L	400									
	Total Barium	µg/L	6380									
	Total Beryllium	µg/L	< 4									
	Total Boron	µg/L	7710									
	Total Cadmium	µg/L	< 5									
	Total Chromium (III)	µg/L	60									
	Hexavalent Chromium	µg/L	< 0.5									
	Total Cobalt	µg/L	30									
	Total Copper	mg/L	0.0124									
	Free Cyanide	µg/L										
	Total Cyanide	µg/L	< 10									
	Dissolved Iron	µg/L	2860									
	Total Iron	µg/L	62400									
	Total Lead	µg/L	20									
	Total Manganese	µg/L	12300									
	Total Mercury	µg/L	< 0.2									
	Total Nickel	µg/L	112									
	Total Phenols (Phenolics) (PWS)	µg/L	56									
	Total Selenium	µg/L	20									
	Total Silver	µg/L	10									
	Total Thallium	µg/L	< 0.1									
	Total Zinc	mg/L	4.73									
	Total Molybdenum	µg/L	5.2									
Group 3	Acrolein	µg/L	< 2									
	Acrylamide	µg/L	< 49									
	Acrylonitrile	µg/L	< 5									
	Benzene	µg/L	5									
	Bromoform	µg/L	< 5									

Group 3	Carbon Tetrachloride	µg/L	<	5						
	Chlorobenzene	µg/L	<	5						
	Chlorodibromomethane	µg/L	<	5						
	Chloroethane	µg/L	<	5						
	2-Chloroethyl Vinyl Ether	µg/L	<	0.5						
	Chloroform	µg/L	<	5						
	Dichlorobromomethane	µg/L	<	0.2						
	1,1-Dichloroethane	µg/L	<	5						
	1,2-Dichloroethane	µg/L	<	5						
	1,1-Dichloroethylene	µg/L	<	5						
	1,2-Dichloropropane	µg/L	<	5						
	1,3-Dichloropropylene	µg/L	<	0.2						
	1,4-Dioxane	µg/L	<	37.4						
	Ethylbenzene	µg/L	<	68.8						
	Methyl Bromide	µg/L	<	5						
	Methyl Chloride	µg/L	<	5						
	Methylene Chloride	µg/L	<	9.5						
	1,1,2,2-Tetrachloroethane	µg/L	<	5						
	Tetrachloroethylene	µg/L	<	5						
Group 4	Toluene	µg/L	<	94.1						
	1,2-trans-Dichloroethylene	µg/L	<	5						
	1,1,1-Trichloroethane	µg/L	<	5						
	1,1,2-Trichloroethane	µg/L	<	5						
	Trichloroethylene	µg/L	<	5						
	Vinyl Chloride	µg/L	<	4.4						
	2-Chlorophenol	µg/L	<	5						
	2,4-Dichlorophenol	µg/L	<	5						
	2,4-Dimethylphenol	µg/L	<	10						
	4,6-Dinitro-o-Cresol	µg/L	<	25						
Group 5	2,4-Dinitrophenol	µg/L	<	25						
	2-Nitrophenol	µg/L	<	12.5						
	4-Nitrophenol	µg/L	<	12.5						
	p-Chloro-m-Cresol	µg/L	<	5						
	Pentachlorophenol	µg/L	<	12.5						
	Phenol	µg/L	<	6.9						
	2,4,6-Trichlorophenol	µg/L	<	5						
	Acenaphthene	µg/L	<	2.5						
	Acenaphthylene	µg/L	<	2.5						
	Anthracene	µg/L	<	2.5						





## Stream / Surface Water Information

Westmoreland Sanitary Landfill, NPDES Permit No. PA0285358, Outfall 004

Instructions **Discharge** Stream

Receiving Surface Water Name: **Monogahela River**

No. Reaches to Model: **1**

- Statewide Criteria
- Great Lakes Criteria
- ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi <sup>2</sup> )*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	037185	38.5	731	5220			Yes
End of Reach 1	037185	38.4	730	5225		70	Yes

**Q<sub>7-10</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )*	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	38.5	0.1	550			700	20					100	7		
End of Reach 1	38.4	0.1				700	20								

**Q<sub>h</sub>**

Location	RMI	LFY (cfs/mi <sup>2</sup> )	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	38.5														
End of Reach 1	38.4														



## Model Results

Westmoreland Sanitary Landfill, NPDES Permit No. PA0285358, Outfall 004

Instructions  Results  RETURN TO INPUTS  SAVE AS PDF  PRINT  All  Inputs  Results  Limits

Hydrodynamics

Wasteload Allocations

AFC

CCT (min):

PMF:

Analysis Hardness (mg/l):

Analysis pH:

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	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	1,966,464	
Total Antimony	0	0		0	1,100	1,100	2,884,147	
Total Arsenic	0	0		0	340	340	891,464	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	55,060,090	
Total Boron	0	0		0	8,100	8,100	21,237,810	
Total Cadmium	0	0		0	2.022	2.14	5,618	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	571.792	1,809	4,744,335	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	42,720	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	249,085	
Total Copper	0	0		0	13.494	14.1	36,855	Chem Translator of 0.96 applied
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	64.887	82.1	215,255	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.85	4,319	Chem Translator of 0.85 applied
Total Nickel	0	0		0	489.958	471	1,234,675	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.241	3.81	9,997	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	170,427	
Total Zinc	0	0		0	117.612	120	315,310	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	7,866	

Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	1,704,269	
Benzene	0	0		0	640	640	1,678,049	
Bromoform	0	0		0	1,800	1,800	4,719,513	
Carbon Tetrachloride	0	0		0	2,800	2,800	7,341,465	
Chlorobenzene	0	0		0	1,200	1,200	3,146,342	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	47,195,134	
Chloroform	0	0		0	1,900	1,900	4,981,709	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	39,329,279	
1,1-Dichloroethylene	0	0		0	7,500	7,500	19,664,639	
1,2-Dichloropropane	0	0		0	11,000	11,000	28,841,471	
1,3-Dichloropropylene	0	0		0	310	310	812,805	
Ethylbenzene	0	0		0	2,900	2,900	7,603,661	
Methyl Bromide	0	0		0	550	550	1,442,074	
Methyl Chloride	0	0		0	28,000	28,000	73,414,653	
Methylene Chloride	0	0		0	12,000	12,000	31,463,423	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	2,621,952	
Tetrachloroethylene	0	0		0	700	700	1,835,366	
Toluene	0	0		0	1,700	1,700	4,457,318	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	17,829,273	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	7,885,856	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	8,914,636	
Trichloroethylene	0	0		0	2,300	2,300	6,030,489	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	1,468,293	
2,4-Dichlorophenol	0	0		0	1,700	1,700	4,457,318	
2,4-Dimethylphenol	0	0		0	660	660	1,730,488	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	209,756	
2,4-Dinitrophenol	0	0		0	660	660	1,730,488	
2-Nitrophenol	0	0		0	8,000	8,000	20,975,615	
4-Nitrophenol	0	0		0	2,300	2,300	6,030,489	
p-Chloro-m-Cresol	0	0		0	160	160	419,512	
Pentachlorophenol	0	0		0	8.725	8.72	22,875	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	1,206,098	
Acenaphthene	0	0		0	83	83.0	217,622	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	786,586	
Benzo(a)Anthracene	0	0		0	0.5	0.5	1,311	
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	30,000	30,000	78,658,557	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	11,798,784	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	707,927	

Butyl Benzyl Phthalate	0	0		0	140	140	367,073	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
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	820	820	2,150,001	
1,3-Dichlorobenzene	0	0		0	350	350	917,683	
1,4-Dichlorobenzene	0	0		0	730	730	1,914,025	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	10,487,808	
Dimethyl Phthalate	0	0		0	2,500	2,500	6,554,880	
Di-n-Butyl Phthalate	0	0		0	110	110	288,415	
2,4-Dinitrotoluene	0	0		0	1,800	1,800	4,195,123	
2,6-Dinitrotoluene	0	0		0	990	990	2,595,732	
1,2-Diphenylhydrazine	0	0		0	15	15.0	39,329	
Fluoranthene	0	0		0	200	200	524,390	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	26,220	
Hexachlorocyclopentadiene	0	0		0	5	5.0	13,110	
Hexachloroethane	0	0		0	60	60.0	157,317	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	26,219,519	
Naphthalene	0	0		0	140	140	367,073	
Nitrobenzene	0	0		0	4,000	4,000	10,487,808	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	44,573,182	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	786,586	
Phenanthrene	0	0		0	5	5.0	13,110	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	340,854	
Aldrin	0	0		0	3	3.0	7,866	
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	0.95	0.95	2,491	
Chlordane	0	0		0	2.4	2.4	6,293	
4,4-DDT	0	0		0	1.1	1.1	2,884	
4,4-DDE	0	0		0	1.1	1.1	2,884	
4,4-DDD	0	0		0	1.1	1.1	2,884	
Dieldrin	0	0		0	0.24	0.24	629	
alpha-Endosulfan	0	0		0	0.22	0.22	577	
beta-Endosulfan	0	0		0	0.22	0.22	577	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	225	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	1,363	
Heptachlor Epoxide	0	0		0	0.5	0.5	1,311	
Toxaphene	0	0		0	0.73	0.73	1,914	
Total Strontium	0	0		0	N/A	N/A	N/A	

Osmotic Pressure	0	0	0	50	50.0	131,098	
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CFC

CCT (min): #####

PMF: 1

Analysis Hardness (mg/l): 100.13

Analysis pH: 7.00

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	
Fluoride (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	220	220	1,955,618	
Total Arsenic	0	0		0	150	150	1,333,376	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	36,445,600	
Total Boron	0	0		0	1,600	1,600	14,222,673	
Total Cadmium	0	0		0	0.246	0.27	2,408	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.192	86.3	766,870	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	92,403	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	168,894	
Total Copper	0	0		0	8.966	9.34	83,017	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	13,333,758	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.520	3.19	28,328	Chem Translator of 0.791 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	8,053	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.063	52.2	464,189	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	44,349	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	115,559	
Total Zinc	0	0		0	118.267	120	1,066,226	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	26,668	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	1,155,592	
Benzene	0	0		0	130	130	1,155,592	
Bromoform	0	0		0	370	370	3,288,993	
Carbon Tetrachloride	0	0		0	560	560	4,977,936	
Chlorobenzene	0	0		0	240	240	2,133,401	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	31,112,097	
Chloroform	0	0		0	390	390	3,466,777	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	27,556,429	
1,1-Dichloroethylene	0	0		0	1,500	1,500	13,333,756	
1,2-Dichloropropane	0	0		0	2,200	2,200	19,556,175	

1,3-Dichloropropylene	0	0		0	61	61.0	542,239	
Ethylbenzene	0	0		0	580	580	5,155,719	
Methyl Bromide	0	0		0	110	110	977,809	
Methyl Chloride	0	0		0	5,500	5,500	48,890,439	
Methylene Chloride	0	0		0	2,400	2,400	21,334,010	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	1,866,726	
Tetrachloroethylene	0	0		0	140	140	1,244,484	
Toluene	0	0		0	330	330	2,933,426	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	12,444,839	
1,1,1-Trichloroethane	0	0		0	610	610	5,422,394	
1,1,2-Trichloroethane	0	0		0	680	680	6,044,636	
Trichloroethylene	0	0		0	450	450	4,000,127	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	977,809	
2,4-Dichlorophenol	0	0		0	340	340	3,022,318	
2,4-Dimethylphenol	0	0		0	130	130	1,155,592	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	142,227	
2,4-Dinitrophenol	0	0		0	130	130	1,155,592	
2-Nitrophenol	0	0		0	1,600	1,600	14,222,673	
4-Nitrophenol	0	0		0	470	470	4,177,910	
p-Chloro-m-Cresol	0	0		0	500	500	4,444,585	
Pentachlorophenol	0	0		0	6,694	6.69	59,500	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	808,915	
Acenaphthene	0	0		0	17	17.0	151,116	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	524,461	
Benzo(a)Anthracene	0	0		0	0.1	0.1	889	
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	6,000	6,000	53,335,024	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	8,089,145	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	480,015	
Butyl Benzyl Phthalate	0	0		0	35	35.0	311,121	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
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	160	160	1,422,267	
1,3-Dichlorobenzene	0	0		0	69	69.0	613,353	
1,4-Dichlorobenzene	0	0		0	150	150	1,333,376	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	7,111,337	
Dimethyl Phthalate	0	0		0	500	500	4,444,585	

Di-n-Butyl Phthalate	0	0		0	21	21.0	186,673	
2,4-Dinitrotoluene	0	0		0	320	320	2,844,535	
2,6-Dinitrotoluene	0	0		0	200	200	1,777,834	
1,2-Diphenylhydrazine	0	0		0	3	3.0	26,668	
Fluoranthene	0	0		0	40	40.0	355,567	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	17,778	
Hexachlorocyclopentadiene	0	0		0	1	1.0	8,889	
Hexachloroethane	0	0		0	12	12.0	106,670	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	18,667,258	
Naphthalene	0	0		0	43	43.0	382,234	
Nitrobenzene	0	0		0	810	810	7,200,228	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	30,223,180	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	524,461	
Phenanthrene	0	0		0	1	1.0	8,889	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	28	28.0	231,118	
Aldrin	0	0		0	0.1	0.1	889	
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	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	38.2	
4,4-DDT	0	0		0	0.001	0.001	8.89	
4,4-DDE	0	0		0	0.001	0.001	8.89	
4,4-DDD	0	0		0	0.001	0.001	8.89	
Dieldrin	0	0		0	0.056	0.056	498	
alpha-Endosulfan	0	0		0	0.056	0.056	498	
beta-Endosulfan	0	0		0	0.056	0.056	498	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	320	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	33.8	
Heptachlor Epoxide	0	0		0	0.0038	0.004	33.8	
Toxaphene	0	0		0	0.0002	0.0002	1.78	
Total Strontium	0	0		0	N/A	N/A	N/A	
Osmotic Pressure	0	0		0	N/A	N/A	N/A	

THH CCT (min): ##### THH PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A PWS PMF: 1

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	#####	WQC applied at RMI 38.4 with a design stream flow of 550.5 cfs

Chloride (PWS)	0	0		0	250,000	250,000	#####	WQC applied at RMI 38.4 with a design stream flow of 550.5 cfs
Sulfate (PWS)	0	0		0	250,000	250,000	#####	WQC applied at RMI 38.4 with a design stream flow of 550.5 cfs
Fluoride (PWS)	0	0		0	2,000	2,000	17,794,502	WQC applied at RMI 38.4 with a design stream flow of 550.5 cfs
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	5.6	5.6	49,779	
Total Arsenic	0	0		0	10	10.0	88,892	
Total Barium	0	0		0	2,400	2,400	21,334,010	
Total Boron	0	0		0	3,100	3,100	27,556,429	
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	
Dissolved Iron	0	0		0	300	300	2,668,751	
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	8,889,171	
Total Mercury	0	0		0	0.050	0.05	444	
Total Nickel	0	0		0	610	610	5,422,394	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	44,486	WQC applied at RMI 38.4 with a design stream flow of 550.5 cfs
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	2,133	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	26,668	
Acrylamide	0	0		0	N/A	N/A	N/A	
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	888,917	
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	5.7	5.7	50,668	
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	293,343	
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	604,464	
Methyl Bromide	0	0		0	100	100.0	888,917	
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	506,683	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	888,917	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	88,891,707	
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	286,675	
2,4-Dichlorophenol	0	0		0	10	10.0	88,892	
2,4-Dimethylphenol	0	0		0	100	100.0	888,917	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	17,778	
2,4-Dinitrophenol	0	0		0	10	10.0	88,892	
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	35,556,683	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	622,242	
Anthracene	0	0		0	300	300	2,666,751	
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	1,777,834	
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	889	
2-Chloronaphthalene	0	0		0	800	800	7,111,337	
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	8,889,171	
1,3-Dichlorobenzene	0	0		0	7	7.0	62,224	
1,4-Dichlorobenzene	0	0		0	300	300	2,666,751	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	5,333,502	
Dimethyl Phthalate	0	0		0	2,000	2,000	17,778,341	
Di-n-Butyl Phthalate	0	0		0	20	20.0	177,783	
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	177,783	
Fluorene	0	0		0	50	50.0	444,459	
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	35,557
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	302,232
Naphthalene	0	0		0	N/A	N/A	N/A
Nitrobenzene	0	0		0	10	10.0	88,892
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	177,783
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	622
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	37,335
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	177,783
beta-Endosulfan	0	0		0	20	20.0	177,783
Endosulfan Sulfate	0	0		0	20	20.0	177,783
Endrin	0	0		0	0.03	0.03	267
Endrin Aldehyde	0	0		0	1	1.0	8,889
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
Total Strontium	0	0		0	4,000	4,000	35,556,683
Osmotic Pressure	0	0		0	N/A	N/A	N/A

| ✓ | CRL

CCT (min): 77.611

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	
Fluoride (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
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
Acrylamide	0	0		0	0.07	0.07	2,088
Acrylonitrile	0	0		0	0.06	0.06	1,789
Benzene	0	0		0	0.58	0.58	17,296
Bromoform	0	0		0	7	7.0	208,751
Carbon Tetrachloride	0	0		0	0.4	0.4	11,929
Chlorobenzene	0	0		0	N/A	N/A	N/A
Chlorodibromomethane	0	0		0	0.8	0.8	23,857
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	0.95	0.95	28,330
1,2-Dichloroethane	0	0		0	9.9	9.9	295,233
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A
1,2-Dichloropropane	0	0		0	0.9	0.9	26,839
1,3-Dichloropropylene	0	0		0	0.27	0.27	8,052
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	596,431
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	5,964
Tetrachloroethylene	0	0		0	10	10.0	298,215
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	16,402
Trichloroethylene	0	0		0	0.6	0.6	17,893
Vinyl Chloride	0	0		0	0.02	0.02	596
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	895
Phenol	0	0		0	N/A	N/A	N/A
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	44,732
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	2.98
Benzo(a)Anthracene	0	0		0	0.001	0.001	29.8
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	2.98
3,4-Benzofluoranthene	0	0		0	0.001	0.001	29.8
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	298
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	895
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	9,543
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	3,579
Dibenzo(a,h)Anthracene	0	0		0	0.0001	0.0001	2.98
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	1,491
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	1,491
2,6-Dinitrotoluene	0	0		0	0.05	0.05	1,491
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	895
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	2.39
Hexachlorobutadiene	0	0		0	0.01	0.01	298
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A
Hexachloroethane	0	0		0	0.1	0.1	2,982
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	29.8
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	20.9	
n-Nitrosodi-n-Propylamine	0	0	0	0.005	0.005	149	
n-Nitrosodiphenylamine	0	0	0	3.3	3.3	98,411	
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	0.024	
alpha-BHC	0	0	0	0.0004	0.0004	11.9	
beta-BHC	0	0	0	0.008	0.008	239	
gamma-BHC	0	0	0	N/A	N/A	N/A	
Chlordane	0	0	0	0.0003	0.0003	8.95	
4,4-DDT	0	0	0	0.00003	0.00003	0.89	
4,4-DDE	0	0	0	0.00002	0.00002	0.6	
4,4-DDD	0	0	0	0.0001	0.0001	2.98	
Dieldrin	0	0	0	0.000001	0.000001	0.03	
alpha-Endosulfan	0	0	0	N/A	N/A	N/A	
beta-Endosulfan	0	0	0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0	0	N/A	N/A	N/A	
Endrin	0	0	0	N/A	N/A	N/A	
Endrin Aldehyde	0	0	0	N/A	N/A	N/A	
Heptachlor	0	0	0	0.000006	0.000006	0.18	
Heptachlor Epoxide	0	0	0	0.00003	0.00003	0.89	
Toxaphene	0	0	0	0.0007	0.0007	20.9	
Total Strontium	0	0	0	N/A	N/A	N/A	
Osmotic Pressure	0	0	0	N/A	N/A	N/A	

#### Recommended WQBELs & Monitoring Requirements

**No. Samples/Month:**

4

*Other Pollutants without Limits or Monitoring*

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., <= Target QL).

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	4,448,625	mg/L	Discharge Conc ≤ 10% WQBEL
Chloride (PWS)	2,224,313	mg/L	Discharge Conc ≤ 10% WQBEL
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	2,224,313	mg/L	Discharge Conc ≤ 10% WQBEL
Fluoride (PWS)	17,795	mg/L	Discharge Conc ≤ 10% WQBEL
Total Aluminum	1,260,424	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	49,779	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	88,892	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	21,334,010	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	13,612,579	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	2,408	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	786,870	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	27,382	µg/L	Discharge Conc < TQL
Total Cobalt	159,654	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	23.8	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	2,666,751	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	13,333,756	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	28,328	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	8,889,171	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	444	µg/L	Discharge Conc < TQL
Total Nickel	464,189	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)	44,486	µg/L	Discharge Conc ≤ 10% WQBEL
Total Selenium	44,349	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	6,408	µg/L	Discharge Conc ≤ 10% WQBEL
Total Thallium	2,133	µg/L	Discharge Conc < TQL
Total Zinc	202	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	5,042	µg/L	Discharge Conc < TQL
Acrylamide	2,088	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	1,789	µg/L	Discharge Conc < TQL
Benzene	17,296	µg/L	Discharge Conc ≤ 25% WQBEL
Bromoform	208,751	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	11,929	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	888,917	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	23,857	µg/L	Discharge Conc ≤ 25% WQBEL
Chloroethane	N/A	N/A	No WQS

2-Chloroethyl Vinyl Ether	30,250,176	µg/L	Discharge Conc < TQL
Chloroform	50,668	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	28,330	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	295,233	µg/L	Discharge Conc ≤ 25% WQBEL
1,1-Dichloroethylene	293,343	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-Dichloropropane	26,839	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichloropropylene	8,052	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	604,464	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Bromide	888,917	µg/L	Discharge Conc ≤ 25% WQBEL
Methyl Chloride	47,055,829	µg/L	Discharge Conc ≤ 25% WQBEL
Methylene Chloride	596,431	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2,2-Tetrachloroethane	5,964	µg/L	Discharge Conc ≤ 25% WQBEL
Tetrachloroethylene	298,215	µg/L	Discharge Conc ≤ 25% WQBEL
Toluene	506,683	µg/L	Discharge Conc ≤ 25% WQBEL
1,2-trans-Dichloroethylene	888,917	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,1-Trichloroethane	5,041,696	µg/L	Discharge Conc ≤ 25% WQBEL
1,1,2-Trichloroethane	16,402	µg/L	Discharge Conc ≤ 25% WQBEL
Trichloroethylene	17,893	µg/L	Discharge Conc ≤ 25% WQBEL
Vinyl Chloride	596	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chlorophenol	268,675	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	88,892	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	888,917	µg/L	Discharge Conc ≤ 25% WQBEL
4,6-Dinitro-o-Cresol	17,778	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrophenol	88,892	µg/L	Discharge Conc ≤ 25% WQBEL
2-Nitrophenol	13,444,522	µg/L	Discharge Conc ≤ 25% WQBEL
4-Nitrophenol	3,865,300	µg/L	Discharge Conc ≤ 25% WQBEL
p-Chloro-m-Cresol	268,890	µg/L	Discharge Conc < TQL
Pentachlorophenol	895	µg/L	Discharge Conc ≤ 25% WQBEL
Phenol	35,556,683	µg/L	Discharge Conc ≤ 25% WQBEL
2,4,6-Trichlorophenol	44,732	µg/L	Discharge Conc < TQL
Acenaphthene	139,487	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	2,666,751	µg/L	Discharge Conc < TQL
Benzidine	2.98	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	29.8	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	2.98	µg/L	Discharge Conc < TQL
3,4-Benzo fluoranthene	29.8	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	298	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	895	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	1,777,834	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	9,543	µg/L	Discharge Conc ≤ 25% WQBEL

4-Bromophenyl Phenyl Ether	453,753	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	889	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloronaphthalene	7,111,337	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	3,579	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthracene	2.98	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	1,378,084	µg/L	Discharge Conc ≤ 25% WQBEL
1,3-Dichlorobenzene	62,224	µg/L	Discharge Conc ≤ 25% WQBEL
1,4-Dichlorobenzene	1,226,813	µg/L	Discharge Conc ≤ 25% WQBEL
3,3-Dichlorobenzidine	1,491	µg/L	Discharge Conc ≤ 25% WQBEL
Diethyl Phthalate	5,333,502	µg/L	Discharge Conc ≤ 25% WQBEL
Dimethyl Phthalate	4,201,413	µg/L	Discharge Conc ≤ 25% WQBEL
Di-n-Butyl Phthalate	177,783	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	1,491	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	1,491	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	895	µg/L	Discharge Conc < TQL
Fluoranthene	177,783	µg/L	Discharge Conc < TQL
Fluorene	444,459	µg/L	Discharge Conc < TQL
Hexachlorobenzene	2.39	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	298	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	8,403	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachloroethane	2,982	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	29.8	µg/L	Discharge Conc < TQL
Isophorone	302,232	µg/L	Discharge Conc < TQL
Naphthalene	235,279	µg/L	Discharge Conc ≤ 25% WQBEL
Nitrobenzene	88,892	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	20.9	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	149	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	98,411	µg/L	Discharge Conc < TQL
Phenanthrene	8,403	µg/L	Discharge Conc ≤ 25% WQBEL
Pyrene	177,783	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	622	µg/L	Discharge Conc ≤ 25% WQBEL
Aldrin	0.024	µg/L	Discharge Conc < TQL
alpha-BHC	11.9	µg/L	Discharge Conc < TQL
beta-BHC	239	µg/L	Discharge Conc < TQL
gamma-BHC	1,597	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	8.95	µg/L	Discharge Conc < TQL
4,4-DDT	0.89	µg/L	Discharge Conc < TQL
4,4-DDE	0.6	µg/L	Discharge Conc < TQL
4,4-DDD	2.98	µg/L	Discharge Conc < TQL
Dieldrin	0.03	µg/L	Discharge Conc < TQL
alpha-Endosulfan	370	µg/L	Discharge Conc < TQL
beta-Endosulfan	370	µg/L	Discharge Conc < TQL

Endosulfan Sulfate	177,783	µg/L	Discharge Conc < TQL
Endrin	145	µg/L	Discharge Conc < TQL
Endrin Aldehyde	8,889	µg/L	Discharge Conc < TQL
Heptachlor	0.18	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.89	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
Gross Alpha	N/A	N/A	No WQS
Total Beta	N/A	N/A	No WQS
Radium 226/228	N/A	N/A	No WQS
Total Strontium	35,556,683	µg/L	Discharge Conc ≤ 10% WQBEL
Total Uranium	N/A	N/A	No WQS
Osmotic Pressure	84,028	mOs/kg	Discharge Conc ≤ 10% WQBEL

**Attachment C – WQM 7.1 Output**

**Winter**

**Summer**

**Winter**

**WQM 7.0 Hydrodynamic Outputs**

RMI	Stream Flow	PWS With	SWP Basin		Stream Code		Stream Name						
			19A	37186	MONONGAHELA RIVER								
	(cfs)	(cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH	
<b>Q7-10 Flow</b>													
38.500	550.00	0.00	550.00	.0619 0.00038	1.19	468.21	393.52	0.99	0.031	5.00	7.00		
<b>Q1-10 Flow</b>													
38.500	352.00	0.00	352.00	.0619 0.00038	NA	NA	NA	0.77	0.040	5.00	7.00		
<b>Q30-10 Flow</b>													
38.500	748.00	0.00	748.00	.0619 0.00038	NA	NA	NA	1.17	0.026	5.00	7.00		

### WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	6		

**WQM 7.0 Wasteload Allocations**

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>				
19A	37185	MONONGAHELA RIVER					
<b>NH3-N Acute Allocations</b>							
RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
	38.500 Sanitary LF	24.1	9.8	24.1	9.8	0	0
<b>NH3-N Chronic Allocations</b>							
RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
	38.500 Sanitary LF	4.36	4.9	4.36	4.9	0	0
<b>Dissolved Oxygen Allocations</b>							
RMI	Discharge Name	<u>CBOD5</u>		<u>NH3-N</u>		<u>Dissolved Oxygen</u>	
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)
	38.50 Sanitary LF	37	37	4.9	4.9	3	3
						0	0

**WQM 7.0 D.O.Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
19A	37185	MONONGAHELA RIVER		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
38.600	0.040	5.001	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
468.207	1.190	393.519	0.987	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.00	0.003	0.00	0.221	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.242	1.222	Tsivoglou	6	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.031	TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
	0.003	2.00	0.00	8.24
	0.006	2.00	0.00	8.24
	0.009	2.00	0.00	8.24
	0.012	2.00	0.00	8.24
	0.015	2.00	0.00	8.24
	0.019	2.00	0.00	8.24
	0.022	2.00	0.00	8.24
	0.025	2.00	0.00	8.24
	0.028	2.00	0.00	8.24
	0.031	2.00	0.00	8.24

**WQM 7.0 Effluent Limits**

SWP Basin	Stream Code	Stream Name					
		19A	37185	MONONGAHELA RIVER			
RML	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
38.500	Sanitary LF	PA0285358	0.040	CBOD5	37		
				NH3-N	4.9	9.8	
				Dissolved Oxygen			3

**Summer**

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name		RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC		
19A		37185	MONONGAHELA RIVER	38.500	731.00	5220.00	0.00000	0.00	<input checked="" type="checkbox"/>		
<b>Stream Data</b>											
Design Cond.	LFY (cfs/m)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	550.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00	0.00
Q1-10		0.00	0.00	0.000	0.000						
Q30-10		0.00	0.00	0.000	0.000						
<b>Discharge Data</b>											
	Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH			
	Sanitary LF	PA0285358	0.0400	0.0400	0.0000	0.000	20.00	7.00			
<b>Parameter Data</b>											
	Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)						
	CBOD5	37.00	2.00	0.00	1.50						
	Dissolved Oxygen	3.00	8.24	0.00	0.00						
	NH3-N	4.90	0.00	0.00	0.70						

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name		RMI	Elevation	Drainage Area	Slope	PWS Withdrawal	Apply FC	
				(ft)	(sq mi)	(ft/ft)	(mgd)			
19A		37185 MONONGAHELA RIVER		38.000	730.00	6250.00	0.00000	0.00	<input checked="" type="checkbox"/>	
<b>Stream Data</b>										
Design Cond.	LFY	Trib Flow	Stream Flow	Rch Trav Time	Rch Velocity	WD Ratio	Rch Width	Rch Depth	Tributary Temp	Stream pH
	(cfsm)	(cfs)	(cfs)	(days)	(fps)		(ft)	(ft)	(°C)	(°C)
Q7-10	0.100	0.00	550.00	0.000	0.000	10.0	0.00	0.00	25.00	7.00
Q1-10		0.00	0.00	0.000	0.000				0.00	0.00
Q30-10		0.00	0.00	0.000	0.000				0.00	0.00
<b>Discharge Data</b>										
Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	Disc Temp	Disc pH			
		(mgd)	(mgd)	(mgd)						
		0.0000	0.0000	0.0000	0.000	25.00	7.00			
<b>Parameter Data</b>										
Parameter Name	Disc Conc	Trib Conc	Stream Conc	Fate Coef						
	(mg/L)	(mg/L)	(mg/L)	(1/days)						
CBOD5	25.00	2.00	0.00	1.50						
Dissolved Oxygen	3.00	8.24	0.00	0.00						
NH3-N	25.00	0.00	0.00	0.70						

**WQM 7.0 Hydrodynamic Outputs**

SWP Basin		Stream Code		Stream Name								
19A		37165		MONONGAHELA RIVER								
RMI	Stream Flow	PWS With	Net Stream Flow	Disc Analysis Flow	Reach Slope	Depth	Width	W/D Ratio	Velocity	Reach Trav Time	Analysis Temp	Analysis pH
	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft)	(ft)		(fps)	(days)	(°C)	
<b>Q7-10 Flow</b>												
38.500	550.00	0.00	550.00	.0619	0.00038	1.19	468.21	393.52	0.99	0.031	25.00	7.00
<b>Q1-10 Flow</b>												
38.500	352.00	0.00	352.00	.0619	0.00038	NA	NA	NA	0.77	0.040	25.00	7.00
<b>Q30-10 Flow</b>												
38.500	748.00	0.00	748.00	.0619	0.00038	NA	NA	NA	1.17	0.028	25.00	7.00

### WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	<input checked="" type="checkbox"/>
WLA Method	EMPR	Use Inputted W/D Ratio	<input type="checkbox"/>
Q1-10/Q7-10 Ratio	0.84	Use Inputted Reach Travel Times	<input type="checkbox"/>
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	<input checked="" type="checkbox"/>
D.O. Saturation	90.00%	Use Balanced Technology	<input checked="" type="checkbox"/>
D.O. Goal	6		

**WQM 7.0 Wasteload Allocations**

<u>SWP Basin</u>		<u>Stream Code</u>	<u>Stream Name</u>						
19A	37185	MONONGAHELA RIVER							
<b>NH3-N Acute Allocations</b>									
RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction		
	38.500 Sanitary LF	11.07	9.8	11.07	9.8	0	0		
<b>NH3-N Chronic Allocations</b>									
RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction		
	38.500 Sanitary LF	1.37	4.9	1.37	4.9	0	0		
<b>Dissolved Oxygen Allocations</b>									
RMI	Discharge Name	CBOD5 Baseline (mg/L)	CBOD5 Multiple (mg/L)	NH3-N Baseline (mg/L)	NH3-N Multiple (mg/L)	Dissolved Oxygen Baseline (mg/L)	Dissolved Oxygen Multiple (mg/L)	Critical Reach	Percent Reduction
	38.50 Sanitary LF	37	37	4.9	4.9	3	3	0	0

**WQM 7.0 D.O.Simulation**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>		
19A	37185	MONONGAHELA RIVER		
<u>RMI</u>	<u>Total Discharge Flow (mgd)</u>	<u>Analysis Temperature (°C)</u>	<u>Analysis pH</u>	
38.500	0.040	24.099	7.000	
<u>Reach Width (ft)</u>	<u>Reach Depth (ft)</u>	<u>Reach WDRatio</u>	<u>Reach Velocity (fps)</u>	
468.207	1.190	393.519	0.987	
<u>Reach CBOD5 (mg/L)</u>	<u>Reach Kc (1/days)</u>	<u>Reach NH3-N (mg/L)</u>	<u>Reach Kn (1/days)</u>	
2.00	0.003	0.00	1.028	
<u>Reach DO (mg/L)</u>	<u>Reach Kr (1/days)</u>	<u>Kr Equation</u>	<u>Reach DO Goal (mg/L)</u>	
8.242	1.964	Tsvoglou	6	
<u>Reach Travel Time (days)</u>	<u>Subreach Results</u>			
0.031	<u>TravTime (days)</u>	<u>CBOD5 (mg/L)</u>	<u>NH3-N (mg/L)</u>	<u>D.O. (mg/L)</u>
		0.003	2.00	0.00
		0.006	2.00	0.00
		0.009	2.00	0.00
		0.012	2.00	0.00
		0.015	2.00	0.00
		0.019	2.00	0.00
		0.022	2.00	0.00
		0.025	2.00	0.00
		0.028	2.00	0.00
		0.031	2.00	0.00
				7.54

**WQM 7.0 Effluent Limits**

<u>SWP Basin</u>	<u>Stream Code</u>	<u>Stream Name</u>					
19A	37185	MONONGAHELA RIVER					
RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Eff. Limit 30-day Ave. (mg/L)	Eff. Limit Maximum (mg/L)	Eff. Limit Minimum (mg/L)
38,500	Sanitary LF	PA0285358	0.040	CBOD5	37		
				NH3-N	4.9	9.8	
				Dissolved Oxygen			3