pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0027715**
Facility Type	**Industrial**	APS ID	**686159**
Major / Minor	**Major**	Authorization ID	**781773**

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

Applicant and Facility Information

Applicant Name	**MAX Environmental Technologies, Inc.**	Facility Name	**Yukon Facility**
Applicant Address	Foster Plaza #5, 651 Holiday Drive	Facility Address	233 Max Lane
	Pittsburgh, PA 15220-2740		Yukon, PA 15698-1003
Applicant Contact	Carl Spadaro	Facility Contact	***same as applicant***
Applicant Phone	(412) 343-4900	Facility Phone	***same as applicant***
Client ID	121054	Site ID	245145
SIC Code	4953	Municipality	South Huntingdon Township
SIC Description	Trans. & Utilities - Refuse Systems	County	Westmoreland
Date Application Received	January 30, 2009	EPA Waived?	No
Date Application Accepted	February 13, 2009	If No, Reason	Major Facility
Purpose of Application	Renewal of an NPDES permit for discharges of treated sanitary wastewater; treated landfill leachate and groundwater; and storm water.		

Summary of Review

MAX Environmental Technologies, Inc. ("MAX") submitted an application dated January 29, 2009 and received by the Department on January 30, 2009 to renew NPDES Permit PA0027715 for discharges from MAX's Yukon Facility. The current permit for the Yukon Facility was issued on July 28, 2004 with an August 1, 2004 effective date. That permit expired on July 31, 2009. MAX's renewal application was timely because it was received at least 180 days prior to expiration (i.e., prior to February 1, 2009). Therefore, the permit was administratively extended beyond the expiration date.

EPA's Hazardous Waste Cleanup webpage for the Yukon Facility provides a general summary of the site's history:

> Since approximately 1964, MAX Environmental Technologies Inc. has operated the Yukon Facility for the treatment, storage and disposal of industrial wastes from steel making and other industries in Western Pennsylvania and adjoining areas. These wastes included lime neutralized acids (waste pickle liquor), waste rolling mill oils and sludges containing aluminum, iron, copper, nickel, and zinc as well as additional nonhazardous metallics and salts. A hazardous waste storage and treatment permit [PAD004835146] was renewed on February 14, 2005.
>
> From 1963 until 1974, the Facility operated 3 disposal lagoons to store wastes which were treated with lime neutralization prior to disposal. Located adjacent to each other near the center of the Facility property with a total area of approximately 8.5 acres, these lagoons were closed in the late 1970's with the placement of a 3 to 5-foot compacted cap on top of support material that covered all three impoundments, and drainage ditches and storm water piping to prevent run-on. Despite these closure measures, it was discovered in the mid 1980's that these lagoons were acting as a type of filter bed, keeping the solids in place, while letting the water leak out.
>
> From the mid 1970's through the mid 1980's the Facility operated two additional impoundments. Impoundment No.4 operated as a lined leachate management and overflow containment structure for the Facility. In 1985, this impoundment was clean closed by removing all wastes and placing them in Impoundment No. 5. Impoundment No.5 is a partially lined, 13.5-acre earthen impoundment that handled various industrial wastes. Closure of this impoundment was completed in 2002.

Approve	Deny	Signatures	Date
✓		Ryan C. Decker, P.E. / Environmental Engineer	10/22/19
✓		Michael E. Fifth, P.E. / Environmental Engineer Manager	10/28/19

Summary of Review

Currently, the Facility operates residual waste Impoundment No.6, which is permitted (originally in 1986) to receive liquid and waste disposal until a specified freeboard elevation is reached then solids disposal only, until final elevations are reached. This unit is a double lined structure with complete leachate collection and detection capabilities.

In December 2005, Pennsylvania Department of Environmental Protection (PADEP) approved a plan and executed a consent order and agreement (COA) to "re-close" the three pre-RCRA impoundments by rebuilding their grades with residual waste, then installing a low permeability gas membrane cap on each structure to seal off precipitation infiltration. This work is to be completed in 5 years. In June 2006, MAX submitted an application to renew the Impoundment 6 Residual Waste Permit. In June 2007, DEP renewed this permit for one year pending review of plans to build a new leachate impoundment. (https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-max-environmental-technologies-incorporated-0)

On September 21, 2016, DEP issued a major modification of MAX's Solid Waste Permit No. 301071 to reclassify Impoundment No. 6 as a residual waste landfill. When the Landfill No. 6 structure was approved by DEP for regulation as a landfill rather than an impoundment, MAX retained the dam permit that had been approved for the original structure in 1986. While the landfill no longer functions as an impoundment that holds liquid, the inspections required under the dam program are still being performed by MAX. With the closure of Landfill 6, the embankment of the landfill will lie further outside the definition and characteristics of dam embankments.

NPDES Permit Renewal

The Yukon Facility's renewed NPDES permit will include six outfalls and one internal monitoring point: Outfalls 001, 002, 003, 004, 006, and 007 and Internal Monitoring Point 201. Outfall 001 is the discharge location for all leachate and contact storm water. The facility's primary industrial wastewater sources include leachate and seepage from the closed disposal impoundments and from the active landfill, mine drainage, and contact storm water runoff. These sources are collected and pumped to an onsite physical/chemical treatment facility. Treated effluent is discharged to Sewickley Creek designated for warm water fishes. Outfall 001 is subject to existing effluent limits retained from previous permits and new limits for landfill leachate from 40 CFR Part 445 – Landfills Point Source Category Effluent Limitations Guidelines pursuant to the 2016 reclassification of Impoundment No. 6 as Landfill No. 6.

Outfalls 002 and 003 discharge storm water associated with industrial activities to an unnamed tributary that flows across the site to Sewickley Creek. These outfalls will require semi-annual monitoring to demonstrate the effectiveness of storm water best management practices on an ongoing basis.

Outfall 004 is for storm water discharges from a township storm sewer that discharges onto the site. The permit will not require any monitoring at this outfall because it is a discharge onto the site and not a discharge from the site.

Outfall 005 was listed in the previous permit as the discharge point for emergency overflows from Pond No. 4, which collects wastewaters that are directed to treatment. The outfall will be removed from the permit. MAX will still be able to discharge from Pond No. 4's overflow structure, but all overflows from Pond No. 4 will not be presumptively authorized through a named outfall. Overflows of wastewater from Pond No. 4 will be authorized only to the extent that such overflows qualify as allowable bypasses of the wastewater treatment plant pursuant to 40 CFR § 122.41(m)(4).

Outfall 006 is for discharges from a groundwater drain ("blanket drain") installed as part of the Impoundment No. 6 dam embankments' construction. This outfall is currently sampled pursuant to MAX's solid waste permit and generally receives non-contact storm water infiltration. The NPDES permit will require MAX to report the results collected for the waste permit on the NPDES discharge monitoring reports.

Outfall 007 is the discharge location for the site's sanitary wastewaters as treated by an onsite, small-flow, activated sludge treatment plant. Outfall 007 discharges to Sewickley Creek through the Outfall 001 effluent pipeline (downstream of the sampling location for 001).

Internal Monitoring Point ("IMP") 101 will be removed from the permit at MAX's request and DEP's concurrence. IMP 101 was intended to allow sludge from the industrial wastewater treatment plant to be disposed onsite as non-hazardous residual waste by demonstrating that the influent wastewaters to the treatment plant complied with universal treatment standards for F039 wastes (leachate) from 40 CFR Part 268.

Summary of Review

MAX is entering into a Consent Order and Agreement with DEP that will regulate the management of sludge from the wastewater treatment plant. MAX also submitted a petition to the Environmental Quality Board in May 2018 to delist the facility's treatment plant sludge as an F039 waste. In either case, it is not necessary to impose effluent limits on influent wastewaters to the wastewater treatment plant at IMP 101.

IMP 201 was created for the previous permit to evaluate compliance with effluent limits on wastewaters from a proposed hazardous liquid/slurry treatment system. MAX did not and does not plan to install such a system. Therefore, the "IMP 201" designation will be used for Pump Station No. 7, which is where MAX collects information on the volume of leachate directed to the industrial wastewater treatment plant from Landfill No. 6. This monitoring will allow DEP to better implement 40 CFR Part 445 for future permit renewals.

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)	0.28
Latitude	40° 13' 11.34"	Longitude	-79° 41' 49.73"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Plant area storm water, laboratory wastewater, Impoundment No. 6 blanket drain, Impoundment No. 6 leachate, manhole No. 3 seep, treated waste storage area storm water, north toe tank, east toe tank, south toe tank, township road drains, PW-1, Impoundment No. 5 blanket drain, No. 5 west standpipe, No. 5 bench drain and collection sump.		
Receiving Waters	Sewickley Creek	Stream Code	37556
NHD Com ID	134770156	RMI	10.42
Drainage Area	120	Yield (cfs/mi^2)	0.0245
Q_{7-10} Flow (cfs)	19.29	Q_{7-10} Basis	Calculated (see 001.B)
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Abandoned Mine Drainage		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.3

Changes Since Last Permit Issuance: Reclassification of Impoundment No. 6 as Landfill No. 6

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	Variable
Latitude	40° 12' 58.99"	Longitude	-79° 41' 50.31"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Storm water		
Receiving Waters	Unnamed trib. to Sewickley Creek	Stream Code	37634
NHD Com ID	134770158	RMI	0.22
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations		
Source(s) of Impairment	Flow Regulation/Modification		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.56

Changes Since Last Permit Issuance: None

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	Variable
Latitude	40° 12' 59.03"	Longitude	-79° 41' 50.31"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Storm water		
Receiving Waters	Unnamed trib. to Sewickley Creek	Stream Code	37634
NHD Com ID	134770158	RMI	0.22
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations		
Source(s) of Impairment	Flow Regulation/Modification		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.56

Changes Since Last Permit Issuance: None

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	Variable
Latitude	40° 12' 41.64"	Longitude	-79° 41' 39.25"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Storm water		
Receiving Waters	Unnamed trib. to Sewickley Creek	Stream Code	37634
NHD Com ID	134770161	RMI	0.57
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations		
Source(s) of Impairment	Flow Regulation/Modification		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.91

Changes Since Last Permit Issuance: None

Other Comments:

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005	Design Flow (MGD)	Variable
Latitude	40° 12' 57.34"	Longitude	-79° 41' 50.12"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Emergency overflow		
Receiving Waters	Unnamed trib. to Sewickley Creek	Stream Code	37634
NHD Com ID	134770158	RMI	0.22
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations		
Source(s) of Impairment	Flow Regulation/Modification		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.56

Changes Since Last Permit Issuance: None

Other Comments: This outfall will be eliminated as part of this permit renewal.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	006	Design Flow (MGD)	0.0032 (avg.)
Latitude	40° 12' 44.04"	Longitude	-79° 41' 39.39"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Impoundment No. 6 blanket drain		
Receiving Waters	Unnamed trib. to Sewickley Creek	Stream Code	37634
NHD Com ID	134770161	RMI	0.45
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Flow Alterations		
Source(s) of Impairment	Flow Regulation/Modification		
TMDL Status	Final	Name	Sewickley Creek Watershed

Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

Nearest Downstream Public Water Supply Intake		Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)	
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.79

Changes Since Last Permit Issuance: None

Other Comments:

Discharge, Receiving Waters and Water Supply Information

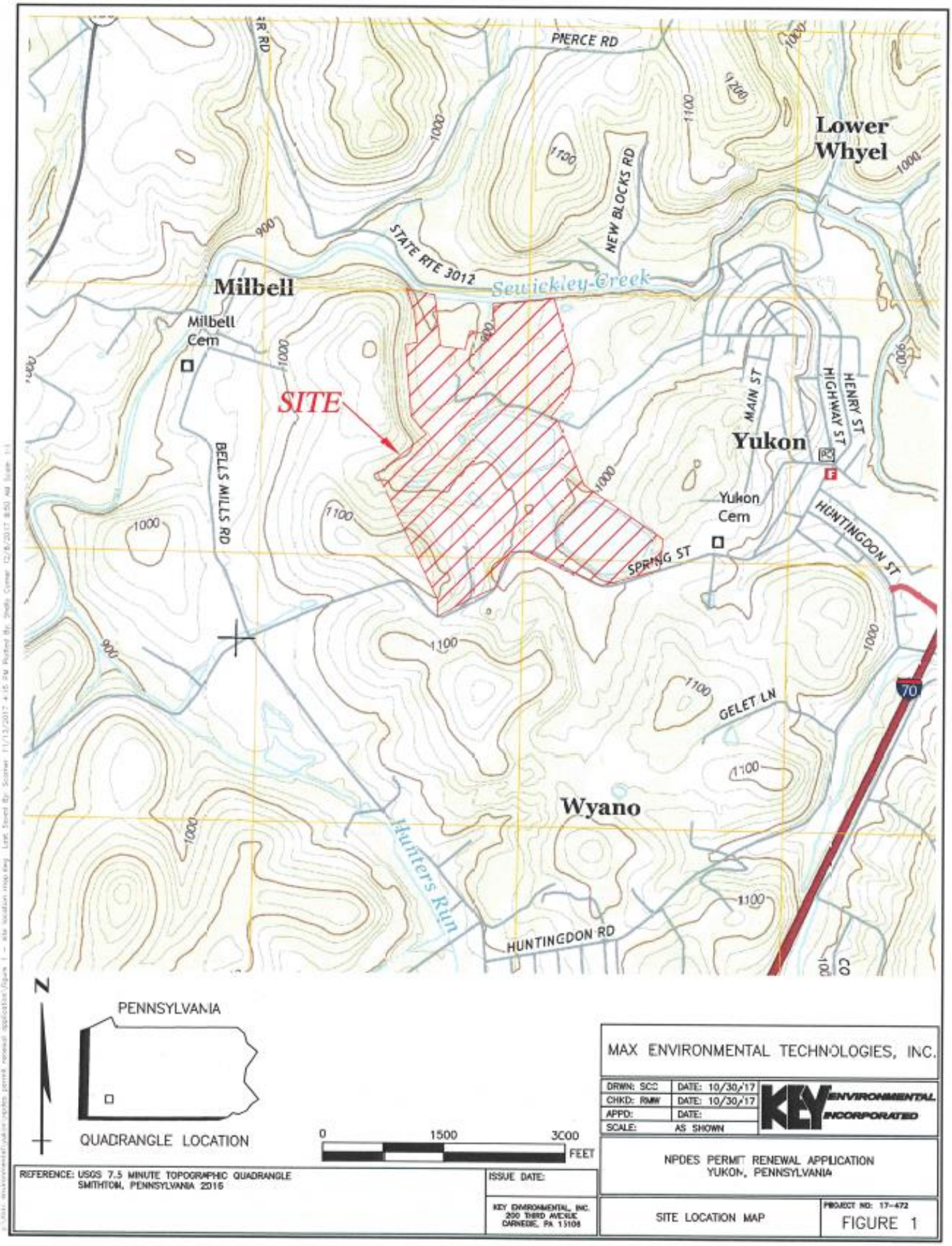
Outfall No.	007	Design Flow (MGD)	0.0015
Latitude	40° 13' 11.34"	Longitude	-79° 41' 49.73"
Quad Name	Smithton	Quad Code	1708
Wastewater Description:	Treated sanitary wastewaters		
Receiving Waters	Sewickley Creek	Stream Code	37556
NHD Com ID	134770156	RMI	10.42
Drainage Area		Yield (cfs/mi^2)	
Q_{7-10} Flow (cfs)		Q_{7-10} Basis	
Elevation (ft)		Slope (ft/ft)	
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, pH		
Source(s) of Impairment	Abandoned Mine Drainage		
TMDL Status	Final	Name	Sewickley Creek Watershed

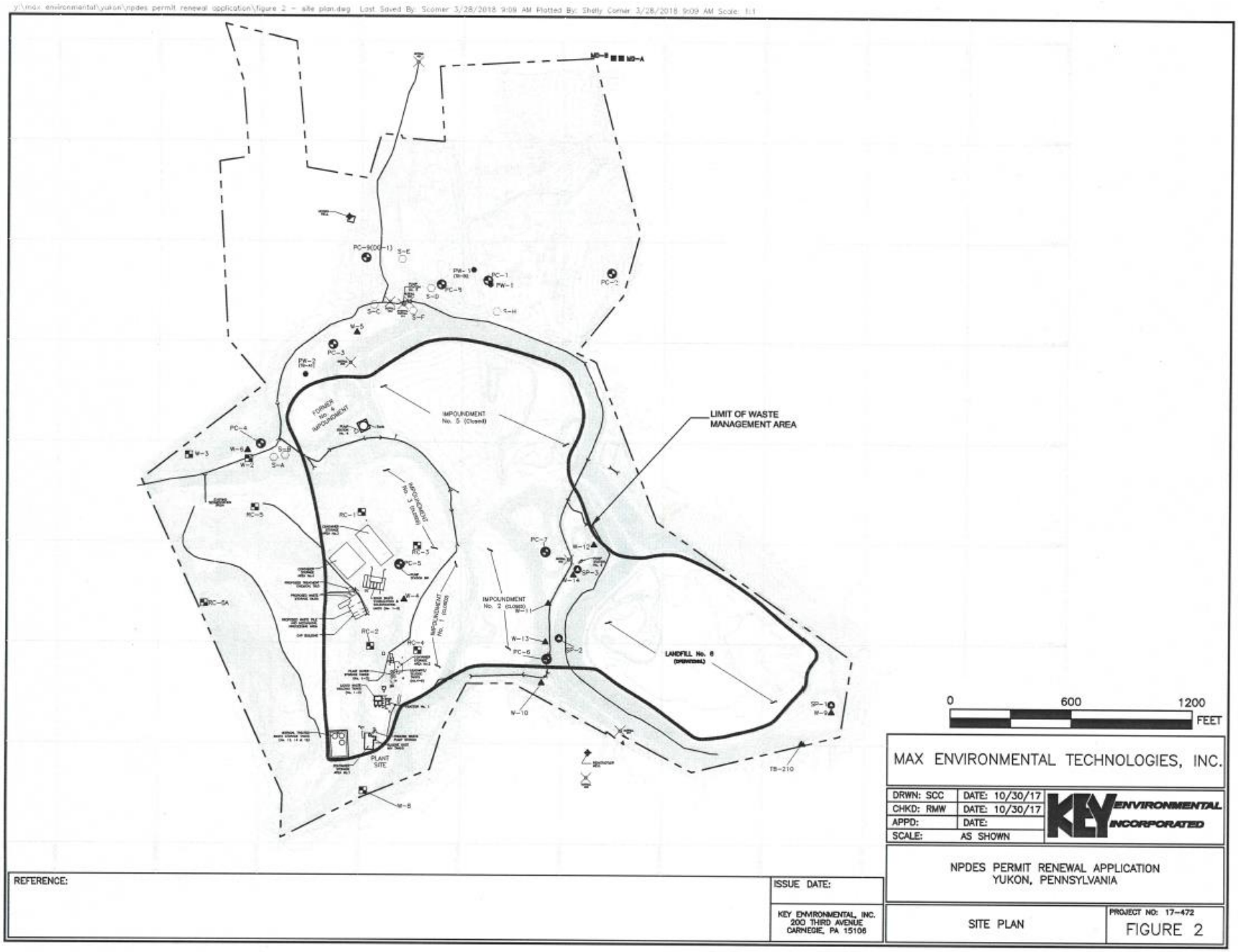
Background/Ambient Data		Data Source
pH (SU)		
Temperature (°F)		
Hardness (mg/L)		
Other:		

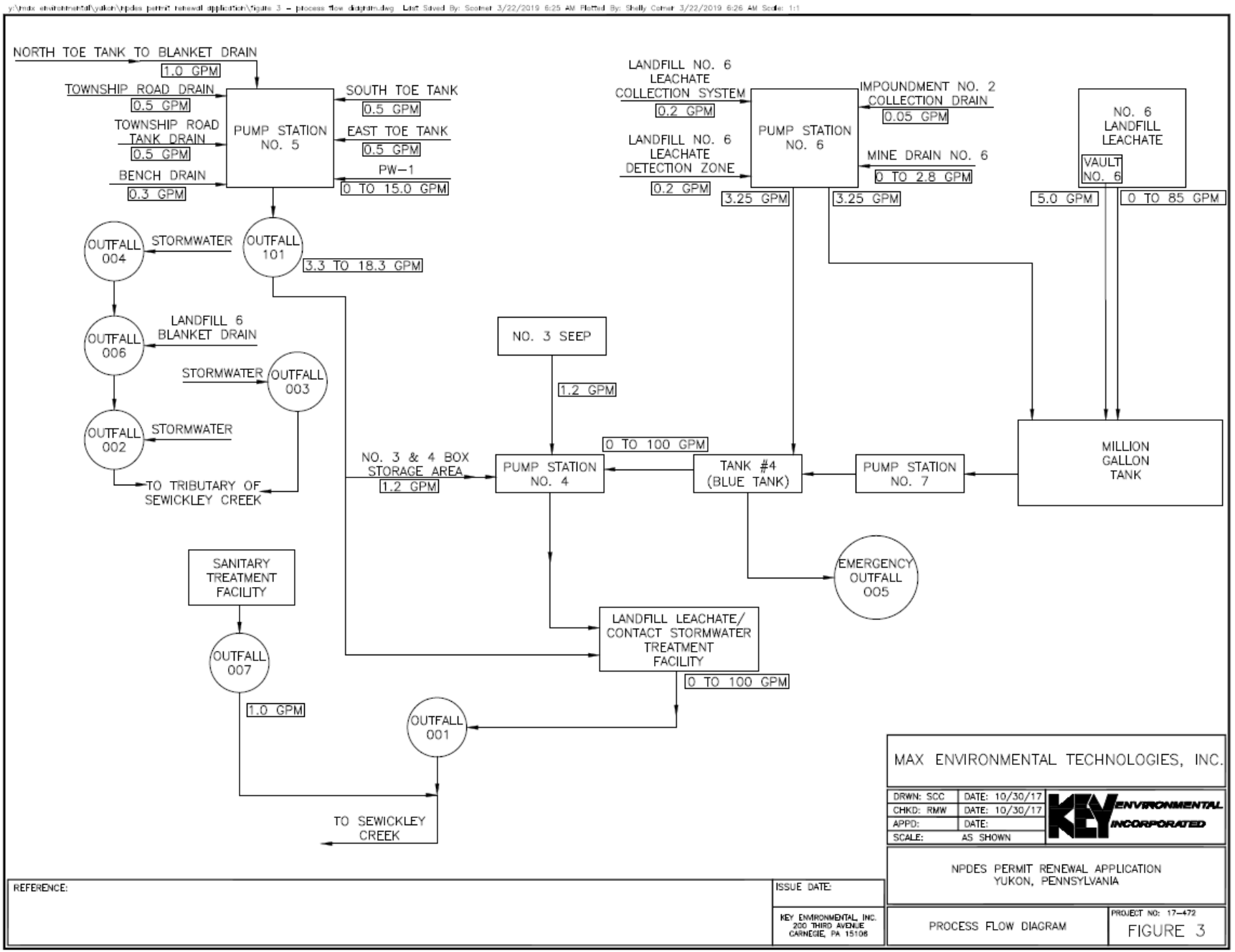
Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority – McKeesport (PWSID 5020025)		
PWS Waters	Youghiogheny River	Flow at Intake (cfs)	510
PWS RMI	1.30	Distance from Outfall (mi)	26.3

Changes Since Last Permit Issuance: None

Other Comments:


PIERCE RD
Lower Whyel
NEW BLOCKS RD
STATE RTE 3012
Sewickley Creek
Milbell
Milbell Cem
SITE
BELLS MILLS RD
MAIN ST
HIGHWAY ST
HENRY ST
Yukon
Yukon Cem
SPRING ST
HUNTINGDON ST
GELET LN
70
Wyano
Hunters Run
HUNTINGDON RD
N
PENNSYLVANIA
QUADRANGLE LOCATION
0 1500 3000 FEET
REFERENCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SMITHTON, PENNSYLVANIA 2016
ISSUE DATE:
KEY ENVIRONMENTAL, INC. 200 THIRD AVENUE CARNEGIE, PA 15106
MAX ENVIRONMENTAL TECHNOLOGIES, INC.
DRWN: SCC DATE: 10/30/17
CHKD: RMW DATE: 10/30/17
APPD: DATE:
SCALE: AS SHOWN
KEY ENVIRONMENTAL INCORPORATED
NPDES PERMIT RENEWAL APPLICATION
YUKON, PENNSYLVANIA
SITE LOCATION MAP
PROJECT NO: 17-472
FIGURE 1


LIMIT OF WASTE MANAGEMENT AREA
IMPOUNDMENT No. 5 (Closed)
IMPOUNDMENT No. 2 (CLOSED)
LANDFILL No. 6 (PERMITTED)
PLANT SITE
0
600
1200
FEET
MAX ENVIRONMENTAL TECHNOLOGIES, INC.
DRWN: SCC
DATE: 10/30/17
CHKD: RMW
DATE: 10/30/17
APPD:
DATE:
SCALE: AS SHOWN
KEY ENVIRONMENTAL INCORPORATED
NPDES PERMIT RENEWAL APPLICATION
YUKON, PENNSYLVANIA
SITE PLAN
PROJECT NO: 17-472
FIGURE 2
REFERENCE:
ISSUE DATE:
KEY ENVIRONMENTAL, INC.
200 THIRD AVENUE
CARNEGIE, PA 15106


NORTH TOE TANK TO BLANKET DRAIN
1.0 GPM
TOWNSHIP ROAD DRAIN
0.5 GPM
TOWNSHIP ROAD TANK DRAIN
0.5 GPM
BENCH DRAIN
0.3 GPM
PUMP STATION NO. 5
SOUTH TOE TANK
0.5 GPM
EAST TOE TANK
0.5 GPM
PW-1
0 TO 15.0 GPM
LANDFILL NO. 6 LEACHATE COLLECTION SYSTEM
0.2 GPM
LANDFILL NO. 6 LEACHATE DETECTION ZONE
0.2 GPM
PUMP STATION NO. 6
3.25 GPM
IMPOUNDMENT NO. 2 COLLECTION DRAIN
0.05 GPM
MINE DRAIN NO. 6
0 TO 2.8 GPM
3.25 GPM
NO. 6 LANDFILL LEACHATE VAULT NO. 6
5.0 GPM
0 TO 85 GPM
OUTFALL 004
STORMWATER
OUTFALL 101
3.3 TO 18.3 GPM
OUTFALL 006
LANDFILL 6 BLANKET DRAIN
STORMWATER
OUTFALL 003
OUTFALL 002
STORMWATER
TO TRIBUTARY OF SEWICKLEY CREEK
NO. 3 SEEP
1.2 GPM
NO. 3 & 4 BOX STORAGE AREA
1.2 GPM
PUMP STATION NO. 4
0 TO 100 GPM
TANK #4 (BLUE TANK)
PUMP STATION NO. 7
MILLION GALLON TANK
EMERGENCY OUTFALL 005
SANITARY TREATMENT FACILITY
OUTFALL 007
1.0 GPM
LANDFILL LEACHATE/ CONTACT STORMWATER TREATMENT FACILITY
0 TO 100 GPM
OUTFALL 001
TO SEWICKLEY CREEK
MAX ENVIRONMENTAL TECHNOLOGIES, INC.
DRWN: SCC DATE: 10/30/17
CHKD: RMW DATE: 10/30/17
APPD: DATE:
SCALE: AS SHOWN
KEY ENVIRONMENTAL INCORPORATED
NPDES PERMIT RENEWAL APPLICATION
YUKON, PENNSYLVANIA
PROCESS FLOW DIAGRAM
PROJECT NO: 17-472
FIGURE 3
REFERENCE:
ISSUE DATE:
KEY ENVIRONMENTAL, INC.
200 THIRD AVENUE
CARNEGIE, PA 15106

Aerial Image of Permitted Facilities

Image Source and Date: Google Earth Pro; 4/17/2016

Treatment Facility Summary		
Treatment Facility: Disposal impoundments		
WQM Permit No.	**Issuance Date**	**Purpose**
6574202	08/13/1974	Permit issued to Mill Service, Inc. for acid pickle liquor treatment facility. Authorized existing facilities with modifications including three existing lagoons and new Lagoon No. 4
6574202 T-1	06/18/2002	Permit transferred from Mill Service, Inc. to MAX Environmental Technologies, Inc.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	None	Disposal impoundments	N/A	N/A

Treatment Facility Summary		
Treatment Facility: Wastewater Treatment Plant (Industrial)		
WQM Permit No.	**Issuance Date**	**Purpose**
6576203	08/04/1976	Permit issued to Mill Service, Inc. for proposed treatment of sludge and lagoon supernatant. For acid pickle liquor treatment facility (neutralization)—permitting of: existing facilities with modifications; previous disposal of treated pickle liquor to unlined impoundments; and to correct violations
6576203 (Revised)	02/18/1977	Permit revised to include Special Conditions for the closure of Lagoons 1, 2, and 3; these revisions were not made as part of a full WQM permit amendment
6576203 A-1	05/05/1989	Permit amendment issued to Mill Service, Inc. for acid feed system (pump and tank) previously installed in 1988; leachate storage tanks; sludge storage tanks; caustic feed system; and pH adjustment tank
6576203 A-2	05/18/1993	Permit amendment issued to Mill Service, Inc. for breakpoint chlorination system (splitter box, chlorinator sump, chlorination tank, pH-controlled lime addition for alkalinity demand); new pH adjustment tank for pump station No. 5 waters; sand filters for TSS; and sludge recycle sump from sedimentation tank to neutralization tank
6576203 T-1	06/18/2002	Permit transferred from Mill Service, Inc. to MAX Environmental Technologies, Inc.

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Industrial	Primary	Ammonia removal (breakpoint chlorination); sodium bisulfite addition for chromium reduction; lime addition for metal hydroxide precipitation; equalization; neutralization; flocculation; clarification; pH adjustment; hydrogen peroxide addition for phenols treatment; water storage	None	

Treatment Facility Summary				
Treatment Facility: Wastewater Treatment Plant (Industrial) – This permit was issued to authorize additional treatment facilities (in addition to those authorized by 6576203) to ensure adequate treatment of other types of waste MAX planned to accept besides acid pickle liquor. Proposed treatment was to include extended aeration biological treatment, but this system was never constructed. Other tanks authorized by this permit may have been constructed, so the systems approved by this WQM permit may only exist in-part.				
WQM Permit No.	**Issuance Date**	**Purpose**		
6578208	03/09/1979	Permit issued to Mill Service, Inc. for three 15,000-gallon raw waste holding tanks; two 20,000-gallon reactor tanks; one 1,000-gallon waste oil holding tank; 0.05 MGD extended aeration biological plant; 450,000 ft^3 chemical sludge disposal basin with impermeable liner and underdrains; approved disposal of neutralized organic acid sludges and aerobically digested sludge from biological plant to the chemical sludge disposal basin.		
6578208 T-1	06/18/2002	Permit transferred from Mill Service, Inc. to MAX Environmental Technologies, Inc.		
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Industrial	Secondary	Extended aeration biological; waste disposal	None	0.05

Treatment Facility Summary				
Treatment Facility Name: Sewage Treatment Plant				
WQM Permit No.	**Issuance Date**	**Purpose**		
6599415	08/15/2000	Permit issued to Mill Service, Inc. for NSF Standard 40 certified 1,500 GPD activated sludge treatment plant consisting of two septic tanks for pre-treatment (1 existing 1,000-gallon tank and 1 new 2,400-gallon tank); cartridge filters with solids return to the septic tanks; a pre-fabricated compartmentalized tank consisting of two aeration chambers in series (425 gallons and 600 gallons) followed by one settling chamber (225 gallons) with solids return to the second aeration tank; and ultraviolet disinfection (1 primary and 1 backup)		
6599415 T-1	06/18/2002	Permit transferred from Mill Service, Inc. to MAX Environmental Technologies, Inc.		
6599415 T-1 A-1	11/06/2003	Permit amendment issued to MAX Environmental Technologies, Inc. to replace the ultraviolet disinfection system with a chlorination/ dechlorination system including one in-line tablet-fed chlorinator; one 75-gallon pre-fabricated chlorine contact tank, and one in-line tablet-fed dechlorinator		
Waste Type	**Degree of Treatment**	**Process Type**	**Disinfection**	**Avg Annual Flow (MGD)**
Sewage	Secondary	Settling and anaerobic biodegradation in septic tanks; cartridge filtration; two-stage aeration; settling; disinfection	Chlorine	0.0015

Compliance History

One-Year of DMR History

DMR Data for Outfall 001 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	0.030	0.05	0.055	0.039	0.034	0.038	0.093	0.059	0.056	0.051	0.57	0.018
Flow (MGD) Daily Maximum	0.0138	0.184	0.210	0.133	0.165	0.112	0.206	0.191	0.119	0.151	0.150	0.083
pH (S.U.) Minimum	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
pH (S.U.) Maximum	8.9	8.9	8.9	8.90	8.90	8.90	8.9	8.90	8.90	8.90	8.9	8.90
TRC (mg/L) Average Monthly	0.03	0.04	0.03	0.02	0.04	0.02	0.02	0.03	0.02	0.06	0.03	0.02
TRC (mg/L) Daily Maximum	0.05	0.05	0.04	0.02	0.04	0.03	0.02	0.03	0.05	0.08	0.04	0.03
TSS (mg/L) Average Monthly	12.9	17.5	22.7	19.60	5.5	8	8.3	6	19.3	12.2	9.8	< 4
TSS (mg/L) Daily Maximum	23.5	25	41.3	32	9	15	16	12	24	22	16	< 4
Osmotic Pressure (mOs/kg) Average Monthly	75.5	136.65	56.55	100.25	238.5	174.5	162.5	130	234	140.5	125	26
Osmotic Pressure (mOs/kg) Daily Maximum	123	192	58.1	137	252	260	173	241	284	201	154	29
Oil and Grease (mg/L) Average Monthly	5.6	12.6	31.3	< 5	8.9	5.3	14	10.7	5.9	< 4.80	< 4.8	8.4
Oil and Grease (mg/L) Instantaneous Maximum	8.9	27.8	114	< 5	17.9	6.7	30	29	9.2	< 4.80	< 4.8	19.2
Ammonia (mg/L) Average Monthly	7.63	9.038	6.61	12.736	7.63	16.45	18.2	14	18.7	12.48	6.575	11.925
Ammonia (mg/L) Daily Maximum	10.62	13.67	15.26	19.55	16.1	28.8	23	23.9	39.7	27.1	18.6	46.2
Total Aluminum (mg/L) Average Monthly	0.125	0.118	0.327	0.25	0.387	0.172	0.52	0.3	0.481	0.109	0.3005	0.095
Total Aluminum (mg/L) Daily Maximum	0.174	0.174	0.381	0.40	0.691	0.324	0.60	0.4	0.666	0.126	0.406	0.14

Total Antimony (mg/L) Average Monthly			0.235			0.527			0.542			0.233
Total Antimony (mg/L) Daily Maximum			0.691			0.60			0.666			0.41
Total Barium (mg/L) Average Monthly	0.028	0.036	0.058	0.0346	0.082	0.069	0.09	0.1	0.092	0.068	0.084	0.022
Total Barium (mg/L) Daily Maximum	0.031	0.058	0.063	0.0480	0.0909	0.069	0.11	0.06	0.0973	0.0694	0.118	0.0233
Total Cadmium (mg/L) Average Monthly	0.00272	0.00191	0.0028	0.0157	< 0.003	0.0183	0.004	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Total Cadmium (mg/L) Daily Maximum	0.00291	0.00212	0.0035	0.0273	< 0.003	0.0335	0.005	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Hexavalent Chromium (mg/L) Average Monthly	< 0.00025	0.0003	< 0.0001	0.0107	0.10	< 0.010	< 0.01	0.01	< 0.010	0.011	< 0.010	< 0.010
Hexavalent Chromium (mg/L) Daily Maximum	< 0.00025	0.0003	< 0.0003	0.02	0.19	< 0.010	< 0.01	0.01	< 0.010	0.011	< 0.010	< 0.010
Total Chromium (mg/L) Average Monthly	0.002	0.021	0.006	0.005	0.008	0.023	0.02	0.01	0.034	0.013	< 0.005	< 0.005
Total Chromium (mg/L) Daily Maximum	0.002	0.040	0.007	0.005	0.009	0.030	0.02	0.02	0.042	0.021	< 0.005	< 0.005
Total Copper (mg/L) Average Monthly	0.028	0.041	0.010	0.01	0.043	0.015	0.01	0.007	0.012	< 0.005	0.009	< 0.005
Total Copper (mg/L) Daily Maximum	0.052	0.077	0.015	0.01	0.077	0.025	0.01	0.009	0.017	< 0.005	0.013	< 0.005
Free Cyanide (mg/L) Average Monthly	0.012	0.015	0.004	0.013	0.02	< 0.01	< 0.01	0.01	< 0.01	< 0.01	0.0145	< 0.00001
Free Cyanide (mg/L) Daily Maximum	0.013	0.019	0.005	0.021	0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.019	< 0.00001
Total Iron (mg/L) Average Monthly	0.687	0.867	2.565	0.4180	0.428	0.303	0.16	0.11	1.774	0.134	0.091	0.141
Total Iron (mg/L) Daily Maximum	0.812	1.18	3.060	0.449	0.640	0.489	0.20	0.15	3.42	0.136	0.105	0.201
Total Lead (mg/L) Average Monthly	< 0.001	0.015	0.087	0.0159	0.044	0.042	0.03	0.01	0.032	0.011	0.011	< 0.005
Total Lead (mg/L) Daily Maximum	< 0.001	0.028	0.098	0.02	0.061	0.0587	0.04	0.012	0.0542	0.0124	0.0123	< 0.005
Total Molybdenum (mg/L) Average Monthly			2.183			4.466			3.628			1.22

Total Molybdenum (mg/L) Daily Maximum			6.530			8.71			5.590			2.76
Total Nickel (mg/L) Average Monthly	0.114	0.125	0.049	0.3035	0.186	0.319	0.23	0.15	0.236	0.135	0.156	< 0.010
Total Nickel (mg/L) Daily Maximum	0.152	0.137	0.052	0.3740	0.289	0.466	0.23	0.28	0.253	0.179	0.229	< 0.010
Total Silver (mg/L) Average Monthly	< 0.002	0.0021	< 0.0014	< 0.00275	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Total Silver (mg/L) Daily Maximum	< 0.003	0.0029	< 0.0014	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003
Total Tin (mg/L) Average Monthly			0.034			< 0.05			< 0.050			0.050
Total Tin (mg/L) Daily Maximum			0.050			< 0.05			< 0.050			0.050
Total Zinc (mg/L) Average Monthly	0.127	0.161	0.026	0.0758	0.193	0.185	0.16	0.05	0.449	0.101	0.153	< 0.010
Total Zinc (mg/L) Daily Maximum	0.225	0.163	0.027	0.08	0.295	0.239	0.27	0.06	1.950	0.144	0.171	< 0.010
Total Phenolics (mg/L) Average Monthly	0.02	0.01	< 0.01	< 0.02	< 0.05	< 0.08	0.1	0.08	0.1	< 0.050	0.05	< 0.05
Total Phenolics (mg/L) Daily Maximum	0.02	0.01	< 0.01	< 0.02	< 0.05	< 0.09	0.1	0.1	0.19	< 0.050	0.06	< 0.05

DMR Data for Outfall 005 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly												0.001552
Flow (MGD) Daily Maximum												0.045
pH (S.U.) Minimum												9.84
pH (S.U.) Maximum												9.84
TSS (mg/L) Average Monthly												9
TSS (mg/L) Instantaneous Maximum												9
Oil and Grease (mg/L) Average Monthly												< 4.8

Oil and Grease (mg/L) Instantaneous Maximum												< 4.8

DMR Data for Outfall 007 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Flow (MGD) Daily Maximum	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
pH (S.U.) Minimum	7.01	7.05	7.03	7.10	6.99	6.91	7.05	6.98	6.98	6.89	6.52	6.48
pH (S.U.) Maximum	7.25	7.21	7.03	7.20	7.08	6.95	7.18	7.05	7.10	7.05	6.89	7.37
TRC (mg/L) Average Monthly	0.085	0.0850	0.02	0.025	0.02	0.015	0.015	0.015	0.0200	0.0150	0.020	0.0200
TRC (mg/L) Instantaneous Maximum	0.090	0.0900	0.02	0.03	0.02	0.020	0.020	0.02	0.0300	0.020	0.030	0.0300
CBOD5 (mg/L) Average Monthly	< 8.70	3.31	20.85	9.7	8.2	10.75	9.8	9	3.65	10.10	4.55	5.70
CBOD5 (mg/L) Instantaneous Maximum	< 14.40	3.61	38.40	16.4	8.8	13.20	15.8	15	3.70	12	4.8	7.80
TSS (mg/L) Average Monthly	5.75	5.50	15	19.15	24.8	11	15	4	4	5.5	< 4	6.0
TSS (mg/L) Instantaneous Maximum	9.50	9	16	19.3	101	13	22	4	4	6	< 4	7.0
Fecal Coliform (CFU/100 ml) Geometric Mean	4	10	3695.67	34.641	43.128	7.746	6.325	1	1	1	1	1.0

DMR Data for Outfall 101 (from September 1, 2018 to August 31, 2019)

Parameter	AUG-19	JUL-19	JUN-19	MAY-19	APR-19	MAR-19	FEB-19	JAN-19	DEC-18	NOV-18	OCT-18	SEP-18
Flow (MGD) Average Monthly	0.0009	0.002	0.0057	0.0043	0.0039	0.0021	0.0438	0.0097	0.013	0.012	0.009	0.0068
Flow (MGD) Daily Maximum	0.014	0.013	0.076	0.025	0.018	0.009	0.2040	0.055	0.037	0.056	0.048	0.063

pH (S.U.) Maximum	6.98	6.88	6.78	7.12	6.98	7.25	7	7.04	7.05	7.21	7.35	6.9
Total Antimony (mg/L) Daily Maximum	0.234	0.0014	0.001	< 0.001	< 0.006	0.0075	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	0.006
Total Arsenic (mg/L) Daily Maximum	0.0691	0.008	< 0.008	< 0.008	< 0.005	0.0276	< 0.005	< 0.005	0.0065	< 0.005	< 0.005	0.005
Total Barium (mg/L) Daily Maximum	0.0258	0.065	< 0.064	0.048	0.0563	0.1140	0.04	0.032	0.0352	0.0409	0.0333	0.0259
Total Beryllium (mg/L) Daily Maximum	< 0.002	0.002	< 0.002	< 0.002	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0058	0.001
Total Cadmium (mg/L) Daily Maximum	< 0.004	0.004	< 0.004	< 0.004	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.003
Total Chromium (mg/L) Daily Maximum	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0098	0.005
Free Cyanide (mg/L) Daily Maximum	< 0.006	0.001	< 0.005	< 0.010	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.010	< 0.01	0.01
Total Cyanide (mg/L) Daily Maximum	< 0.01	0.01	< 0.01	< 0.01	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Fluoride (mg/L) Daily Maximum	< 2	2	< 2	< 2	0.33	0.43	0.32	0.093	0.38	0.36	0.38	0.67
Total Lead (mg/L) Daily Maximum	0.004	0.0548	0.014	0.0038	< 0.005	0.0069	< 0.005	< 0.005	< 0.005	< 0.005	0.0228	0.0067
Total Mercury (mg/L) Daily Maximum	< 0.0002	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.02	< 0.0002	< 0.0002	< 0.002	< 0.0002	0.0002
Total Nickel (mg/L) Daily Maximum	0.0802	0.0531	0.053	0.05	0.0388	0.105	0.02	< 0.07	0.0785	0.047	0.196	0.11
Total Selenium (mg/L) Daily Maximum	0.0921	0.02	< 0.02	< 0.02	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	< 0.008	0.008
Total Silver (mg/L) Daily Maximum	< 0.001	0.0027	< 0.003	< 0.0025	< 0.006	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.003
Total Sulfide (mg/L) Daily Maximum	42.6	1	< 1	< 1	< 0.001	1	< 0.001	< 1	< 1	< 1	< 1	1
Total Thallium (mg/L) Daily Maximum	< 0.02	0.0385	0.025	< 0.02	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Total Vanadium (mg/L) Daily Maximum	< 0.02	0.02	< 0.02	< 0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.005

Compliance History

Effluent Violations for Outfall 001, from: October 1, 2018 To: August 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Oil and Grease	06/30/19	Avg Mo	31.3	mg/L	15	mg/L
Oil and Grease	06/30/19	IMAX	114	mg/L	30	mg/L
Hexavalent Chromium	04/30/19	Avg Mo	0.10	mg/L	0.05	mg/L
Hexavalent Chromium	04/30/19	Daily Max	0.19	mg/L	0.1	mg/L
Total Zinc	12/31/18	Avg Mo	0.449	mg/L	0.35	mg/L
Total Zinc	12/31/18	Daily Max	1.950	mg/L	0.7	mg/L

Other Comments:

Effluent Violations for Outfall 007, from: October 1, 2018 To: August 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
TSS	04/30/19	IMAX	101	mg/L	60	mg/L
Fecal Coliform	06/30/19	Geo Mean	3695.67	CFU/100 ml	200	CFU/100 ml

Other Comments:

Effluent Violations for Outfall 101, from: October 1, 2018 To: August 31, 2019

Parameter	Date	SBC	DMR Value	Units	Limit Value	Units
Total Sulfide	08/31/19	Daily Max	42.6	mg/L	14	mg/L

Other Comments:

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.048
Latitude	40° 13' 10.00"	**Longitude**	-79° 41' 50.00"
Wastewater Description:	Plant area storm water, laboratory wastewater, Impoundment No. 6 blanket drain, Impoundment No. 6 leachate, manhole No. 3 seep, treated waste storage area storm water, north toe tank, east toe tank, south toe tank, township road drains, PW-1, Impoundment No. 5 blanket drain, No. 5 west standpipe, No. 5 bench drain and collection sump.		

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

Wastewaters from MAX's waste disposal and landfilling activities are subject to Federal Effluent Limitations Guidelines ("ELGs"). Below are applicability evaluations for two ELGs that are potentially relevant to MAX's operations including: 1) 40 CFR Part 437 – Centralized Waste Treatment ELGs; and 2) 40 CFR Part 445 – Landfills ELGs. As described below, DEP has determined that discharges from Outfall 001 are only partially subject to one of these ELGs.

001.A.1. Centralized Waste Treatment ("CWT") Point Source Category ELGs

Pursuant to 40 CFR § 437.1(a), the CWT ELGs apply to the following:

(a) Except as provided in paragraphs (b), (c), or (d) of this section, this part applies to that portion of wastewater discharges from a centralized waste treatment (CWT) facility that results from any of the following activities:

(1) Treatment and recovery of hazardous or non-hazardous industrial metal-bearing wastes, oily wastes and organic-bearing wastes received from off-site; and

(2) The treatment of CWT wastewater.

A *CWT facility* is defined in 40 CFR § 437.2(c) as: "any facility that treats (for disposal, recycling or recovery of material) any hazardous or non-hazardous industrial wastes, hazardous or non-hazardous industrial wastewater, and/or used material received from off-site. "CWT facility" includes both a facility that treats waste received exclusively from off-site and a facility that treats wastes generated on-site as well as waste received from off-site."

Centralized waste treatment wastewater is defined in 40 CFR § 437.2(d) as: "any wastewater generated as a result of CWT activities. CWT wastewater sources may include, but are not limited to: liquid waste receipts, solubilization water, used oil emulsion-breaking wastewater, tanker truck/drum/roll-off box washes, equipment washes, air pollution control scrubber blow-down, laboratory-derived wastewater, on-site landfill wastewaters, and contaminated storm water."

The Yukon Facility is a CWT facility based on the § 437.2(c) definition and manages CWT wastewater as defined in § 437.2(d). The Yukon Facility accepts or is able to accept a variety of wastes generated offsite including oil and gas drilling wastes; hazardous soils, slags, and bricks; waste acids; air pollution control dusts and fly ash; lead abatement/sandblast residues; wastewater treatment sludges; electric arc furnace dust; waste acid/pickle liquor; impacted soils from cleanup, brownfield, and drilling sites; slag and refractory wastes; various solid wastes with characteristic toxicity; and dewatered dredging wastes. However, even though the Yukon Facility accepts those types of wastes, solid and liquid wastes received from offsite are treated, stabilized, and/or solidified and disposed onsite with no direct discharge from those operations; discharges from those wastes are indirect, post-disposal. The only wastewaters that are processed through the wastewater treatment plant and discharged to waters of the Commonwealth are leachate and seeps from the Yukon Facility's old disposal impoundments and Landfill No. 6; recovered groundwater; and storm water; these wastewaters are generated exclusively onsite. 40 CFR § 445.1(g) pertaining to landfills clarifies Part 437's applicability:

> This part [Part 445] does not apply to landfills operated in conjunction with Centralized Waste Treatment (CWT) facilities subject to 40 CFR part 437 so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for discharge. A landfill directly associated with a CWT facility is subject to this part if the CWT facility discharges landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills.

The Development Document for the CWT ELGs (p. 3-16) also clarifies:

> Additionally, under the approach established in the Landfills rulemaking, CWT facilities which are dedicated to landfill wastewater only, whether they are located at a landfill site or not, are subject to the effluent limitations for Landfills. These dedicated landfill CWT facilities are not subject to provisions of the CWT rulemaking.

Since Part 437 applies to landfills operated in conjunction with facilities that commingle landfill wastewater with other offsite, non-landfill wastewater for discharge and the Yukon Facility does not commingle landfill wastewater with offsite, non-landfill wastewaters (even though it accepts non-landfill wastewaters from offsite), Part 437 does not apply to the Yukon Facility. Part 445 does apply, at least partially (see Section 001.A.2 below).

001.A.1.a. Proposed Hazardous Liquid/Slurry Treatment System

In the application for the NPDES permit issued in 2004, MAX proposed to construct a Hazardous Liquid/Slurry Treatment System that would have treated wastewaters generated offsite and discharged the effluent to the treatment system for Outfall 001. Due to the treatment of both onsite and offsite wastewaters (including non-landfill wastewaters), effluent from both the existing and proposed treatment systems would have been subject to Part 437. The 2004 NPDES permit imposed effluent limits based on Part 437 at a new internal monitoring point (IMP 201) downstream of the proposed treatment system and upstream of the existing treatment system. However, the Hazardous Liquid/Slurry Treatment System was never constructed, and MAX does not intend to construct such a system. Therefore, IMP 201 and its effluent limits based on Part 437 will be removed from the permit. TBELs based on Part 437 also should have applied at Outfall 001 due to the treatment of both onsite and offsite wastewaters, but such limits were not imposed in the 2004 NPDES permit and in most cases the Part 437 TBELs are less stringent than the existing limits at Outfall 001, so no backsliding at Outfall 001 is necessary for this permit renewal to account for the abandonment of plans for a new treatment system.

001.A.2. Landfill Point Source Category ELGs

Pursuant to 40 CFR § 445.1(a), the Landfill ELGs apply to discharges of wastewater from landfill units. A *landfill unit* is defined in § 445.2(e) as "an area of land or an excavation in which wastes are placed for permanent disposal, that is not a land application or land treatment unit, surface impoundment, underground injection well, waste pile, salt dome formation, a salt bed formation, an underground mine or a cave as these terms are defined in 40 CFR 257.2, 258.2 and 264.10."

As stated previously, MAX disposed of waste in numerous impoundments. Surface impoundments are not classified as "landfill units" under the § 445.2(e) definition. However, Impoundment No. 6 was reclassified by DEP's Waste Management Program as a RCRA Subtitle D Non-Hazardous Waste Landfill (Landfill No. 6) in September 2016, which allowed for an increase in the vertical waste disposal volume. The reclassification of Impoundment No. 6 as a RCRA Subtitle D landfill makes Landfill No. 6 a "landfill unit" as defined in § 445.2(e), which in turn subjects discharges of wastewater from Landfill No. 6 (i.e., "landfill wastewater" as defined in § 445.2(f), including leachate and contaminated storm water) to 40 CFR Part 445, Subpart B – RCRA Subtitle D Non-Hazardous Waste Landfill. Note that even though the Yukon Facility can accept hazardous wastes, those wastes are treated or otherwise processed to remove the hazardous waste characteristics and are disposed onsite as residual waste, so Landfill No. 6 is non-hazardous.

It is important to note that only wastewaters from Landfill No. 6 are subject to 40 CFR Part 445. Recovered groundwater and seepage from the old impoundments are not subject to ELGs because those wastewaters are specifically excluded from the definition of "landfill wastewater" and the disposal impoundments are not "landfill units". Wastewaters from the impoundments are subject to effluent limits developed based on DEP's Best Professional Judgement ("BPJ") pursuant to Sections 304(b)(2)(B), 304(b)(4)(B), and 402(a)(1) of the Clean Water Act and 40 CFR § 125.3(d) of the federal regulations. Note that BPJ limits may be set equal to the ELG limits if DEP determines that is appropriate.

MAX is planning to build a new disposal unit at the Yukon Facility, which would be permitted as a residual waste landfill. If a new landfill is constructed and placed in service, then leachate generated by that facility will be subject to Part 445.

001.A.2.a. Landfill ELGs – BPT, BCT, and BAT Effluent Limitations and NSPS

Effluent limitations based on the application of the best practicable control technology currently available (BPT) are given by 40 CFR § 445.21 as follows:

> Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations which represent the application of BPT:

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
BOD	140	37
TSS	88	27
Ammonia (as N)	10	4.9
α-Terpineol	0.033	0.016
Benzoic acid	0.12	0.071

Regulated parameter	Maximum daily[1]	Maximum monthly avg.[1]
p-Cresol	0.025	0.014
Phenol	0.026	0.015
Zinc	0.20	0.11
pH	([2])	([2])

[1] Milligrams per liter (mg/L, ppm)
[2] Within the range of 6 to 9.

Effluent limitations based on the application of the best conventional pollutant control technology (BCT) are given by 40 CFR § 445.22 as follows:

> Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations which represent the application of BCT: Limitations for BOD5, TSS and pH are the same as the corresponding limitations specified in §445.21.

Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT) are given by 40 CFR § 445.23 as follows:

> Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subpart must achieve the following effluent limitations which represent the application of BAT: Limitations for ammonia (as N), a-terpineol, benzoic acid, p-cresol, phenol and zinc are the same as the corresponding limitations specified in §445.21.

New Source Performance Standards (NSPS) are given by 40 CFR § 445.24 as follows:

> Any new source subject to this subpart must achieve the following performance standards: Standards are the same as those specified in §445.21.

DEP met with MAX on November 14, 2018 to review the applicability of 40 CFR Parts 437 and 445 to the Yukon Facility and MAX subsequently updated the permit application to indicate that Part 445 applies to Landfill No. 6. MAX also requested the following as part of that application update:

- Pursuant to 40 CFR § 445.21, alternative effluent limitations taking into consideration the site-specific water quality characteristics of the discharge and the receiving stream. Section 445.21 provides an exception from effluent limits as provided in 40 CFR §§ 125.30 through 125.32.

- Maintenance of existing limits and parameters with the omission of ELG limits for BOD, α-terpineol, benzoic acid, and p-cresol and alternative limits for ammonia, phenols, and zinc based on the average of MAX's reported effluent concentrations.

MAX's requests are addressed in the following sections.

001.A.2.b. <u>40 CFR §§ 125.30 through 125.32 – Exception from Effluent Limitation Guidelines</u>

40 CFR Part 125, Subpart D §§ 125.30 - 125.32 relate to the "Criteria and Standards for Determining Fundamentally Different Factors Under Sections 301(b)(1)(A), 301(b)(2) (A) and (E) of the Act." These regulations provide a variance from ELGs on the basis that a discharger's facilities, equipment, processes or other factors related to the discharger are fundamentally different from the factors considered by EPA in development of the ELGs. Pursuant to § 125.30, "[a]ny interested person believing that factors relating to a discharger's facilities, equipment, processes or other facilities related to the discharger are fundamentally different from the factors considered during development of the national limits may request a fundamentally different factors variance under § 122.21(m)(1). In addition, such a variance may be proposed by the Director in the draft permit."

Among other things, § 122.21(m)(1) states that:

(1) Fundamentally different factors.

> (i) A request for a variance based on the presence of "fundamentally different factors" from those on which the effluent limitations guideline was based shall be filed as follows:
>
> (A) For a request from best practicable control technology currently available (BPT), by the close of the public comment period under §124.10.

(B) For a request from best available technology economically achievable (BAT) and/or best conventional pollutant control technology (BCT), by no later than:

(1) July 3, 1989, for a request based on an effluent limitation guideline promulgated before February 4, 1987, to the extent July 3, 1989 is not later than that provided under previously promulgated regulations; or

(*2*) 180 days after the date on which an effluent limitation guideline is published in the Federal Register for a request based on an effluent limitation guideline promulgated on or after February 4, 1987.

(ii) The request shall explain how the requirements of the applicable regulatory and/or statutory criteria have been met.

Pursuant to § 122.21(m)(1)(i)(B)(*2*), the deadline for a request for an FDF variance from the Landfill ELGs' BAT and BCT effluent limits expired on July 17, 2000. The Landfill ELGs were promulgated (published in the *Federal Register*) on January 19, 2000 (i.e., after February 4, 1987) and took effect on February 18, 2000.

MAX is technically eligible for a request for an FDF variance from BPT effluent limits pursuant to 40 CFR § 122.21(m)(1)(i)(A). The deadline for a request for an FDF variance from BPT limits is the end of the comment period under 40 CFR § 124.10 (relating to public notice of permit actions and public comment period). Pursuant to § 124.10, the deadline for a request for an FDF variance from BPT limits would be 30 days after publication of a draft permit. At the time of this writing, DEP has not published a draft permit for the Yukon Facility with the Landfill ELGs' BPT limits included. That said, MAX's request for alternative effluent limits (or no limits in the case of BOD, α-terpineol, benzoic acid, p-cresol) is rendered moot by MAX's ineligibility for an FDF variance from BAT and BCT effluent limits.

As stated in §§ 445.22 and 445.23, effluent limits for BOD, TSS, pH, ammonia (as N), α-terpineol, benzoic acid, p-cresol, phenol, and zinc are the same as the corresponding BPT limits. NSPS under § 445.24 are also the same as BPT limits. Consequently, even if MAX is eligible for relief from BPT limits, MAX is subject to the same limits under the BAT and BCT levels of control and, if applicable, NSPS (see discussion in Section 001.A.2.d. below).

DEP further notes that MAX's request fails to satisfy the criteria for approval of an FDF variance under § 125.31(b). MAX's application update discusses how existing limits do not violate water quality criteria, but the FDF variance is based on how facilities, equipment, processes and other factors at a site differ from those considered by EPA when developing ELGs. EPA does not consider compliance with water quality criteria as part of ELG development.

001.A.2.c. Maintenance of Existing Limits and Proposed Alternative Limits for Ammonia, Phenols, and Zinc

40 CFR § 122.44(l) requires that 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. Therefore, existing limits will be maintained to the extent that they are not superseded by more stringent TBELs from the Landfill ELGs. As stated in 40 CFR § 122.44(l)(2)(i)(B)(*1*), revised regulations are not an allowable basis for backsliding from existing limits, so the promulgation of ELGs that have less stringent limits than those already in a permit does not mean that the ELG limits supersede the existing permit limits. The most stringent limits among TBELs (either ELG-based or BPJ-based), WQBELs, and effluent standards are imposed in a permit (see 25 Pa. Code § 92a.12).

For example, the current permit limits ammonia-nitrogen at 45 mg/L average monthly and 90 mg/L maximum daily. Part 445 limits ammonia-nitrogen to 4.9 mg/L average monthly and 10 mg/L maximum daily. The portion of Outfall 001's effluent that comes from Landfill No. 6 is subject to the more stringent ammonia-nitrogen limits from Part 445 and the balance of the discharge flow from the disposal impoundments and other sources is subject to the existing BPJ limits for ammonia-nitrogen.

DEP's authority to waive monitoring requirements for ELG pollutants is limited by 40 CFR § 122.44(a)(2) regarding "monitoring waivers for certain guideline-listed pollutants". Generally, ELG-limited pollutants known to be present in a discharge are not eligible for monitoring waivers. ELG-limited pollutants that are not present in a discharge may be eligible for monitoring waivers, but MAX must request the waiver with every permit renewal and must demonstrate through sampling and other technical information that a pollutant is not present in the discharge. MAX does not have any data for α-terpineol, benzoic acid, and p-cresol at Outfall 001, so there is no basis for DEP to conclude that those pollutants are not present and that monitoring for those pollutants should be waived. Additionally, this is the first issuance of a permit to MAX that implements applicable ELGs in 40 CFR Part 445, so DEP is not amenable to granting the waiver during this permit term pursuant to § 122.44(a)(2)(ii). One permit term worth of data would provide a sufficiently robust dataset from which to draw conclusions about the presence of ELG-limited pollutants and whether a monitoring waiver is appropriate.

Similarly, DEP does not have the authority to set less stringent effluent limits for ELG-parameters contained in ELG-regulated wastewaters outside of certain variances and the § 122.44(a)(2)(ii) monitoring waiver. Site-specific BPJ TBELs can be more stringent, but not less stringent than ELG limits. DEP developed BPJ TBELs for MAX's wastewaters, which are the limits currently imposed at Outfall 001, but a portion of those wastewaters are now subject to the Landfill ELGs.

001.A.2.d. Applicability of 40 CFR § 445.24 – New Source Performance Standards

A "new source" is defined in 40 CFR § 122.2 as any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced after promulgation of standards of performance under section 306 of CWA which are applicable to such source. 40 CFR § 122.29(b) clarifies the criteria for a new source determination:

(b) *Criteria for new source determination*.

(1) Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets the definition of "new source" in §122.2, and

(i) It is constructed at a site at which no other source is located; or

(ii) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

(2) A source meeting the requirements of paragraphs (b)(1) (i), (ii), or (iii) of this section is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger. See §122.2.

(3) Construction on a site at which an existing source is located results in a modification subject to §122.62 rather than a new source (or a new discharger) if the construction does not create a new building, structure, facility, or installation meeting the criteria of paragraph (b)(1) (ii) or (iii) of this section but otherwise alters, replaces, or adds to existing process or production equipment.

Waste disposal in the double-lined Impoundment No. 6 began in January 1988 before the Landfill ELGs were promulgated. Before 1999, Impoundment No. 6 generally received liquid wastes. Sometime in 1999, MAX was allowed by DEP's Waste Management Program to surcharge the impoundment with solids that would compress and settle to a 3% slope from 15% deposited slope. In September 2016, Impoundment No. 6 was reclassified as a RCRA Subtitle D Non-Hazardous Waste Landfill, which increased the allowable disposal elevations (previously limited to a level that maintained two feet of freeboard in the impoundment after settling).

Based solely on the timing of the reclassification, Landfill No. 6 meets the definition of a "new source" in 40 CFR § 122.2 because Landfill No. 6 began "construction" as a landfill unit in 2016 after the promulgation of NSPS for RCRA Subtitle D landfills (40 CFR § 445.24). However, Landfill No. 6 fails the criteria for a new source determination at 40 CFR § 122.29(b). Landfill No. 6 was constructed on Impoundment No. 6 (an existing source already present at that site) with Impoundment No. 6 acting as the foundation for the landfill; Landfill No. 6 supplements but does not totally replace the existing processes (i.e., waste disposal) that cause the discharge of pollutants; and Landfill No. 6 is not substantially independent of Impoundment No. 6—the existing source at the same site. Therefore, Landfill No. 6 is not a new source and the landfill wastewaters from Landfill No. 6 are not subject to 40 CFR § 445.24.

As stated previously, Landfill No. 6's wastewaters are subject to BCT and BAT limits from 40 CFR §§ 445.22 and 445.23. NSPS are equivalent to the combined limits for BCT and BAT, so the fact that Landfill No. 6 is not a new source and isn't subject to NSPS is immaterial.

001.A.3. TBEL Development

The following table summarizes the existing limits at Outfall 001 and where those limits originated in the NPDES permitting history for the Yukon Facility.

Table 1. Current Outfall 001 Effluent Limits

Parameter	Average Monthly Limit (mg/L)	Maximum Daily Limit (mg/L)	Source(s)
Total Suspended Solids	30	60	1
Oil and Grease	15	30 (IMAX)	2
Ammonia-Nitrogen	45	90	1 (MDL); 5 (AML)
Total Residual Chlorine	0.5	1.0	8
Aluminum	1.0	2.0	3
Barium	4.0	8.0	3
Cadmium	0.025	0.05	1
Chromium	0.5	1.0	1
Chromium, Hexavalent	0.05	0.1	1
Copper	0.1	0.2	7
Cyanide, Free	0.1	0.2	1 (as Total CN; as Free CN in 1984)
Iron	3.5	7.0	1 (MDL); 6 (AML)
Lead	0.12	0.24	5
Nickel	1.0	2.0	1
Silver	0.005	0.01	5
Zinc	0.35	0.7	4
Phenols	0.1	0.2	1 (MDL)
Osmotic Pressure	1000	2000	7
Tin	Report	Report	9
Molybdenum	Report	Report	9
Antimony	Report	Report	9
pH	6.0 (Minimum)	9.0 (Maximum)	1 (Min); 2 (Max)

AML = Average Monthly Limit; MDL = Maximum Daily Limit

Sources:

1. BPJ TBELs based on estimated/expected effluent concentrations reported on 1) Mill Service's May 13, 1976 NPDES permit application sent to U.S. EPA; and 2) Mill Service's May 24, 1976 Water Quality Management permit application sent to the Pennsylvania Department of Environmental Resources. Some limits also correspond to Achievable Effluent Concentrations from the Iron and Steel and Electroplating Guidelines' Development Documents (in the 1970s, Mill Service's Yukon Facility was largely acting as a captive treatment and disposal site for spent pickle liquor from steel plants in the Pittsburgh area).

   NPDES Permit PA0027715 was issued by U.S. EPA on August 3, 1976 pursuant to the Clean Water Act and corresponding Water Quality Management Permit 6576203 (with effluent limits in Special Condition A) was issued by the Pennsylvania Department of Environmental Resources ("DER") on August 4, 1976 pursuant to the Pennsylvania Clean Streams Law. The 1976 NPDES permit for the Yukon Facility pre-dated EPA's delegation of the NPDES program to Pennsylvania which is why both a federal NPDES permit and state WQM were issued. DER's letter certifying and commenting on EPA's NPDES permit required the imposition of these limits, which also were imposed by WQM Permit 6576203, Special Condition A.

2. TBELs/effluent standards from 25 Pa. Code Chapter 97. TBELs were imposed in the May 9, 1984 NPDES permit. Chapter 97 was reserved on November 17, 2000; these limits are currently promulgated in 25 Pa. Code § 95.2.

3. BPJ TBELs imposed in the 1984 NPDES permit; limit magnitude requested by Mill Service and accepted by DER.

4. Water quality-based effluent limits imposed in the 1984 NPDES permit. Subsequently retained as TBELs.

5. BPJ TBELs imposed in the 1989 NPDES Permit. Determined to be achievable based on 95th/99th percentile analysis of effluent data distribution.

6. Water quality-based effluent limits imposed in the 1989 NPDES Permit. Subsequently retained as TBELs.

7. BPJ TBELs imposed in the May 18, 1993 NPDES Permit pursuant to a June 3, 1990 Consent Order and Adjudication resolving Mill Service's appeal of new effluent limits for ammonia-nitrogen, osmotic pressure, aluminum, copper, lead, and silver in the Yukon Facility's September 26, 1989 NPDES Permit. Limits set at values between the 95th/99th percentile of effluent data distribution and expected effluent quality reported on Mill Service's WQM permit application (6576203-A2).

8. TBELs/effluent standards from 25 Pa. Code Chapter 97 of the Department's regulations imposed in the February 17, 1999 NPDES Permit. Chapter 97 was reserved on November 17, 2000; these limits are currently promulgated in 25 Pa. Code § 92a.48.

9. Monitoring and reporting required by 1989 NPDES Permit due to elevated effluent concentrations.

As explained in the preceding sections, only leachate from Landfill No. 6 is subject to the Landfill ELGs. However, MAX combines both its ELG-regulated and non-ELG regulated wastewaters for treatment. In this circumstance, EPA advises the use of the "building block" approach to TBELs. This approach is described in Section 5.2.2.6 (pp. 5-35 to 5-37) of U.S. EPA's NPDES Permit Writers' Manual (2010), which states that in cases where there is a mixture of different concentration-based requirements (e.g., ELG-based and BPJ-based limits), TBELs are established using flow-weighted concentration limits.

The only parameters with overlapping ELG-based and BPJ-based TBELs are TSS, ammonia-nitrogen, zinc, and pH. Except for pH, TBELs for those pollutants will be developed using the building block approach. The ELGs also limit phenol, which is one compound of the range of phenolic compounds limited by the "phenols" parameter in MAX's current permit. ELG limits for phenol and BPJ limits for phenols are discussed below.

The Landfill ELGs do not limit most of the parameters listed at Outfall 001 in MAX's current permit and EPA did not develop achievable effluent concentrations for parameters that were not selected for regulation. Therefore, TBELs for the following parameters will be maintained at their current levels for the entire waste stream discharged at Outfall 001: aluminum, silver, barium, cadmium, total chromium, hexavalent chromium, copper, free cyanide, iron, lead, nickel, osmotic pressure.

001.A.3.a. Total Suspended Solids, Ammonia-Nitrogen, and Zinc

MAX does not have data on the leachate flow rate from Landfill No. 6; however, MAX did estimate the percentage of Outfall 001's flow attributable to Landfill No. 6 using totalizer data collected monthly from Pump Station No. 7, which pumps water from a leachate storage tank to the leachate treatment plant. MAX's calculations are included in Attachment F of this Fact Sheet. MAX estimated the percent of Landfill No. 6's ELG-regulated flow to be 65.04%; the percentage of non-ELG-regulated wastewaters would be 34.96%. Effluent limits for TSS, ammonia-nitrogen, and zinc are calculated below using the percent-volumes of ELG and non-ELG wastewaters.

Effluent Limit = (0.6504 × ELG Limit) + (0.3496 × BPJ Limit)

TSS

Average Monthly Limit = (0.6504 × 27.0 mg/L) + (0.3496 × 30.0 mg/L) = 28.0 mg/L
Maximum Daily Limit = 60 mg/L

Ammonia-Nitrogen

Average Monthly Limit = (0.6504 × 4.9 mg/L) + (0.3496 × 45.0 mg/L) = 18.9 mg/L
Maximum Daily Limit = (0.6504 × 10.0 mg/L) + (0.3496 × 90.0 mg/L) = 37.9 mg/L

Zinc

Average Monthly Limit = (0.6504 × 0.11 mg/L) + (0.3496 × 0.35 mg/L) = 0.19 mg/L
Maximum Daily Limit = (0.6504 × 0.20 mg/L) + (0.3496 × 0.70 mg/L) = 0.37 mg/L

The maximum daily TSS limit will remain as 60 mg/L. Landfill No. 6's wastewaters are already subject to the 60 mg/L limit, which is more stringent than the 88 mg/L maximum daily limit from the Landfill ELGs. As explained in Section 001.A.2.c of this Fact Sheet, the promulgation of ELGs that have less stringent limits than the TBELs already in a permit is not an allowable basis for backsliding from the existing TBELs.

001.A.3.b. Phenol and Phenols

The current permit limits phenols (i.e., total phenols) to 0.1 mg/L average monthly and 0.2 mg/L maximum daily. The ELG limits phenol (one of many phenolic compounds making up total phenols) to 0.015 mg/L average monthly and 0.026 mg/L maximum daily. The ELGs' limits for phenol are more stringent than the current permit's limits for total phenols, so the ELG does not conflict with the existing total phenols limits on the whole waste stream at Outfall 001. The ELGs' phenol limits apply to Landfill No. 6's wastewaters, but there are currently no BPJ TBELs for phenol that could be used to calculate flow or volume-weighted concentration limits for the whole discharge. Analytical data from the permit application indicate that phenol is not detected at Outfall 001 and no phenolic compounds are detected at IMP 101. Some other phenols are present at Outfall 001 including 2-nitrophenol and 4-nitrophenol.

IMP 101's wastewaters do not make up all of the non-ELG-regulated wastewaters at Outfall 001 and data for phenol at IMP 101 are limited to analytical results from only two samples, but to the extent that IMP 101's wastewaters are at least partially representative of the non-ELG-regulated wastewaters at Outfall 001, phenol is not a pollutant of concern. That is, DEP would not develop BPJ TBELs for phenol for the non-ELG-regulated component of Outfall 001's discharge based on the limited information currently available. Nevertheless, limits for phenol must be imposed to implement the ELG. Therefore, the phenol limits from § 445.23 will be imposed on the whole wastewater stream at Outfall 001 (i.e., no flow-weighting). DEP is effectively adopting BAT for ELG-regulated wastewaters as BAT for non-ELG-regulated wastewaters pursuant to DEP's best professional judgement. Since phenol does not appear to be present in MAX's non-ELG-regulated wastewaters, MAX should be able to comply with the ELG's phenol limits at Outfall 001.

001.A.3.c. Alpha-Terpineol, Benzoic Acid, and p-Cresol

MAX has no data on α-terpineol, benzoic acid, or p-cresol, so it is unknown whether those pollutants are present in the non-ELG-regulated waste streams and whether, if present, they are present in treatable concentrations; no data are available for those pollutants in MAX's ELG-regulated wastewaters either. As with phenol, there are no limits on these parameters in MAX's current permit. In the absence of data, DEP will conservatively assume that these pollutants are present in the unregulated waste streams and will consequently adopt BAT for ELG-regulated wastewaters as BAT for non-ELG-regulated wastewaters pursuant to DEP's best professional judgement. As a result, the ELG limits for those parameters from § 445.23 will be imposed on the whole wastewater stream at Outfall 001.

If α-terpineol, benzoic acid, or p-cresol are present in recovered groundwater that is impacted by MAX's old disposal impoundments, then DEP expects that the concentrations of those pollutants will be less than the concentrations in leachate from an active landfill. In that case, the pollutants in non-ELG-regulated wastewaters would be present in lesser amounts or in amounts that already comply with the ELG limits before mixing with leachate from Landfill No. 6.

001.A.3.d. Biochemical Oxygen Demand (5-Day)

BOD-5 is comparable to phenol in that it is not detected at IMP 101 but is present at Outfall 001; this indicates that oxidizable organic compounds are introduced by another waste stream—either Landfill No. 6's leachate or one of the other non-ELG-regulated waste streams that are not monitored individually. DEP would not identify BOD-5 as a pollutant of concern based on the IMP 101 results; however, BOD-5 limits must be imposed to implement the ELG. Therefore, DEP will adopt BAT for ELG-regulated wastewaters as BAT for non-ELG-regulated wastewaters pursuant to DEP's best professional judgement. The BOD-5 limits from § 445.23 (37 mg/L average monthly and 140 mg/L maximum daily) will be imposed on the whole wastewater stream at Outfall 001 (i.e., no flow-weighting). DEP notes that this benefits MAX because imposing the ELG's BOD-5 limits at Outfall 001 presumes that MAX's non-ELG-regulated wastewaters contain BOD and application data indicate that BOD is not detectable at IMP 101. Consider that a flow-weighted BOD-5 limit calculated with 65% of the ELG limit and 35% non-detect would result in limits more stringent than the ELG limits.

40 CFR § 125.3(f) prohibits compliance with TBELs using non-treatment techniques such as flow augmentation (i.e., dilution). However, MAX is not adding water to dilute its contaminated wastewaters. MAX's wastewaters need treatment for discharge and the combination of those wastewaters for treatment and any co-dilution of dissimilar wastes resulting from the combination of MAX's wastewaters is incidental and consistent with § 125.3(f).

001.A.4. TBELs for Outfall 001

Technology-based limits for Outfall 001 are summarized in Table 2.

Table 2. Outfall 001 TBELs

Parameter	Average Monthly Limit (mg/L)	Maximum Daily Limit (mg/L)
Total Suspended Solids	28.0	60.0
Oil and Grease	15.0	30.0 (IMAX)
Ammonia-Nitrogen	18.9	37.9
Total Residual Chlorine	0.5	1.0
Aluminum	1.0	2.0
Barium	4.0	8.0
Cadmium	0.025	0.05
Chromium	0.5	1.0
Chromium, Hexavalent	0.05	0.1
Copper	0.1	0.2

Table 2 (continued). Outfall 001 TBELs

Parameter	Average Monthly Limit (mg/L)	Maximum Daily Limit (mg/L)
Cyanide, Free	0.1	0.2
Iron	3.5	7.0
Lead	0.12	0.24
Nickel	1.0	2.0
Silver	0.005	0.01
Zinc	0.19	0.37
Phenol	0.015	0.026
Phenols	0.1	0.2
Osmotic Pressure	1000	2000
Tin	Report	Report
Molybdenum	Report	Report
Antimony	Report	Report
BOD-5	37.0	140.0
α-Terpineol	0.016	0.033
Benzoic acid	0.071	0.12
p-Cresol	0.014	0.025
pH	6.0 (Minimum)	9.0 (Maximum)

MAX does not employ the model treatment technology for the Landfill ELGs. ELGs do not require facilities to use the model treatment technology used to develop the ELGs' limits so dischargers can use any combination of treatment technologies necessary to meet the TBELs. To the extent the MAX cannot comply with the new TBELs, DEP notes that compliance schedules in NPDES permits are not available for TBELs regardless of whether the TBELs are ELG-based or BPJ-based. EPA explains on p. 5-17 of the U.S. EPA NPDES Permit Writers' Manual (2010):

> The final statutory deadline for meeting BPT requirements was July 1, 1977, and the final statutory deadline for meeting BCT and BAT requirements was March 31, 1989. When applying applicable effluent guidelines, permit writers should note that they do not have the authority to extend the statutory deadlines in an NPDES permit; thus, all applicable technology-based requirements (i.e., effluent guidelines and case-by-case limitations based on BPJ) must be applied in NPDES permits without the benefit of a compliance schedule.

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

001.B.1. Total Maximum Daily Load ("TMDL") for the Sewickley Creek Watershed

The aquatic life uses of Sewickley Creek and tributaries to Sewickley Creek including Jacks Run, Welty Run, Buffalo Run, and their tributaries are impaired by metals and pH from acid mine drainage ("AMD"). These streams were variously listed on Pennsylvania's 1996, 1998, 2002, and 2006 lists of impaired waters. On April 8, 2009, U.S. EPA approved a TMDL prepared by DEP addressing the AMD-based impairments in the watershed. The NPDES permit for MAX's Yukon Facility was last issued in 2004, so the current NPDES permit does not contemplate the TMDL.

The TMDL assigned waste load allocations (concentrations and loads) to the Yukon Facility for aluminum and iron at Outfall 001. The allowable concentrations were set equal to the existing concentration limits for those pollutants. The allowable loads were calculated using a discharge flow of 0.28 MGD, which was the average flow reported on the application for the permit issued in 2004. Presently, flows on the order of 0.28 MGD correlate with maximum flows at Outfall 001. The allocations are summarized in the table below (see Table D72, p.72 in the Sewickley Creek Watershed TMDL Report, March 12, 2009).

Table 3. TMDL Waste Load Allocations for Outfall 001

Parameter	Monthly Avg. Allowable Conc.(mg/L)	Allowable Load (lbs/day)
Aluminum	1.0	2.34
Iron	3.5	8.17

40 CFR § 122.44(d)(1)(vii)(B) requires that:

> (vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that: […]

(B) 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 for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7 [regarding TMDL development].

Based on the above requirement, the concentration and load limits for aluminum and iron in Table 3 will be imposed at Outfall 001. Note that no other outfalls at the Yukon Facility received TMDL waste load allocations.

001.B.2. Treatment Requirements for Discharges to Waters Affected by Abandoned Mine Drainage

Streams impacted by acid mine drainage are exempt from certain water quality considerations except in certain circumstances. 25 Pa. Code § 95.5(a) 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: […]

(2) Industrial waste as defined in The Clean Streams Law (35 P. S. §§ 691.1—691.1001), shall achieve one of the following degrees of treatment, as appropriate, which are defined under 33 U.S.C.A. §§ 1314(b) and 1316(b):

(i) Best Conventional Pollutant Control Technology (BCT).
(ii) Best Available Technology Economically Achievable (BAT).
(iii) Standards of performance for new sources.

The intent of § 95.5(a) is for discharges to AMD-impacted streams with impaired aquatic life uses to be controlled based on technology considerations. Exceptions to this requirement are given by § 95.5(b), which states:

(b) A greater degree of treatment will be required to the waters where one of the following exists:

(1) The water quality of the receiving water has or is expected to improve significantly.
(2) The minimum degree of treatment required would cause pollution in downstream waters, so that designated stream uses in these downstream waters would not be achievable.

Limits for aluminum and iron in MAX's permit are not developed in isolation because compliance with water quality criteria for those pollutants in Sewickley Creek requires an accounting for other contributors, which is what the TMDL accomplishes (i.e., watershed-wide effects as opposed to local mixing effects). With respect to other pollutants, a greater degree of treatment than that required by BCT/BAT is warranted if pollution is likely in downstream waters.

Among other monitoring points, the TMDL included two stream monitoring locations on Sewickley Creek: one upstream of the Yukon Facility designated as "SC2" at an approximate river mile index of 13.0; and one downstream of the Yukon Facility designated as "SC1" near the mouth of Sewickley Creek where it empties into the Youghiogheny River. Analytical data at SC2 exhibited aluminum, iron, and manganese concentrations of 0.74 mg/L, 1.59 mg/L, and 0.46 mg/L, respectively. Aluminum, iron, and manganese concentrations at SC1 were 0.50 mg/L, 1.3 mg/L, and 0.45 mg/L, respectively. Compare these concentrations to 25 Pa. Code Chapter 93's water quality criteria of 0.75 mg/L for aluminum, 1.5 mg/L for iron, and 1.0 mg/L for manganese. Not only do instream concentrations decrease moving downstream, but upstream concentrations (circa 2009) were already nearly equal to or less than the most stringent water quality criteria for AMD metals.

Table 4. Instream Pollutant Concentrations for Sewickley Creek

Location	Aluminum Concentration (mg/L)	Iron Concentration (mg/L)	Manganese Concentration (mg/L)
SC2 (Upstream of 001)	0.74	1.59	0.46
SC1 (Downstream of 001)	0.50	1.30	0.45
Most Stringent Water Quality Criterion	0.75	1.5	1.0

In the absence of aquatic life surveys, these data suggest that aquatic life is present in Sewickley Creek. The organisms may be stressed (or were in 2009 when the TMDL was developed) and are probably less so now after ten years of TMDL implementation elsewhere in the watershed. Also, significant AMD discharges in the watershed (Brinkerton, Lowber, and Wilson Run—see https://www.datashed.org/) are already treated using passive treatment systems.

Since discharges from Outfall 001 may still exhibit a reasonable potential to cause or contribute to excursions above water quality criteria for non-TMDL pollutants, a water quality analysis to develop WQBELs will be performed for Outfall 001 at the point of discharge (RMI 10.42).

001.B.3. Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

The procedures for evaluating reasonable potential are as follows:

1. For industrial waste discharges, the design flow to use in modeling is the average flow during production or operation unless another flow value is more appropriate.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<QL" where the quantitation limit for the analytical method used by the applicant is greater than DEP's target quantitation limit]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (see Attachment A).

3. For any outfall with an applicable design flow, perform PENTOXSD modeling for all pollutants of concern. Use the maximum reported value from the application form or from DMRs as the input concentration for the PENTOXSD model run.

4. Compare the actual WQBEL from PENTOXSD with the maximum concentration reported on DMRs or the permit application. Use WQN data or another source to establish the existing or background concentration for naturally occurring pollutants, but generally assume zero background concentration for non-naturally occurring pollutants.

    - 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 PENTOXSD. 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 information described above, including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations, is collected on a spreadsheet titled "Toxics Screening Analysis." (Attachment A).

001.B.4. PENTOXSD Water Quality Modeling Program

PENTOXSD Version 2.0 for Windows is a single discharge, mass-balance water quality modeling program that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, and discharge flow rate are entered in PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions, and partial mix factors also may be entered to further characterize the conditions of the discharge and receiving water. Pollutants are then selected for analysis based on those present or likely to be present in a discharge at levels that may cause, have the reasonable potential to cause, or contribute to excursions above state water quality standards (i.e., a reasonable potential analysis). Discharge concentrations for the selected pollutants are generally chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). PENTOXSD then evaluates each pollutant by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, PENTOXSD recommends average monthly and maximum daily WQBELs.

001.B.5. Q_{7-10} Flow of Sewickley Creek

DEP historically evaluated water quality limits for Outfall 001 using a Q_{7-10} stream flow calculated by adding the watershed-based flow (i.e., baseline groundwater flow in the stream from the watershed's upstream drainage area) to the design discharge flows of three sewage treatment plants located upstream of Outfall 001. The three STPs are:

1. NPDES PA0038181 – Westmoreland County Municipal Authority's New Stanton STP on Sewickley Creek at RMI 15.58 about 5.16 miles upstream of Outfall 001 – design flow of 4.5 MGD or 6.96 cfs.

2. NPDES PA0024449 – Westmoreland County Municipal Authority's Youngwood Borough STP on Jacks Run, a tributary to Sewickley Creek, at the mouth of Jacks Run about 9.26 miles upstream of Outfall 001 – design flow of 0.5 MGD or 0.774 cfs.

3. NPDES PA0027456 – Greater Greensburg City Sewage Authority's Greater Greensburg STP on Jacks Run, a tributary to Sewickley Creek, at RMI 3.06 about 22.74 miles upstream of Outfall 001 – design flow of 5.57 MGD or 8.618 cfs.

The prior Q_{7-10} calculation methodology will be maintained. Previous permits used a watershed-based flow contribution of 4.83 cfs, which dates to June 1985 when DEP performed a water quality analysis for the Greater Greensburg STP. USGS's StreamStats web application (https://streamstats.usgs.gov/ss/) provides a more recent means to estimate Q_{7-10} flow at ungaged sites with some limitations on accuracy resulting from the application's use of regression equations. StreamStats estimates the Q_{7-10} flow of Sewickley Creek at Outfall 001 to be 2.94 cfs with 66% standard error. Accounting for the standard error results in a flow of 4.88 cfs, which is comparable to the historical estimate.

Similarly, the design flows of the three STPs are close to the multi-year average discharge flow rates reported by those STPs. New Stanton STP: 4.5 MGD design versus 4.24 MGD (6.56 cfs) eight-year average; Youngwood Borough STP: 0.5 MGD design versus 0.45 (0.696 cfs) MGD nine-year average; Greater Greensburg STP: 5.57 MGD design versus 5.06 MGD (7.829 cfs) nine-year average. The STP flows used to calculated Q_{7-10} will conservatively be based on the long-term average flow rates from those facilities and not their design flow rates.

Q_{7-10} = 4.88 cfs [Watershed] + 6.56 cfs [New Stanton] + 0.696 cfs [Youngwood] + 7.829 cfs [Greater Greensburg]
Q_{7-10} = 19.965 cfs

The STP discharges are not expected to significantly reduce Sewickley Creek's assimilative capacity for toxics because toxic metals and organics are not characteristic of sewage effluent.

001.B.6. Reasonable Potential Analysis and WQBEL Development for Process Wastewaters at Outfall 001

Discharges from Outfall 001 are evaluated based on the concentrations reported on the application and DMRs and on the TBELs already imposed. The PENTOXSD model is run for Outfall 001 with the modeled discharge and receiving stream characteristics shown in Table 5. The pollutants selected for analysis are those identified as candidates for modeling by the Toxics Screening Analysis Spreadsheet. Pollutants for which numerical water quality criteria have not been promulgated (e.g., TSS, oil and grease, etc.) are excluded from the PENTOXSD modeling.

Table 5. 001 PENTOXSD Inputs

Parameter	**Value**
River Mile Index	10.42
Discharge Flow (MGD)	0.048
Discharge Hardness (mg/L)	7,205
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	120
Q_{7-10} (cfs)	19.965
Elevation (ft)	887

The results of the PENTOXSD modeling (see Attachment B) and reasonable potential analysis (Attachment A) indicate that WQBELs are needed for cadmium, benzidine, dieldrin, and toxaphene. Reporting is also required for total dissolved solids, chloride, bromide, sulfate, antimony, hexavalent chromium, copper, lead, nickel, 3,3-dichlorobenzidine, 4,4-DDT, 4,4-DDE, and 4,4-DDD.

The limits and reporting requirements for benzidine, 3,3-dichlorobenzidine, 4,4-DDT, 4,4-DDE, 4,4-DDD, dieldrin, and toxaphene are the result of the applicant's attainment of analytical detection levels that are less stringent (i.e., higher) than DEP's target quantitation limits. Even though the results were reported as less than analytical reporting limits, those reporting limits are too high to rule out the possibility that discharges will result in excursions above Pennsylvania's water quality criteria. In these situations, the Department allows dischargers to collect additional samples and analyze them using lower quantitation limits—preferably the target quantitation limits specified in the Department's most recent "Application for Permit to Discharge Industrial Wastewater". With new results, DEP will reevaluate whether reasonable potential exists. MAX will have an opportunity to resample during the draft permit

comment period. If new analyses show that the parameters are not present using the Department's target quantitation limits or are present below thresholds that would constitute reasonable potential, then the WQBELs and reporting requirements will be removed prior to issuance of the final permit.

WQBELs for cadmium also were based on non-detect values using a reporting limit higher than DEP's target quantitation limit, but cadmium is subject to TBELs that are more stringent than the calculated WQBELs.

The TDS, chloride, bromide, and sulfate reporting requirements are the result of a new monitoring initiative. TDS and its major constituents including chloride, bromide, and sulfate have emerged as pollutants of concern in several major watersheds in the Commonwealth. The conservative nature of these solids allows them to accumulate in surface waters and they may remain a concern even if the immediate downstream public water supply is not directly impacted. Bromide has been linked to the formation of disinfection byproducts at increased levels in public water systems. In addition, the Environmental Quality Board has directed the Department to collect additional data related to sulfate and chloride. Furthermore, EPA has expressed concern related to bromide and the importance of monitoring all point sources for bromide when it may be present.

Based on the concerns identified above and under the authority of 25 Pa. Code § 92a.61, the Department has determined that it should implement monitoring in NPDES permits for TDS, chloride, bromide, and sulfate. The monitoring is prompted for discharges that exceed the following thresholds:

- Where the concentration of TDS in the discharge exceeds 1,000 mg/L, or the net TDS load from a discharge exceeds 20,000 lbs/day, and the discharge flow exceeds 0.1 MGD, establish a monitoring requirement for TDS, sulfate, chloride, and bromide. For discharges of 0.1 MGD or less establish a monitoring requirement for TDS, sulfate, chloride, and bromide if the concentration of TDS in the discharge exceeds 5,000 mg/L.

- Where the concentration of bromide in a discharge exceeds 1 mg/L and the discharge flow exceeds 0.1 MGD or where concentration of bromide exceeds 10 mg/L for discharges of 0.1 MGD or less, establish a monitoring requirement for bromide.

The Outfall 001 TDS effluent concentration (20,650 mg/L average) exceeds the 5,000 mg/L threshold and the discharge flow is less than 0.1 MGD.

The water quality-based limit and monitoring requirements for Outfall 001 are summarized in Table 6.

Table 6. WQBELs and Water Quality-based Reporting Requirements for Outfall 001

Parameter	Concentration Limit (µg/L)			Reported Result (µg/L)	Target QL (µg/L)
	Avg Mo.	Max Daily	IMAX		
Antimony, Total	Report	Report	—	51.0	2.0
Cadmium, Total	86	135	215	<3	0.2
Chromium, Hexavalent	Report	Report	—	10	1.0
Copper, Total	Report	Report	—	58	4.0
Lead, Total	Report	Report	—	50	1.0
Nickel, Total	Report	Report	—	290	4.0
Benzidine	0.118	0.184	—	<200	50
3,3-Dichlorobenzidine	Report	Report	—	<7.8	5
4,4-DDT	Report	Report	—	<0.099	0.05
4,4-DDD	Report	Report	—	<0.099	0.05
4,4-DDE	Report	Report	—	<0.099	0.05
Dieldrin	0.071	0.111	0.177	<0.099	0.05
Toxaphene	0.054	0.084	0.135	<0.99	0.5
Total Dissolved Solids	—	Report	—	24,100,000	2.0
Chloride	—	Report	—	6,700,000	0.5
Bromide	—	Report	—	80,400	0.2
Sulfate	—	Report	—	2,120,000	1.0

Schedule of Compliance for New WQBELs

Pursuant to 25 Pa. Code § 92a.51(a), schedules of compliance are permissible when an existing discharge is not in compliance with effluent limitations. It is unknown whether MAX will be able to comply with the WQBELs for benzidine, dieldrin, or toxaphene in Table 6 because those parameters were not detected using reporting limits that are higher than DEP's target quantitation limits. MAX's results could mean that a pollutant is detectable at a concentration that would violate the new WQBELs if only a lower reporting limit were used. Alternatively, the results could mean that a pollutant is not detectable at a lower reporting limit (i.e., the Department's target quantitation limits) and that reasonable potential doesn't exist and WQBELs aren't necessary.

The Department has 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. In this case, because the applicable WQBELs and water quality-based reporting requirements for benzidine, 3,3-dichlorobenzidine, 4,4-DDT, 4,4-DDD, 4,4-DDE, dieldrin, and toxaphene are prompted by MAX's laboratory's use of reporting limits that are too high to rule out "reasonable potential" and because new analyses using reporting limits equivalent to or less than the Department's target QLs may result in the removal of WQBELs and/or reporting requirements from the permit, the survey will accompany the draft permit. A default schedule of three years will be included in the draft permit for benzidine, dieldrin, and toxaphene. The proposed schedule will be adjusted depending on MAX's survey responses and, if MAX chooses to analyze additional effluent samples using DEP's target QLs, any new analytical results. TDS, chloride, bromide, sulfate, and the metals in Table 6 are not subject to the survey, schedule, or potential resampling because the pollutants are either known to be present or are already subject to TBELs.

DEP notes that 25 Pa. Code § 92a.51(a) requires compliance with final enforceable effluent limits "as soon as practicable", which may be less than three years, but in no case longer than five years.

001.B.7. WQM 7.0 Water Quality Modeling Program

WQM 7.0 is a water quality modeling program for Windows that determines wasteload allocations and effluent limitations for carbonaceous biochemical oxygen demand ($CBOD_5$), ammonia nitrogen (NH_3-N), and dissolved oxygen (D.O.) for single and multiple point-source discharge scenarios. To accomplish this, the model simulates two basic processes. In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the D.O. module the model simulates the mixing and consumption of D.O. in the stream due to the degradation of $CBOD_5$ and NH_3-N and compares calculated instream D.O. concentrations to D.O. water quality criteria. WQM 7.0 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

001.B.8. WQBELs for BOD, Ammonia-Nitrogen, and Dissolved Oxygen at Outfall 001

For the previous permit, DEP modeled discharges from Outfall 001 in WQM 7.0 using a discharge flow rate of 0.28 MGD and input CBOD and ammonia-nitrogen concentrations of 25 mg/L and 45 mg/L, respectively. The model did not recommend any WQBELs for CBOD, ammonia-nitrogen, or dissolved oxygen.

The average of the monthly average flows at Outfall 001 over the last three years is approximately 0.048 MGD. The renewed permit will limit BOD at Outfall 001 for the first time at an average concentration of 37 mg/L (TBEL). Ammonia-nitrogen limits will be more stringent than the 45 mg/L input concentration used for modeling for the 2004 permit. DEP reasons that if WQBELs for CBOD, ammonia-nitrogen, and dissolved oxygen do not apply to a 0.28 MGD discharge, then WQBELs for those parameters will not apply to a 0.048 MGD discharge with effluent concentrations comparable to or less than those used for the previous permit's modeling. To confirm this, DEP modeled Outfall 001 using the updated discharge flow and input effluent concentrations with the data in Table 5 and other default assumptions.[1] The results of the modeling (see Attachment C) indicate that no WQBELs are needed for CBOD, ammonia-nitrogen, or dissolved oxygen for the baseline summer modeling period (i.e., the period with the most critical conditions for flow, ammonia toxicity, and dissolved oxygen versus winter months).

[1] DEP's modeling for sewage discharges is a two-step process. First, a discharge is modeled for the summer period (May through October) using warm temperatures for the discharge and the receiving stream. Modeling for summer is done first because allowable ammonia concentrations in a discharge are lower at higher temperatures (i.e., warm temperatures are more likely to result in critical loading conditions). Reduced dissolved oxygen levels also appear to increase ammonia toxicity and the maximum concentration of dissolved oxygen in water is lower at higher temperatures. The second step is to evaluate WQBELs for the winter period, but only if modeling shows that WQBELs are needed for the summer period. For summer, pursuant to DEP's *Implementation Guidance of Section 93.7 Ammonia Criteria* and in the absence of site-specific data, the discharge temperature is assumed to be 20°C and the stream temperature is assumed to be 25°C.

001.B.9. Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site-specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/L from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit.

The results of the modeling, included in Attachment D, indicate that no WQBELs are required for TRC at Outfall 001.

001.C. Effluent Limitations and Monitoring Requirements for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the following table.

Table 7. Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	—	—	—	25 Pa. Code § 92a.61(d)(1)
BOD-5	—	—	37.0	140.0	175.0	40 CFR § 445.22 TBELs & BPJ
Total Suspended Solids	—	—	28.0	60.0	70.0	40 CFR § 445.22 TBELs & BPJ
Oil and Grease	—	—	15.0	—	30.0	25 Pa. Code § 95.2(2); 40 CFR § 122.44(l)
Ammonia-Nitrogen	—	—	18.9	37.9	47.2	40 CFR § 445.23 TBELs & BPJ
Total Residual Chlorine	—	—	0.5	1.0	1.25	25 Pa. Code § 92a.48(b)(2); 40 CFR § 122.44(l)
Aluminum, Total	—	2.34	1.0	2.0	2.5	TBELs; 40 CFR § 122.44(l)
Antimony, Total	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Barium, Total	—	—	4.0	8.0	10.0	TBELs; 40 CFR § 122.44(l)
Cadmium, Total	—	—	0.025	0.050	0.0625	TBELs; 40 CFR § 122.44(l)
Chromium, Total	—	—	0.5	1.0	1.25	TBELs; 40 CFR § 122.44(l)
Chromium, Hexavalent	—	—	0.05	0.1	0.125	TBELs; 40 CFR § 122.44(l)
Copper, Total	—	—	0.1	0.2	0.25	TBELs; 40 CFR § 122.44(l)
Cyanide, Free	—	—	0.1	0.2	0.25	TBELs; 40 CFR § 122.44(l)
Iron, Total	—	8.17	3.5	7.0	8.75	TBELs; 40 CFR § 122.44(l)
Lead, Total	—	—	0.12	0.24	0.3	TBELs; 40 CFR § 122.44(l)
Molybdenum, Total	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Nickel, Total	—	—	1.0	2.0	2.5	TBELs; 40 CFR § 122.44(l)
Silver, Total	—	—	0.005	0.01	0.0125	TBELs; 40 CFR § 122.44(l)
Tin, Total	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Zinc, Total	—	—	0.19	0.37	0.475	40 CFR § 445.23 TBELs & BPJ
Phenol	—	—	0.015	0.026	0.0375	40 CFR § 445.23 TBELs & BPJ
Phenols	—	—	0.1	0.2	0.25	TBELs; 40 CFR § 122.44(l)
Osmotic Pressure	—	—	1000	2000	2500	TBELs; 40 CFR § 122.44(l)
α-Terpineol	—	—	0.016	0.033	0.04	40 CFR § 445.23 TBELs & BPJ
Benzoic acid	—	—	0.071	0.12	0.177	40 CFR § 445.23 TBELs & BPJ
p-Cresol	—	—	0.014	0.025	0.035	40 CFR § 445.23 TBELs & BPJ
Benzidine (µg/L) †	—	—	0.118	0.184	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)

Table 7 (continued). Effluent Limits and Monitoring Requirements for Outfall 001

Parameter	Mass (pounds)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
3,3-Dichlorobenzidine (µg/L)	—	—	Report	Report	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
4,4-DDT (µg/L)	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
4,4-DDD (µg/L)	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
4,4-DDE (µg/L)	—	—	Report	Report	—	25 Pa. Code § 92a.61(b)
Dieldrin (µg/L) †	—	—	0.071	0.111	0.177	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Toxaphene (µg/L) †	—	—	0.054	0.084	—	WQBELs; 25 Pa. Code §§ 92a.12(a)(1) & 96.4(b)
Total Dissolved Solids	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Chloride	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Bromide	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
Sulfate	—	—	—	Report	—	25 Pa. Code § 92a.61(b)
pH (s.u.)	within the range of 6.0 to 9.0					25 Pa. Code § 95.2(1)

† Parameter is subject to interim three-year monitoring and reporting.

Monitoring frequencies and sample types are imposed based on Chapter 6, Table 6-4 "Self-Monitoring Requirements for Industrial Dischargers" in DEP's *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits* and those specified in the current permit. Flow and pH must be recorded continuously. BOD-5, TSS, ammonia-nitrogen, and total residual chlorine will require 24-hour composite sampling 1/week. Aluminum, antimony, barium, cadmium, total chromium, hexavalent chromium, copper, free cyanide, iron, lead, nickel, silver, zinc, phenol, phenols, and osmotic pressure will require 24-hour composite sampling 2/month. Molybdenum and tin will require 24-hour composite sampling 2/quarter. Oil and grease will require grab sampling 1/week. TDS, chloride, bromide, and sulfate will require grab sampling 1/month. All other parameters will require 24-hour composite sampling 1/week. Note that weekly sampling for α-terpineol, benzoic acid, and p-cresol is required because DEP has no data on those pollutants in Outfall 001's effluent.

Instantaneous maximum ("IMAX") limits are calculated for all parameters with composite sampling requirements by multiplying average monthly limits by a factor of 2.5 per p.16 of the aforementioned *Technical Guidance*. BOD-5 variability is more significant than for other pollutants as indicated by the nearly four-fold difference between the ELGs' average monthly limit and maximum daily limit, so the IMAX limit for BOD-5 is calculated by multiplying the maximum daily limit by a factor of 1.25. Using an average monthly multiplier of 2.5 for BOD-5's IMAX limit would result in an IMAX limit that's less than maximum daily limit of 140 mg/L, so the ratio of the maximum daily limit to IMAX limit from DEP's *Technical Guidance* is used.[2] Except for the 30 mg/L oil and grease IMAX limit and the maximum pH limit, all other IMAX limits are for use by DEP personnel and do not need to be reported by the permittee.

The WQBELs for benzidine and toxaphene are less than DEP's target quantitation limits for those pollutants. A condition will be included in Part C of the permit requiring MAX to report that those pollutants are not detectable at DEP's target quantitation limits (see Table 6) to demonstrate compliance with the WQBELs.

Pump Station No. 7 and Internal Monitoring Point 201

As explained in Section 001.A.3.a of this Fact Sheet, MAX provided information on the proportion of ELG-regulated and non-ELG-regulated flows using flow totalizer data. DEP will require flow monitoring at Pump Station No. 7 so that flow data representing MAX's ELG-regulated wastewaters are available for the next permit renewal and the proportion of flow can be determined using flow data collected at Outfall 001 and Pump Station No. 7. DEP proposes to reuse the "IMP 201" designation as the monitoring point for flow from Pump Station No. 7.

[2] From p. 16 of the *Technical Guidance*: Maximum Daily Limit = 2.0 × Average Monthly Limit; and the IMAX Limit = 2.5 × Average Monthly Limit. Therefore, the IMAX Limit = 2.5 × (Maximum Daily Limit ÷ 2.0) = 1.25 × Maximum Daily Limit

Development of Effluent Limitations

Outfall Nos. 002 and 003 **Design Flow (MGD)** Variable
Latitude 40° 12' 59.00" **Longitude** -79° 41' 50.00"
Wastewater Description: Storm water from the eastern and western portions of the site

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

Outfalls 002 and 003 discharge storm water runoff from the eastern and western portions of the site, respectively. Storm water runoff sheet flows into drainage ditches running along the boundary of the site's waste disposal areas. This sheet flow storm water is classified as "non-contaminated storm water" pursuant to 40 CFR § 445.2(g), which states:

> (g) *Non-contaminated storm water* means storm water which does not come in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater that is defined in paragraph (f) of this section. Non-contaminated storm water includes storm water which flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill.

Non-contaminated storm water is excluded from the definition of "landfill wastewater" in 40 CFR § 445.2(f) and is not subject to TBELs under the Landfill ELGs. Therefore, in the absence of applicable ELG requirements, TBELs, if warranted, are developed based on Best Professional Judgment. Note that Part 445's "non-contaminated storm water" definition does not correlate directly to EPA's conditional exclusion for 'no exposure' of industrial activities and materials to storm water (40 CFR 122.26(g)).[3] Also, MAX did not identify any of the site's storm water outfalls as 'not exposed'.

Consistent with 25 Pa. Code § 92a.61(h) and DEP's policy for permitting storm water discharges associated with industrial activities, minimum standards described in the PAG-03 will be applied to the facility's storm water discharges. Based on the facility's SIC Code of 4953 and due to the presence of a RCRA Subtitle D landfill, the facility is classified under Appendix C – Landfills and Land Application Sites of the PAG-03 General Permit. To ensure that there is baseline consistency across the state for all landfills and land application site that discharge storm water associated with their industrial activities, the minimum monitoring requirements of Appendix C of the PAG-03 will be imposed at the facility's storm water outfalls that are associated with industrial activities.

Table 8. PAG-03 Appendix C – Minimum Monitoring Requirements

Discharge Parameter	Units	Sample Type	Appendix C Measurement Frequency
Total Suspended Solids	mg/L	1 Grab	1/6 months
Chemical Oxygen Demand	mg/L	1 Grab	1/6 months
Ammonia-Nitrogen	mg/L	1 Grab	1/6 months
Iron, Total	mg/L	1/Grab	1/6 months
pH	s.u.	1 Grab	1/6 months

To the extent that effluent limits are necessary to ensure that storm water Best Management Practices (BMPs) are adequately implemented, DEP's Permit Writers' Manual recommends that effluent limits be developed for industrial storm water discharges based on a determination of Best Available Technology (BAT) using Best Professional Judgment (BPJ). BPJ of BAT typically involves the evaluation of end-of-pipe wastewater treatment technologies, but DEP considers the use of BMPs to be BAT for storm water outfalls unless effluent concentrations indicate that BMPs provide inadequate pollution control. The following table summarizes the analytical results reported on the application for Outfall 003. MAX reported that there was no discharge from Outfall 002, but storm water quality at Outfall 002 is likely to be similar to Outfall 003's.

[3] 40 CFR 122.26(g): *Conditional exclusion for "no exposure" of industrial activities and materials to storm water*. Discharges composed entirely of storm water are not storm water discharges associated with industrial activity if there is "no exposure" of industrial materials and activities to rain, snow, snowmelt and/or runoff, and the discharger satisfies the conditions in paragraphs (g)(1) through (g)(4) of this section. "No exposure" means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product.

Table 9. Storm Water Analytical Results for Outfall 003

Parameter	003	No Exposure Thresholds (mg/L)	MSGP Benchmarks (mg/L)
Oil and Grease	<4.8	≤ 5.0	N/A
BOD_5	21.4	≤ 10.0	30
COD	30.8	≤ 30.0	120
TSS	<4	≤ 30.0	100
Total Nitrogen	5.5	≤ 2.0 (Tot. N)	N/A
Total Phosphorus	0.014J	≤ 1.0	2.0
pH (s.u.)	7.9	6.0 – 9.0 s.u.	6.0 – 9.0 s.u.

Based on the results summarized in Table 9, no TBELs will be imposed at Outfall 002 and 003. However, TBELs may be warranted in the future if pollutant concentrations in storm water consistently exceed the benchmark values from EPA's Multi-Sector General Permit (MSGP). EPA's MSGP is the federal equivalent of DEP's PAG-03 General Permit for Discharges of Storm Water Associated with Industrial Activity. EPA uses benchmark monitoring in the MSGP as an indicator of the effectiveness of a facility's best management practices. DEP uses benchmark values for the same purpose. The benchmark values listed in Table 9 will be listed in Part C of the permit based on EPA's Multi-Sector General Permit benchmark values (see Attachment E).

The benchmark values are not effluent limitations and exceedances do not constitute permit violations. However, if sampling demonstrates exceedances of benchmark values for two consecutive monitoring periods, then MAX must submit a corrective action plan within 90 days of the end of the monitoring period triggering the plan. The corrective action plan requirement and the benchmark values will be specified in a condition in Part C of the permit.

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

DEP does not develop WQBELs for storm water discharges except in limited circumstances (e.g., WQBELs based on a TMDL's waste load allocations). Even though no mathematical modeling is performed, conditions in Part C of the permit will ensure compliance with water quality standards through a combination of best management practices including pollution prevention and exposure minimization, good housekeeping, erosion and sediment control, and spill prevention and response.

SWO.B.1. Total Maximum Daily Load ("TMDL") for the Sewickley Creek Watershed

As stated in Section 001.B.1 of this Fact Sheet, except for Outfall 001, no other outfalls at the Yukon Facility were assigned TMDL waste load allocations. To confirm the effectiveness of MAX's storm water BMPs and to evaluate whether storm water discharges from the site have the potential to cause or contribute to the existing AMD-based impairment of Sewickley Creek, aluminum and manganese will be added to the semi-annual monitoring requirements (iron monitoring is already required by Appendix C of the PAG-03). Benchmark values equivalent to water quality criteria will be included in the storm water condition in Part C of the permit. Those values are 0.75 mg/L, 1.5 mg/L, and 1.0 mg/L for aluminum, iron, and manganese, respectively.

The monitoring requirements for TMDL pollutants are imposed pursuant to 25 Pa. Code § 92a.61(h) and 25 Pa. Code § 96.4(i). For reference, these regulations state the following:

> § 92a.61(h): "Requirements to report monitoring results from stormwater discharges associated with industrial activity, except those subject to an effluent limitation guideline or an NPDES general permit, will be established in a case-by-case basis with a frequency dependent on the nature and effect of the discharge."
>
> § 96.4(i): "The Department may require NPDES dischargers and other persons subject to regulation under The Clean Streams Law (35 P. S. §§ 691.1—691.1001) to conduct appropriate monitoring of pollutant sources and waters and report the results and data, to obtain data needed to develop TMDLs and effluent limitations and to determine their effectiveness."

SWO.C. Effluent Limitations and Monitoring Requirements for Outfall 002

Effluent limits applicable at Outfalls 002 and 003 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements as summarized in the following table. Numerical TBELs and WQBELs do not apply, so the

monitoring requirements based on PAG-03 Appendix C and other TMDL-based monitoring requirements will be imposed. Flow monitoring will be required in accordance with 25 Pa. Code § 92a.61(h).

Table 10. Effluent Limits and Monitoring Requirements for Outfalls 002 and 003

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(h)
Total Suspended Solids	—	—	—	Report	—	25 Pa. Code § 92a.61(h); PAG-03, Appendix C
Chemical Oxygen Demand	—	—	—	Report	—	25 Pa. Code § 92a.61(h); PAG-03, Appendix C
Ammonia-Nitrogen	—	—	—	Report	—	25 Pa. Code § 92a.61(h)
Aluminum, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(h); 96.4(i)
Iron, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(h); PAG-03, Appendix C
Manganese, Total	—	—	—	Report	—	25 Pa. Code § 92a.61(h); 96.4(i)
pH (s.u.)	—	—	—	Report	—	25 Pa. Code § 92a.61(h); PAG-03, Appendix C

The sampling frequency and type for all parameters will be 1/6 months grab samples as established in Appendix C of the PAG-03 General Permit on which the monitoring requirements are based (including parameters not based on Appendix C of the PAG-03). Flow should be estimated at the time of sampling.

Development of Effluent Limitations

Outfall No.	004	**Design Flow (MGD)**	Variable
Latitude	40° 12' 36.00"	**Longitude**	-79° 41' 38.00"

Wastewater Description: Storm water run-on

According to previous permits, "Outfall 004" discharges storm water onto MAX's property from the storm sewer system for a township road. There is no MS4 permit for this discharge. It appears from the permit files that Outfall 004 was added to the Yukon Facility's NPDES permit in 1989 but was not identified as a monitoring point for storm water *run-on* (as opposed to storm water *runoff*) until 1999 when Mill Service requested that the outfall remain in the permit.

It is appropriate in some circumstances to monitor storm water run-on. For example, when evaluating the sources of pollutants in a storm water discharge that includes run-on contributions, it may be appropriate to characterize the run-on to determine whether an upgradient, offsite source is the cause of pollution in a downgradient discharge.

DEP has never imposed monitoring requirements at Outfall 004. To the extent that run-on sampling is warranted, MAX should conduct run-on sampling at Outfall 004 as it sees fit to ensure that the township is not causing pollution/nuisance conditions at the Yukon Facility and to demonstrate that any pollution in MAX's effluent that may originate from the township storm sewer can be attributed to that source. Generally, run-on to the Yukon site is MAX's responsibility once it flows off MAX's property to waters of the Commonwealth (surface waters or groundwater). It is common for storm water BMPs to include run-on diversion to redirect run-on away from industrial activities—provided the diversion isn't creating nuisance conditions elsewhere or removing a source of flow in a stream such that designated uses aren't supportable. Presumably, an easement exists that allows the township to discharge onto MAX's private property.

Even though Outfall 004 is not a point source discharge from the Yukon Facility to waters of the Commonwealth and is consequently not an outfall under MAX's control (if anything it would be a township storm water outfall), the location will be retained as an NPDES point. No monitoring requirements at imposed at Outfall 004.

Development of Effluent Limitations

Outfall No.	005	**Design Flow (MGD)**	Variable
Latitude	40° 12' 54.00"	**Longitude**	-79° 41' 56.00"

Wastewater Description: Storm water and overflows from Pond No. 4

The previous permit writer explained the disposition of Outfall 005 as follows:

> Pond number 4 was constructed as a storm water retention basin. It also collects sump water from the area around tank 4 that collects flow from pump station number 6 (leachate, mine drainage, etc.). The outfall has a valve that is closed all of the time. The water in pond 4 is sent to pump station no. 4, which goes to the wastewater treatment system. Mill Service wants to have this outfall for emergency use during large precipitation events even though it has never been used in the past.

Since water that collects in Pond No. 4 is sent to the wastewater treatment plant, an overflow from Pond No. 4 would be a bypass of treatment, which is prohibited by 40 CFR § 122.41(m)(4) except in certain circumstances. DEP will not presume upfront that every overflow from Pond No. 4 qualifies as an allowable bypass pursuant to the exceptions to the prohibition on bypassing in 40 CFR § 122.41(m). That is, DEP will not presumptively authorize all overflows/bypasses from Pond No. 4 as it has historically. Discharges from Outfall 005 are controlled by a valve, so MAX determines when a discharge occurs. Consider, for example, that excess precipitation may lead MAX to discharge from Outfall 005, but the need to discharge may be the result of a lack of wastewater storage capacity or some other controllable operational parameter that MAX could have addressed to avoid an overflow.

Based on this change to how DEP is handling intermittent overflows of pre-treated wastewater, Outfall 005 will be removed from the permit. MAX will still be able to discharge from Pond No. 4 if conditions warrant, but MAX will be required to sample (once per discharge) and analyze overflows for the same parameters listed at Outfall 001 (the limits that would apply if the water in Pond No. 4 was sent to the wastewater treatment plant) and to submit a report to DEP detailing the discharge location, approximate discharge duration, approximate volume of water discharged, the meteorological conditions preceding and during the overflow, an explanation of why the overflow occurred, and measures that will be taken to eliminate the recurrence of overflows. For each overflow MAX will be required to explain why the discharge qualifies as an allowable bypass pursuant to the bypass exceptions identified in Part B.I.F of the permit. Those exceptions are:

> § 122.41(m)(4): *Prohibition of bypass.* (i) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
>
> (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
>
> (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
>
> (C) The permittee submitted notices as required under paragraph (m)(3) of this section.

Discharges from Outfall 005 have occurred since the previous permit was issued; however, overflows from Pond No. 4 are infrequent enough that this revised procedure should not be burdensome to MAX.

Development of Effluent Limitations

Outfall No.	006	**Design Flow (MGD)**	Variable
Latitude	40° 12' 44.00"	**Longitude**	-79° 41' 39.00"

Wastewater Description: Impoundment No. 6 blanket drain

Outfall 006 discharges groundwater from a subsurface blanket drain (i.e., aggregate wrapped in filter fabric with an embedded drainage pipe) installed near the outer base of the embankment for Impoundment/Landfill No. 6, upgradient from the rock toe of the embankment. When Impoundment No. 6 was first constructed, groundwater collected in the blanket drain was managed as leachate. MAX indicated in a March 26, 2004 response to a technical deficiency letter for the 2004 NPDES permit that it intended to relocate the blanket drain discharge from Pump Station No. 6 to a direct discharge to an unnamed tributary to Sewickley Creek. This intent appears to have been first communicated to DEP's Waste Management Program as part of the 1997 re-permitting of Impoundment No. 6. In a December 6, 1996 letter responding to comments from DEP's Waste Management Program, Mill Service stated:

> Permit Condition No. 30 requires daily inspection of the embankment blanket drain for flow. The blanket drain has had flow since its installation and has not shown contamination in 8 years of monitoring. Therefore, Mill Service will submit an NPDES application to include the blanket drain as a discharge outfall to the relocated stream at the base of Impoundment No. 6.
>
> Permit Condition No. 31 requires quarterly and semi-annual monitoring of the embankment blanket drain if flow is discovered. Since the drain was installed monitoring has been conducted in accordance with this condition. This condition should be removed from the permit and the necessary monitoring of the blanket drain will be conducted under the requirements of the NPDES permit.

DEP contacted MAX in September 2019 to determine the current disposition of the Impoundment No. 6 blanket drain's effluent. MAX reported the following:

> The Impoundment No. 6 blanket drain could potentially discharge to both Outfall 001 and Outfall 006. Although the blanket drain was rerouted to Outfall 006, the drain could discharge to Outfall 001 via Pump Station 6 as the plumbing is still in place.
>
> Outfall 006 discharges via a pipe and operates as an "Emergency Only" outfall for the Impoundment No. 6 Blanket Drain. Flow from this outfall is observed only during significant storm events.
>
> The Landfill (formally Impoundment) No. 6 blanket drain outfall (Outfall 006) is sampled when there is flow in accordance with the quarterly sampling schedule provided in the site-wide groundwater and surface water monitoring plan, which DEP's Waste Program originally approved in a 2000 permit modification and as most recently approved with some revisions as part of the 2016 Yukon Landfill No. 6 vertical increase permit modification to the residual waste permit. Since flow from this outfall is observed only during significant storm events and there has been no breach of the liner in this area of the impoundment, MAX has determined that the samples from this outfall consist mainly of stormwater. However, MAX understands there is a potential for groundwater infiltration.
>
> In 2000, MAX requested that the embankment drain be monitored as groundwater. As part of the 2000 permit modification, DEP approved condition 15:
>
> > "The embankment drain and mine spoil drain shall be monitored quarterly in accordance with the facility-wide groundwater monitoring plan as long as they continue to drain to pump station 6. If either drain discharges under NPDES Permit PA0027715, the permittee may cease monitoring under this permit".
>
> MAX has never ceased monitoring the embankment drain under the solid waste permit.

On its 2018 application update, MAX reported effluent data for the seven baseline parameters required for storm water discharges (oil and grease, BOD-5, COD, TSS, Total Nitrogen, Total Phosphorus, and pH) based on MAX's conclusion that discharges from Outfall 006 consist of non-contact storm water infiltration. In addition to those data, the Clean Water Program reviewed some of MAX's recent Form 14R Quarterly Water Quality Analyses that it submits to the Waste Management Program. None of the reported concentrations suggest impacts to storm water or a breach of the Landfill/Impoundment No. 6 liner.

Since the quality of Outfall 006's discharges do not indicate that any storm water or groundwater impacts are present, the Clean Water Program will not impose any TBELs or WQBELs at Outfall 006. However, quarterly reporting will be required for a list of parameters that mirrors those MAX reports on the Bureau of Waste Management's Form 14R pursuant to the Yukon Facility's Solid Waste Permit. This reporting will require that MAX report the analytical results it obtains to complete Form 14R for the blanket drain on its NPDES DMRs. DEP considers it appropriate for the Clean Water Program to be informed of effluent quality that may impact surface waters pursuant to 25 Pa. Code § 92a.61(b), which states:

> The Department may impose reasonable monitoring requirements on any discharge, including monitoring of the surface water intake and discharge of a facility or activity, other operational parameters that may affect effluent quality, and of surface waters adjacent to or associated with the intake or discharge flow of a facility or activity. The Department may require submission of data related to the monitoring.

Table 11. Monitoring Requirements for Outfall 006

Parameter	Mass (pounds/day)		Concentration (mg/L)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	—	Report	—	—	—	25 Pa. Code § 92a.61(b)
Specific Conductance (µmhos/cm)	—	—	—	Report	—	25 Pa. Code § 92a.61(b) & Solid Waste Permit
Chemical Oxygen Demand	—	—	—	Report	—	"
Total Dissolved Solids	—	—	—	Report	—	"
Turbidity (NTU)	—	—	—	Report	—	"
Ammonia-Nitrogen	—	—	—	Report	—	"
Nitrate as N	—	—	—	Report	—	"
Alkalinity, Total (as $CaCO_3$)	—	—	—	Report	—	"
Fluoride, Total	—	—	—	Report	—	"
Iron, Dissolved	—	—	—	Report	—	"
Iron, Total	—	—	—	Report	—	"
Manganese, Total	—	—	—	Report	—	"
Magnesium, Dissolved	—	—	—	Report	—	"
Magnesium, Total	—	—	—	Report	—	"
Calcium, Total	—	—	—	Report	—	"
Potassium, Total	—	—	—	Report	—	"
Sodium, Total	—	—	—	Report	—	"
Sulfate, Total	—	—	—	Report	—	"
Bicarbonate	—	—	—	Report	—	"
Chloride	—	—	—	Report	—	"
Total Organic Carbon	—	—	—	Report	—	"
pH (s.u.)	—	—	—	Report	—	"

The monitoring frequencies and sample types for all parameters will be 1/quarter using grab samples. Flow should be estimated at the time of sampling. As MAX explained, the blanket drain discharges infrequently after significant storm events so MAX would just report no discharge on its quarterly DMRs if there was insufficient rainfall to generate a discharge (the most recent Form 14R results the Clean Water Program found for the blanket drain are from March 2016).

Development of Effluent Limitations

Outfall No. 007 **Design Flow (MGD)** 0.0015
Latitude 40° 13' 10.00" **Longitude** -79° 41' 50.00"
Wastewater Description: Treated sanitary wastewaters

Treated sanitary wastewaters combine with treated landfill leachate for discharge through a common outlet to Sewickley Creek. The sewage and industrial wastes are sampled separately upstream of the interconnection point.

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

25 Pa. Code § 92a.47 – Sewage permits

25 Pa. Code § 92a.47 specifies 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 12. TBELs for Sanitary Wastewater

Parameter	Monthly Average (mg/L)	Instant. Maximum (mg/L)	Basis
$CBOD_5$	25	50†	25 Pa. Code § 92a.47(a)(1)
Total Suspended Solids	30	60†	25 Pa. Code § 92a.47(a)(1)
Fecal Coliform (No./100 mL) May 1 – September 30	200 (Geometric Mean)	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No./100 mL) October 1 – April 30	2,000 (Geometric Mean)	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	0.5 (or facility-specific)	1.6 (or facility-specific)	25 Pa. Code § 92a.47(a)(8)
pH (s.u.)	not less than 6.0 and not greater than 9.0		25 Pa. Code § 92a.47(a)(7)

†Value 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*.

A facility-specific instantaneous maximum TBEL of 1.0 mg/L was previously established for total residual chlorine. This limit will be retained pursuant to anti-backsliding (40 CFR § 122.44(l)).

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

For sewage discharges, DEP typically runs its WQM 7.0 water quality modeling program to develop limits for CBOD-5, ammonia-nitrogen, and dissolved oxygen. However, the water quality analysis at Outfall 001 demonstrates that no WQBELs are needed for CBOD-5, ammonia-nitrogen, or dissolved oxygen. As explained in Section 001.B.8 of this Fact Sheet, DEP previously determined that discharges of up to 0.28 MGD do not require WQBELs for CBOD-5, ammonia-nitrogen, and dissolved oxygen. Outfalls 001 and 007 combine for discharge to Sewickley Creek and the total flow from that discharge pipe is estimated to be: 0.048 MGD + 0.0015 MGD = 0.0495 MGD. If flows of 0.28 MGD do not exhibit a reasonable potential to cause or contribute to excursions above water quality criteria, then flows of 0.0495 MGD will not. This conclusion also applies to total residual chlorine. Therefore, no WQBELs are imposed at Outfall 007.

DEP confirmed these results by changing the flow from 0.048 MGD to 0.0495 MGD in the Outfall 001 model runs for WQM 7.0 and TRC_CALC. Those results are not attached.

007.C. Effluent Limitations and Monitoring Requirements for Outfall 007

Effluent limits at Outfall 007 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. Outfall 007's effluent limits and monitoring requirements are summarized in the table below.

Table 13. Effluent Limits and Monitoring Requirements for Outfall 007

Parameter	Mass (pounds)		Concentration (mg/L)		Basis
	Average Monthly	Daily Maximum	Average Monthly	Instant Maximum	
Flow (MGD)	—	—	—	—	25 Pa. Code § 92a.61(d)(1)
$CBOD_5$	—	—	25.0	50.0	25 Pa. Code § 92a.47(a)(1)
Total Suspended Solids	—	—	30.0	60.0	25 Pa. Code § 92a.47(a)(1)
Dissolved Oxygen	—	—	4.0 Minimum	—	BPJ of BAT
Fecal Coliform (No. /100mL) May 1 – September 30	—	—	200 (Geo. Mean)	1,000	25 Pa. Code § 92a.47(a)(4)
Fecal Coliform (No. /100mL) October 1 – April 30	—	—	2,000 (Geo. Mean)	10,000	25 Pa. Code § 92a.47(a)(5)
Total Residual Chlorine	—	—	0.5	1.0	25 Pa. Code § 92a.47(a)(8); 40 CFR § 122.44(l)
pH (s.u.)	not less than 6.0 nor greater than 9.0 standard units				25 Pa. Code § 92a.47(a)(7)

Consistent with the previous permit, flow, $CBOD_5$, TSS, TRC, and fecal coliform must be sampled 2/month using grab samples. More frequent sampling for those parameters is generally reserved for facilities with design flows greater than 2,000 gpd (MAX's sewage plant has a design flow of 1,500 gpd) or facilities that are in non-compliance. Grab samples should be representative of the effluent and are to be taken at a time when the normal maximum daily flow would reach the sampling point.

Development of Effluent Limitations

IMP Nos.	101	**Design Flow (MGD)**	N/A
Latitude	N/A	**Longitude**	N/A

Wastewater Description: North toe tank, east toe tank, No. 5 blanket drain, township road drains, PW1, No. 5 west standpipe drain, No. 5 bench drain and collection sump

The current NPDES permit imposes limits at IMP 101 equivalent to the universal treatment standards for metals in F039 wastes (leachate) given by 40 CFR Part 268. The Part 268 limits are imposed for the following parameters: antimony, arsenic, barium, beryllium, cadmium, chromium, free cyanide, total cyanide, fluoride, lead, mercury, nickel, selenium, silver, sulfide, thallium, and vanadium. The rationale for the monitoring point and limits was that demonstrating compliance with the F039 universal treatment standards prior to treatment of the leachate could be used to demonstrate that the wastewater was not hazardous waste, which would allow sludge from the wastewater treatment plant to be disposed onsite as residual waste instead of hazardous waste. Based on recent discussions with DEP's Waste Management Program, the Clean Water Program understands that sampling in this manner cannot be used to demonstrate that wastewater treatment plant sludge is not a hazardous waste. Furthermore, MAX requested that IMP 101 be eliminated from the permit because MAX is in the process of entering into a Consent Order and Agreement with DEP's Waste Management Program that will regulate the management of sludge from the wastewater treatment plant. MAX also submitted a delisting petition to the Environmental Quality Board to have the treatment plant sludge delisted as an F039 waste.

Given the preceding and since there is no other need to limit influent wastewaters to the industrial wastewater treatment system, limits from 40 CFR Part 268 will be removed from IMP 101. It is worth noting that fewer than half of the seventeen metals analyzed at IMP 101 were regularly detected (arsenic, barium, beryllium, cadmium, lead, nickel, fluoride) and many of the detected results were only marginally higher than laboratory reporting limits.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment C)
☒	PENTOXSD for Windows Model (see Attachment B)
☒	TRC Model Spreadsheet (see Attachment D)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment A)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	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.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☒	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	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.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Industrial Permits, BCW-PMT-032, v1.5, 1/10/2019.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, BCW-PMT-033, v1.6, 1/10/2019.
☒	SOP: Establishing Water Quality-Based Effluent Limitations (WQBELs) and Permit Conditions for Toxic Pollutants in NPDES Permits for Existing Dischargers, BCW-PMT-037, v1.2, 7/30/2019.
☒	SOP: New and Reissuance Industrial Waste and Industrial Stormwater Individual NPDES Permit Applications, BPNPSM-PMT-001, v1.5, 10/11/2013.
☐	Other:

ATTACHMENT A

Toxics Screening Analysis for Outfall 001

TOXICS SCREENING ANALYSIS – OUTFALL 001
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

Facility: **MAX Environmental - Yukon Facility** NPDES Permit No.: **PA0027715** Outfall: **001**
Analysis Hardness (mg/L): **100** Discharge Flow (MGD): **0.048** Analysis pH (SU): **7**
Stream Flow, Q_{7-10} (cfs): **19.965**

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Pollutant Group 1						
Total Dissolved Solids		24100000	500000	Yes		Monitor
Chloride		6700000	250000	Yes		Monitor
Bromide		80400	N/A	No		Monitor
Sulfate		2120000	250000	Yes		Monitor
Fluoride		10500	2000	Yes		
Pollutant Group 2 – Metals						
Total Aluminum		1000	750	Yes		
Total Antimony		200	5.6	Yes	1511.256	Monitor
Total Arsenic		51	10	Yes	2698.672	No Limits/Monitoring
Total Barium		1000	2400	No		
Total Beryllium		0.1	N/A	No		
Total Boron		1210	1600	No		
Total Cadmium	<	3	0.271	Yes	86.839	No Limits/Monitoring
Total Chromium		1000	N/A	No		
Hexavalent Chromium		100	10.4	Yes	952.928	Monitor
Total Cobalt		20.3	19	Yes	5127.476	No Limits/Monitoring
Total Copper		200	9.3	Yes	1408.596	Monitor
Total Cyanide		18	N/A	No		
Total Iron		7000	1500	Yes		
Dissolved Iron		49.1	300	No		
Total Lead		240	3.2	Yes	1156.119	Monitor
Total Manganese		1150	1000	Yes	269967.2	No Limits/Monitoring
Total Mercury	<	0.2	0.05	No (Value < QL)		
Total Molybdenum		2850	N/A	No		
Total Nickel		2000	52.2	Yes	17154.61	Monitor

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Total Phenols (Phenolics)		1000	5	Yes		
Total Selenium		45.2	5.0	Yes	1346.409	No Limits/Monitoring
Total Silver		10	3.8	Yes	595.946	No Limits/Monitoring
Total Thallium		0.19	0.24	No		
Total Zinc		370	119.8	Yes	11414.84	No Limits/Monitoring
Pollutant Group 3 – Volatiles						
Acrolein	<	15	3	Yes	175.458	No Limits/Monitoring
Acrylamide	<		0.07			
Acrylonitrile	<	17	0.051	Yes	69.917	No Limits/Monitoring
Benzene	<	1.8	1.2	Yes	1645.094	No Limits/Monitoring
Bromoform	<	0.48	4.3	No (Value < QL)		
Carbon Tetrachloride	<	1.8	0.23	Yes	315.31	No Limits/Monitoring
Chlorobenzene	<	2.3	130	No		
Chlorodibromomethane	<	2.2	0.4	Yes	548.365	No Limits/Monitoring
Chloroethane	<	2	N/A	No		
2-Chloroethyl Vinyl Ether	<	1.9	3500	No (Value < QL)		
Chloroform	<	1.1	5.7	No		
Dichlorobromomethane	<	1.5	0.55	Yes	754.002	No Limits/Monitoring
1,1-Dichloroethane	<	1.5	N/A	No		
1,2-Dichloroethane	<	1.3	0.38	Yes	520.947	No Limits/Monitoring
1,1-Dichloroethylene	<	2.4	33	No		
1,2-Dichloropropane	<	1.9	2200	No		
1,3-Dichloropropylene	<	2	0.34	Yes	466.11	No Limits/Monitoring
Ethylbenzene	<	2.2	530	No		
Methyl Bromide	<	1.5	47	No		
Methyl Chloride	<	2.5	5500	No		
Methylene Chloride	<	2.8	4.6	No		
1,1,2,2-Tetrachloroethane	<	1.2	0.17	Yes	233.055	No Limits/Monitoring
Tetrachloroethylene	<	2.7	0.69	Yes	945.929	No Limits/Monitoring
Toluene	<	2.2	330	No		
1,2-trans-Dichloroethylene	<	1.7	140	No		
1,1,1-Trichloroethane	<	1.1	610	No		
1,1,2-Trichloroethane	<	1.3	0.59	Yes	808.838	No Limits/Monitoring
Trichloroethylene	<	0.95	2.5	No		
Vinyl Chloride	<	1.3	0.025	Yes	34.273	No Limits/Monitoring

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Pollutant Group 4 – Acid Compounds						
2-Chlorophenol	<	7.8	81	No (Value < QL)		
2,4-Dichlorophenol	<	2.5	77	No (Value < QL)		
2,4-Dimethylphenol	<	2.3	130	No (Value < QL)		
4,6-Dinitro-o-Cresol	<	16	13	Yes	3508.273	No Limits/Monitoring
2,4-Dinitrophenol	<	39	69	No		
2-Nitrophenol		5.1	1600	No		
4-Nitrophenol		8.2	470	No		
p-Chloro-m-Cresol	<	9.4	30	No (Value < QL)		
Pentachlorophenol	<	78	0.27	Yes	370.146	No Limits/Monitoring
Phenol		26	10400	No		
2,4,6-Trichlorophenol	<	1.1	1.4	No (Value < QL)		
Pollutant Group 5 – Base Compounds						
Acenaphthene	<	1.1	17	No (Value < QL)		
Acenaphthylene	<	1.9	N/A	No		
Anthracene	<	1.6	8300	No (Value < QL)		
Benzidine	<	200	0.000086	Yes	0.118	Establish Limits
Benzo(a)Anthracene	<	1.4	0.0038	No (Value < QL)		
Benzo(a)Pyrene	<	1.2	0.0038	No (Value < QL)		
3,4-Benzofluoranthene	<	2.1	0.0038	No (Value < QL)		
Benzo(ghi)Perylene	<	2	N/A	No		
Benzo(k)Fluoranthene	<	1.8	0.0038	No (Value < QL)		
Bis(2-Chloroethoxy)Methane	<	3.8	N/A	No		
Bis(2-Chloroethyl)Ether	<	1.6	0.03	No (Value < QL)		
Bis(2-Chloroisopropyl)Ether	<	1.1	1400	No (Value < QL)		
Bis(2-Ethylhexyl)Phthalate	<	2.2	1.2	No (Value < QL)		
4-Bromophenyl Phenyl Ether	<	1.7	54	No (Value < QL)		
Butyl Benzyl Phthalate	<	3.9	35	No (Value < QL)		
2-Chloronaphthalene	<	1	1000	No (Value < QL)		
4-Chlorophenyl Phenyl Ether	<	6.5	N/A	No		
Chrysene	<	2.1	0.0038	No (Value < QL)		
Dibenzo(a,h)Anthrancene	<	2	0.0038	No (Value < QL)		
1,2-Dichlorobenzene	<	0.9	160	No		
1,3-Dichlorobenzene	<	1.2	69	No		
1,4-Dichlorobenzene	<	1.3	150	No		
3,3-Dichlorobenzidine	<	7.8	0.021	Yes	28.789	Monitor

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
Diethyl Phthalate	<	1.5	800	No (Value < QL)		
Dimethyl Phthalate	<	0.82	500	No (Value < QL)		
Di-n-Butyl Phthalate	<	4.5	21	No (Value < QL)		
2,4-Dinitrotoluene	<	6.5	0.05	Yes	86357.49	No Limits/Monitoring
2,6-Dinitrotoluene	<	7.4	0.05	Yes	53973.43	No Limits/Monitoring
1,4-Dioxane	<	69	N/A	No		
Di-n-Octyl Phthalate	<	1.4	N/A	No		
1,2-Diphenylhydrazine	<	0.9	0.036	No (Value < QL)		
Fluoranthene	<	0.78	40	No (Value < QL)		
Fluorene	<	1.2	1100	No (Value < QL)		
Hexachlorobenzene	<	2.6	0.00028	No (Value < QL)		
Hexachlorobutadiene	<	13	0.44	Yes	539.734	No Limits/Monitoring
Hexachlorocyclopentadiene	<	6	1	Yes	269.867	No Limits/Monitoring
Hexachloroethane	<	8.2	1.4	Yes	1919.277	No Limits/Monitoring
Indeno(1,2,3-cd)Pyrene	<	2.5	0.0038	No (Value < QL)		
Isophorone	<	0.82	35	No (Value < QL)		
Naphthalene	<	1.1	43	No		
Nitrobenzene	<	3.2	17	No (Value < QL)		
n-Nitrosodimethylamine		7.7	0.00069	Yes	0.946	Establish Limits
n-Nitrosodi-n-Propylamine	<	1.4	0.005	No (Value < QL)		
n-Nitrosodiphenylamine	<	1.7	3.3	No (Value < QL)		
Phenanthrene	<	1	1	No (Value < QL)		
Pyrene	<	1.4	830	No (Value < QL)		
1,2,4-Trichlorobenzene	<	1.1	26	No		
Pollutant Group 6 – Pesticides						
Aldrin	<	0.05	0.000049	No (Value < QL)		
alpha-BHC	<	0.05	0.0026	No (Value < QL)		
beta-BHC	<	0.05	0.0091	No (Value < QL)		
gamma-BHC	<	0.05	0.098	No (Value < QL)		
delta BHC		0.047	N/A	No		
Chlordane	<	0.5	0.0008	No (Value < QL)		
4,4-DDT	<	0.099	0.00022	Yes	0.27	Monitor
4,4-DDE	<	0.099	0.00022	Yes	0.27	Monitor
4,4-DDD	<	0.099	0.00031	Yes	0.27	Monitor
Dieldrin	<	0.099	0.000052	Yes	0.071	Establish Limits

Parameter	Maximum Concentration in Application or DMRs (µg/L)		Most Stringent Criterion (µg/L)	Candidate for PENTOXSD Modeling?	Most Stringent WQBEL (µg/L)	Screening Recommendation
alpha-Endosulfan	<	0.05	0.056	No (Value < QL)		
beta-Endosulfan	<	0.099	0.056	Yes	12.867	No Limits/Monitoring
Endosulfan Sulfate	<	0.099	N/A	No		
Endrin	<	0.099	0.036	Yes	5.03	No Limits/Monitoring
Endrin Aldehyde	<	0.099	0.29	No		
Heptachlor		0.011	0.000079	Yes	0.108	No Limits/Monitoring
Heptachlor Epoxide	<	0.05	0.000039	No (Value < QL)		
PCB-1242	<	0.99	N/A	No		
PCB-1254	<	0.99	N/A	No		
PCB-1221	<	0.99	N/A	No		
PCB-1232	<	0.99	N/A	No		
PCB-1248	<	0.99	N/A	No		
PCB-1260	<	0.99	N/A	No		
PCB-1016	<	0.99	N/A	No		
Toxaphene	<	0.99	0.0002	Yes	0.054	Establish Limits
Other Pollutants						
Free Available Cyanide		200	5.2	Yes	1286.691	No Limits/Monitoring
Osmotic Pressure (mOs/kg)		2000	50	Yes	2924.297	Establish Limits

ATTACHMENT B

PENTOXSD Modeling Results

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
37556	10.42	887.00	120.00	0.00300	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.0245	0	19.965	0	0	0	0	0	100	7.6	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow	Permitted Disc Flow	Design Disc Flow	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard	Disc pH
		(mgd)	(mgd)	(mgd)						(mg/L)	
Outfall 001	PA0027715	0.048	0	0	0	0	0	0	0	7205	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
1,1,2,2-TETRACHLOROETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
1,1,2-TRICHLOROETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
1,2-DICHLOROETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
1,3-DICHLOROPROPYLENE	1000000	0	0.5	0.5	0	0	0	0	1	0
2,4-DINITROTOLUENE	1000000	0	0.5	0.5	0	0	0	0	1	0
2,6-DINITROTOLUENE	1000000	0	0.5	0.5	0	0	0	0	1	0
3,3'-DICHLORO-BENZIDINE	1000000	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDD	1000000	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDE	1000000	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDT	1000000	0	0.5	0.5	0	0	0	0	1	0
4,6-DINITRO-o-CRESOL	1000000	0	0.5	0.5	0	0	0	0	1	0
ACROLEIN	1000000	0	0.5	0.5	0	0	0	0	1	0
ACRYLAMIDE	1000000	0	0.5	0.5	0	0	0	0	1	0
ACRYLONITRILE	1000000	0	0.5	0.5	0	0	0	0	1	0
ALUMINUM	1000000	0	0.5	0.5	0	0	0	0	1	0
ANTIMONY	1000000	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	1000000	0	0.5	0.5	0	0	0	0	1	0
BENZENE	1000000	0	0.5	0.5	0	0	0	0	1	0
BENZIDINE	1000000	0	0.5	0.5	0	0	0	0	1	0
beta-ENDOSULFAN	1000000	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
CARBON TETRACHLORIDE	1000000	0	0.5	0.5	0	0	0	0	1	0
CHLORODIBROMOMETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, III	1000000	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, VI	1000000	0	0.5	0.5	0	0	0	0	1	0
COBALT	1000000	0	0.5	0.5	0	0	0	0	1	0

COPPER	1000000	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	1000000	0	0.5	0.5	0	0	0	0	1	0
DICHLOROBROMOMETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
DIELDRIN	1000000	0	0.5	0.5	0	0	0	0	1	0
DINITROTOLUENE, TOTAL	2000000	0	0.5	0.5	0	0	0	0	1	0
ENDOSULFAN, TOTAL	1000000	0	0.5	0.5	0	0	0	0	1	0
ENDRIN	1000000	0	0.5	0.5	0	0	0	0	1	0
HEPTACHLOR	1000000	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROBUTA-DIENE	1000000	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROCYCLO-PENTADIENE	1000000	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROETHANE	1000000	0	0.5	0.5	0	0	0	0	1	0
LEAD	1000000	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	1000000	0	0.5	0.5	0	0	0	0	1	0
NICKEL	1000000	0	0.5	0.5	0	0	0	0	1	0
N-NITROSODI-METHYLAMINE	1000000	0	0.5	0.5	0	0	0	0	1	0
OP (mOs/kg)	1000000	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	1000000	0	0.5	0.5	0	0	0	0	1	0
PENTACHLOROPHENOL	1000000	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	1000000	0	0.5	0.5	0	0	0	0	1	0
SILVER	1000000	0	0.5	0.5	0	0	0	0	1	0
TETRACHLOROETHYLENE	1000000	0	0.5	0.5	0	0	0	0	1	0
TOTAL IRON	1000000	0	0.5	0.5	0	0	0	0	1	0
TOXAPHENE	1000000	0	0.5	0.5	0	0	0	0	1	0
VINYL CHLORIDE	1000000	0	0.5	0.5	0	0	0	0	1	0
ZINC	1000000	0	0.5	0.5	0	0	0	0	1	0

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
37556	10.00	886.00	121.00	0.00300	0.00	☑

Stream Data

	LFY	Trib Flow	Stream Flow	WD Ratio	Rch Width	Rch Depth	Rch Velocity	Rch Trav Time	Tributary Hard	Tributary pH	Stream Hard	Stream pH	Analysis Hard	Analysis pH
	(cfsm)	(cfs)	(cfs)		(ft)	(ft)	(fps)	(days)	(mg/L)		(mg/L)		(mg/L)	
Q7-10	0.0245	0	0	0	0	0	0	0	100	7.6	0	0	0	0
Qh		0	0	0	0	0	0	0	100	7	0	0	0	0

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	AFC PMF	CFC PMF	THH PMF	CRL PMF	Disc Hard (mg/L)	Disc pH
		0	0	0	0	0	0	0	0	100	7

Parameter Data

Parameter Name	Disc Conc (µg/L)	Trib Conc (µg/L)	Disc Daily CV	Disc Hourly CV	Steam Conc (µg/L)	Stream CV	Fate Coef	FOS	Crit Mod	Max Disc Conc (µg/L)
1,1,2,2-TETRACHLOROETHANE	0	0	0.5	0.5	0	0	0	0	1	0
1,1,2-TRICHLOROETHANE	0	0	0.5	0.5	0	0	0	0	1	0
1,2-DICHLOROETHANE	0	0	0.5	0.5	0	0	0	0	1	0
1,3-DICHLOROPROPYLENE	0	0	0.5	0.5	0	0	0	0	1	0
2,4-DINITROTOLUENE	0	0	0.5	0.5	0	0	0	0	1	0
2,6-DINITROTOLUENE	0	0	0.5	0.5	0	0	0	0	1	0
3,3'-DICHLORO-BENZIDINE	0	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDD	0	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDE	0	0	0.5	0.5	0	0	0	0	1	0
4,4'-DDT	0	0	0.5	0.5	0	0	0	0	1	0
4,6-DINITRO-o-CRESOL	0	0	0.5	0.5	0	0	0	0	1	0
ACROLEIN	0	0	0.5	0.5	0	0	0	0	1	0
ACRYLAMIDE	0	0	0.5	0.5	0	0	0	0	1	0
ACRYLONITRILE	0	0	0.5	0.5	0	0	0	0	1	0
ALUMINUM	0	0	0.5	0.5	0	0	0	0	1	0
ANTIMONY	0	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	0	0	0.5	0.5	0	0	0	0	1	0
BENZENE	0	0	0.5	0.5	0	0	0	0	1	0
BENZIDINE	0	0	0.5	0.5	0	0	0	0	1	0
beta-ENDOSULFAN	0	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	0	0	0.5	0.5	0	0	0	0	1	0
CARBON TETRACHLORIDE	0	0	0.5	0.5	0	0	0	0	1	0
CHLORODIBROMOMETHANE	0	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, III	0	0	0.5	0.5	0	0	0	0	1	0
CHROMIUM, VI	0	0	0.5	0.5	0	0	0	0	1	0
COBALT	0	0	0.5	0.5	0	0	0	0	1	0
COPPER	0	0	0.5	0.5	0	0	0	0	1	0
CYANIDE, FREE	0	0	0.5	0.5	0	0	0	0	1	0
DICHLOROBROMOMETHANE	0	0	0.5	0.5	0	0	0	0	1	0
DIELDRIN	0	0	0.5	0.5	0	0	0	0	1	0

DINITROTOLUENE, TOTAL	0	0	0.5	0.5	0	0	0	0	1	0
ENDOSULFAN, TOTAL	0	0	0.5	0.5	0	0	0	0	1	0
ENDRIN	0	0	0.5	0.5	0	0	0	0	1	0
HEPTACHLOR	0	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROBUTA-DIENE	0	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROCYCLO-PENTADIENE	0	0	0.5	0.5	0	0	0	0	1	0
HEXACHLOROETHANE	0	0	0.5	0.5	0	0	0	0	1	0
LEAD	0	0	0.5	0.5	0	0	0	0	1	0
MANGANESE	0	0	0.5	0.5	0	0	0	0	1	0
NICKEL	0	0	0.5	0.5	0	0	0	0	1	0
N-NITROSODI-METHYLAMINE	0	0	0.5	0.5	0	0	0	0	1	0
OP (mOs/kg)	0	0	0.5	0.5	0	0	0	0	1	0
OSMOTIC PRESSURE	0	0	0.5	0.5	0	0	0	0	1	0
PENTACHLOROPHENOL	0	0	0.5	0.5	0	0	0	0	1	0
SELENIUM	0	0	0.5	0.5	0	0	0	0	1	0
SILVER	0	0	0.5	0.5	0	0	0	0	1	0
TETRACHLOROETHYLENE	0	0	0.5	0.5	0	0	0	0	1	0
TOTAL IRON	0	0	0.5	0.5	0	0	0	0	1	0
TOXAPHENE	0	0	0.5	0.5	0	0	0	0	1	0
VINYL CHLORIDE	0	0	0.5	0.5	0	0	0	0	1	0
ZINC	0	0	0.5	0.5	0	0	0	0	1	0

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
19D	37556	SEWICKLEY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope	Depth (ft)	Width (ft)	WD Ratio	Velocity (fps)	Reach Trav Time (days)	CMT (min)
Q7-10 Hydrodynamics											
10.420	19.965	0	19.965	0.07425	0.003	0.8336	63.869	76.619	0.3764	0.0682	133.136
10.000	19.99	0	19.99	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
10.420	101.72	0	101.72	0.07425	0.003	1.7042	63.869	37.477	0.9352	0.0274	45.816
10.000	101.83	0	101.83	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
10.42	**Outfall 001**	**PA0027715**

AFC

Q7-10: **CCT (min)** 15 **PMF** 0.335 **Analysis pH** 7.586 **Analysis Hardness** 177.865

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ANTIMONY	0	0	0	0	1100	1100	100372.2
ARSENIC	0	0	0	0	340	340	31024.14
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	3.524	3.831	349.536
	Dissolved WQC. Chemical translator of 0.92 applied.						
CHROMIUM, III	0	0	0	0	913.102	2889.562	263665.2
	Dissolved WQC. Chemical translator of 0.316 applied.						
CHROMIUM, VI	0	0	0	0	16	16.293	1486.721
	Dissolved WQC. Chemical translator of 0.982 applied.						
COPPER	0	0	0	0	23.121	24.084	2197.637
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	120.163	169.94	15506.6
	Dissolved WQC. Chemical translator of 0.707 applied.						
NICKEL	0	0	0	0	762.152	763.679	69683.81
	Dissolved WQC. Chemical translator of 0.998 applied.						
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	8.661	10.19	929.772
	Dissolved WQC. Chemical translator of 0.85 applied.						
ZINC	0	0	0	0	190.879	195.172	17808.98
	Dissolved WQC. Chemical translator of 0.978 applied.						
CYANIDE, FREE	0	0	0	0	22	22	2007.444
4,6-DINITRO-o-CRESOL	0	0	0	0	80	80	7299.798
PENTACHLOROPHENOL	0	0	0	0	15.721	15.721	1434.46
ACROLEIN	0	0	0	0	3	3	273.742
ACRYLONITRILE	0	0	0	0	650	650	59310.86
BENZENE	0	0	0	0	640	640	58398.38
CARBON TETRACHLORIDE	0	0	0	0	2800	2800	255492.9
CHLORODIBROMOMETHANE	0	0	0	0	NA	NA	NA
DICHLOROBROMOMETHANE	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
1,2-DICHLOROETHANE			0	0	0	0	15000	15000	1360000
1,3-DICHLOROPROPYLENE			0	0	0	0	310	310	28286.72
1,1,2,2-TETRACHLOROETHANE			0	0	0	0	1000	1000	91247.47
TETRACHLOROETHYLENE			0	0	0	0	700	700	63873.23
1,1,2-TRICHLOROETHANE			0	0	0	0	3400	3400	310241.4
VINYL CHLORIDE			0	0	0	0	NA	NA	NA
BENZIDINE			0	0	0	0	300	300	27374.24
3,3'-DICHLORO-BENZIDINE			0	0	0	0	NA	NA	NA
2,4-DINITROTOLUENE			0	0	0	0	1600	1600	145996
2,6-DINITROTOLUENE			0	0	0	0	990	990	90335
HEXACHLOROBUTA-DIENE			0	0	0	0	10	10	912.475
HEXACHLOROCYCLO-PENTADIENE			0	0	0	0	5	5	456.237
HEXACHLOROETHANE			0	0	0	0	60	60	5474.848
N-NITROSODI-METHYLAMINE			0	0	0	0	17000	17000	1550000
4,4'-DDT			0	0	0	0	1.1	1.1	100.372
4,4'-DDE			0	0	0	0	1.1	1.1	100.372
4,4'-DDD			0	0	0	0	1.1	1.1	100.372
DIELDRIN			0	0	0	0	0.24	0.24	21.899
beta-ENDOSULFAN			0	0	0	0	0.22	0.22	20.074
ENDRIN			0	0	0	0	0.086	0.086	7.847
HEPTACHLOR			0	0	0	0	0.52	0.52	47.449
TOXAPHENE			0	0	0	0	0.73	0.73	66.611
ALUMINUM			0	0	0	0	750	750	68435.6

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
	TOTAL IRON	0	0	0	0	NA	NA	NA
	MANGANESE	0	0	0	0	NA	NA	NA
	COBALT	0	0	0	0	95	95	8668.51
	OSMOTIC PRESSURE	0	0	0	0	NA	NA	NA
	ACRYLAMIDE	0	0	0	0	NA	NA	NA
	OP (mOs/kg)	0	0	0	0	50	50	4562.374
	DINITROTOLUENE, TOTAL	0	0	0	0	NA	NA	NA
	ENDOSULFAN, TOTAL	0	0	0	0	NA	NA	NA

CFC

Q7-10: **CCT (min)** 133.136 **PMF** 1 **Analysis pH** 7.595 **Analysis Hardness** 126.327

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ANTIMONY	0	0	0	0	220	220	59370.77
ARSENIC	0	0	0	0	150	150	40480.07
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	0.289	0.322	86.839
	Dissolved WQC. Chemical translator of 0.899 applied.						
CHROMIUM, III	0	0	0	0	89.749	104.36	28163.23
	Dissolved WQC. Chemical translator of 0.86 applied.						
CHROMIUM, VI	0	0	0	0	10	10.395	2805.272
	Dissolved WQC. Chemical translator of 0.962 applied.						
COPPER	0	0	0	0	10.935	11.391	3074.054
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	3.243	4.284	1156.119
	Dissolved WQC. Chemical translator of 0.757 applied.						
NICKEL	0	0	0	0	63.376	63.567	17154.61
	Dissolved WQC. Chemical translator of 0.997 applied.						
SELENIUM	0	0	0	0	4.6	4.989	1346.409
	Dissolved WQC. Chemical translator of 0.922 applied.						
SILVER	0	0	0	0	NA	NA	NA
ZINC	0	0	0	0	144.01	146.055	39415.43
	Dissolved WQC. Chemical translator of 0.986 applied.						
CYANIDE, FREE	0	0	0	0	5.2	5.2	1403.309

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
4,6-DINITRO-o-CRESOL			0	0	0	0	16	16	4317.875
PENTACHLOROPHENOL			0	0	0	0	12.173	12.173	3285.042
ACROLEIN			0	0	0	0	3	3	809.601
ACRYLONITRILE			0	0	0	0	130	130	35082.73
BENZENE			0	0	0	0	130	130	35082.73
CARBON TETRACHLORIDE			0	0	0	0	560	560	151125.6
CHLORODIBROMOMETHANE			0	0	0	0	NA	NA	NA
DICHLOROBROMOMETHANE			0	0	0	0	NA	NA	NA
1,2-DICHLOROETHANE			0	0	0	0	3100	3100	836588.2
1,3-DICHLOROPROPYLENE			0	0	0	0	61	61	16461.9
1,1,2,2-TETRACHLOROETHANE			0	0	0	0	210	210	56672.1
TETRACHLOROETHYLENE			0	0	0	0	140	140	37781.4
1,1,2-TRICHLOROETHANE			0	0	0	0	680	680	183509.7
VINYL CHLORIDE			0	0	0	0	NA	NA	NA
BENZIDINE			0	0	0	0	59	59	15922.16
3,3'-DICHLORO-BENZIDINE			0	0	0	0	NA	NA	NA
2,4-DINITROTOLUENE			0	0	0	0	320	320	86357.49
2,6-DINITROTOLUENE			0	0	0	0	200	200	53973.43
HEXACHLOROBUTA-DIENE			0	0	0	0	2	2	539.734
HEXACHLOROCYCLO-PENTADIENE			0	0	0	0	1	1	269.867
HEXACHLOROETHANE			0	0	0	0	12	12	3238.406
N-NITROSODI-METHYLAMINE			0	0	0	0	3400	3400	917548.3
4,4'-DDT			0	0	0	0	0.001	0.001	0.27

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
	4,4'-DDE	0	0	0	0	0.001	0.001	0.27
	4,4'-DDD	0	0	0	0	0.001	0.001	0.27
	DIELDRIN	0	0	0	0	0.056	0.056	15.113
	beta-ENDOSULFAN	0	0	0	0	0.056	0.056	15.113
	ENDRIN	0	0	0	0	0.036	0.036	9.715
	HEPTACHLOR	0	0	0	0	0.004	0.004	1.025
	TOXAPHENE	0	0	0	0	0.0002	0.0002	0.054
	ALUMINUM	0	0	0	0	NA	NA	NA
	TOTAL IRON	0	0	0	0	1500	1500	404800.7
		WQC = 30 day average. PMF = 1.						
	MANGANESE	0	0	0	0	NA	NA	NA
	COBALT	0	0	0	0	19	19	5127.476
	OSMOTIC PRESSURE	0	0	0	0	50	50	13493.36
		Units for WLA and Effluent Limit = Milliosmoles per kilogram.						
	ACRYLAMIDE	0	0	0	0	NA	NA	NA
	OP (mOs/kg)	0	0	0	0	NA	NA	NA
	DINITROTOLUENE, TOTAL	0	0	0	0	NA	NA	NA
	ENDOSULFAN, TOTAL	0	0	0	0	NA	NA	NA

THH

Q7-10: **CCT (min)** 133.136 **PMF** 1 **Analysis pH** NA **Analysis Hardness** NA

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ANTIMONY	0	0	0	0	5.6	5.6	1511.256
ARSENIC	0	0	0	0	10	10	2698.672
CADMIUM	0	0	0	0	NA	NA	NA
CHROMIUM, III	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
	CHROMIUM, VI	0	0	0	0	NA	NA	NA
	COPPER	0	0	0	0	NA	NA	NA
	LEAD	0	0	0	0	NA	NA	NA
	NICKEL	0	0	0	0	610	610	164619
	SELENIUM	0	0	0	0	NA	NA	NA
	SILVER	0	0	0	0	NA	NA	NA
	ZINC	0	0	0	0	NA	NA	NA
	CYANIDE, FREE	0	0	0	0	140	140	37781.4
	4,6-DINITRO-o-CRESOL	0	0	0	0	13	13	3508.273
	PENTACHLOROPHENOL	0	0	0	0	NA	NA	NA
	ACROLEIN	0	0	0	0	6	6	1619.203
	ACRYLONITRILE	0	0	0	0	NA	NA	NA
	BENZENE	0	0	0	0	NA	NA	NA
	CARBON TETRACHLORIDE	0	0	0	0	NA	NA	NA
	CHLORODIBROMOMETHANE	0	0	0	0	NA	NA	NA
	DICHLOROBROMOMETHANE	0	0	0	0	NA	NA	NA
	1,2-DICHLOROETHANE	0	0	0	0	NA	NA	NA
	1,3-DICHLOROPROPYLENE	0	0	0	0	NA	NA	NA
	1,1,2,2-TETRACHLOROETHANE	0	0	0	0	NA	NA	NA
	TETRACHLOROETHYLENE	0	0	0	0	NA	NA	NA
	1,1,2-TRICHLOROETHANE	0	0	0	0	NA	NA	NA
	VINYL CHLORIDE	0	0	0	0	NA	NA	NA
	BENZIDINE	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
3,3'-DICHLORO-BENZIDINE			0	0	0	0	NA	NA	NA
2,4-DINITROTOLUENE			0	0	0	0	NA	NA	NA
2,6-DINITROTOLUENE			0	0	0	0	NA	NA	NA
HEXACHLOROBUTA-DIENE			0	0	0	0	NA	NA	NA
HEXACHLOROCYCLO-PENTADIENE			0	0	0	0	40	40	10794.69
HEXACHLOROETHANE			0	0	0	0	NA	NA	NA
N-NITROSODI-METHYLAMINE			0	0	0	0	NA	NA	NA
4,4'-DDT			0	0	0	0	NA	NA	NA
4,4'-DDE			0	0	0	0	NA	NA	NA
4,4'-DDD			0	0	0	0	NA	NA	NA
DIELDRIN			0	0	0	0	NA	NA	NA
beta-ENDOSULFAN			0	0	0	0	NA	NA	NA
ENDRIN			0	0	0	0	0.059	0.059	15.922
HEPTACHLOR			0	0	0	0	NA	NA	NA
TOXAPHENE			0	0	0	0	NA	NA	NA
ALUMINUM			0	0	0	0	NA	NA	NA
TOTAL IRON			0	0	0	0	NA	NA	NA
MANGANESE			0	0	0	0	1000	1000	269867.2
COBALT			0	0	0	0	NA	NA	NA
OSMOTIC PRESSURE			0	0	0	0	NA	NA	NA
ACRYLAMIDE			0	0	0	0	NA	NA	NA
OP (mOs/kg)			0	0	0	0	NA	NA	NA
DINITROTOLUENE, TOTAL			0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
	ENDOSULFAN, TOTAL	0	0	0	0	62	62	16731.76

CRL

Qh: **CCT (min)** 45.816 **PMF** 1

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
ANTIMONY	0	0	0	0	NA	NA	NA
ARSENIC	0	0	0	0	NA	NA	NA
CADMIUM	0	0	0	0	NA	NA	NA
CHROMIUM, III	0	0	0	0	NA	NA	NA
CHROMIUM, VI	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
NICKEL	0	0	0	0	NA	NA	NA
SELENIUM	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
ZINC	0	0	0	0	NA	NA	NA
CYANIDE, FREE	0	0	0	0	NA	NA	NA
4,6-DINITRO-o-CRESOL	0	0	0	0	NA	NA	NA
PENTACHLOROPHENOL	0	0	0	0	0.27	0.27	370.146
ACROLEIN	0	0	0	0	NA	NA	NA
ACRYLONITRILE	0	0	0	0	0.051	0.051	69.917
BENZENE	0	0	0	0	1.2	1.2	1645.094

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
CARBON TETRACHLORIDE			0	0	0	0	0.23	0.23	315.31
CHLORODIBROMOMETHANE			0	0	0	0	0.4	0.4	548.365
DICHLOROBROMOMETHANE			0	0	0	0	0.55	0.55	754.002
1,2-DICHLOROETHANE			0	0	0	0	0.38	0.38	520.947
1,3-DICHLOROPROPYLENE			0	0	0	0	0.34	0.34	466.11
1,1,2,2-TETRACHLOROETHANE			0	0	0	0	0.17	0.17	233.055
TETRACHLOROETHYLENE			0	0	0	0	0.69	0.69	945.929
1,1,2-TRICHLOROETHANE			0	0	0	0	0.59	0.59	808.838
VINYL CHLORIDE			0	0	0	0	0.025	0.025	34.273
BENZIDINE			0	0	0	0	0.000086	0.000086	0.118
3,3'-DICHLORO-BENZIDINE			0	0	0	0	0.021	0.021	28.789
2,4-DINITROTOLUENE			0	0	0	0	NA	NA	NA
2,6-DINITROTOLUENE			0	0	0	0	NA	NA	NA
HEXACHLOROBUTA-DIENE			0	0	0	0	0.44	0.44	603.201
HEXACHLOROCYCLO-PENTADIENE			0	0	0	0	NA	NA	NA
HEXACHLOROETHANE			0	0	0	0	1.4	1.4	1919.277
N-NITROSODI-METHYLAMINE			0	0	0	0	0.00069	0.00069	0.946
4,4'-DDT			0	0	0	0	0.00022	0.00022	0.302
4,4'-DDE			0	0	0	0	0.00022	0.00022	0.302
4,4'-DDD			0	0	0	0	0.00031	0.00031	0.425

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number						
10.42	**Outfall 001**	**PA0027715**						
	DIELDRIN	0	0	0	0	0.000052	0.000052	0.071
	beta-ENDOSULFAN	0	0	0	0	NA	NA	NA
	ENDRIN	0	0	0	0	NA	NA	NA
	HEPTACHLOR	0	0	0	0	0.000079	0.000079	0.108
	TOXAPHENE	0	0	0	0	0.00028	0.00028	0.384
	ALUMINUM	0	0	0	0	NA	NA	NA
	TOTAL IRON	0	0	0	0	NA	NA	NA
	MANGANESE	0	0	0	0	NA	NA	NA
	COBALT	0	0	0	0	NA	NA	NA
	OSMOTIC PRESSURE	0	0	0	0	NA	NA	NA
	ACRYLAMIDE	0	0	0	0	0.07	0.07	95.964
	OP (mOs/kg)	0	0	0	0	NA	NA	NA
	DINITROTOLUENE, TOTAL	0	0	0	0	0.05	0.05	68.546
	ENDOSULFAN, TOTAL	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
19D	37556	SEWICKLEY CREEK

RMI	Name	Permit Number	Disc Flow (mgd)
10.42	Outfall 001	PA0027715	0.0480

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
1,1,2,2-TETRACHLOROETHANE	233.055	CRL	363.603	233.055	CRL
1,1,2-TRICHLOROETHANE	808.838	CRL	1261.917	808.838	CRL
1,2-DICHLOROETHANE	520.947	CRL	812.76	520.947	CRL
1,3-DICHLOROPROPYLENE	466.11	CRL	727.207	466.11	CRL
2,4-DINITROTOLUENE	86357.49	CFC	134731.6	86357.49	CFC
2,6-DINITROTOLUENE	53973.43	CFC	84207.23	53973.43	CFC
3,3'-DICHLORO-BENZIDINE	28.789	CRL	44.916	28.789	CRL
4,4'-DDD	0.27	CFC	0.421	0.27	CFC
4,4'-DDE	0.27	CFC	0.421	0.27	CFC
4,4'-DDT	0.27	CFC	0.421	0.27	CFC
4,6-DINITRO-o-CRESOL	3508.273	THH	5473.47	3508.273	THH
ACROLEIN	175.458	AFC	273.742	175.458	AFC
ACRYLAMIDE	95.964	CRL	149.719	95.964	CRL
ACRYLONITRILE	69.917	CRL	109.081	69.917	CRL
ALUMINUM	43864.46	AFC	68435.6	43864.46	AFC
ANTIMONY	1511.256	THH	2357.802	1511.256	THH
ARSENIC	2698.672	THH	4210.361	2698.672	THH
BENZENE	1645.094	CRL	2566.612	1645.094	CRL
BENZIDINE	0.118	CRL	0.184	0.118	CRL
beta-ENDOSULFAN	12.867	AFC	20.074	12.867	AFC
CADMIUM	86.839	CFC	135.483	86.839	CFC
CARBON TETRACHLORIDE	315.31	CRL	491.934	315.31	CRL
CHLORODIBROMOMETHANE	548.365	CRL	855.537	548.365	CRL
CHROMIUM, III	28163.23	CFC	43939.16	28163.23	CFC
CHROMIUM, VI	952.928	AFC	1486.721	952.928	AFC
COBALT	5127.476	CFC	7999.687	5127.476	CFC
COPPER	1408.596	AFC	2197.637	1408.596	AFC
CYANIDE, FREE	1286.691	AFC	2007.444	1286.691	AFC
DICHLOROBROMOMETHANE	754.002	CRL	1176.364	754.002	CRL
DIELDRIN	0.071	CRL	0.111	0.071	CRL
DINITROTOLUENE, TOTAL	68.546	CRL	106.942	68.546	CRL
ENDOSULFAN, TOTAL	16731.76	THH	26104.24	16731.76	THH
ENDRIN	5.03	AFC	7.847	5.03	AFC
HEPTACHLOR	0.108	CRL	0.169	0.108	CRL
HEXACHLOROBUTA-DIENE	539.734	CFC	842.072	539.734	CFC
HEXACHLOROCYCLO-PENTADIE	269.867	CFC	421.036	269.867	CFC
HEXACHLOROETHANE	1919.277	CRL	2994.38	1919.277	CRL
LEAD	1156.119	CFC	1803.732	1156.119	CFC

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
19D	37556	SEWICKLEY CREEK

MANGANESE	269867.2	THH	421036.2	269867.2	THH
NICKEL	17154.61	CFC	26763.95	17154.61	CFC
N-NITROSODI-METHYLAMINE	0.946	CRL	1.476	0.946	CRL
OP (mOs/kg)	2924.297	AFC	4562.374	2924.297	AFC
OSMOTIC PRESSURE	13493.36	CFC	21051.81	13493.36	CFC
PENTACHLOROPHENOL	370.146	CRL	577.488	370.146	CRL
SELENIUM	1346.409	CFC	2100.614	1346.409	CFC
SILVER	595.946	AFC	929.772	595.946	AFC
TETRACHLOROETHYLENE	945.929	CRL	1475.802	945.929	CRL
TOTAL IRON	404800.7	CFC	631554.2	404800.7	CFC
TOXAPHENE	0.054	CFC	0.084	0.054	CFC
VINYL CHLORIDE	34.273	CRL	53.471	34.273	CRL
ZINC	11414.84	AFC	17808.98	11414.84	AFC

ATTACHMENT C

WQM 7.0 Modeling Results

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
19D	37556	SEWICKLEY CREEK	**10.420**	887.00	120.00	0.00300	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.024	0.00	19.97	0.000	0.000	0.0	0.00	0.00	20.00	7.60	20.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 001	PA0027715	0.0480	0.0000	0.0000	0.000	20.00	7.00

Parameter Data

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	8.38	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	37556	SEWICKLEY CREEK	**10.000**	886.00	121.00	0.00300	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.024	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.60	20.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	0.00	7.00

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
10.420	19.97	0.00	19.97	.0743	0.00300	.834	63.87	76.62	0.38	0.068	20.00	7.60
Q1-10 Flow												
10.420	12.78	0.00	12.78	.0743	0.00300	NA	NA	NA	0.29	0.087	20.00	7.59
Q30-10 Flow												
10.420	27.15	0.00	27.15	.0743	0.00300	NA	NA	NA	0.45	0.057	20.00	7.60

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
10.420	Outfall 001	5.15	50	5.15	50	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
10.420	Outfall 001	1.36	25	1.36	25	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
10.42	Outfall 001	37	37	25	25	3	3	0	0

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
10.420	0.048	20.000	7.595
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
63.869	0.834	76.619	0.376
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.13	0.092	0.09	0.700
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.360	7.706	Tsivoglou	5
Reach Travel Time (days)			
0.068			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.007	2.13	0.09	8.24
0.014	2.13	0.09	8.24
0.020	2.13	0.09	8.24
0.027	2.12	0.09	8.24
0.034	2.12	0.09	8.24
0.041	2.12	0.09	8.24
0.048	2.12	0.09	8.24
0.055	2.12	0.09	8.24
0.061	2.12	0.09	8.24
0.068	2.12	0.09	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	37556	SEWICKLEY CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
10.420	Outfall 001	PA0027715	0.048	CBOD5	37		
				NH3-N	25	50	
				Dissolved Oxygen			3

ATTACHMENT D

TRC Modeling Results

TRC EVALUATION – Outfall 001

19.965	= Q stream (cfs)	0.5	= CV Daily
0.048	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 85.788	**1.3.2.iii**	WLA cfc = 83.629
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 31.967	**5.1d**	LTA_cfc = 48.618

Source	Reference	Effluent Limit Calculations		
PENTOXSD TRG	**5.1f**	AML MULT = 1.720		
PENTOXSD TRG	**5.1g**	AVG MON LIMIT (mg/l) = 0.500	BAT/BPJ	
		INST MAX LIMIT (mg/l) = 1.170		

WLA afc	**(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc)) + Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	**(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc)) + Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)**
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	**1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)**

ATTACHMENT E

EPA 2015 Multi-Sector General Permit Benchmark Values

available acute ambient water quality criteria for priority toxic and non-priority pollutants in saltwater. These benchmark values reflect the toxicity of these metals in saline waters and replace the freshwater-based benchmark values in the 2008 permit. In some cases, the saltwater values represent significant changes in the benchmarks for facilities discharging into saline waters. The values for arsenic, copper, cyanide, and nickel are lowered by an order of magnitude. The values for cadmium and lead are increased by an order of magnitude, while the value for selenium is increased two orders of magnitude. Benchmark values for the other metals increase (mercury) or decrease (silver, and zinc) by smaller amounts.

The following table presents the permit's freshwater and saltwater benchmark values, and the source of those values. In most cases, EPA has not revised benchmarks since they were first published in the 1995 MSGP. However, eight of the ten benchmarks that were assigned the freshwater acute water quality criterion value as differentiated from the 2000 MSGP's value that was based on the method detection limit (MDL) (i.e., arsenic, cadmium, copper, cyanide, mercury, nickel, selenium, and silver) were lowered in the 2008 MSGP based on CWA section 302(a) EPA-recommended criteria. Excluding mercury and nickel, the benchmark values were changed from 3.18 times the MDL to the ambient acute water quality criteria value. Mercury and nickel benchmarks were revised based on EPA's updated acute aquatic life recommended criteria. In each case, at least one EPA-approved 40 CFR Part 136 analytical method exists with detection limits below these benchmark values.

MSGP Benchmark Values and Sources			
Pollutant	**MSGP Benchmark**	**MSGP Source**	**Different**
Aluminum (T) (pH 6.5 - 9)	00.75 mg/L	1	No
Beryllium (T)	0.13 mg/L	2	No
Iron (T)	1.0 mg/L	3	No
Biochemical Oxygen Demand (5 day)	30 mg/L	4	No
pH	6.0 – 9.0 s.u.	4	No
Chemical Oxygen Demand	120 mg/L	5	No
Total Phosphorus	2.0 mg/L	6	No
Total Suspended Solids	100 mg/L	7	No
Nitrate + Nitrite Nitrogen	0.68 mg/L	7	No
Magnesium (T)	0.064 mg/L	8	No
Turbidity	50 NTU	9	Yes
Antimony (T)	0.64 mg/L	12	No
Ammonia*	2.14 mg/L	13	No
Cadmium (T) Freshwater)† (Saltwater)	0.0021 mg/L 0.04 mg/L	1 14	Yes
Copper (T)* (Freshwater)† (Saltwater)	0.014 mg/L 0.0048 mg/L	1 14	Yes NA

MSGP Benchmark Values and Sources			
Pollutant	**MSGP Benchmark**	**MSGP Source**	**Different**
Cyanide (Freshwater) (Saltwater)	0.022 mg/L 0.001 mg/L	1 14	Yes
Mercury (T) (Freshwater) (Saltwater)	0.0014 mg/L 0.0018 mg/L	1 14	No; criteria updated^
Nickel (T) (Freshwater)† (Saltwater)	0.47 mg/L 0.074 mg/L	1 14	No; criteria updated^
Selenium (T)* (Freshwater) (Saltwater)	0.005 mg/L 0.29 mg/L	3 14	Yes
Silver (T)* (Freshwater)† (Saltwater)	0.0038 mg/L 0.0019 mg/L	1 14	Yes
Zinc (T) (Freshwater)† (Saltwater)	0.12 mg/L 0.09 mg/L	1 14	No; criteria updated^
Arsenic (T) (Freshwater) (Saltwater)	0.15 mg/L 0.069 mg/L	3 14	Yes NA
Lead (T)* Freshwater)† (Saltwater)	0.082 mg/L 0.21 mg/L	3 14	No

(T) Total recoverable

* New criteria are currently under development, but values are based on existing criteria.

† These pollutants are dependent on water hardness where discharged into freshwaters. The freshwater benchmark value listed is based on a hardness of 100 mg/L. When a facility analyzes receiving water samples for hardness, the permittee must use the hardness ranges provided in Table 1 in Appendix J of the 2015 MSGP and in the appropriate tables in Part 8 of the 2015 MSGP to determine applicable benchmark values for that facility. Benchmark values for discharges of these pollutants into saline waters are not dependent on receiving water hardness and do not need to be adjusted.

^ The values for these pollutants do not have a new basis. They are still based on the water quality criteria, but the "National Recommended Water Quality Criteria" was updated in 2002.

Sources:

1. "National Recommended Water Quality Criteria." Acute Aquatic Life Freshwater (EPA-822-F-04-010 2006-CMC)
2. "EPA Recommended Ambient Water Quality Criteria for Beryllium." LOEL Acute Freshwater (EPA-440-5-80-024 October 1980)
3. "National Recommended Water Quality Criteria." Chronic Aquatic Life Freshwater (EPA-822-F-04-010 2006-CCC)
4. Secondary Treatment Regulations (40 CFR 133)
5. Factor of 4 times BOD5 (5 day biochemical oxygen demand) concentration - North Carolina Benchmark
6. North Carolina stormwater Benchmark derived from NC Water Quality Standards
7. National Urban Runoff Program (NURP) median concentration
8. Minimum Level (ML) based upon highest Method Detection Limit (MDL) times a factor of 3.18

ATTACHMENT F

Wastewater Treatment Plant Flow Estimates

2018 Yukon WWTP Flow Estimates

	Gallons
001 Total Discharge: From totalizer data colleted monthly	24,169,700
101 Total Discharge: From hour meter calculated and collected monthly	3,052,800
	21,116,900

Other areas Calculated			
#3 Seep	1.2 GPM	630,720	
Storage areas 3 & 4	1 Acre	1,945,469	
PS 6 Mine Drain	2.75 GPM	1,445,400	
Tank 4 containment	30 x 30	80,394	
Tire cleaning area	1/2 Acre	972,735	
F039 Pad	50 x 20	89,326	
		5,164,044	
			15,952,856

Pump Station #7 (Landfill 6 Leachate)

Date	Pump Hours	
12/31/18	2291.2	hours
7/1/18	775.7	hours
Total	1515.5	hours
*	60	mins. Per hour
	90,930	mins. Total run time
*	85	GPM Average
	7,729,050	Gal. 6 mo
*	2	for 1 year est.
	15,458,100	Gal. 12 mo/ est
LCS/LDZ	262,800	.5 GPM
Total	15,720,900	Gallons
Divided	24,169,700	Total Discharge
* 100	65.04	% of Total Discharge

Rainfall YTD	5.971 Feet
1 Acre	43,560 Feet
Gal. of water cu. ft.	7.48