pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	**NPDES PERMIT FACT SHEET INDIVIDUAL INDUSTRIAL WASTE (IW) AND IW STORMWATER**	Application No.	**PA0217905**
Facility Type	**Industrial**		APS ID	**941449**
Major / Minor	**Minor**		Authorization ID	**1182888**

Applicant and Facility Information

Applicant Name	**Oakmont Borough Municipal Authority Allegheny County**	Facility Name	**Oakmont Municipal Authority Hulton Purification Plant**
Applicant Address	P.O. Box 73 721 Allegheny Avenue Oakmont, PA 15139-0073	Facility Address	1201 Allegheny Avenue Oakmont, PA 15139
Applicant Contact	Edward Adams	Facility Contact	Edward Adams
Applicant Phone	(412) 828-3388	Facility Phone	(412) 828-3388
Client ID	28835	Site ID	263782
SIC Code	4941,4952	Municipality	Oakmont Borough
SIC Description	Trans. & Utilities - Sewerage Systems,Trans. & Utilities - Water Supply	County	Allegheny
Date Application Received	May 2, 2017	EPA Waived?	Yes
Date Application Accepted	August 13, 2018	If No, Reason	

Purpose of Application: Renewal of NPDES permit for the discharge of process wastewater from the water treatment plant.

Summary of Review

The Department received an NPDES permit application from the Oakmont Municipal Authority (Authority) on May 2, 2017 to continue coverage of the discharge from its Hulton Purification Plant in Oakmont Borough of Allegheny County. The facility is a municipal water treatment plant with an SIC code of 4941 (Water Supply). The current NPDES permit was renewed on October 1, 2012 and expired on September 30, 2017. A WQM Permit application (0270207) was approved in 1970.

The Authority's Hulton Water Treatment Plant obtains raw water from the Allegheny River, at mile point 13.3, and treats the water to provide to about 40,299 customers. Water service is provided to eight communities in Allegheny and Butler counties. The rated capacity of the water treatment plant is 11 MGD with a water allocation limit of 10 MGD. Treatment currently consists of polyaluminum chloride addition for coagulation, flocculation, sedimentation, filtration, and disinfection. The discharge covered under the permit consists of supernatant from waste clarifiers, supernatant from sedimentation basin drainage, stormwater runoff and roof drain discharge.

The Hulton Purification Plant's treatment system consists of chemical fed mixing and flocculation, sedimentation, filtration, pH adjustment and U.V. disinfection. Five clarifiers provide flocculation and clarification and are followed by three single and dual media sand filters and then by two clearwells. Filter backwash water and clarifier blowdown flow back through four waste clarifiers. Sludge collected in the bottom of the waste clarifiers flows to a sludge press before being trucked offsite for processing and disposal. The supernatant from the waste clarifiers and sludge press is recycled back to the head of the plant.

The facility has a total of nine outfalls (001 – 009). Outfall 001 discharges at a rate of 0.07 MGD to Falling Spring Run, designated in 25 PA Code Chapter 93 as a Warm Water Fishery (WWF). Outfall 001 is the emergency discharge of waste clarifier supernatant. The Authority has rarely discharged from Outfall 001, since the effluent limits at Outfall 001 are very

Approve	Deny	Signatures	Date
X		/s/ Lauren Nolfi, E.I.T. / Environmental Engineering Specialist	July 24, 2019
X		/s/ Michael E. Fifth, P.E. / Environmental Engineer Manager	July 26, 2019

Summary of Review

restrictive. Supernatant from waste clarifiers is recycled back to the head of the treatment plant. Outfall 001 is intended only for use in the event of a plant malfunction that would prevent the discharge from being recycled. In Outfall 001's sample analyses, the maximum reported values for Total Antimony, Total Arsenic, Total Cadmium, Total Copper, Total Lead, Total Mercury, Total Phenols and Total Silver were each reported as "non-detect" using a QL that exceeds the Department's Target QL. The Authority elected not to collect additional samples for these parameters using the Target QLs, since Outfall 001 rarely discharges.

Outfalls 002 – 009 discharge to the Allegheny River, designated in 25 PA Code Chapter 93 as a Warm Water Fishery (WWF). Outfall 002 discharges effluent wastewater at a rate of 0.07 MGD from sedimentation basins 1 & 2 and clearwells 1 & 2. Outfall 003 discharges effluent wastewater at a rate of 0.3 MGD from sedimentation basins 3, 4 and 5. The wastewater discharge at both Outfalls 002 and 003 is periodic, approximately 6 times per year, during sedimentation basin maintenance. There have been no changes to the effluent limitations for Outfalls 002 and 003 since the permit was last issued, with the exception of monitoring frequency.

Discharges from Outfalls 004 – 009 are composed entirely of stormwater. Outfall 004 discharges stormwater from 0.82 acres of the eastern side of the plant. Outfalls 005, 006, 008, and 009 discharge runoff from building roof drains. Outfall 007 discharges stormwater runoff from the 0.5 acres of the western side of the plant. Monitoring requirements for Outfalls 004 – 009 were not included in the last permit. Stormwater samples were submitted with the application for stormwater Outfalls 004 – 009. At Outfall 004, all parameters, except for pH, were reported to be above benchmark values indicative of No Exposure conditions. For Outfalls 005 – 009, all parameters were reported to be below benchmark values indicative of No Exposure conditions, with the exception of pH at Outfalls 008 and 009.

Monitoring for the parameters of Oil and Grease, Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) will be imposed at Outfall 004, based on stormwater sampling results. Reported pH measurements are inconsistent amongst all of the stormwater outfall sampling results, indicating evidence of pollutant sources. pH monitoring is proposed at all stormwater outfalls. Monitoring for the corresponding appendix in the PAG-03 General Stormwater NPDES Permit will be imposed at stormwater Outfalls 005 – 009.

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)	0.07
Latitude	40º 31' 49.00"	Longitude	-79º 50' 10.00"
Quad Name	New Kensington West	Quad Code	1407
Wastewater Description:	Filter backwash water and clarifier blowdown supernatant from waste clarifiers		
Receiving Waters	Falling Springs Run	Stream Code	42367
NHD Com ID	123972654	RMI	0.3317
Drainage Area	0.14 mi2	Yield (cfs/mi^2)	0.00454
Q_{7-10} Flow (cfs)	0.000635	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	860	Slope (ft/ft)	0.0594
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final 04/09/2011	Name	Allegheny River
Nearest Downstream Public Water Supply Intake	Wilkinsburg-Penn Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	102.12
PWS RMI	8.91	Distance from Outfall (mi)	4.35 miles

Other Comments:

The applicant indicated that the discharge from Outfall 001 decreased from 0.15 MGD to 0.07 MGD. The Authority has rarely discharged from Outfall 001, since the effluent limits at Outfall 001 are very restrictive. The water quality based effluent limits at Outfall 001 were imposed on November 6, 1998. Supernatant from waste clarifiers is recycled back to the head of the treatment plant. Outfall 001 is intended only for use in the event of a plant malfunction that would prevent the discharge from being recycled.

The USGS Stream Stats Data for the drainage area is displayed in Attachment A.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	002	Design Flow (MGD)	0.07
Latitude	40º 31' 50.00"	Longitude	-79º 50' 14.00"
Quad Name	New Kensington West	Quad Code	1407
Wastewater Description:	Periodic tank drainage from Sedimentation Basins 1&2 and Clearwells 1&2		
Receiving Waters	Allegheny River	Stream Code	42122
NHD Com ID	123972839	RMI	13.4045
Drainage Area	11,500 mi2	Yield (cfs/mi^2)	0.2078
Q_{7-10} Flow (cfs)	2390	Q_{7-10} Basis	U.S. Army Corp of Engineers
Elevation (ft)	734.5	Slope (ft/ft)	0.0002
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Wilkinsburg-Penn Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	102.12
PWS RMI	8.91	Distance from Outfall (mi)	4.35 miles

Other Comments:

Outfall 002 consists of effluent wastewater from sedimentation basins 1 & 2 and clearwells 1 & 2. Influent to waste clarifiers is sand filter backwash and clarifier blowdown. The wastewater discharge is periodic, approximately 6 times per year, during sedimentation basin maintenance. The outfall discharges to the Allegheny River at the same location where Falling Springs Run discharges to the Allegheny River. The applicant indicated that the discharge from Outfall 002 decreased from 0.2 MGD to 0.07 MGD.

The USGS Stream Stats Data for the drainage area is displayed in Attachment E.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	003	Design Flow (MGD)	0.3
Latitude	40º 31' 51.00"	Longitude	-79º 50' 14.00"
Quad Name	New Kensington West	Quad Code	1407
Wastewater Description:	Periodic tank drainage from sedimentation basins 3, 4, and 5.		
Receiving Waters	Allegheny River	Stream Code	42122
NHD Com ID	123972839	RMI	13.4345
Drainage Area	11,500 mi2	Yield (cfs/mi^2)	0.2078
Q_{7-10} Flow (cfs)	2390	Q_{7-10} Basis	U.S. Army Corp of Engineers
Elevation (ft)	734.5	Slope (ft/ft)	0.0002
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final 04/09/2001	Name	Allegheny River
Nearest Downstream Public Water Supply Intake	Wilkinsburg-Penn Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	102.12
PWS RMI	8.91	Distance from Outfall (mi)	4.35 miles

Other Comments:

Outfall 003 consists of effluent wastewater from sedimentation basins 3, 4 and 5. Influent to waste clarifiers is sand filter backwash and clarifier blowdown. The wastewater discharge is periodic, approximately 6 times per year, during sedimentation basin maintenance. The applicant indicated that the discharge from Outfall 003 remains 0.3 MGD.

The USGS Stream Stats Data for the drainage area is displayed in Attachment I.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	004	Design Flow (MGD)	0
Latitude	40° 31′ 52.00″	Longitude	-79° 50′ 11.00″
Quad Name	New Kensington West	Quad Code	1407
Wastewater Description:	Stormwater Runoff from Plant Area		
Receiving Waters	Allegheny River	Stream Code	42122
NHD Com ID	123972831	RMI	13.50
Drainage Area	11,500	Yield (cfs/mi^2)	0.2078
Q_{7-10} Flow (cfs)	2390	Q_{7-10} Basis	U.S. Army Corp of Engineers
Elevation (ft)	734.5	Slope (ft/ft)	0.0000
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status	Final 04/09/2001	Name	Allegheny River
Nearest Downstream Public Water Supply Intake	Wilkinsburg-Penn Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	102.12
PWS RMI	8.91	Distance from Outfall (mi)	4.35 miles

Changes Since Last Permit Issuance: Monitoring requirements for Outfall 004 were not included in the last permit.

Discharge, Receiving Waters and Water Supply Information

Outfall No.	005 – 009	Design Flow (MGD)	0
Latitude	See Table 21	Longitude	See Table 21
Quad Name	New Kensington West	Quad Code	1407
Wastewater Description:	Stormwater Runoff from plant area and roof drains		
Receiving Waters	Allegheny River	Stream Code	42122
NHD Com ID	123972831	RMI	See Table 21
Drainage Area	11,500	Yield (cfs/mi^2)	0.2078
Q_{7-10} Flow (cfs)	2390	Q_{7-10} Basis	U.S. Army Corp of Engineers
Elevation (ft)	734.5	Slope (ft/ft)	0.0000
Watershed No.	18-A	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Attaining Use(s)		
Cause(s) of Impairment			
Source(s) of Impairment			
TMDL Status		Name	
Nearest Downstream Public Water Supply Intake	Wilkinsburg-Penn Joint Water Authority		
PWS Waters	Allegheny River	Flow at Intake (cfs)	102.12
PWS RMI	8.91	Distance from Outfall (mi)	4.35 miles

Changes Since Last Permit Issuance: Monitoring requirements for Outfalls 005-009 were not included in the last permit.

Outfall locations for the above-mentioned outfalls are displayed below in Table 21.

Table 21: Stormwater Outfall Locations

Outfall	Lat.	Long.	RMI	Stream
005	40º 31' 51.00"	-79º 50' 12.00"	13.44	Allegheny River
006	40º 31' 51.00"	-79º 50' 13.00"	13.46	Allegheny River
007	40º 31' 51.00"	-79º 50' 13.00"	13.42	Allegheny River
008	40º 31' 50.00"	-79º 50' 14.00"	13.39	Allegheny River
009	40º 31' 50.00"	-79º 50' 14.00"	13.39	Allegheny River

Compliance History	
Summary of DMRs:	All monitoring data shows that discharges have been below effluent limits.
Summary of Inspections:	The last inspection conducted by the Department was on June 5, 2015 by Barb Grosch as a compliance evaluation. No violations were noted.

Other Comments: The client has one open violation, generated by the Southwest Regional Office's Safe Drinking Water Program on December 5, 2017. The violation was issued for a failure to maintain required reports, records, or maps.

Compliance History

DMR Data for Outfall 002 (from July 1, 2017 to June 30, 2018)

Parameter	JUN-18	MAY-18	APR-18	MAR-18	FEB-18	JAN-18	DEC-17	NOV-17	OCT-17	SEP-17	AUG-17	JUL-17
Flow (MGD) Average Monthly	0.04	0.04	0.095	0.100	0.100	0.080						0.080
Flow (MGD) Daily Maximum	0.04	0.04	0.095	0.100	0.100	0.080						0.080
pH (S.U.) Minimum	7.2	7.0	7.0	6.9	7.0	7.1						7.0
pH (S.U.) Maximum	7.2	7.0	7.0	6.9	7.0	7.1						7.0
TRC (mg/L) Average Monthly	0.26	0.28	0.23	0.04	0.4	0.23						0.22
TRC (mg/L) Instantaneous Maximum	0.26	0.28	0.23	0.04	0.4	0.23						0.22
TSS (mg/L) Average Monthly	7	4	4	00	5	11						12.5
TSS (mg/L) Instantaneous Maximum	7	4	4	00	5	11						12.5
Total Aluminum (mg/L) Average Monthly	0.795	0.413	0.505	0.547	0.642	1.6						2.4
Total Aluminum (mg/L) Instantaneous Maximum	0.795	0.413	0.505	0.547	0.642	1.6						2.4
Total Iron (mg/L) Average Monthly	0.070	0.070	0.089	0.124	0.100	0.269						< 0.070
Total Iron (mg/L) Instantaneous Maximum	0.070	0.070	0.089	0.124	0.100	0.269						< 0.070
Total Manganese (mg/L) Average Monthly	0.11	0.0651	0.054	1.000	0.052	0.179						0.038
Total Manganese (mg/L) Instantaneous Maximum	0.11	0.0651	0.054	1.000	0.052	0.179						0.038

Development of Effluent Limitations

Outfall No.	001	**Design Flow (MGD)**	0.07
Latitude	40º 31' 49.00"	**Longitude**	-79º 50' 10.00"

Wastewater Description: Filter backwash water and clarifier blowdown supernatant from waste clarifiers

Technology-Based Limitations

The Oakmont Municipal Authority Hulton Purification Plant is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 1.

Effluent standards for pH pursuant to 25 Pa. Code §§ 95.2(1), as indicated in Table 1, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 1.

Table 1. Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
TRC	0.5 mg/L	----	1.6 mg/L

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of water treatment plant (WTP) sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which falls under Best Professional Judgement under 40 CFR § 125.3, as indicated in Table 2.

Table 2. BPT Limits for WTP sludge and filter backwash wastewater

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Suspended solids	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow	Monitor and Report	
pH	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

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

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation, and may be taken from the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants 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 "<MDL" where

the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (see Attachment B).

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 (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are collected on a spreadsheet titled "Toxics Screening Analysis." (Attachment B).

Total Maximum Daily Load (TMDL)

Wastewater discharges from Oakmont Hulton are located in the Allegheny River Watershed, for which the Department has developed a TMDL. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). The TMDL was finalized on April 9, 2001 and addresses contamination of fish tissue, in the Allegheny River from Lock and Dam 3 (River Mile 14.5) to the mouth (River Mile 0.0), by PCB and chlordane. Water quality criteria for the TMDL watershed do not apply to the wastewater discharges from Oakmont Hulton.

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 into PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also 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 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.

Reasonable Potential Analysis and WQBEL Development for Outfall 001

Discharges from Outfall 001 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are used for toxics screening as described above. The PENTOXSD model is run with the discharge and receiving stream characteristics shown in Table 3. The pollutants selected for analysis include those identified as candidates for modeling by the Toxics Screening Analysis spreadsheet (in accordance with Step 2 of the Toxics Screening Analysis procedure discussed above). Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis.

Based on the recommendations of the Toxics Screening Analysis, shown in Attachment B, Total Aluminum, Total Antimony, Total Arsenic, Total Cadmium, Total Copper, Total Lead, Total Mercury, Total Phenols and Total Silver were candidates for PENTOXSD modeling. The maximum reported values for Total Antimony, Total Arsenic, Total Cadmium, Total Copper, Total Lead, Total Mercury, Total Phenols and Total Silver were each reported as "non-detect" using a quantitation limit (QL) that exceeds the Department's Target QL.

Table 3: Outfall 001 PENTOXSD Inputs

Parameter	Value
River Mile Index	0.3317
Discharge Flow (MGD)	0.07
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	0.14
Q_{7-10} (cfs)	0.000635
Low-flow yield (cfs/mi^2)	0.00454
Elevation (ft)	860
Slope	0.0000

The WQBELs calculated using PENTOXSD are compared to the maximum reported effluent concentrations as described in the Toxics Screening Analysis section above to evaluate the need to impose WQBELs or monitoring requirements in the permit. Output from the PENTOXSD model runs are included in Attachment C.

Based on PENTOXSD modeling and the Toxics Screening Analysis, WQBELs will be imposed for the parameters of Total Aluminum, Total Antimony, Total Arsenic, Total Cadmium, Total Copper, Total Lead, Total Mercury and Total Silver. The Average Monthly Limits (AMLs) from PENTOXSD were less than the most stringent criterion for the parameters of Total Aluminum, Total Cadmium, Total Copper, Total Lead and Total Silver. The AMLs for those parameters are therefore equal to the most stringent criterion. Where the most stringent criterion is used for the AML, the Maximum Daily Limit (MDL) is set based on a multiplier of 2 times the AML. The recommended most stringent effluent limits are shown below in Table 4.

Oakmont Hulton elected not to collect additional samples for the parameters of Total Antimony, Total Arsenic, Total Cadmium, Total Copper, Total Lead, Total Mercury and Total Silver using the Target QLs, since Outfall 001 rarely discharges.

Table 4: Outfall 001 Water Quality Based Effluent Limits

Parameter	Monthly Average (µg/L)	Daily Maximum (µg/L)
Total Aluminum	750.0	1500.0
Total Antimony	5.6	8.8
Total Arsenic	Report	Report
Total Cadmium	0.27	0.54
Total Copper	9.3	18.6
Total Lead	3.2	6.4
Total Mercury	0.05	0.078
Total Silver	3.8	7.6

Total Residual Chlorine (TRC)

To determine if WQBELs are required for discharges containing total residual chlorine, 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 WQBELs will be imposed for TRC. The recommended effluent limits for TRC are shown below in Table 5.

Table 5: TRC WQBELs

Parameter	Monthly Average (mg/L)	IMAX (mg/L)
Total Residual Chlorine	0.013	0.030

Total Dissolved Solids (TDS)

The total dissolved solids (TDS) concentration in Outfall 001 is 113 mg/L. Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 1,000 mg/L TDS should be applied at minimum. Since the TDS discharge concentration is below 1,000 mg/L, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

Anti-Backsliding

The limits below in Table 6 are from the current permit. The parameters listed are water quality based effluent limits imposed on November 6, 1998.

Table 6: Current Permit Effluent Limits for Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	75.0
Total Residual Chlorine	XXX	XXX	XXX	0.012	XXX	0.03
Total Aluminum	XXX	XXX	XXX	0.5	1.0	1.25
Total Iron	XXX	XXX	XXX	1.5	3.0	3.75
Total Manganese	XXX	XXX	XXX	1.0	2.0	2.5
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0

Final Effluent Limitations for Outfall 001

Effluent limits applicable at Outfall 001 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. The current permit effluent limit for Total Aluminum is less than the most stringent criterion. The final effluent limits for Total Aluminum are therefore equal to the most stringent criterion.

The final effluent limitations and monitoring requirements for Outfall 001 are displayed below in Table 7. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been label as Daily Max, this has been changed to reflect what the guidance document states. The monitoring frequency will be once per discharge.

Table 7: Final Effluent Limits for Outfall 001

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX
Total Residual Chlorine	XXX	XXX	XXX	0.012	XXX	0.030
Total Aluminum (µg/L)	XXX	XXX	XXX	750	1000	XXX
Total Antimony (µg/L)	XXX	XXX	XXX	5.6	8.8	XXX
Total Arsenic (µg/L)	XXX	XXX	XXX	Report	Report	XXX
Total Cadmium (µg/L)	XXX	XXX	XXX	0.27	0.54	XXX
Total Copper (µg/L)	XXX	XXX	XXX	9.3	18.6	XXX
Total Iron	XXX	XXX	XXX	1.5	3.0	XXX
Total Lead (µg/L)	XXX	XXX	XXX	3.2	6.4	XXX
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX
Total Mercury (µg/L)	XXX	XXX	XXX	0.05	0.078	XXX
Total Silver (µg/L)	XXX	XXX	XXX	3.8	7.6	XXX
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX

Development of Effluent Limitations

Outfall No. 002 **Design Flow (MGD)** 0.07
Latitude 40º 31' 50.38" **Longitude** -79º 50' 13.80"
Wastewater Description: Periodic tank drainage from Sedimentation Basins 1&2 and Clearwells 1&2

Technology-Based Limitations

The Oakmont Municipal Authority Hulton Purification Plant is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 8.

Effluent standards for pH pursuant to 25 Pa. Code §§ 95.2(1), as indicated in Table 8, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 8.

Table 8: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
TRC	0.5 mg/L	----	1.6 mg/L

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of water treatment plant (WTP) sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which falls under Best Professional Judgement under 40 CFR § 125.3, as indicated in Table 9.

Table 9: BPT Limits for WTP sludge and filter backwash wastewater

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Suspended solids	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow	Monitor and Report	
pH	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

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

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation, and may be taken from the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants 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 "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (see Attachment F).

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 (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are collected on a spreadsheet titled "Toxics Screening Analysis." (Attachment F).

Total Maximum Daily Load (TMDL)

Wastewater discharges from Oakmont Hulton are located in the Allegheny River Watershed, for which the Department has developed a TMDL. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). The TMDL was finalized on April 9, 2001 and addresses contamination of fish tissue, in the Allegheny River from Lock and Dam 3 (River Mile 14.5) to the mouth (River Mile 0.0), by PCB and chlordane. Water quality criteria for the TMDL watershed do not apply to the wastewater discharges from Oakmont Hulton.

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 into PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also 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 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.

Reasonable Potential Analysis and WQBEL Development for Outfall 002

Discharges from Outfall 002 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are used for toxics screening as described above. The PENTOXSD model is run with the discharge and receiving stream characteristics shown in Table 10. The pollutants selected for analysis include those identified as candidates for modeling by the Toxics Screening Analysis spreadsheet (in accordance with Step 2 of the Toxics Screening Analysis procedure discussed above). Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis.

Based on the recommendations of the Toxics Screening Analysis, shown in Attachment F, Total Aluminum, Total Cadmium, Total Copper, Total Lead, Total Phenols and Total Silver were candidates for PENTOXSD modeling. The WQBELs calculated using PENTOXSD are compared to the maximum reported effluent concentrations as described in the Toxics Screening Analysis section above to evaluate the need to impose WQBELs or monitoring requirements in the permit. Output from the PENTOXSD model runs are included in Attachment G. Based on PENTOXSD modeling and the Toxics Screening Analysis, no WQBELs will be imposed.

Table 10: Outfall 002 PENTOXSD Inputs

Parameter	Value
River Mile Index	13.40
Discharge Flow (MGD)	0.07
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	11,500
Q_{7-10} (cfs)	2390
Low-flow yield (cfs/mi^2)	0.2078
Elevation (ft)	734.5
Slope	0.0000

Total Residual Chlorine (TRC)

To determine if WQBELs are required for discharges containing total residual chlorine, 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 H, indicate that no WQBELs will be imposed for TRC.

Total Dissolved Solids (TDS)

The total dissolved solids (TDS) concentration in Outfall 002 is 130 mg/L. Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 1,000 mg/L TDS should be applied at minimum. Since the TDS discharge concentration is below 1,000 mg/L, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

Anti-Backsliding

The limits below in Table 11 are from the current permit. The parameters listed are from the Department's Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania" and parameters believed to be present in the discharge.

Table 11: Current Permit Effluent Limits for Outfall 002

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60.0
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.0
Total Aluminum	XXX	XXX	XXX	4.0	XXX	8.0
Total Iron	XXX	XXX	XXX	2.0	XXX	4.0
Total Manganese	XXX	XXX	XXX	1.0	XXX	2.0
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0

Final Effluent Limitations for Outfall 002

Effluent limits applicable at Outfall 002 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. The final effluent limitations and monitoring requirements for Outfall 002 are displayed below in Table 12. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been label as Daily Max, this has been changed to reflect what the guidance document states. The monitoring frequency will be once per discharge.

Table 12: Final Effluent Limitation for Outfall 002

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.0
Total Aluminum	XXX	XXX	XXX	4.0	8.0	XXX
Total Iron	XXX	XXX	XXX	2.0	4.0	XXX
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX

Development of Effluent Limitations

Outfall No.	003	**Design Flow (MGD)**	0.3
Latitude	40º 31' 50.38"	**Longitude**	-79º 50' 13.80"

Wastewater Description: Periodic tank drainage from sedimentation basins 3, 4, and 5.

Technology-Based Limitations

The Oakmont Municipal Authority Hulton Purification Plant is not subject to Federal Effluent Limitation Guidelines (ELGs) as the SIC code is not listed under 40 CFR parts 405 through 471.

Regulatory Effluent Standards and Monitoring Requirements

Flow monitoring is required pursuant to 25 Pa. Code § 92a.61(d)(1) as indicated in Table 13.

Effluent standards for pH pursuant to 25 Pa. Code §§ 95.2(1), as indicated in Table 13, are also imposed on all industrial wastes.

Pennsylvania regulations at 25 Pa. Code § 92a.48(b) require the imposition of technology-based TRC limits for facilities that use chlorination and that are not already subject to TRC limits based on applicable federal ELGs or a facility-specific BPJ evaluation as indicated in Table 13.

Table 13: Regulatory Effluent Standards

Parameter	Monthly Average	Daily Maximum	IMAX
Flow (MGD)	Monitor	Monitor	----
pH (S.U.)	Not less than 6.0 nor greater than 9.0 at all times		----
TRC	0.5 mg/L	----	1.6 mg/L

Best Practicable Control Technology Currently Achievable (BPT)

BPT for wastewater from treatment of water treatment plant (WTP) sludges and filter backwash is found in DEPs Technology-Based Control Requirements for Water Treatment Plant Wastes Document which falls under Best Professional Judgement under 40 CFR § 125.3, as indicated in Table 14.

Table 14: BPT Limits for WTP sludge and filter backwash wastewater

Parameter	Monthly Average (mg/L)	Daily Maximum (mg/L)
Suspended solids	30.0	60.0
Total Iron	2.0	4.0
Total Aluminum	4.0	8.0
Total Manganese	1.0	2.0
Flow	Monitor and Report	
pH	Not less than 6.0 nor greater than 9.0 at all times	
Total Residual Chlorine	0.5	1.0

Water Quality-Based Effluent Limitations (WQBELs)

Toxics Screening Analysis – Procedures for Evaluating Reasonable Potential and Developing WQBELs

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

1. For IW discharges, the design flow to use in modeling is the average flow during production or operation, and may be taken from the permit application.

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants 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 "<MDL" where

the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. List all toxic pollutants of concern in a Toxics Screening Analysis section of the fact sheet (see Attachment J).

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 (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are collected on a spreadsheet titled "Toxics Screening Analysis." (Attachment J).

Total Maximum Daily Load (TMDL)

Wastewater discharges from Oakmont Hulton are located in the Allegheny River Watershed, for which the Department has developed a TMDL. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state's water resources (USEPA 1991a). The TMDL was finalized on April 9, 2001 and addresses contamination of fish tissue, in the Allegheny River from Lock and Dam 3 (River Mile 14.5) to the mouth (River Mile 0.0), by PCB and chlordane. Water quality criteria for the TMDL watershed do not apply to the wastewater discharges from Oakmont Hulton.

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 into PENTOXSD to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also 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 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.

Reasonable Potential Analysis and WQBEL Development for Outfall 003

Discharges from Outfall 003 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are used for toxics screening as described above. The PENTOXSD model is run with the discharge and receiving stream characteristics shown in Table 15. The pollutants selected for analysis include those identified as candidates for modeling by the Toxics Screening Analysis spreadsheet (in accordance with Step 2 of the Toxics Screening Analysis procedure discussed above). Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis.

Based on the recommendations of the Toxics Screening Analysis, shown in Attachment J, Total Cadmium, Total Copper, Total Lead, Total Mercury, Total Phenols and Total Silver were candidates for PENTOXSD modeling. The WQBELs calculated using PENTOXSD are compared to the maximum reported effluent concentrations as described in the Toxics Screening Analysis section above to evaluate the need to impose WQBELs or monitoring requirements in the permit. Output from the PENTOXSD model runs are included in Attachment K. Based on PENTOXSD modeling and the Toxics Screening Analysis, no WQBELs will be imposed.

Table 15: Outfall 003 PENTOXSD Inputs

Parameter	Value
River Mile Index	13.43
Discharge Flow (MGD)	0.30
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	11,500
Q_{7-10} (cfs)	2390
Low-flow yield (cfs/mi^2)	0.2078
Elevation (ft)	734.5
Slope	0.0000

Total Residual Chlorine (TRC)

To determine if WQBELs are required for discharges containing total residual chlorine, 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 L, indicate that no WQBELs will be imposed for TRC.

Total Dissolved Solids (TDS)

The total dissolved solids (TDS) concentration in Outfall 003 is 140 mg/L. Per *Policy and Procedure for NPDES Permitting of Discharges of Total Dissolved Solids (TDS) – 25 Pa. Code §95.10 (DEP-ID: 385-2100-002)*, a monitoring requirement for TDS for any discharge that exceeds 1,000 mg/L TDS should be applied at minimum. Since the TDS discharge concentration is below 1,000 mg/L, no monitoring/limit requirements will be applied for TDS or its constituent parameters.

Anti-Backsliding

The limits below in Table 16 are from the current permit. The parameters listed are from the Department's Technical Support Document (TSD) "Development of Technology-Based Control Requirements for Water Treatment Plant Wastes in Pennsylvania" and parameters believed to be present in the discharge.

Table 16: Current Permit Effluent Limits for Outfall 003

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	XXX	60.0
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.0
Total Aluminum	XXX	XXX	XXX	4.0	XXX	8.0
Total Iron	XXX	XXX	XXX	2.0	XXX	4.0
Total Manganese	XXX	XXX	XXX	1.0	XXX	2.0
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0

Final Effluent Limitations for Outfall 003

Effluent limits applicable at Outfall 003 are the more stringent of TBELs, WQBELs, regulatory effluent standards, and monitoring requirements. The final effluent limitations and monitoring requirements for Outfall 003 are displayed below in Table 17. Note that some values were incorrectly labeled as IMAX values in the previous permit when they should have been label as Daily Max, this has been changed to reflect what the guidance document states. The monitoring frequency will be once per discharge.

Table 17: Final Effluent Limitation for Outfall 003

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX
Total Suspended Solids	XXX	XXX	XXX	30.0	60.0	XXX
Total Residual Chlorine	XXX	XXX	XXX	0.5	XXX	1.0
Total Aluminum	XXX	XXX	XXX	4.0	8.0	XXX
Total Iron	XXX	XXX	XXX	2.0	4.0	XXX
Total Manganese	XXX	XXX	XXX	1.0	2.0	XXX
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX

Development of Effluent Limitations

Outfall No. 004 **Design Flow (MGD)** 0
Latitude 40° 31′ 52.00″ **Longitude** -79° 50′ 11.00″
Wastewater Description: Stormwater Runoff from Plant Area

Stormwater Drainage Overview

Outfall 004 discharges stormwater from 0.82 acres of the eastern side of the plant. The facility stated that no materials or activities in the drainage area are exposed to precipitation. Table 18 summarizes the current water quality of stormwater through Outfall 004. All parameters, except for pH, were reported to be above benchmark values indicative of No Exposure conditions.

Table 18: Analytical Results for Outfall 004 Stormwater

Parameter	Concentration
pH	8.14
Oil and Grease (mg/L)	9.3
Biochemical Oxygen Demand (5-day) (mg/L)	11.2
Chemical Oxygen Demand (mg/L)	184
Total Suspended Solids (mg/L)	570
Total Nitrogen (mg/L)	5.51
Phosphorus, total (mg/L)	2.55

Technology-Based Limitations

The Stormwater Outfalls will be subjected to the monitoring requirements in Appendix J of the PAG-03 General Stormwater Permit as a minimum requirement because the outfall receives stormwater. The SIC code for the site is 4941 and the corresponding appendix that would apply to the facility is Appendix J of the PAG-03. Appendix J reporting requirements are in Table 19 below.

Table 19: PAG-03 Appendix J Monitoring Requirements

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX

Water Quality-Based Limitations

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfall 004 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Anti-Backsliding

Effluent monitoring requirements for Outfall 004 are not included in the current permit.

Proposed Effluent Monitoring Requirements

The proposed effluent requirements for Outfall 004 are displayed in Table 20 below. The monitoring frequency will correspond to what is in the PAG-03 General Permit, semi-annual monitoring. A Part C condition is included in the Draft permit requiring submission of a Corrective Action Plan when there are two consecutive exceedances of the benchmark values. The benchmark values are displayed below in Table 20 and included in the Part C condition. These values are from EPA'S Multisector General Permit document and are not effluent limitations. Exceedance of the benchmark values is not a violation. If there are two consecutive exceedances of the benchmark value, a Corrective Action Plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 20: Proposed Effluent Limitations for Stormwater Outfall 004

Parameters	Maximum Daily Concentration	Benchmark Values (mg/L)	Monitoring Requirements	
			Frequency	Sample Type
pH	Monitor and Report		1/6 Months	Grab
Oil and Grease	Monitor and Report	15.0	1/6 Months	Grab
Chemical Oxygen Demand (COD)	Monitor and Report	120.0	1/6 Months	Grab
Total Suspended Solids (TSS)	Monitor and Report	100.0	1/6 Months	Grab

Development of Effluent Limitations

Outfall No. 005 – 009 **Design Flow (MGD)** 0
Latitude See Table 21 **Longitude** See Table 21
Wastewater Description: Stormwater Runoff from plant area and roof drains

Stormwater Drainage Overview

Outfalls 005, 006, 008, and 009 discharge runoff from building roof drains. Outfall 007 discharges stormwater runoff from the 0.5 acres of the western side of the plant. The facility stated that no materials or activities in the drainage area are exposed to precipitation.

Analytical Results

Tables 22-26 summarize the current water quality of stormwater through Outfalls 005 – 009. All parameters were reported to be below benchmark values indicative of No Exposure conditions, with the exception of pH at Outfalls 008 and 009. Reported pH measurements are inconsistent amongst all of the stormwater outfall sampling results, indicating evidence of pollutant sources. pH monitoring is proposed at all stormwater outfalls.

Table 22: Analytical Results for Outfall 005 Stormwater

Parameter	Concentration
pH	7.64
Oil and Grease (mg/L)	<5
Biochemical Oxygen Demand (5-day) (mg/L)	<3
Chemical Oxygen Demand (mg/L)	<10
Total Suspended Solids (mg/L)	6
Total Nitrogen (mg/L)	0.54
Phosphorus, total (mg/L)	<0.10

Table 23: Analytical Results for Outfall 006 Stormwater

Parameter	Concentration
pH	7.92
Oil and Grease (mg/L)	<5
Biochemical Oxygen Demand (5-day) (mg/L)	3.6
Chemical Oxygen Demand (mg/L)	28.4
Total Suspended Solids (mg/L)	57
Total Nitrogen (mg/L)	0.76
Phosphorus, total (mg/L)	0.22

Table 24: Analytical Results for Outfall 007 Stormwater

Parameter	Concentration
pH	8.16
Oil and Grease (mg/L)	<5
Biochemical Oxygen Demand (5-day) (mg/L)	4.4
Chemical Oxygen Demand (mg/L)	34
Total Suspended Solids (mg/L)	54
Total Nitrogen (mg/L)	0.97
Phosphorus, total (mg/L)	0.23

Table 25: Analytical Results for Outfall 008 Stormwater

Parameter	Concentration
pH	4.92
Oil and Grease (mg/L)	<5
Biochemical Oxygen Demand (5-day) (mg/L)	<3
Chemical Oxygen Demand (mg/L)	<10
Total Suspended Solids (mg/L)	<3
Total Nitrogen (mg/L)	ND
Phosphorus, total (mg/L)	<0.10

Table 26: Analytical Results for Outfall 009 Stormwater

Parameter	Concentration
pH	4.94
Oil and Grease (mg/L)	<5
Biochemical Oxygen Demand (5-day) (mg/L)	<3
Chemical Oxygen Demand (mg/L)	<10
Total Suspended Solids (mg/L)	3
Total Nitrogen (mg/L)	ND
Phosphorus, total (mg/L)	<0.10

Technology-Based Limitations

The Stormwater Outfalls will be subjected to the monitoring requirements in Appendix J of the PAG-03 General Stormwater Permit as a minimum requirement because the outfalls receive stormwater. The SIC code for the site is 4941 and the corresponding appendix that would apply to the facility is Appendix J of the PAG-03. Appendix J reporting requirements are shown in Table 27 below.

Table 27: PAG-03 Appendix J Monitoring Requirements

Parameters	Mass (lb/day)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Total Suspended Solids (TSS)	XXX	XXX	XXX	XXX	Report	XXX
Oil and Grease	XXX	XXX	XXX	XXX	Report	XXX

Water Quality-Based Limitations

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfalls 005-009 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Anti-Backsliding

Outfalls 005-009 are not included in the current permit, so there are no current effluent monitoring requirements for the stormwater outfalls.

Proposed Effluent Limitations

The final effluent limitations and monitoring requirements for 005 -009 are displayed in Table 28 below. The monitoring frequency will correspond to that in the PAG-03 General Permit, semi-annual monitoring.

Table 28: Proposed Effluent Limitations for Stormwater Outfalls 005-009

Parameters	Maximum Daily Concentration	Benchmark Values (mg/L)	Monitoring Requirements	Sample Type
pH	Monitor and Report		1/6 Months	Grab
Total Suspended Solids (TSS)	Monitor and Report	100.0	1/6 Months	Grab
Oil and Grease	Monitor and Report	15.0	1/6 Months	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment)
☐	Temperature Model Spreadsheet (see Attachment)
☒	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	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:
☐	Other:

Attachments

Attachment A: StreamStats Report for Outfall 001

Attachment B: Toxics Screening Analysis Results for Outfall 001

Attachment C: PENTOXSD Modeling Results for Outfall 001

Attachment D: TRC Modeling Results for Outfall 001

Attachment E: StreamStats Report for Outfall 002

Attachment F: Toxics Screening Analysis Results for Outfall 002

Attachment G: PENTOXSD Modeling Results for Outfall 002

Attachment H: TRC Modeling Results for Outfall 002

Attachment I: StreamStats Report for Outfall 003

Attachment J: Toxics Screening Analysis Results for Outfall 003

Attachment K: PENTOXSD Modeling Results for Outfall 003

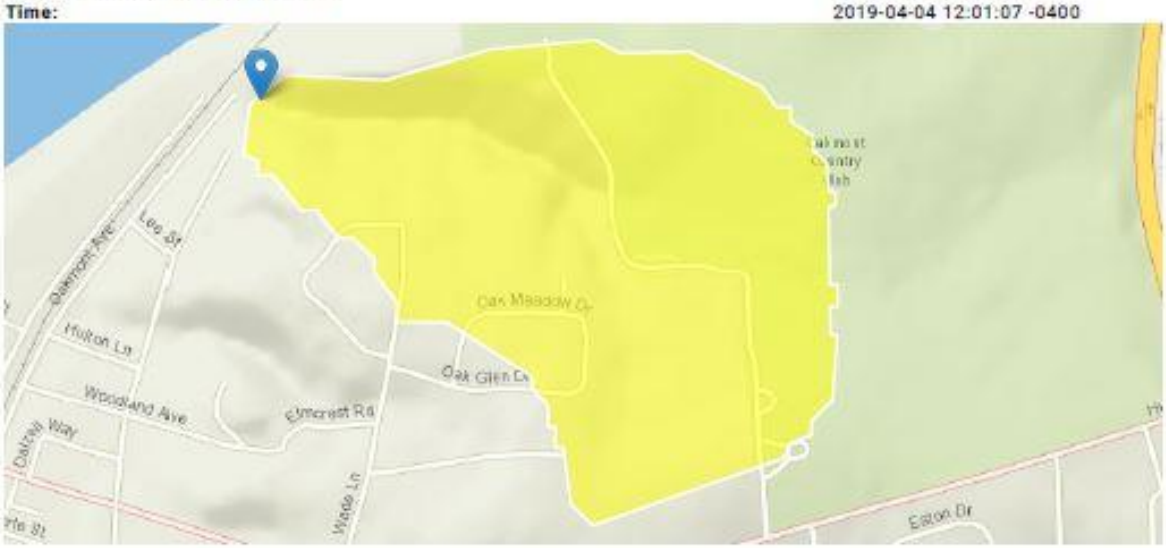
Attachment L: TRC Modeling Results for Outfall 003

ATTACHMENT A:

StreamStats Report for Outfall 001

StreamStats Report

Region ID:	PA
Workspace ID:	PA20190404160052869000
Clicked Point (Latitude, Longitude):	40.53010, -79.83611
Time:	2019-04-04 12:01:07 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.14	square miles
ELEV	Mean Basin Elevation	944.8	feet
PRECIP	Mean Annual Precipitation	41	inches

Low-Flow Statistics Parameters [Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.14	square miles	2.26	1400
ELEV	Mean Basin Elevation	944.8	feet	1050	2580

Low-Flow Statistics Disclaimers [Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00245	ft^3/s
30 Day 2 Year Low Flow	0.0051	ft^3/s
7 Day 10 Year Low Flow	0.000635	ft^3/s
30 Day 10 Year Low Flow	0.00154	ft^3/s
90 Day 10 Year Low Flow	0.00329	ft^3/s

Low-Flow Statistics Citations

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

ATTACHMENT B:

Toxics Screening Analysis Results for Outfall 001

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

CLEAR FORM

Facility: **Oakmont Hulton** NPDES Permit No.: **PA0217905** Outfall: **001**
Analysis Hardness (mg/L): **62.9** Discharge Flow (MGD): **0.07** Analysis pH (SU): **7.2**
Stream Flow, Q_{7-10} (cfs): **0.0006**

	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
Group 1	Total Dissolved Solids		113000	500000	No		
	Chloride		27500	250000	No		
	Bromide	<	1000	N/A	No		
	Sulfate		41900	250000	No		
	Fluoride		710	2000	No		
Group 2	Total Aluminum		938	750	Yes	750	Establish Limits
	Total Antimony	<	5	5.6	Yes	5.633	Establish Limits
	Total Arsenic	<	5	10	Yes	10.059	Monitor
	Total Barium	<	100	2400	No		
	Total Beryllium	<	2	N/A	No		
	Total Boron	<	100	1600	No (Value < QL)		
	Total Cadmium	<	2	0.271	Yes	0.271	Establish Limits
	Total Chromium	<	20	N/A	No		
	Hexavalent Chromium	<	5	10.4	No		
	Total Cobalt	<	5	19	No		
	Total Copper	<	20	9.3	Yes	9.33	Establish Limits
	Total Cyanide	<	10	N/A	No		
	Total Iron		70	1500	No		
	Dissolved Iron		50	300	No		
	Total Lead	<	20	3.2	Yes	3.2	Establish Limits
	Total Manganese		95	1000	No		
	Total Mercury	<	0.5	0.05	Yes	0.05	Establish Limits
	Total Molybdenum	<	5	N/A	No		
	Total Nickel	<	20	52.2	No		
	Total Phenols (Phenolics)	<	50	5	Yes	10460.98	No Limits/Monitoring
	Total Selenium	<	5	5.0	No (Value < QL)		
	Total Silver	<	5	3.8	Yes	3.8	Establish Limits
	Total Thallium	<	2	0.24	No (Value < QL)		
	Total Zinc	<	20	119.8	No		

ATTACHMENT C:

PENTOXSD Modeling Results for Outfall 001

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
42367	0.33	860.00	0.14	0.00000	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	0.00454	0	0.00064	0	0	0	0	0	100	7	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
Oakmont O001	PA0217905	0.07	0	0	0	0	0	0	0	62.9	7.2

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)
ALUMINUM	938	0	0.5	0.5	0	0	0	0	1	0
ANTIMONY	50	0	0.5	0.5	0	0	0	0	1	0
ARSENIC	50	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	2	0	0.5	0.5	0	0	0	0	1	0
COPPER	20	0	0.5	0.5	0	0	0	0	1	0
LEAD	20	0	0.5	0.5	0	0	0	0	1	0
MERCURY	0.5	0	0.5	0.5	0	0	0	0	1	0
PHENOL	50000	0	0.5	0.5	0	0	0	0	1	0
SILVER	5	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
42367	0.00	756.00	0.15	0.00000	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	0.00457	0	0.00069	0	0	0	0	0	100	7	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)
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
CADMIUM	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
LEAD	0	0	0.5	0.5	0	0	0	0	1	0
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0
PHENOL	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

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
18A	42367	FALLING SPRINGS RUN

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											
0.332	0.0006	0	0.0006	0.10829	0.0594	0.3985	2.3791	5.9696	0.1149	0.1765	0
0.000	0.0007	0	0.0007	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
0.332	0.0119	0	0.0119	0.10829	0.0594	0.4162	2.3791	5.7160	0.1214	0.167	.001
0.000	0.0128	0	0.0128	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
0.33	Oakmont O001	PA0217905

AFC

Q7-10: CCT (min) 0 PMF 1 Analysis pH 7.198 Analysis Hardness 63.116

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	1106.45
ARSENIC	0	0	0	0	340	340	341.994
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	1.287	1.336	1.344
	Dissolved WQC. Chemical translator of 0.963 applied.						
COPPER	0	0	0	0	8.711	9.074	9.127
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	38.997	45.448	45.714
	Dissolved WQC. Chemical translator of 0.858 applied.						
MERCURY	0	0	0	0	1.4	1.647	1.657
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	1.458	1.715	1.725
	Dissolved WQC. Chemical translator of 0.85 applied.						
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	750	750	754.398

CFC

Q7-10: CCT (min) 0 PMF 1 Analysis pH 7.198 Analysis Hardness 63.116

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	221.29
ARSENIC	0	0	0	0	150	150	150.88
	Dissolved WQC. Chemical translator of 1 applied.						
CADMIUM	0	0	0	0	0.179	0.192	0.194
	Dissolved WQC. Chemical translator of 0.928 applied.						
COPPER	0	0	0	0	6.044	6.296	6.333
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	1.52	1.771	1.781
	Dissolved WQC. Chemical translator of 0.858 applied.						
MERCURY	0	0	0	0	0.77	0.906	0.911
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
0.33	Oakmont O001	PA0217905

THH

Q7-10: CCT (min) 0 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	5.633
ARSENIC	0	0	0	0	10	10	10.059
CADMIUM	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	0.05	0.05	0.05
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	10400	10400	10460.98
ALUMINUM	0	0	0	0	NA	NA	NA

CRL

Qh: CCT (min) 0.001 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
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
18A	42367	FALLING SPRINGS RUN

RMI	Name	Permit Number	Disc Flow (mgd)
0.33	Oakmont O001	PA0217905	0.0700

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
ALUMINUM	483.539	AFC	754.398	483.539	AFC
ANTIMONY	5.633	THH	8.788	5.633	THH
ARSENIC	10.059	THH	15.693	10.059	THH
CADMIUM	0.194	CFC	0.302	0.194	CFC
COPPER	5.85	AFC	9.127	5.85	AFC
LEAD	1.781	CFC	2.779	1.781	CFC
MERCURY	0.05	THH	0.078	0.05	THH
PHENOL	10460.98	THH	16320.82	10460.98	THH
SILVER	1.106	AFC	1.725	1.106	AFC

ATTACHMENT D:

TRC Modeling Results for Outfall 001

TRC EVALUATION

0.000635	= Q stream (cfs)	0.5	= CV Daily
0.07	= 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	0	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	0	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	1.3.2.iii	WLA afc =	0.021	1.3.2.iii	WLA cfc =	0.013
PENTOXSD TRG	5.1a	LTAMULT afc =	0.373	5.1c	LTAMULT cfc =	0.581
PENTOXSD TRG	5.1b	LTA_afc=	0.008	5.1d	LTA_cfc =	0.007

Source		Effluent Limit Calculations		
PENTOXSD TRG	5.1f	AML MULT =	1.720	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) =	0.013	CFC
		INST MAX LIMIT (mg/l) =	0.030	

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:

StreamStats Report for Outfall 002

StreamStats Report

Region ID: PA
Workspace ID: PA20190329195337510000
Clicked Point (Latitude, Longitude): 40.53132, -79.83875
Time: 2019-03-29 15:53:56 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	11500	square miles
ELEV	Mean Basin Elevation	1598.2	feet
PRECIP	Mean Annual Precipitation	43.8	inches

Low-Flow Statistics Parameters [97 Percent (11200 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	11500	square miles	2.33	1720
ELEV	Mean Basin Elevation	1598.2	feet	898	2700
PRECIP	Mean Annual Precipitation	43.8	inches	38.7	47.9

Low-Flow Statistics Parameters [3 Percent (301 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	11500	square miles	2.26	1400
ELEV	Mean Basin Elevation	1598.2	feet	1050	2580

Low-Flow Statistics Disclaimers [97 Percent (11200 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [97 Percent (11200 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1490	ft^3/s
30 Day 2 Year Low Flow	1890	ft^3/s
7 Day 10 Year Low Flow	987	ft^3/s
30 Day 10 Year Low Flow	1180	ft^3/s
90 Day 10 Year Low Flow	1590	ft^3/s

Low-Flow Statistics Disclaimers [3 Percent (301 square miles) Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [3 Percent (301 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1510	ft^3/s
30 Day 2 Year Low Flow	1910	ft^3/s
7 Day 10 Year Low Flow	984	ft^3/s
30 Day 10 Year Low Flow	1070	ft^3/s
90 Day 10 Year Low Flow	1480	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1490	ft^3/s
30 Day 2 Year Low Flow	1890	ft^3/s
7 Day 10 Year Low Flow	987	ft^3/s
30 Day 10 Year Low Flow	1180	ft^3/s
90 Day 10 Year Low Flow	1590	ft^3/s

Low-Flow Statistics Citations

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

ATTACHMENT F:

Toxics Screening Analysis Results for Outfall 002

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

CLEAR FORM

Facility: **Oakmont Hulton** NPDES Permit No.: **PA0217905** Outfall: **002**
Analysis Hardness (mg/L): **63.5** Discharge Flow (MGD): **0.07** Analysis pH (SU): **7.2**
Stream Flow, Q_{7-10} (cfs): **2390**

	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
Group 1	Total Dissolved Solids		130000	500000	No		
	Chloride		27200	250000	No		
	Bromide	<	1000	N/A	No		
	Sulfate		40800	250000	No		
	Fluoride		630	2000	No		
Group 2	Total Aluminum		938	750	Yes	7420000	No Limits/Monitoring
	Total Antimony	<	5	5.6	No		
	Total Arsenic	<	5	10	No		
	Total Barium	<	100	2400	No		
	Total Beryllium	<	2	N/A	No		
	Total Boron	<	100	1600	No (Value < QL)		
	Total Cadmium	<	2	0.271	Yes	4181.118	No Limits/Monitoring
	Total Chromium	<	20	N/A	No		
	Hexavalent Chromium	<	5	10.4	No		
	Total Cobalt	<	5	19	No		
	Total Copper	<	20	9.3	Yes	138629.6	No Limits/Monitoring
	Total Cyanide	<	10	N/A	No		
	Total Iron		70	1500	No		
	Dissolved Iron		30	300	No		
	Total Lead	<	20	3.2	Yes	49154.93	No Limits/Monitoring
	Total Manganese		95	1000	No		
	Total Mercury	<	0.5	0.05	Yes		
	Total Molybdenum	<	5	N/A	No		
	Total Nickel	<	20	52.2	No		
	Total Phenols (Phenolics)	<	50	5	Yes	1.20E+07	No Limits/Monitoring
	Total Selenium	<	5	5.0	No (Value < QL)		
	Total Silver	<	5	3.8	Yes	37475.55	No Limits/Monitoring
	Total Thallium	<	2	0.24	No (Value < QL)		
	Total Zinc	<	20	119.8	No		

ATTACHMENT G:

PENTOXSD Modeling Results for Outfall 002

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
42122	13.40	734.50	11500.00	0.00000	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	0.2078	0	2390	0	0	0	0	0	100	7	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)	
Oakmont O002	PA0217905	0.07	0	0	0	0.7	0.7	0	0	63.5	7.2

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)
ALUMINUM	9380000	0	0.5	0.5	0	0	0	0	1	0
CADMIUM	20000	0	0.5	0.5	0	0	0	0	1	0
COPPER	200000	0	0.5	0.5	0	0	0	0	1	0
LEAD	200000	0	0.5	0.5	0	0	0	0	1	0
MERCURY	500	0	0.5	0.5	0	0	0	0	1	0
PHENOL	5E+07	0	0.5	0.5	0	0	0	0	1	0
SILVER	50000	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
42122	12.90	734.00	11500.50	0.00000	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	0.2078	0	2390.5	0	0	0	0	0	100	7	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)	
		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)
ALUMINUM	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
COPPER	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
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0
PHENOL	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

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
18A	42122	ALLEGHENY RIVER

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											
13.404	2390	0	2390	0.10829	0.0002	0.8563	1452.2	1696.0	1.9221	0.0159	1000+
12.904	2390.5	0	2390.5	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
13.404	6663.6	0	6663.6	0.10829	0.0002	1.3444	1452.2	1080.2	3.4130	0.009	1000+
12.904	6664.8	0	6664.8	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
13.40	Oakmont O002	PA0217905

AFC

Q7-10: CCT (min) 15 PMF 0.699 Analysis pH 7 Analysis Hardness 99.997

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	2.014	2.133	32957.46
	Dissolved WQC. Chemical translator of 0.944 applied.						
COPPER	0	0	0	0	13.439	13.999	216284.5
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	64.58	81.643	1260000
	Dissolved WQC. Chemical translator of 0.791 applied.						
MERCURY	0	0	0	0	1.4	1.647	25447.48
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	3.217	3.784	58467.89
	Dissolved WQC. Chemical translator of 0.85 applied.						
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	750	750	1.158E+07

CFC

Q7-10: CCT (min) 720 PMF 0.699 Analysis pH 7 Analysis Hardness 99.997

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	0.246	0.271	4181.118
	Dissolved WQC. Chemical translator of 0.909 applied.						
COPPER	0	0	0	0	8.956	9.329	144131.1
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	2.517	3.181	49154.93
	Dissolved WQC. Chemical translator of 0.791 applied.						
MERCURY	0	0	0	0	0.77	0.906	13996.11
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
13.40	Oakmont O002	PA0217905

THH

Q7-10: **CCT (min)** 720 **PMF** NA **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)
CADMIUM	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	0.05	0.05	57.562
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	10400	10400	1.197E+07
ALUMINUM	0	0	0	0	NA	NA	NA

CRL

Qh: **CCT (min)** 720 **PMF** 0.073

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA
ALUMINUM	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
18A	42122	ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
13.40	Oakmont O002	PA0217905	0.0700

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
ALUMINUM	7420000	AFC	1.158E+07	7420000	AFC
CADMIUM	4181.118	CFC	6523.216	4181.118	CFC
COPPER	138629.6	AFC	216284.5	138629.6	AFC
LEAD	49154.93	CFC	76689.6	49154.93	CFC
MERCURY	57.562	THH	89.805	57.562	THH
PHENOL	1.197E+07	THH	1.867E+07	1.197E+07	THH
SILVER	37475.55	AFC	58467.88	37475.55	AFC

ATTACHMENT H:

TRC Modeling Results for Outfall 002

TRC EVALUATION

2390	= Q stream (cfs)	0.5	= CV Daily
0.07	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.7	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.7	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	0	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	0	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	**1.3.2.iii**	WLA afc = 4928.332	**1.3.2.iii**	WLA cfc = 4804.730
PENTOXSD TRG	**5.1a**	LTAMULT afc = 0.373	**5.1c**	LTAMULT cfc = 0.581
PENTOXSD TRG	**5.1b**	LTA_afc= 1836.414	**5.1d**	LTA_cfc = 2793.245

Source		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 I:

StreamStats Report for Outfall 003

StreamStats Report

Region ID: PA
Workspace ID: PA20190329123518303000
Clicked Point (Latitude, Longitude): 40.53172, -79.83790
Time: 2019-03-29 08:35:37 -0400

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	11500	square miles
ELEV	Mean Basin Elevation	1598.3	feet
PRECIP	Mean Annual Precipitation	43.8	inches

Low-Flow Statistics Parameters [97 Percent (11200 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	11500	square miles	2.33	1720
ELEV	Mean Basin Elevation	1598.3	feet	898	2700
PRECIP	Mean Annual Precipitation	43.8	inches	38.7	47.9

Low-Flow Statistics Parameters [3 Percent (301 square miles) Low Flow Region 4]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	11500	square miles	2.26	1400
ELEV	Mean Basin Elevation	1598.3	feet	1050	2580

Low-Flow Statistics Disclaimers [97 Percent (11200 square miles) Low Flow Region 3]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [97 Percent (11200 square miles) Low Flow Region 3]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1490	ft^3/s
30 Day 2 Year Low Flow	1890	ft^3/s
7 Day 10 Year Low Flow	987	ft^3/s
30 Day 10 Year Low Flow	1180	ft^3/s
90 Day 10 Year Low Flow	1590	ft^3/s

Low-Flow Statistics Disclaimers [3 Percent (301 square miles) Low Flow Region 4]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report [3 Percent (301 square miles) Low Flow Region 4]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1510	ft^3/s
30 Day 2 Year Low Flow	1910	ft^3/s
7 Day 10 Year Low Flow	984	ft^3/s
30 Day 10 Year Low Flow	1070	ft^3/s
90 Day 10 Year Low Flow	1480	ft^3/s

Low-Flow Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
7 Day 2 Year Low Flow	1490	ft^3/s
30 Day 2 Year Low Flow	1890	ft^3/s
7 Day 10 Year Low Flow	987	ft^3/s
30 Day 10 Year Low Flow	1180	ft^3/s
90 Day 10 Year Low Flow	1590	ft^3/s

Low-Flow Statistics Citations

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

ATTACHMENT J:

Toxics Screening Analysis Results for Outfall 003

TOXICS SCREENING ANALYSIS
WATER QUALITY POLLUTANTS OF CONCERN
VERSION 2.6

CLEAR FORM

Facility: **Oakmont Hulton** NPDES Permit No.: **PA0217905** Outfall: **003**
Analysis Hardness (mg/L): **66.5** Discharge Flow (MGD): **0.3** Analysis pH (SU): **7.1**
Stream Flow, Q_{7-10} (cfs): **2390**

	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
Group 1	Total Dissolved Solids		140000	500000	No		
	Chloride		27400	250000	No		
	Bromide	<	1000	N/A	No		
	Sulfate		42200	250000	No		
	Fluoride		740	2000	No		
Group 2	Total Aluminum		300	750	No		
	Total Antimony	<	5	5.6	No		
	Total Arsenic	<	5	10	No		
	Total Barium	<	100	2400	No		
	Total Beryllium	<	2	N/A	No		
	Total Boron	<	100	1600	No (Value < QL)		
	Total Cadmium	<	2	0.271	Yes	975.752	No Limits/Monitoring
	Total Chromium	<	20	N/A	No		
	Hexavalent Chromium	<	5	10.4	No		
	Total Cobalt	<	5	19	No		
	Total Copper	<	20	9.3	Yes	32351.68	No Limits/Monitoring
	Total Cyanide	<	10	N/A	No		
	Total Iron		30	1500	No		
	Dissolved Iron		20	300	No		
	Total Lead	<	20	3.2	Yes	11470.91	No Limits/Monitoring
	Total Manganese		120	1000	No		
	Total Mercury	<	0.5	0.05	Yes	13.469	No Limits/Monitoring
	Total Molybdenum	<	5	N/A	No		
	Total Nickel	<	20	52.2	No		
	Total Phenols (Phenolics)		170	5	Yes	2800000	No Limits/Monitoring
	Total Selenium	<	5	5.0	No (Value < QL)		
	Total Silver	<	5	3.8	Yes	8745.112	No Limits/Monitoring
	Total Thallium	<	2	0.24	No (Value < QL)		
	Total Zinc	<	20	119.8	No		

ATTACHMENT K:

PENTOXSD Modeling Results for Outfall 003

PENTOXSD

Modeling Input Data

Stream Code	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope	PWS With (mgd)	Apply FC
42122	13.43	734.50	11500.00	0.00000	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	0.2078	0	2390	0	0	0	0	0	100	7	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)	
Oakmont 003	PA0217905	0.3	0	0	0	0.7	0.7	0	0	66.5	7.1

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)
CADMIUM	2000	0	0.5	0.5	0	0	0	0	1	0
COPPER	200000	0	0.5	0.5	0	0	0	0	1	0
LEAD	20000	0	0.5	0.5	0	0	0	0	1	0
MERCURY	50	0	0.5	0.5	0	0	0	0	1	0
PHENOL	1.7E+07	0	0.5	0.5	0	0	0	0	1	0
SILVER	50000	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
42122	12.93	734.00	11500.50	0.00000	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	0.2079	0	2390.5	0	0	0	0	0	100	7	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)	
		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)
CADMIUM	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
LEAD	0	0	0.5	0.5	0	0	0	0	1	0
MERCURY	0	0	0.5	0.5	0	0	0	0	1	0
PHENOL	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

PENTOXSD Analysis Results

Hydrodynamics

SWP Basin	Stream Code:	Stream Name:
18A	42122	ALLEGHENY RIVER

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											
13.434	2390	0	2390	0.4641	0.0002	0.8562	1452.5	1696.4	1.9223	0.0159	1000+
12.934	2390.5	0	2390.5	NA	0	0	0	0	0	0	NA
Qh Hydrodynamics											
13.434	6663.6	0	6663.6	0.4641	0.0002	1.3443	1452.5	1080.5	3.4131	0.009	1000+
12.934	6664.8	0	6664.8	NA	0	0	0	0	0	0	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
13.43	Oakmont 003	PA0217905

AFC

Q7-10: CCT (min) 15 PMF 0.699 Analysis pH 7 Analysis Hardness 99.99

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	2.014	2.133	7691.167
	Dissolved WQC. Chemical translator of 0.944 applied.						
COPPER	0	0	0	0	13.438	13.998	50473.82
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	64.575	81.635	294363.2
	Dissolved WQC. Chemical translator of 0.791 applied.						
MERCURY	0	0	0	0	1.4	1.647	5939.008
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	3.216	3.784	13643.78
	Dissolved WQC. Chemical translator of 0.85 applied.						
PHENOL	0	0	0	0	NA	NA	NA

CFC

Q7-10: CCT (min) 720 PMF 0.699 Analysis pH 7 Analysis Hardness 99.99

Parameter	Stream Conc. (µg/L)	Stream CV	Trib Conc. (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	0.246	0.271	975.752
	Dissolved WQC. Chemical translator of 0.909 applied.						
COPPER	0	0	0	0	8.955	9.328	33635.75
	Dissolved WQC. Chemical translator of 0.96 applied.						
LEAD	0	0	0	0	2.516	3.181	11470.91
	Dissolved WQC. Chemical translator of 0.791 applied.						
MERCURY	0	0	0	0	0.77	0.906	3266.454
	Dissolved WQC. Chemical translator of 0.85 applied.						
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Wasteload Allocations

RMI	Name	Permit Number
13.43	Oakmont 003	PA0217905

THH

Q7-10: CCT (min) 720 PMF NA 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)
CADMIUM	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	0.05	0.05	13.469
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	10400	10400	2800000

CRL

Qh: CCT (min) 720 PMF 0.073

Parameter	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)
CADMIUM	0	0	0	0	NA	NA	NA
COPPER	0	0	0	0	NA	NA	NA
LEAD	0	0	0	0	NA	NA	NA
MERCURY	0	0	0	0	NA	NA	NA
SILVER	0	0	0	0	NA	NA	NA
PHENOL	0	0	0	0	NA	NA	NA

PENTOXSD Analysis Results

Recommended Effluent Limitations

SWP Basin	Stream Code:	Stream Name:
18A	42122	ALLEGHENY RIVER

RMI	Name	Permit Number	Disc Flow (mgd)
13.43	Oakmont 003	PA0217905	0.3000

Parameter	Effluent Limit (µg/L)	Governing Criterion	Max. Daily Limit (µg/L)	Most Stringent WQBEL (µg/L)	Most Stringent WQBEL Criterion
CADMIUM	975.752	CFC	1522.329	975.752	CFC
COPPER	32351.68	AFC	50473.82	32351.68	AFC
LEAD	11470.91	CFC	17896.47	11470.91	CFC
MERCURY	13.469	THH	21.013	13.469	THH
PHENOL	2800000	THH	4370000	2800000	THH
SILVER	8745.112	AFC	13643.78	8745.112	AFC

ATTACHMENT L:
TRC Modeling Results for Outfall 003

TRC EVALUATION

2390	= Q stream (cfs)	0.5	= CV Daily
0.3	= Q discharge (MGD)	0.5	= CV Hourly
4	= no. samples	0.7	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	0.7	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	0	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	0	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)	0	=Decay Coefficient (K)

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	1149.959	**1.3.2.iii**	WLA cfc =	1121.112
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	428.502	**5.1d**	LTA_cfc =	651.762

Source		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)**