pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Northcentral Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0009024**
Facility Type	**Industrial**	APS ID	**1060215**
Major / Minor	**Major**	Authorization ID	**1390775**

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

1.0 Applicant and Facility Information

Applicant Name	**Global Tungsten & Powders Corp.**	Facility Name	**Global Tungsten & Powders Corp.**
Applicant Address	1 Hawes Street	Facility Address	1 Hawes Street
	Towanda, PA 18848-2134		Towanda, PA 18848-2134
Applicant Contact	Jeanne Reno	Facility Contact	Jeanne Reno
Applicant Phone	(570) 268-5421	Facility Phone	(570) 268-5421
Client ID	265523	Site ID	259379
SIC Code	3339	Municipality	North Towanda Township
SIC Description	Manufacturing - Primary Nonferrous Metals, NEC	County	Bradford
Date Application Received	March 30, 2022	EPA Waived?	No
Date Application Accepted	April 11, 2022	If No, Reason	Major Facility, Significant CB Discharge
Purpose of Application	Renewal of an existing NPDES permit for the discharge of industrial waste.		

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

Approve	Deny	Signatures	Date
X		*Derek S. Garner* Derek S. Garner / Project Manager	December 8, 2022
X		*Nicholas W. Hartranft* Nicholas W. Hartranft, P.E. / Environmental Engineer Manager	December 12, 2022

2.0 Facility Summary

GTP's Towanda facility produces and processes, via smelting, refining, rolling, drawing and extruding processes, various nonferrous metals. Operational as of 1916, the facility has become one of the leading suppliers of powders, semi-finished products and components made from tungsten, molybdenum, and phosphors.

The facility produces various wastewaters, including process wastewater, cooling tower blowdown, boiler blowdown, non-contact cooling water, steam condensate, and stormwater. An onsite industrial wastewater treatment plant ("IWTP") treats mainly process water and boiler/cooling tower blowdown; however, miscellaneous flows from various parts of the facility make up a minor fraction of treated effluent. The IWTP is covered under WQM Permit No. 0890201, issued April 23, 1990. The treatment process prior to discharge at Outfall 001 is as follows:

- Equalization
- pH adjustment
    - Three (3) tanks
- Clarification
    - Two (2) clarifiers
- Final pH adjustment
- Sludge Thickener
    - Sludge is disposed as a residual waste in approved landfill

WQM Permit No. 0890201 was amended on 10/3/2019 to permanently remove two optional sand filtration units located between the two clarifiers and final pH adjustment.

In addition to treated process wastewater discharged at Outfall 001, GTP also discharges noncontact cooling water and stormwater through Outfalls 002, 003, and 004.

All sanitary waste is treated at the Towanda Municipal Authority Wastewater Treatment Plant (NPDES Permit No. PA0034576).

See Attachment A for the Facility and Discharge Location Map.

3.0 Discharge, Receiving Waters and Water Supply Information

3.1 Outfall 001

Outfall 001 continuously discharges wastewater treated at the onsite IWTP. The existing discharge is located on Pier 4 of a downstream railroad bridge.

Table 3-1. 001 Information

Outfall No.	001	Design Flow (MGD)	1.125 (0.5424) [1]
Latitude	41º 46' 53.26"	Longitude	-76º 26' 28.25"
Quad Name	Towanda	Quad Code	0434
Wastewater Description:	IW Process Effluent with ELG		

Receiving Waters	Susquehanna River	Stream Code	6685
NHD Com ID	66399771	RMI	274.07
Drainage Area (mi^2)	7,780	Yield (cfs/mi^2)	0.0823
Q_{7-10} Flow (cfs)	641	Q_{7-10} Basis	Streamgage No. 01531500
Elevation (ft)	690	Slope (ft/ft)	n/a
Watershed No.	4-C	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs, Mercury		
Source(s) of Impairment	Unknown		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,130
PWS RMI	135.66	Distance from Outfall (mi)	138.41

[1] The design flow for Outfall 001 is 1.125 MGD. However, for modeling purposes in developing effluent limits the average flow during production of 0.5424 MGD was used. Using the average flow during production provides a more representative flow of normal operating conditions.

3.4 Outfall 002

Outfall 002 continuously discharges non-contact cooling water, stormwater, and steam condensate from heating/cooling process equipment located at the southern end of the facility. The outfall drains approximately 65 acres that includes storm runoff from; parking lots, roads, residential areas, on-site production/storage areas, and loading/unloading areas.

Table 3-2. Outfall 002 Information

Outfall No.	002	Design Flow (MGD)	2.2269
Latitude	41º 46' 58.32"	Longitude	-76º 26' 29.46"
Quad Name	Towanda	Quad Code	0434
Wastewater Description:	Noncontact Cooling Water (NCCW), Stormwater		

Receiving Waters	Susquehanna River	Stream Code	6685
NHD Com ID	66399771	RMI	274.27
Drainage Area	7,780	Yield (cfs/mi^2)	0.0823
Q_{7-10} Flow (cfs)	641	Q_{7-10} Basis	Streamgage No. 01531500
Elevation (ft)	690	Slope (ft/ft)	n/a
Watershed No.	4-C	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs, Mercury		
Source(s) of Impairment	Unknown		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,130
PWS RMI	135.66	Distance from Outfall (mi)	138.84

3.5 Outfall 003

Outfall 003 continuously discharges non-contact cooling water, stormwater, and steam condensate from heating/cooling process equipment located in the mid-section of the facility. The outfall drains approximately 11 acres that includes storm runoff from; parking lots, roads, residential areas, on-site production/storage areas, and loading/unloading areas.

Table 3-3. Outfall Information

Outfall No.	003	Design Flow (MGD)	0.4059
Latitude	41º 47' 12.18"	Longitude	-76º 26' 35.33"
Quad Name	Towanda	Quad Code	0434
Wastewater Description:	Noncontact Cooling Water (NCCW), Stormwater		

Receiving Waters	Susquehanna River	Stream Code	6685
NHD Com ID	66399571	RMI	274.5
Drainage Area	7,780	Yield (cfs/mi^2)	0.0823
Q_{7-10} Flow (cfs)	641	Q_{7-10} Basis	Streamgage No. 01531500
Elevation (ft)	690	Slope (ft/ft)	n/a
Watershed No.	4-C	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Not Assessed		
Cause(s) of Impairment	PCBs, Mercury		
Source(s) of Impairment	Unknown		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,130
PWS RMI	135.66	Distance from Outfall (mi)	134.84

3.6 Outfall 004

Outfall 004 continuously discharges non-contact cooling water, stormwater, and steam condensate from heating/cooling process equipment located at the northern end of the facility. The outfall drains approximately 63 acres that includes storm runoff from; parking lots, roads, residential areas, on-site production/storage areas, and loading/unloading areas.

Table 3-4. Outfall Information

Outfall No.	004	Design Flow (MGD)	0.3906
Latitude	41º 47' 12.75"	Longitude	-76º 26' 36.05"
Quad Name	Towanda	Quad Code	0434
Wastewater Description:	Noncontact Cooling Water (NCCW), Stormwater		

Receiving Waters	Susquehanna River	Stream Code	6685
NHD Com ID	66399571	RMI	274.59
Drainage Area	7,780	Yield (cfs/mi^2)	0.0823
Q_{7-10} Flow (cfs)	641	Q_{7-10} Basis	Streamgage No. 01531500
Elevation (ft)	690	Slope (ft/ft)	n/a
Watershed No.	4-C	Chapter 93 Class.	WWF
Existing Use	n/a	Existing Use Qualifier	n/a
Exceptions to Use	n/a	Exceptions to Criteria	n/a
Assessment Status	Impaired		
Cause(s) of Impairment	PCBs, Mercury		
Source(s) of Impairment	Unknown		
TMDL Status	n/a	Name	n/a

Nearest Downstream Public Water Supply Intake	Danville Municipal Authority		
PWS Waters	Susquehanna River	Flow at Intake (cfs)	1,130
PWS RMI	135.96	Distance from Outfall (mi)	138.93

3.5 Susquehanna River

As summarized in Sections 3.1 through 3.4, all outfalls at GTP discharge to the Susquehanna River. The specific reach of the Susquehanna River that the outfalls are located on is currently impaired by Mercury and PCBs, both originating from unknown sources. The outfalls are not expected to contribute to the Mercury impairment since it was not detected in the effluent in the sampling completed for the application. A TMDL for PCBs for a downstream segment of the Susquehanna River was approved by EPA on March 12, 1999. The discharges are not expected to contribute to the level of PCBs in the Susquehanna River. A TMDL for metals associated with abandoned mine drainage (Aluminum, Iron, and Manganese) for an impaired segment of the Susquehanna River located in Luzerne County approximately 65 river miles downstream of GTP was approved by EPA on March 7, 2009. Due to the distance from GTP to the TMDL watershed, the metals TMDL was not taken into consideration during this review.

The Q7-10 of the Susquehanna River at GTP was calculated using thirty years of the most recent flow data, from 1992 to 2022, at USGS Stream Gage No. 01531500. A Q7-10 was developed using DFLOW in USGS SW Toolbox to achieve a flow of 642 cfs. Based on the stream gage's drainage area of 7,797 mi^2 a low-flow yield of 0.0823 cfs/mi^2 was developed. Since Outfalls 001 through 004 are all located in relative proximity to one another, they all have the same drainage area of 7,780 mi^2. Applying the low-flow yield to the outfalls results in a calculated Q7-10 of 641 cfs. A Q7-10 of 664.48 cfs at downstream node RMI 271.72 was calculated for modeling purposes.

See Attachment B for Q7-10 calculations and supporting documentation.

3.6 Downstream Public Water Supply Intake

The nearest downstream water supply intake is located in Danville, PA, approximately 139 river miles downstream. The discharges are not expected to impact the water supply due to the distance.

4.0 Compliance History

4.1 Inspection Reports

The facility was most recently inspected by DEP on October 5, 2021. All required treatment units were online and on impacts were noted at observed outfalls.

4.2 Violations

The following effluent-related violations occurred during the existing permit term:

Table 4-1. Effluent Violation Summary

Outfall	Noncompliance Date	Noncompliance Descriptions	Noncompliance Category	Parameter	Sample Value	Violation Condition	Permit Value	Units	SBC
004	11/20/2017	Sample type not in accordance with permit	Other Violations	pH					
002	3/20/2018	Sample type not in accordance with permit	Other Violations	Total Dissolved Solids					
002	8/24/2018	Violation of permit condition	Effluent	pH	10.2	>	9	S.U.	IMAX
002	8/20/2020	Violation of permit condition	Effluent	pH	10.4	>	9	S.U.	IMAX
	7/29/2021	Late DMR Submission	Other Violations						
001	4/26/2021	Violation of permit condition	Effluent	Arsenic, Total	10.69	>	10.06	lbs/day	Daily Maximum
003	4/26/2021	Violation of permit condition	Effluent	pH	9.5	>	9	S.U.	IMAX

None of the above violations indicate chronic noncompliance with existing permit conditions.

The following table is a list of violations that occurred during the existing permit term and are not related to the facility's discharges at Outfalls 001 through 004:

Table 4-2. General Violation Summary

Violation ID	Violation Date	Violation Type Description	Resolved Date
815776	4/17/2018	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	5/4/2018
832836	10/9/2018	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	11/7/2018
845508	3/18/2019	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	3/18/2019
851148	5/10/2019	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	5/21/2019
873126	12/26/2019	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	1/9/2020
884627	5/10/2020	CSL - Unauthorized, unpermitted discharge of industrial wastes to waters of the Commonwealth	5/12/2020

There are no open violations associated with the permittee as of the date of this fact sheet.

5.0 Development of Effluent Limitations

Effluent limits are the most stringent of technology-based effluent limitations ("TBELs"), water-quality based effluent limitations ("WQBELs"), or best professional judgment ("BPJ").

5.1 Technology-based Effluent Limitations

The first step in developing effluent limitations is to recognize and develop applicable TBELs based on the industrial activity that takes place at the facility for each outfall. TBELs are subject to the development of more stringent WQBELs or BPJ.

5.1.1 Outfall 001

ELG Parameters

Outfall 001 discharges treated industrial waste from the IWTP. Various waste streams regulated by separate mass-based, production-normalized ELGs are commingled prior to entering the treatment plant. To calculate the TBELs a four-step methodology was followed:

1. Apply applicable ELGs to the waste streams.
2. Calculate credits for parameters not regulated by the applicable ELGs but are contained in another waste stream's ELG. Credits are based on the treatability database developed for the Nonferrous Metals Manufacturing ELG.
3. Calculate credits for ELG parameters for flows not regulated by the Nonferrous Metals Manufacturing ELGs.
4. Sum the values calculated in Steps 1 through 3.

See Attachment C for Outfall 001's ELG calculations and supporting documentation.

The methodology outlined above utilizes the daily production rates from the highest production months used. This approach is based off the *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (362-0400-001, 10/1/1997)*, which states, "…in a highly-cyclical industry, like the steel industry, where the production rate and waste load varies widely due to the overall economic climate, it may be more representative to select a rate based on the highest production month over the past five years."

As noted in the attached ELG calculations, ammonia-nitrogen limits identified in 40 CFR § 421.103(f) have not been applied due to GTP meeting the footnote requirement which states not to apply the ammonia-nitrogen limitations if the raffinate from the ion exchange process contains sulfate concentrations in excess of 1,000 mg/l. Instead, methodology established in an August 1993 letter has been used, which utilizes treatability concentrations of 154.7 mg/l average monthly and 351.8 mg/l maximum daily. The treatability concentrations are still appropriate.

For special ammonia streams (Step 3) a thirty-day average treatability concentration of 58.54 mg/l was used, which differs from the recommended treatability concentration of 51.10 mg/l and is very close to the ten-day average treatability concentration of 58.60 mg/l in Table VII-21 of the *Development Document for the Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category, Volume I*. It is assumed that 58.54 mg/l was arrived at in a previous agreement between DEP and GTP; however, no documentation can be found supporting this assumption other than the actual use of the number in the previous water quality protection reports.

Concentration effluent limitations for Outfall 001 were calculated by dividing the mass effluent limitations by the average flow during production and a conversion factor of 8.345. The instantaneous maximum concentration effluent limitations were calculated by multiplying the average monthly concentration by a factor of 2.5; however, if the resulting concentration limitation was less than the daily maximum concentration than the daily maximum concentration was multiplied by a factor of 1.25 (one half of 2.5). The use of a 2.5 multiplication factor is recommended in Chapter 5, Section 4 of the *Technical Guidance for the Development and Specification of Effluent Limitations and Other Permit Conditions in NPDES Permits (362-0400-001, 10/1/1997)*.

Chapter 95 Industrial Waste Treatment Standards

In addition to ELG requirements above, 25 PA Code Chapter 95 establishes industrial wastes treatment standards for pH, oil and grease, and dissolved iron as follows:

Table 5-1. Chapter 95 Treatment Standards

Parameter	Limit (mg/l)	SBC	State Regulation
pH	6.0	Minimum	95.2(1)
	9.0	IMAX	95.2(1)
Oil and Grease (1)	15	Average Monthly	95.2(2)
	30	IMAX	95.2(2)
Dissolved Iron (2)	7.0	Average Monthly	95.2(4)

(1) ELGs for oil and grease (40 CFR § 421, Subpart AC) have not been applied as per a previous agreement between GTP and DEP. Consequently, Chapter 95 standards have been applied since 1993. No record of the previous agreement could be found. The application's sample results indicate a maximum oil and grease concentration of 1.72 mg/l. Since there is no reasonable potential to exceed the 15 mg/l TBEL, DEP continues to recommend that sampling for oil and grease at Outfall 001 is not necessary.

(2) The application's sample results for dissolved iron indicates a maximum concentration of 55 µg/l. Since there is no reasonable potential to exceed the 7.0 mg/l TBEL, DEP continues to recommend that sample for dissolved iron at Outfall 001 is not necessary.

In March 2011, GTP requested the establishment of existing authorized total dissolved solids ("TDS") loadings as permit mass limitations. At the time the facility was working towards returning to full capacity operations while simultaneously considering process improvements or modifications. Before those changes occurred, GTP wished to establish effluent TDS loading limitations in accordance with 25 PA Code § 95.10. Ultimately, TDS mass limitations of 119,157 lbs/day annual average and 135,790 lbs/day daily maximum were established.

5.1.2 Outfalls 002, 003, and 004

Since Outfalls 002, 003, and 004 discharge noncontact cooling water, in addition to stormwater, the industrial treatment standards at Chapter 95 are applicable. A review of submitted discharge monitoring report (DMR) data indicates that oil and grease and dissolved iron concentrations do not approach the treatment standards; meaning, "reasonable potential to exceed the limits" has not been demonstrated. Accordingly, oil and grease and dissolved iron limits have been removed from the permit for these outfalls. pH limits will remain in the permit.

As part of the GTP March 2011 request for TDS mass limitations at Outfall 001, DEP established monitoring requirements for TDS at Outfalls 002, 003, and 004 to better characterize the discharges. The following tables summarize the TDS sample results over the existing permit term:

Table 5-2. Outfall 002 TDS Summary

Outfall 002	Average Monthly	Daily Maximum
Average (mg/l)	269	333
Maximum (mg/l)	517	1,300

Table 5-3. Outfall 003 TDS Summary

Outfall 003	Average Monthly	Daily Maximum
Average (mg/l)	302	371
Maximum (mg/l)	658	1,360

Table 5-4. Outfall 004 TDS Summary

Outfall 004	Average Monthly	Daily Maximum
Average (mg/l)	349	432
Maximum (mg/l)	848	1,990

The summary of each outfall indicates average discharge concentrations are well below the 2,000 mg/l threshold at § 95.10(c), but the maximum concentrations approach 2,000 mg/l. The above concentrations are similar to the previous permit's results. Accordingly, DEP is proposing to keep the existing TDS monitoring requirements for these outfalls.

See Attachment D for Outfalls 002, 003, and 004 TDS data.

5.2 Water Quality-based Effluent Limitations

After developing the TBELs, the next step is to determine if there are more stringent WQBELs that must be applied. An analysis using DEP's WQM 7.0 v1.1 and Toxics Management Spreadsheet v1.3 ("TMS") was performed for the discharges. WQM 7.0 is a multiple source discharge model that is used to determine NPDES effluent limits for ammonia-nitrogen, CBOD5, and dissolved oxygen, if applicable. TMS is a single discharge model that is used to determine NPDES effluent limitations for toxics, if applicable. A thermal discharge analysis was also completed to determine the appropriateness of temperature limits for each outfall.

See Attachment E for model input/output data and supporting documentation.

5.2.1 Outfall 001

WQM 7.0

WQM 7.0 was used to determine if ammonia-nitrogen, CBOD5, or dissolved oxygen WQBELs are appropriate for the discharge at Outfall 001. Reaches were created in WQM 7.0 from outfall to outfall and ultimately to the mouth of Towanda Creek to accurately model in-stream conditions downstream of the discharges. The model indicates that there is minimal impact on the dissolved oxygen levels in the river; therefore, the reach sizes and number of reaches utilized is appropriate.

Table 5-5. WQM 7.0 Outfall 001 Modeling Results

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Daily Maximum	Minimum
CBOD5 (1)	13.7	--	--
Ammonia-nitrogen (2)	310.8	621.6	--
Dissolved Oxygen	--	--	3

(1) Average monthly input value taken from sampling performed for the renewal application.
(2) Based off the TBELs calculated in Section 5.1.1.

The model output indicates that the existing limits and discharge characteristics for CBOD5, ammonia-nitrogen, and dissolved oxygen will not negatively impact the Susquehanna River.

Toxics Management Spreadsheet

TMS was used to determine if WQBELs are appropriate for toxics found in the discharge. For Outfall 001, three types of inputs were used:

1) Monthly average TBEL concentrations. The TBEL concentrations were calculated by taking the calculated monthly average loadings from the above four-step methodology and dividing by the average flow during production at Outfall 001 and a conversion factor of 8.345.
2) If there was no corresponding TBEL concentration, and when data was available, daily maximum concentrations from eDMR were entered into TOX_CONC to develop average monthly limits and a coefficient of variation.
3) If there were no corresponding TBEL concentrations or eDMR data available, the maximum discharge concentrations taken from sampling completed for the renewal application were used.

The above inputs were entered into TMS. TMS is a single discharge model that does not assume instantaneous mixing with the receiving surface water upon discharge, but instead, assigns a partial mixing factor based upon manual input or generated by surface water and discharge characteristics. For this review, a partial mixing factor (PMF) of 0.75 for both acute and chronic criteria was manually entered based on a January 1989 mixing study performed by Roy F. Weston, Inc. which validates that at approximately 2,500 ft. downstream (~15 min travel time) the discharge plume intercepts at least 75% of the river's flow. TMS recommendations are as follows:

Table 5-6. TMS Outfall 001 Modeling Results

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Cobalt	Report	Report	Report	Report	Report	mg/L	10.9	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper (1)	Report	Report	Report	Report	Report	mg/L	5.19	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead (1)	Report	Report	Report	Report	Report	mg/L	1.85	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel (1)	Report	Report	Report	Report	Report	mg/L	30.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.6	0.93	132	206	330	µg/L	132	CRL	Discharge Conc ≥ 50% WQBEL (RP)

(1) TMS recommends reporting requirements for these pollutants; however, they are already assigned TBELs based on the production-normalized ELGs. TBELs will govern permit requirements for these pollutants since limits are more stringent than reporting requirements.

Thermal Discharge Analysis

Flow data was entered in the Thermal Discharge Analysis Spreadsheet to determine if thermal limits are appropriate for Outfall 001. GTP does not have an intake on the Susquehanna River; therefore, a Case 2 analysis is necessary. The spreadsheet indicates that thermal limits are not necessary to protect the receiving surface water. When this is the case, DEP generally establishes a public safety thermal limit of 110 °F. However, this is a diffused discharge located on a pier of the downstream railroad bridge and is not accessible to the public. Additionally, the maximum discharge temperature reported in the renewal application is 97.2 °F. Since the outfall is not accessible to the public and the temperature does not approach 110 °F the public safety limit is not necessary. Accordingly, no thermal limits are proposed.

5.2.2. Outfalls 002, 003, and 004

WQM 7.0

WQM 7.0 was used to determine if ammonia-nitrogen, CBOD5, or dissolved oxygen WQBELs are appropriate for the discharge at Outfall 001. Reaches were created in WQM 7.0 from outfall to outfall and ultimately to the mouth of Towanda Creek to accurately model in-stream conditions downstream of the discharges. The model indicates a complete recovery in dissolved oxygen levels in the river; therefore, the reach sizes and number of reaches utilized is appropriate.

Table 5-7. WQM 7.0 Outfall 002 Modeling Results

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Daily Maximum	Minimum
CBOD5 (1)	2.34	--	--
Ammonia-nitrogen (1)	0.05	0.1	--
Dissolved Oxygen	--	--	3

Table 5-8. WQM 7.0 Outfall 003 Modeling Results

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Daily Maximum	Minimum
CBOD5 (1)	0.81	--	--
Ammonia-nitrogen (1)	0.05	0.1	--
Dissolved Oxygen	--	--	3

Table 5-9. WQM 7.0 Outfall 004 Modeling Results

Parameter	Effluent Limit (mg/l)		
	Average Monthly	Daily Maximum	Minimum
CBOD5 (1)	1.44	--	--
Ammonia-nitrogen (1)	0.05	0.1	--
Dissolved Oxygen	--	--	3

(1) Average monthly input value taken from sampling performed for the renewal application.

The model output indicates that the existing requirements and discharge characteristics for CBOD5, ammonia-nitrogen, and dissolved oxygen will not negatively impact the Susquehanna River.

TMS

The maximum discharge concentrations taken from sampling completed for the renewal application were used as inputs for TMS. TMS is a single discharge model that does not assume instantaneous mixing with the receiving surface water upon discharge, but instead, assigns a partial mixing factor based upon manual input or generated by surface water and discharge characteristics. For this review, a partial mixing factor (PMF) of 0.75 for both acute and chronic criteria was manually entered based on a January 1989 mixing study performed by Roy F. Weston, Inc. which validates that at approximately 2,500 ft. downstream (~15 min travel time) the discharge plume intercepts at least 75% of the river's flow. TMS does not recommend any limits or reporting requirements for Outfalls 002, 003, or 004.

Thermal Discharge Analysis

Flow data was entered in the Thermal Discharge Analysis Spreadsheet to determine if thermal limits are appropriate for Outfalls 002, 003, and 004. The outfalls are sufficiently close to one another to evaluate the thermal impacts by summing their flow rates and analyzing them as a single discharge. GTP does not have an intake on the Susquehanna River; therefore, a Case 2 analysis is necessary. The spreadsheet indicates that thermal limits are not necessary to protect the receiving surface water. When this is the case, DEP generally establishes a public safety thermal limit of 110 °F. However, since the maximum summer temperatures reported in the application for Outfalls 002, 003, and 004 are 76 °F, 71.2 °F, and 64.1 °F, respectively, public safety should not be impacted by the temperature of the outfall. Accordingly, no thermal limits or monitoring requirements are proposed for Outfalls 002, 003, and 004.

5.3 Best Professional Judgment

After applying the TBELs and determining if there are more stringent WQBELs, the next step is to apply best professional judgment, if applicable.

5.3.1 Outfall 001

For discharges that exceed 1,000 mg/l TDS and 0.1 MGD, DEP generally assigns monitoring requirements for TDS and its constituents; sulfate, chloride, and bromide. Accordingly, the previous permit established reporting requirements at Outfall 001 for sulfate, chloride, and bromide in addition to existing TDS requirements. Based on TDS results taken throughout the permit term (19,535 mg/l maximum concentration), DEP recommends that the reporting requirements remain in the permit to continue to characterize the wastewater.

5.3.2 Outfalls 002, 003, 004

The existing permit requires semi-annual monitoring of stormwater flows for ammonia-nitrogen, copper, molybdenum, nickel, and zinc based on site-specific industrial activity as well as total suspended solids, total aluminum, total zinc, total copper, total iron, and total lead based on Appendix B (Primary Metals) of the PAG-03 NPDES General Permit for Discharged of Stormwater Associated With Industrial Activity.

The following conditions must be met when sampling for these parameters:

"The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

DEP recommends that the existing semi-annual monitoring requirements remain in the permit for Outfalls 002, 003, and 004.

5.4 Chesapeake Bay

5.4.1 Outfall 001

The Phase 3 Watershed Implementation Plan ("WIP") Wastewater Supplement, Table 7, identifies GTP as one of the 23 significant industrial wastewater facilities in Pennsylvania, and establishes cap loads for total nitrogen and total phosphorus of 600,515 lbs/yr and 1,577 lbs/yr, respectively.

5.4.1 Outfalls 002, 003, and 004

The Wastewater Supplement to the WIP requires annual minimum monitoring frequency for cooling water outfalls.

6.0 Whole Effluent Toxicity (WET)

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

☒ For the permit renewal application (4 tests).
☐ Quarterly throughout the permit term.
☐ Quarterly throughout the permit term and a TIE/TRE was conducted.
☐ Other:

The dilution series used for the tests was: 100%, 60%, 30%, 2%, and 1%. The Target Instream Waste Concentration (TIWC) to be used for analysis of the results is: 1%.

6.1 Test Results

A summary of the four most recent test results is as follows:

Table 6-1. TST Data Analysis

Test Date	*Ceriodaphnia* Results (Pass/Fail)		*Pimephales* Results (Pass/Fail)	
	Survival	Reproduction	Survival	Growth
4/18/2019	Pass	n/a	Pass	n/a
6/16/2020	Pass	n/a	Pass	n/a
4/15/2021	Pass	n/a	Pass	n/a
6/16/2022	Pass	n/a	Pass	n/a

***** *A "passing" result is that in which the replicate data for the TIWC is not statistically significant from the control condition. This is exhibited when the calculated t value ("T-Test Result") is greater than the critical t value. A "failing" result is exhibited when the calculated t value ("T-Test Result") is less than the critical t value.*

Is there reasonable potential for an excursion above water quality standards based on the results of these tests?

☐ YES ☒ NO

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

Acute Partial Mix Factor (PMFa): **0.75** Chronic Partial Mix Factor (PMFc): **0.75**

1. Determine IWC – Acute (IWCa):

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

   [(1.125 MGD x 1.547) / ((641 cfs x 0.75) + (1.125 MGD x 1.547))] x 100 = 0.4%

   Is IWCa < 1%? ☒ YES ☐ NO

   Type of Test for Permit Renewal: Acute

2. Determine Target IWCa (If Acute Tests Required)

   TIWCa = 0.4 / 0.3 = 1%

3. Determine Dilution Series

   Dilution Series = 100%, 60%, 30%, 2%, and 1%.

6.3 WET Limits

Reasonable potential has not been determined. No WET limits will be established in the permit.

7.0 Anti-Backsliding

Anti-backsliding regulations at 40 CFR § 122.44(l) do not allow a permit to be renewed with effluent limitations which are less stringent than the comparable effluent limitations in the previous permit, with exceptions at § 122.44(l)(2)(i). Specifically, § 122.44(l)(2)(i)(B)(1) allows for less stringent effluent limitations when information is available which was not available at the time of permit issuance. In this instance, changes in the industrial activity at GTP means several ELGs that were applied in the past are no longer applicable. Consequently, effluent limits for arsenic, selenium, tantalum, and tungsten are no longer necessary based on the above review. Additionally, cobalt has been relaxed from numeric effluent limits to reporting-only requirements. Mass and concentration limits, where applicable, vary slightly based on production differences reported on the previous versus current renewal application.

7.0 Effluent Limitations and Monitoring Requirements

7.1 Existing Effluent Limits and Monitoring Requirements

The existing effluent limits and monitoring requirements are as follows:

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0	XXX	XXX	9.0	Continuous	Metered
Total Suspended Solids	157.5	325.7	XXX	Report	Report	77.7	2/week	24-Hr Composite
Total Dissolved Solids	Report	135,790	XXX	Report	Report	XXX	2/week	24-Hr Composite
Total Dissolved Solids	119157 Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	885.2	2,012.5	XXX	Report	Report	436.7	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Arsenic, Total	3.98	10.06	XXX	Report	Report	2.47	2/week	24-Hr Composite
Cobalt, Total	8.69	19.83	XXX	Report	Report	4.27	2/week	24-Hr Composite
Copper, Total	3.5	9.11	XXX	Report	Report	2.23	2/week	24-Hr Composite
Fluoride, Total	140.7	247.6	XXX	Report	Report	69.4	2/week	24-Hr Composite
Lead, Total	0.79	1.71	XXX	Report	Report	0.37	2/week	24-Hr Composite
Molybdenum, Total	216.0	432.1	XXX	Report	Report	106.6	2/week	24-Hr Composite
Nickel, Total	11.83	26.64	XXX	Report	Report	5.82	2/week	24-Hr Composite
Selenium, Total	2.34	5.82	XXX	Report	Report	1.15	2/week	24-Hr Composite

Outfall 001, Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Sulfate, Total	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Tantalum, Total	3.22	3.22	XXX	Report	Report	1.57	2/week	24-Hr Composite
Tungsten, Total	477.8	1,073.7	XXX	Report	Report	235.7	2/week	24-Hr Composite
Zinc, Total	2.54	6.25	XXX	Report	Report	1.25	2/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1) (2)	XXX	XXX	6.0	XXX	XXX	9.0	Continuous	Metered
Total Suspended Solids (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Molybdenum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nickel, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1) (2)	XXX	XXX	6.0	XXX	XXX	9.0	Continuous	Metered
Total Suspended Solids (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Molybdenum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nickel, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1) (2)	XXX	XXX	6.0	XXX	XXX	9.0	Continuous	Metered
Total Suspended Solids (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia-Nitrogen (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Aluminum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Copper, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Iron, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Lead, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Molybdenum, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Nickel, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Zinc, Total (3) Other Stormwater	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.

Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

7.2 Proposed Effluent Limits and Monitoring Requirements

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

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD)	Report	Report	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Continuous	Metered
Total Suspended Solids	258.7	540.6	XXX	Report	Report	142.85	2/week	24-Hr Composite
Total Dissolved Solids	Report	135790	XXX	Report	Report	XXX	2/week	24-Hr Composite
Total Dissolved Solids	119157 Annl Avg	XXX	XXX	XXX	XXX	XXX	1/year	Calculation
Ammonia-Nitrogen	1407.3	3199.7	XXX	Report	Report	777	1/day	24-Hr Composite
Total Phosphorus	XXX	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Cobalt, Total	Report	Report	XXX	Report	Report	XXX	2/week	24-Hr Composite
Copper, Total	5.28	13.80	XXX	Report	Report	3.8	2/week	24-Hr Composite
Fluoride, Total	214.7	377.8	XXX	Report	Report	118.5	2/week	24-Hr Composite
Lead, Total	1.18	2.55	XXX	Report	Report	0.65	2/week	24-Hr Composite
Molybdenum, Total	323	646.1	XXX	Report	Report	178.3	2/week	24-Hr Composite
Nickel, Total	18.09	40.81	XXX	Report	Report	9.97	2/week	24-Hr Composite
Sulfate, Total	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Zinc, Total	3.83	9.31	XXX	Report	Report	2.1	2/week	24-Hr Composite

Outfall 001 , Continued (from Permit Effective Date through Permit Expiration Date)

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Daily Maximum	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Acrylamide (ug/L)	0.6	0.93	XXX	132.0	206.0	330	2/week	24-Hr Composite
Chloride	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite
Bromide	Report	Report	XXX	Report	Report	XXX	1/month	24-Hr Composite

Compliance Sampling Location: Outfall 001

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1)(2)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Continuous	Metered
TSS (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Molybdenum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 002

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.
Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1)(2)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Continuous	Metered
TSS (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Molybdenum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 003

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.
Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Daily Maximum	Instant. Maximum		
Flow (MGD) (2)	Report	Report Daily Max	XXX	XXX	XXX	XXX	Continuous	Metered
pH (S.U.) (1)(2)	XXX	XXX	6.0 Inst Min	XXX	XXX	9.0	Continuous	Metered
TSS (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Dissolved Solids (2)	XXX	XXX	XXX	Report	Report	XXX	1/week	24-Hr Composite
Ammonia (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Aluminum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Copper (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Iron (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Lead (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Molybdenum (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Nickel (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab
Total Zinc (3)	XXX	XXX	XXX	XXX	Report	XXX	1/6 months	Grab

Compliance Sampling Location: Outfall 004

(1) For compliance purposes, pH exceedances which are shorter than 15 minutes in duration and are within the range of 5.0-10.0 Std. Units, are not considered to be violations of this effluent limitation and need not be reported. This exemption is valid for only four exceedance events per month.

(2) Samples shall be collected during dry weather when there is no influence from storm events.

(3) "The stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1-inch rainfall) storm event. The 72-hour storm interval is waived when the preceding storm did not yield a measurable discharge, or if the permittee is able to document that a less than 72-hour interval is representative for local storm events during the sample period.
Grab samples shall be taken during the first 30 minutes of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge and the discharger shall provide, using DEP's form Additional Information for the Reporting of Stormwater Discharge Monitoring (3800-PM-WSFR0083t), available on DEP's Web site, a description of why a grab sample during the first 30 minutes was impracticable."

7.3 Chesapeake Bay Limits and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, to comply with Pennsylvania's Chesapeake Bay Tributary Strategy.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Ammonia--N	Report	Report	XXX	Report	XXX	XXX	1/day	24-Hr Composite
Kjeldahl--N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Nitrate-Nitrite as N	Report	XXX	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Total Nitrogen	Report	Report	XXX	Report	XXX	XXX	1/month	Calculation
Total Phosphorus	Report	Report	XXX	Report	XXX	XXX	2/week	24-Hr Composite
Net Total Nitrogen	XXX	600515	XXX	XXX	XXX	XXX	1/year	Calculation
Net Total Phosphorus	XXX	1577	XXX	XXX	XXX	XXX	1/year	Calculation

Compliance Sampling Location: Outfall 001

Outfall 002, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Total Phosphorus (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite

Compliance Sampling Location: Outfall 002

(1) Samples shall be collected during dry weather when there is no influence from storm events.

Outfall 003, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Total Phosphorus (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite

Compliance Sampling Location: Outfall 003

(1) Samples shall be collected during dry weather when there is no influence from storm events.

Outfall 004, Effective Period: Permit Effective Date through Permit Expiration Date.

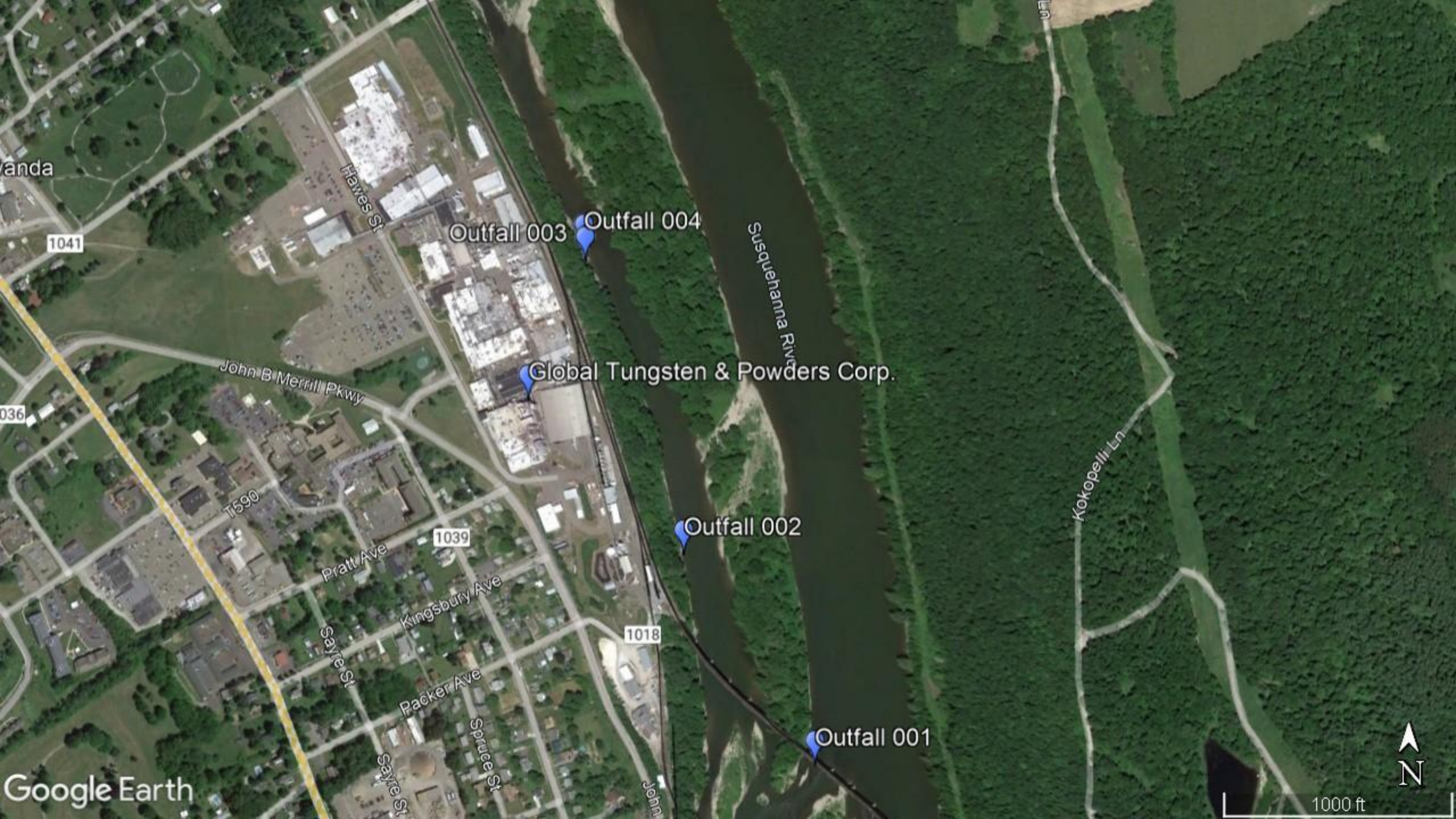
Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day)		Concentrations (mg/L)				Minimum Measurement Frequency	Required Sample Type
	Monthly	Annual	Monthly	Monthly Average	Maximum	Instant. Maximum		
Total Nitrogen (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite
Total Phosphorus (lbs/year) (1)	Report Annl Avg	XXX	XXX	Report Annl Avg	XXX	XXX	1/year	24-Hr Composite

Compliance Sampling Location: Outfall 004

(1) Samples shall be collected during dry weather when there is no influence from storm events.

ATTACHMENT A

Facility and Discharge Location Map


Outfall 003
Outfall 004
Global Tungsten & Powders Corp.
Outfall 002
Outfall 001
Susquehanna River
Hawes St
John B Merrill Pkwy
Pratt Ave
Kingsbury Ave
Sayre St
Packer Ave
Spruce St
Kokopelli Ln
1041
1039
1018
T590
Google Earth
N
1000 ft

ATTACHMENT B

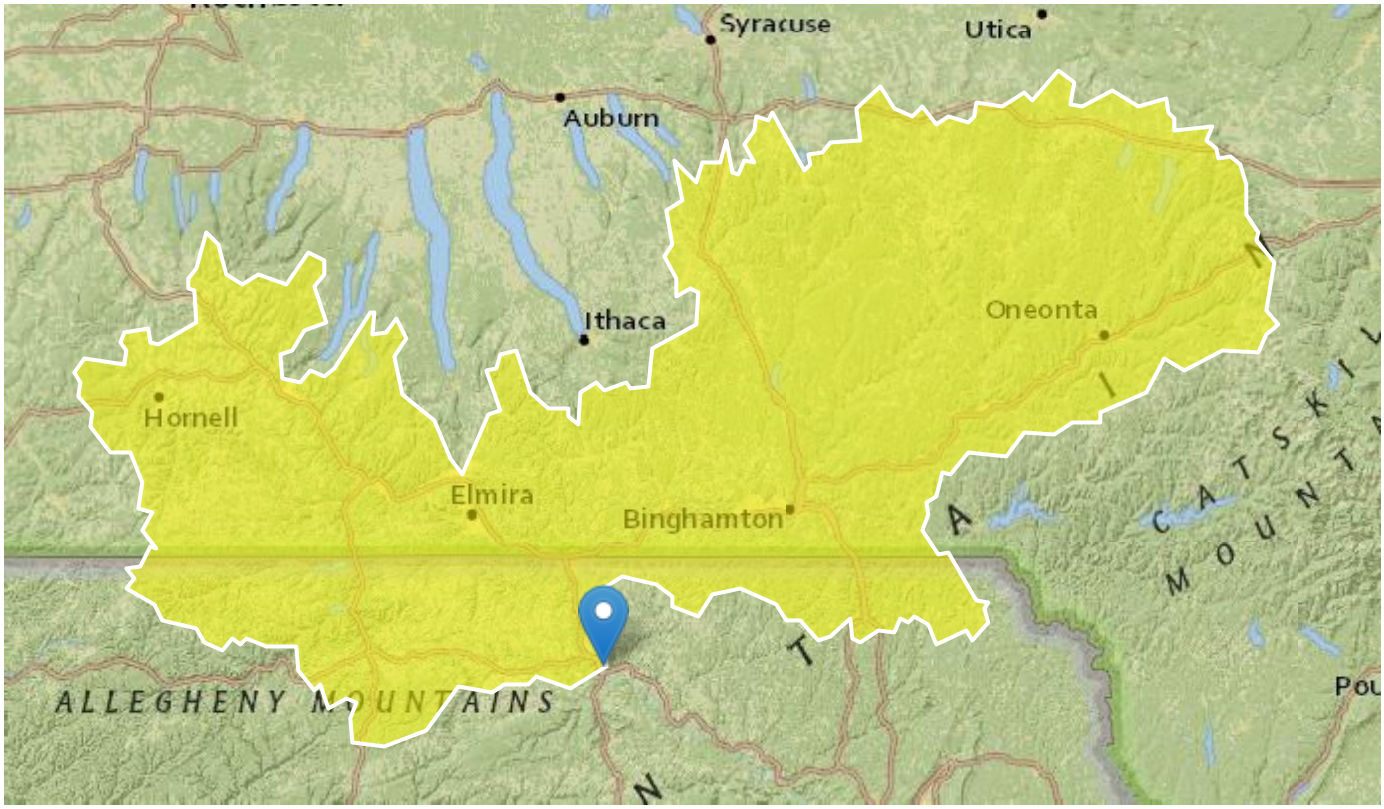
Q7-10 Calculations and Supporting Documentation

ATTACHMENT B.1

StreamStats Output

Global Tungsten & Powders Corp.

Region ID: PA
Workspace ID: PA20221202165532371000
Clicked Point (Latitude, Longitude): 41.77896, -76.44048
Time: 2022-12-02 11:56:00 -0500



Drainage area at Outfall 001

☐ Collapse All

☐ Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
BSLOPD	Mean basin slope measured in degrees	7.1055	degrees
BSLOPDRAW	Unadjusted basin slope, in degrees	7.3226	degrees
BSLPDRPA20	Unadjusted basin slope, in degrees, from PA v1	7.4543	degrees
CARBON	Percentage of area of carbonate rock	1.47	percent

Parameter Code	Parameter Description	Value	Unit
CENTROXA83	X coordinate of the centroid, in NAD_1983_Albers, meters	147812.9805	meters
CENTROYA83	Basin centroid horizontal (y) location in NAD 1983 Albers	368924.6652	meters
DRN	Drainage quality index from STATSGO	4	dimensionless
DRNAREA	Area that drains to a point on a stream	7780	square miles
ELEV	Mean Basin Elevation	1504	feet
ELEVMAX	Maximum basin elevation	2735	feet
FOREST	Percentage of area covered by forest	67.9261	percent
GLACIATED	Percentage of basin area that was historically covered by glaciers	100	percent
IMPNLCD01	Percentage of impervious area determined from NLCD 2001 impervious dataset	0.843	percent
LC01DEV	Percentage of land-use from NLCD 2001 classes 21-24	5.3402	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	5.2978	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.9088	percent
LONG_OUT	Longitude of Basin Outlet	-76.440479	degrees
MAXTEMP	Mean annual maximum air temperature over basin area from PRISM 1971-2000 800-m grid	55.6	degrees F
OUTLETXA83	X coordinate of the outlet, in NAD_1983_Albers,meters	129638.9252	meters
OUTLETYA83	Y coordinate of the outlet, in NAD_1983_Albers, meters	309743.0581	meters
PRECIP	Mean Annual Precipitation	38	inches
ROCKDEP	Depth to rock	4.6	feet
STORAGE	Percentage of area of storage (lakes ponds reservoirs wetlands)	4.12	percent
STRDEN	Stream Density -- total length of streams divided by drainage area	1.75	miles per square mile

Parameter Code	Parameter Description	Value	Unit
STRMTOT	total length of all mapped streams (1:24,000-scale) in the basin	13654.36	miles
URBAN	Percentage of basin with urban development	2.1528	percent

Application Version: 4.11.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

ATTACHMENT B.2

Reference Gage Information

USGS
science for a changing world

Prepared in cooperation with the Pennsylvania Department of Environmental Protection

Selected Streamflow Statistics for Streamgage Locations in and near Pennsylvania

Open-File Report 2011-1070

U.S. Department of the Interior
U.S. Geological Survey

Table 1. List of U.S. Geological Survey streamgage locations in and near Pennsylvania with updated streamflow statistics.—Continued

[Latitude and Longitude in decimal degrees; mi^2, square miles]

Streamgage number	Streamgage name	Latitude	Longitude	Drainage area (mi^2)	Regulated[1]
01508803	West Branch Tioughnioga River at Homer, N.Y.	42.638	-76.176	71.5	N
01509000	Tioughnioga River at Cortland, N.Y.	42.603	-76.159	292	N
01510000	Otselic River at Cincinnatus, N.Y.	42.541	-75.900	147	N
01512500	Chenango River near Chenango Forks, N.Y.	42.218	-75.848	1,483	N
01515000	Susquehanna River near Waverly, N.Y.	41.985	-76.501	4,773	N
01516350	Tioga River near Mansfield, Pa.	41.797	-77.080	153	N
01516500	Corey Creek near Mainesburg, Pa.	41.791	-77.015	12.2	N
01518000	Tioga River at Tioga, Pa.	41.908	-77.129	282	Y
01518700	Tioga River at Tioga Junction, Pa.	41.953	-77.115	446	Y
01518862	Cowanesque River at Westfield, Pa.	41.923	-77.532	90.6	N
01520000	Cowanesque River near Lawrenceville, Pa.	41.997	-77.140	298	Y
01520500	Tioga River at Lindley, N.Y.	42.029	-77.132	771	Y
01521500	Canisteo River at Arkport, N.Y.	42.396	-77.711	30.6	Y
01523500	Canacadea Creek near Hornell, N.Y.	42.335	-77.683	57.9	Y
01524500	Canisteo River below Canacadea Creek at Hornell, N.Y.	42.314	-77.651	158	Y
01526500	Tioga River near Erwins, N.Y.	42.121	-77.129	1,377	Y
01527000	Cohocton River at Cohocton, N.Y.	42.500	-77.500	52.2	N
01527500	Cohocton River at Avoca, N.Y.	42.398	-77.417	152	N
01528000	Fivemile Creek near Kanona, N.Y.	42.388	-77.358	66.8	N
01529000	Mud Creek near Savona, N.Y.	42.308	-77.197	76.6	Y
01529500	Cohocton River near Campbell, N.Y.	42.253	-77.217	470	N
01529950	Chemung River at Corning, N.Y.	42.146	-77.057	2,006	Y
01530332	Chemung River at Elmira, N.Y.	42.086	-76.801	2,162	Y
01530500	Newtown Creek at Elmira, N.Y.	42.105	-76.798	77.5	Y
01531000	Chemung River at Chemung, N.Y.	42.002	-76.635	2,506	Y
01531500	Susquehanna River at Towanda, Pa.	41.765	-76.441	7,797	Y
01532000	Towanda Creek near Monroeton, Pa.	41.707	-76.485	215	N
01532850	MB Wyalusing Creek near Birchardville, Pa.	41.863	-76.007	5.67	N
01533400	Susquehanna River at Meshoppen, Pa.	41.607	-76.050	8,720	Y
01533500	North Branch Mehoopany Creek near Lovelton, Pa.	41.531	-76.156	35.2	N
01533950	SB Tunkhannock Creek near Montdale, Pa.	41.575	-75.642	12.6	N
01534000	Tunkhannock Creek near Tunkhannock, Pa.	41.558	-75.895	383	N
01534300	Lackawanna River near Forest City, Pa.	41.680	-75.472	38.8	Y
01534500	Lackawanna River at Archbald, Pa.	41.505	-75.542	108	Y
01536000	Lackawanna River at Old Forge, Pa.	41.359	-75.744	332	Y
01536500	Susquehanna River at Wilkes-Barre, Pa.	41.251	-75.881	9,960	Y
01537000	Toby Creek at Luzerne, Pa.	41.281	-75.896	32.4	Y
01537500	Solomon Creek at Wilkes-Barre, Pa.	41.228	-75.904	15.7	N
01538000	Wapwallopen Creek near Wapwallopen, Pa.	41.059	-76.094	43.8	N
01539000	Fishing Creek near Bloomsburg, Pa.	41.078	-76.431	274	N
01539500	Little Fishing Creek at Eyers Grove, Pa.	41.080	-76.511	56.5	N
01540200	Trexler Run near Ringtown, Pa.	40.853	-76.280	1.77	N
01540500	Susquehanna River at Danville, Pa.	40.958	-76.619	11,220	Y
01541000	West Branch Susquehanna River at Bower, Pa.	40.897	-78.677	315	N
01541200	West Branch Susquehanna River near Curwensville, Pa.	40.961	-78.519	367	Y

ATTACHMENT B.3

DFLOW Output

DFLOW Results

All available data from Apr 1, 1992 through Mar 31, 2022 are included in analysis.

Gage	Period	Days in Record	Zero/Missing	1B3	Percentile	Excur per 3 yr	1Q10	Percentile	Excur per 3 yr	1Qy Type	xQy	Percentile	Harmonic	Percentile
01531500 - Susquehanna River at Towanda, PA	1991/04/01 - 2022/04/01	11,323	0/0	5.55E+02	0.11%	0.97	6.04E+02	0.29%	1.35	1Q11	5.49E+02	0.10%	4.02E+03	29.87%
Gage	**Period**	**Days in Record**	**Zero/Missing**	**1B3**	**Percentile**	**Excur per 3 yr**	**7Q10**	**Percentile**	**Excur per 3 yr**	**7Qy Type**	**xQy**	**Percentile**	**Harmonic**	**Percentile**
01531500 - Susquehanna River at Towanda, PA	1991/04/01 - 2022/04/01	11,323	0/0	5.55E+02	0.11%	0.97	6.42E+02	0.41%	1.45	7Q14	5.52E+02	0.10%	4.02E+03	29.87%
Gage	**Period**	**Days in Record**	**Zero/Missing**	**1B3**	**Percentile**	**Excur per 3 yr**	**30Q10**	**Percentile**	**Excur per 3 yr**	**30Qy Type**	**xQy**	**Percentile**	**Harmonic**	**Percentile**
01531500 - Susquehanna River at Towanda, PA	1991/04/01 - 2022/04/01	11,323	0/0	5.55E+02	0.11%	0.97	7.90E+02	1.10%	3	> 31 years	N/A	N/A	4.02E+03	29.87%

ATTACHMENT B.4

Q7-10 Calculation

Low-Flow (Q_{7-10}) Calculation

Facility: **Global Tungsten & Powders Corp.**
NPDES Permit No. **PA0009024**

Gage Information		Outfall Information	
Drainage Area:	**7797** mi²	Drainage Area:	**7780** mi²
Q_{7-10}:	**642** cfs	Q_{7-10}:	**640.6** cfs
LFY:	**0.0823** cfsm		

Downstream Locations

RMI:	**271.72**	RMI:	**268.56**
Drainage Area:	**8070** mi²	Drainage Area:	**8180** mi²
Q_{7-10}:	**664.48** cfs	Q_{7-10}:	**673.54** cfs
RMI:		RMI:	
Drainage Area:	mi²	Drainage Area:	mi²
Q_{7-10}:	cfs	Q_{7-10}:	cfs
RMI:		RMI:	
Drainage Area:	mi²	Drainage Area:	mi²
Q_{7-10}:	cfs	Q_{7-10}:	cfs
RMI:		RMI:	
Drainage Area:	mi²	Drainage Area:	mi²
Q_{7-10}:	cfs	Q_{7-10}:	cfs

ATTACHMENT C

ELG Calculations and Supporting Documentation

METHODOLOGY

Below is the methodology used to calculate the technology-based effluent limitations (TBELs) for NPDES Permit No. PA0009024

Step 1:
Apply applicable effluent limit guidelines (ELGs) to the waste streams.

Step 2:
Calculate credits for parameters not regulated by the applicable ELG, but are contained in another waste stream's ELG. Credits are based on the treatability database developed for the Nonferrous Metals Manufacturing ELGs.

Step 3:
Calculate credits for ELG parameters for flows not regulated by the Nonferrous Metals Manufacturing ELGs.

Step 4:
Sum the values claculated in Steps 1 through 3.

BPT

421.102(d) Alkali Leach Wash Condensate
Production (million lbs/day) = 0.09001355

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	8.057	**0.7252**	3.837	**0.3454**
Zinc	28.011	**2.5214**	11700.000	**1053.1585**
Ammonia (as N)	2557.000	**230.1646**	1124.000	**101.1752**
Total suspended solids	786.200	**70.7687**	374.100	**33.6741**

421.102(f) Ion Exchange Raffinate (Not Commingled With Other Process or Nonprocess Waters)
Production (million lbs/day) = 0.079552482

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	37.160	**2.9562**	17.700	**1.4081**
Zinc	129.200	**10.2782**	11700.000	**930.7640**
Ammonia (as N)*	11790.000	**2919.2180**	1124.000	**1284.0575**
Total suspended solids	3627.000	**288.5369**	1726.000	**137.3076**

* Limit calculated per letter of August 23, 1993 to account for Sulfates exceeding 1,000 mg/l

421.102(h) Crystallization and Drying of Ammonium Paratungstate
Production (million lbs/day) = 0.079552482

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.000	**0.0000**	0.000	**0.0000**
Zinc	0.000	**0.0000**	0.000	**0.0000**
Ammonia (as N)	0.000	**0.0000**	0.000	**0.0000**
Total suspended solids	0.000	**0.0000**	0.000	**0.0000**

421.102(i) Ammonium Paratungstate Conversion to Oxides Wet Air Pollution Control
Production (million lbs/day) = 0.0708602

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	11.600	**0.8220**	5.523	**0.3914**
Zinc	40.320	**2.8571**	16.850	**1.1940**
Ammonia (as N)	3681.000	**260.8364**	1618.000	**114.6518**
Total suspended solids	1132.000	**80.2137**	538.500	**38.1582**

421.102(j) Ammonium Paratungstate Conversion to Oxides Water of Formation
Production (million lbs/day) = 0.0708602

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.026	**0.0018**	0.013	**0.0009**
Zinc	0.092	**0.0065**	0.038	**0.0027**
Ammonia (as N)	8.398	**0.5951**	3.692	**0.2616**
Total suspended solids	2.583	**0.1830**	1.229	**0.0871**

421.102(k) Reduction to Tungsten Wet Air Pollution Control
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	12.940	**0.3183**	6.161	**0.1515**
Zinc	44.970	**1.1060**	18.790	**0.4621**
Ammonia (as N)	4106.000	**100.9865**	1805.000	**44.3937**
Total suspended solids	1263.000	**31.0633**	600.700	**14.7741**

421.102(l) Reduction to Tungsten Water of Formation
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.205	**0.0050**	0.098	**0.0024**
Zinc	0.714	**0.0176**	0.298	**0.0073**
Ammonia (as N)	65.190	**1.6033**	28.660	**0.7049**
Total suspended solids	20.050	**0.4931**	9.536	**0.2345**

421.102(m) Tungsten Powder Acid Leach and Wash
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	1.008	**0.0248**	0.480	**0.0118**
Zinc	3.504	**0.0862**	1.464	**0.0360**
Ammonia (as N)	319.900	**7.8679**	140.700	**3.4605**
Total suspended solids	98.400	**2.4201**	46.800	**1.1510**

421.102(n) Molybdenum Sulfide Precipitation Wet Air Pollution Control
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.000	**0.0000**	0.000	**0.0000**
Zinc	0.000	**0.0000**	0.000	**0.0000**
Ammonia (as N)	0.000	**0.0000**	0.000	**0.0000**
Total suspended solids	0.000	**0.0000**	0.000	**0.0000**

BAT

421.103(d) Alkali Leach Wash Condensate
Production (million lbs/day) = 0.09001355

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	5.372	**0.4836**	2.494	**0.2245**
Zinc	19.570	**1.7616**	8.057	**0.7252**
Ammonia (as N)	2557.000	**230.1646**	1124.000	**101.1752**

421.103(f) Ion Exchange Raffinate (Not Commingled With Other Process or Nonprocess Waters)
Production (million lbs/day) = 0.079552482

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	24.780	**1.9713**	11.500	**0.9149**
Zinc	90.240	**7.1788**	37.160	**2.9562**
Ammonia (as N)*	11790.000	**2919.2180**	5185.000	**1284.0575**

* Limit calculated per letter of August 23, 1993 to account for Sulfates exceeding 1,000 mg/l

421.103(h) Crystallization and Drying of Ammonium Paratungstate
Production (million lbs/day) = 0.079552482

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.000	**0.0000**	0.000	**0.0000**
Zinc	0.000	**0.0000**	0.000	**0.0000**
Ammonia (as N)	0.000	**0.0000**	0.000	**0.0000**

421.103(i) Ammonium Paratungstate Conversion to Oxides Wet Air Pollution Control
Production (million lbs/day) = 0.0708602

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.773	**0.0548**	0.359	**0.0254**
Zinc	2.817	**0.1996**	1.160	**0.0822**
Ammonia (as N)	368.200	**26.0907**	161.900	**11.4723**

421.103(j) Ammonium Paratungstate Conversion to Oxides Water of Formation
Production (million lbs/day) = 0.0708602

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.018	**0.0013**	0.008	**0.0006**
Zinc	0.064	**0.0045**	0.026	**0.0018**
Ammonia (as N)	8.398	**0.5951**	3.692	**0.2616**

421.103(k) Reduction to Tungsten Wet Air Pollution Control
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.862	**0.0212**	0.400	**0.0098**
Zinc	3.142	**0.0773**	1.294	**0.0318**
Ammonia (as N)	410.600	**10.0987**	180.500	**4.4394**

421.103(l) Reduction to Tungsten Water of Formation
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.137	**0.0034**	0.064	**0.0016**
Zinc	0.499	**0.0123**	0.205	**0.0050**
Ammonia (as N)	65.190	**1.6033**	28.660	**0.7049**

421.103(m) Tungsten Powder Acid Leach and Wash
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.672	**0.0165**	0.312	**0.0077**
Zinc	2.448	**0.0602**	1.008	**0.0248**
Ammonia (as N)	319.900	**7.8679**	140.700	**3.4605**

421.103(n) Molybdenum Sulfide Precipitation Wet Air Pollution Control
Production (million lbs/day) = 0.024594873

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Lead	0.000	**0.0000**	0.000	**0.0000**
Zinc	0.000	**0.0000**	0.000	**0.0000**
Ammonia (as N)	0.000	**0.0000**	0.000	**0.0000**

Final

Alkali Leach Wash Condensate

Pollutant	Maximum Daily	Average Monthly
Lead	**0.4836**	**0.2245**
Zinc	**1.7616**	**0.7252**
Ammonia (as N)	**230.1646**	**101.1752**
Total suspended solids	**70.7687**	**33.6741**

Ion Exchange Raffinate (Not Commingled)

Pollutant	Maximum Daily	Average Monthly
Lead	**1.9713**	**0.9149**
Zinc	**7.1788**	**2.9562**
Ammonia (as N)	**2919.2180**	**1284.0575**
Total suspended solids	**288.5369**	**137.3076**

Crystallization and Drying of Ammonium Paratungstate

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0000**	**0.0000**
Zinc	**0.0000**	**0.0000**
Ammonia (as N)	**0.0000**	**0.0000**
Total suspended solids	**0.0000**	**0.0000**

Ammonium P Conversion to Oxides Wet Air Pollution Control

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0548**	**0.0254**
Zinc	**0.1996**	**0.0822**
Ammonia (as N)	**26.0907**	**11.4723**
Total suspended solids	**80.2137**	**38.1582**

Ammonium Paratungstate Conversion to Oxides Water of Formation

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0013**	**0.0006**
Zinc	**0.0045**	**0.0018**
Ammonia (as N)	**0.5951**	**0.2616**
Total suspended solids	**0.1830**	**0.0871**

Reduction to Tungsten Wet Air Pollution Control

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0212**	**0.0098**
Zinc	**0.0773**	**0.0318**
Ammonia (as N)	**10.0987**	**4.4394**
Total suspended solids	**31.0633**	**14.7741**

Reduction to Tungsten Water of Formation

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0034**	**0.0016**
Zinc	**0.0123**	**0.0050**
Ammonia (as N)	**1.6033**	**0.7049**
Total suspended solids	**0.4931**	**0.2345**

Tungsten Powder Acid Leach and Wash

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0165**	**0.0077**
Zinc	**0.0602**	**0.0248**
Ammonia (as N)	**7.8679**	**3.4605**
Total suspended solids	**2.4201**	**1.1510**

Molybdenum Sulfide Precipitation Wet Air Pollution Control

Pollutant	Maximum Daily	Average Monthly
Lead	**0.0000**	**0.0000**
Zinc	**0.0000**	**0.0000**
Ammonia (as N)	**0.0000**	**0.0000**
Total suspended solids	**0.0000**	**0.0000**

STEP 1

BPT

471.51(h) Equipment cleaning wastewater
Production (million lbs/day) = 0.004345073

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	2.590	**0.0113**	1.360	**0.0059**
Nickel	2.610	**0.0113**	1.730	**0.0075**
Fluoride	80.900	**0.3515**	35.900	**0.1560**
Molybdenum	8.990	**0.0391**	4.650	**0.0202**
Oil and grease	27.200	**0.1182**	16.300	**0.0708**
Total suspended solids	55.800	**0.2425**	26.500	**0.1151**

471.51(l) Surface treatment spent baths
Production (million lbs/day) = 0.000011287

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.739	**0.000008**	0.389	**0.000004**
Nickel	0.747	**0.000008**	0.494	**0.000006**
Fluoride	23.200	**0.000262**	10.300	**0.000116**
Molybdenum	2.570	**0.000029**	1.330	**0.000015**
Oil and grease	7.780	**0.000088**	4.680	**0.000053**
Total suspended solids	16.000	**0.000181**	7.590	**0.000086**
pH	Within the range of 7.5 to 10.0 at all times			

471.51(m) Surface treatment rinse
Production (million lbs/day) = 0.000011287

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	230.000	**0.0026**	121.000	**0.0014**
Nickel	232.000	**0.0026**	154.000	**0.0017**
Fluoride	7200.000	**0.0813**	3200.000	**0.0361**
Molybdenum	800.000	**0.0090**	414.000	**0.0047**
Oil and grease	2420.000	**0.0273**	1450.000	**0.0164**
Total suspended solids	4960.000	**0.0560**	2360.000	**0.0266**
pH	Within the range of 7.5 to 10.0 at all times			

471.51(n) Alkaline cleaning spent baths
Production (million lbs/day) = 0.001742368

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.635	**0.0011**	0.334	**0.0006**
Nickel	0.641	**0.0011**	0.424	**0.0007**
Fluoride	19.900	**0.0347**	8.820	**0.0154**
Molybdenum	2.210	**0.0039**	1.140	**0.0020**
Oil and grease	6.680	**0.0116**	4.010	**0.0070**
Total suspended solids	13.700	**0.0239**	6.510	**0.0113**
pH	Within the range of 7.5 to 10.0 at all times			

471.51(o) Alkaline cleaning rinse
Production (million lbs/day) = 0.001742368

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	1550.000	**2.7007**	816.000	**1.4218**
Nickel	1570.000	**2.7355**	1040.000	**1.8121**
Fluoride	48600.000	**84.6791**	21600.000	**37.6351**
Molybdenum	5400.000	**9.4088**	2790.000	**4.8612**
Oil and grease	16300.000	**28.4006**	9790.000	**17.0578**
Total suspended solids	33500.000	**58.3693**	15900.000	**27.7037**
pH	Within the range of 7.5 to 10.0 at all times			

471.51(w) Miscellaneous wastewater services
Production (million lbs/day) = 0.004345073

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.656	**0.0029**	0.345	**0.0015**
Nickel	0.663	**0.0029**	0.438	**0.0019**
Fluoride	20.600	**0.0895**	9.110	**0.0396**
Molybdenum	2.280	**0.0099**	1.180	**0.0051**
Oil and grease	6.900	**0.0300**	4.140	**0.0180**
Total suspended solids	14.200	**0.0617**	6.730	**0.0292**

BAT

471.52(h) Equipment cleaning wastewater
Production (million lbs/day) = 0.004345073

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.174	**0.0008**	0.083	**0.0004**
Nickel	0.075	**0.0003**	0.051	**0.0002**
Fluoride	8.090	**0.0352**	3.590	**0.0156**
Molybdenum	0.684	**0.0030**	0.303	**0.0013**

471.52(l) Surface treatment spent baths
Production (million lbs/day) = 0.000011287

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.498	**0.000006**	0.237	**0.000003**
Nickel	0.214	**0.000002**	0.144	**0.000002**
Fluoride	23.200	**0.000262**	10.300	**0.000116**
Molybdenum	1.960	**0.000022**	0.868	**0.000010**

471.52(m) Surface treatment rinse
Production (million lbs/day) = 0.000011287

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	15.500	**0.00017**	7.380	**0.000083**
Nickel	6.660	**0.00008**	4.480	**0.000051**
Fluoride	720.000	**0.00813**	320.000	**0.003612**
Molybdenum	60.900	**0.00069**	27.000	**0.000305**

471.52(n) Alkaline cleaning spent baths
Production (million lbs/day) = 0.001742368

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.428	**0.000746**	0.204	**0.000355**
Nickel	0.184	**0.000321**	0.124	**0.000216**
Fluoride	19.900	**0.034673**	8.820	**0.015368**
Molybdenum	1.680	**0.002927**	0.745	**0.001298**

471.52(o) Alkaline cleaning rinse
Production (million lbs/day) = 0.001742368

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	10.500	**0.0183**	4.980	**0.0087**
Nickel	4.490	**0.0078**	3.020	**0.0053**
Fluoride	486.000	**0.8468**	216.000	**0.3764**
Molybdenum	41.100	**0.0716**	18.200	**0.0317**

471.52(w) Miscellaneous wastewater services
Production (million lbs/day) = 0.004345073

Pollutant	Maximum Daily	Calculated Limit	Average Monthly	Calculated Limit2
Copper	0.442	**0.0019**	0.211	**0.0009**
Nickel	0.190	**0.0008**	0.128	**0.0006**
Fluoride	20.600	**0.0895**	9.110	**0.0396**
Molybdenum	1.740	**0.0076**	0.770	**0.0033**

Final

Equipment cleaning wastewater

Pollutant	Maximum Daily	Average Monthly
Copper	**0.0008**	**0.0004**
Nickel	**0.0003**	**0.0002**
Fluoride	**0.0352**	**0.0156**
Molybdenum	**0.0030**	**0.0013**
Oil and grease	**0.118**	**0.0708**
Total suspended solids	**0.243**	**0.1151**

Surface treatment spent baths

Pollutant	Maximum Daily	Average Monthly
Copper	**0.000006**	**0.000003**
Nickel	**0.000002**	**0.000002**
Fluoride	**0.000262**	**0.000116**
Molybdenum	**0.000022**	**0.000010**
Oil and grease	**0.000088**	**0.000053**
Total suspended solids	**0.000181**	**0.000086**
pH	**7.5 - 10.0**	

Surface treatment rinse

Pollutant	Maximum Daily	Average Monthly
Copper	**0.000170**	**0.000083**
Nickel	**0.000080**	**0.000051**
Fluoride	**0.008130**	**0.003612**
Molybdenum	**0.000690**	**0.000305**
Oil and grease	**0.027300**	**0.016400**
Total suspended solids	**0.056000**	**0.026600**
pH	**7.5 - 10.0**	

Alkaline cleanign spent baths

Pollutant	Maximum Daily	Average Monhtly
Copper	**0.00075**	**0.00036**
Nickel	**0.00032**	**0.00022**
Fluoride	**0.03467**	**0.01537**
Molybdenum	**0.00293**	**0.00130**
Oil and grease	**0.01160**	**0.00700**
Total suspended solids	**0.02390**	**0.01130**
pH	**7.5 - 10.0**	

Alkaline cleaning rinse

Pollutant	Maximum Daily	Average Monthly
Copper	**0.0183**	**0.0087**
Nickel	**0.0078**	**0.0053**
Fluoride	**0.8468**	**0.3764**
Molybdenum	**0.0716**	**0.0317**
Oil and grease	**28.401**	**17.0578**
Total suspended solids	**58.369**	**27.7037**
pH	**7.5 - 10.0**	

Miscellaneous wastewater services

Pollutant	Maximum Daily	Average Monthly
Copper	**0.0019**	**0.0009**
Nickel	**0.0008**	**0.0006**
Fluoride	**0.0895**	**0.0396**
Molybdenum	**0.0076**	**0.0033**
Oil and grease	**0.0300**	**0.0180**
Total suspended solids	**0.0617**	**0.0292**

STEP 2

(d) Alkali leach wash condensate

Lead 30-Day Average (lbs/million lbs)= 2.494
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.09001355
Design Flow (MGD/million lbs) = 2.7163

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.4082**	0.08	**0.1633**
Copper	1.28	**2.6123**	0.49	**1.0000**
Fluoride	35.00	**71.4306**	19.90	**40.6134**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**122.4524**	30.00	**61.2262**
Nickel	3.79	**7.7349**	1.68	**3.4287**
Zinc	1.02	**BAT**	0.31	**BAT**

(f) Ion exchange raffinate (not commingled with other process or nonprocess waters)

Lead 30-Day Average (lbs/million lbs)= 11.500
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.079552482
Design Flow (MGD/million lbs) = 12.5249

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**1.6634**	0.08	**0.6653**
Copper	1.28	**10.6456**	0.49	**4.0753**
Fluoride	35.00	**291.0894**	19.90	**165.5051**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**499.0105**	30.00	**249.5052**
Nickel	3.79	**31.5208**	1.68	**13.9723**
Zinc	1.02	**BAT**	0.31	**BAT**

(h) Crystallization and drying of ammonium paratungstate

Lead 30-Day Average (lbs/million lbs)= 0.0000
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.079552482
Design Flow (MGD/million lbs) = 0.0000

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0000**	0.08	**0.0000**
Copper	1.28	**0.0000**	0.49	**0.0000**
Fluoride	35.00	**0.0000**	19.90	**0.0000**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**0.0000**	30.00	**0.0000**
Nickel	3.79	**0.0000**	1.68	**0.0000**
Zinc	1.02	**BAT**	0.31	**BAT**

(i) Ammonium paratungstate conversion to oxides wet air pollution control

Lead 30-Day Average (lbs/million lbs)= 0.359
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.0708602
Design Flow (MGD/million lbs) = 0.3910

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0463**	0.08	**0.0185**
Copper	1.28	**0.2960**	0.49	**0.1133**
Fluoride	35.00	**8.0943**	19.90	**4.6022**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**13.8759**	30.00	**6.9379**
Nickel	3.79	**0.8765**	1.68	**0.3885**
Zinc	1.02	**BAT**	0.31	**BAT**

(j) Ammonium paratungstate conversion to oxides water of formation

Lead 30-Day Average (lbs/million lbs)= 0.008
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.0708602
Design Flow (MGD/million lbs) = 0.0087

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0010**	0.08	**0.0004**
Copper	1.28	**0.0066**	0.49	**0.0025**
Fluoride	35.00	**0.1801**	19.90	**0.1024**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**0.3087**	30.00	**0.1544**
Nickel	3.79	**0.0195**	1.68	**0.0086**
Zinc	1.02	**BAT**	0.31	**BAT**

(k) Reudction to tungsten wet air pollution control

Lead 30-Day Average (lbs/million lbs)= 0.4000
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.024594873
Design Flow (MGD/million lbs) = 0.4356

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0179**	0.08	**0.0072**
Copper	1.28	**0.1145**	0.49	**0.0438**
Fluoride	35.00	**3.1299**	19.90	**1.7796**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**5.3655**	30.00	**2.6828**
Nickel	3.79	**0.3389**	1.68	**0.1502**
Zinc	1.02	**BAT**	0.31	**BAT**

(l) Reduction to tungsten water of formation

Lead 30-Day Average (lbs/million lbs)= 0.0640
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.024594873
Design Flow (MGD/million lbs) = 0.0697

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0029**	0.08	**0.0011**
Copper	1.28	**0.0183**	0.49	**0.0070**
Fluoride	35.00	**0.5008**	19.90	**0.2847**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**0.8585**	30.00	**0.4293**
Nickel	3.79	**0.0542**	1.68	**0.0240**
Zinc	1.02	**BAT**	0.31	**BAT**

(m) Tungsten powder acid leach and wash

Lead 30-Day Average (lbs/million lbs)= 0.3120
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.024594873
Design Flow (MGD/million lbs) = 0.3398

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0140**	0.08	**0.0056**
Copper	1.28	**0.0893**	0.49	**0.0342**
Fluoride	35.00	**2.4416**	19.90	**1.3882**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**4.1855**	30.00	**2.0928**
Nickel	3.79	**0.2644**	1.68	**0.1172**
Zinc	1.02	**BAT**	0.31	**BAT**

(n) Molybdenum sulfide precipitation wet air pollution control

Lead 30-Day Average (lbs/million lbs)= 0.0000
Treatability Concentration (mg/l) = 0.11
Production (million lbs/day) = 0.024594873
Design Flow (MGD/million lbs) = 0.0000

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0000**	0.08	**0.0000**
Copper	1.28	**0.0000**	0.49	**0.0000**
Fluoride	35.00	**0.0000**	19.90	**0.0000**
Lead	0.28	**BAT**	0.11	**BAT**
Molybdenum	60.00	**0.0000**	30.00	**0.0000**
Nickel	3.79	**0.0000**	1.68	**0.0000**
Zinc	1.02	**BAT**	0.31	**BAT**

STEP 2

(h) Equipment cleaning wastewater

Copper 30 Day Average (lbs/million lbs) = 0.083
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.004345073
Design Flow (MGD/million lbs) = 0.0203

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0001**	0.08	**0.0001**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.0002**	0.11	**0.0001**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.0008**	0.31	**0.0002**

(l) Surface treatment spent baths

Copper 30 Day Average (lbs/million lbs) = 0.237
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.000011287
Design Flow (MGD/million lbs) = 0.0579

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0000011**	0.08	**0.0000004**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.0000015**	0.11	**0.0000006**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.0000056**	0.31	**0.0000017**

(m) Surface treatment rinse

Copper 30 Day Average (lbs/million lbs) = 7.38
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.000011287
Design Flow (MGD/million lbs) = 1.8044

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.000034**	0.08	**0.000014**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.000048**	0.11	**0.000019**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.000173**	0.31	**0.000053**

(n) Alkaline cleaning spent baths

Copper 30 Day Average (lbs/million lbs) = 0.204
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.001742368
Design Flow (MGD/million lbs) = 0.0499

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.000145**	0.08	**0.000058**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.000203**	0.11	**0.000080**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.000740**	0.31	**0.000225**

(o) Alkaline cleaning rinse

Copper 30 Day Average (lbs/million lbs) = 4.98
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.001742368
Design Flow (MGD/million lbs) = 1.2176

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0035416**	0.08	**0.0014167**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.0049583**	0.11	**0.0019479**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.0180624**	0.31	**0.0054895**

(w) Miscellaneous wastewater sources

Copper 30 Day Average (lbs/million lbs) = 0.211
Treatability Concentration (mg/l) = 0.49
Production (million lbs/day) = 0.004345073
Design Flow (MGD/million lbs) = 0.0516

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Cadmium	0.20	**0.0004**	0.08	**0.0001**
Copper	1.28	**BAT**	0.49	**BAT**
Fluoride	35.00	**BAT**	19.90	**BAT**
Lead	0.28	**0.0005**	0.11	**0.0002**
Molybdenum	60.00	**BAT**	30.00	**BAT**
Nickel	3.79	**BAT**	1.68	**BAT**
Zinc	1.02	**0.0019**	0.31	**0.0006**

STEP 3

Special Ammonia Streams - Moly Calciners, Main Stripper Cleaning Solution
Flow (MGD) = 0.003677

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Ammonia	133.30	**4.0912**	58.54	**1.7967**

TSS Streams - All Non-Scope Flows
Flow (MGD) = 0.065969

Pollutant	Treatability Concentration	Maximum Daily	Treatability Concentration2	Average Monthly
Total suspended solids	15.00	**8.2596**	10.00	**5.5064**

STEP 4

COPPER								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	0.0000	13.7826	0.0000	13.7826	0.0000	5.2761	0.0000	5.2761
Part 471, Subpart E	0.0219	0.0000	0.0000	0.0219	0.0104	0.0000	0.0000	0.0104
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0219	13.7826	0.0000	**13.8045**	0.0104	5.2761	0.0000	**5.2865**

STEP 4

NICKEL								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	0.0000	40.8092	0.0000	40.8092	0.0000	18.0895	0.0000	18.0895
Part 471, Subpart E	0.0093	0.0000	0.0000	0.0093	0.0064	0.0000	0.0000	0.0064
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0093	40.8092	0.0000	**40.8185**	0.0064	18.0895	0.0000	**18.0959**

STEP 4

LEAD								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	2.5521	0.0000	0.0000	2.5521	1.1845	0.0000	0.0000	1.1845
Part 471, Subpart E	0.0000	0.0059	0.0000	0.0059	0.0000	0.0023	0.0000	0.0023
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5521	0.0059	0.0000	**2.5580**	1.1845	0.0023	0.0000	**1.1868**

STEP 4

ZINC								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	9.2943	0.0000	0.0000	9.2943	3.8270	0.0000	0.0000	3.8270
Part 471, Subpart E	0.0000	0.0217	0.0000	0.0217	0.0000	0.0066	0.0000	0.0066
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	9.2943	0.0217	0.0000	**9.3160**	3.8270	0.0066	0.0000	**3.8336**

STEP 4

FLUORIDE								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	0.0000	376.8667	0.0000	376.8667	0.0000	214.2756	0.0000	214.2756
Part 471, Subpart E	1.0146	0.0000	0.0000	1.0146	0.4507	0.0000	0.0000	0.4507
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.0146	376.8667	0.0000	**377.8813**	0.4507	214.2756	0.0000	**214.7263**

STEP 4

MOLYBDENUM								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	0.0000	646.0570	0.0000	646.0570	0.0000	323.0286	0.0000	323.0286
Part 471, Subpart E	0.0858	0.0000	0.0000	0.0858	0.0379	0.0000	0.0000	0.0379
Credit	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0858	646.0570	0.0000	**646.1428**	0.0379	323.0286	0.0000	**323.0665**

STEP 4

AMMONIA								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	3195.6383	0.0000	0.0000	3195.6383	1405.5714	0.0000	0.0000	1405.5714
Part 471, Subpart E	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Credit	0.0000	0.0000	4.0912	4.0912	0.0000	0.0000	1.7967	1.7967
Total	3195.6383	0.0000	4.0912	**3199.7295**	1405.5714	0.0000	1.7967	**1407.3681**

STEP 4

TOTAL SUSPENDED SOLIDS								
ELG	Maximum Daily				Average Monthly			
	Step 1	Step 2	Step 3	Total	Step 1	Step 2	Step 3	Total
Part 421, Subpart J	473.6788	0.0000	0.0000	473.6788	225.3866	0.0000	0.0000	225.3866
Part 471, Subpart E	58.7538	0.0000	0.0000	58.7538	27.8860	0.0000	0.0000	27.8860
Credit	0.0000	0.0000	8.2596	8.2596	0.0000	0.0000	5.5064	5.5064
Total	532.4326	0.0000	8.2596	**540.6922**	253.2726	0.0000	5.5064	**258.7790**

SUMMARY

Pollutant	Existing TBELs (lbs/day)		Proposed TBELs (lbs/day)	
	Maximum Daily	Average Monthly	Maximum Daily	Average Monthly
Copper	9.11	3.5	13.8	5.28
Nickel	26.64	11.83	40.81	18.09
Lead	1.71	0.79	2.55	1.18
Zinc	6.25	2.54	9.31	3.83
Fluoride	247.6	140.7	377.8	214.7
Molybdenum	432.1	216	646.1	323
Ammonia	2012.5	885.2	3199.7	1407.3
Total suspended solids	325.7	157.5	540.6	258.7

ATTACHMENT D

Outfalls 002, 003, and 004 TDS Data

MONITORING_START_DATE	MONITORING_END_DATE	OUTFALL	PARAMETER	LOAD_UNITS	LOAD_1_VALUE	LOAD_1_LIMIT	LOAD_1_SBC	LOAD_2_VALUE	LOAD_2_LIMIT	LOAD_2_SBC	CONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALUE	CONC_3_LIMIT	CONC_3_SBC	SAMPLE_FREQUENCY	SAMPLE_TYPE
10/1/2017	10/31/2017	001	Total Dissolved Solids	lbs/day	53385	Monitor and Report	Average Monthly	85439	135790	Daily Maximum	mg/L	12964	Monitor and Report	Average Monthly	15900	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
11/1/2017	11/30/2017	001	Total Dissolved Solids	lbs/day	54666	Monitor and Report	Average Monthly	88691	135790	Daily Maximum	mg/L	12600	Monitor and Report	Average Monthly	17300	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
12/1/2017	12/31/2017	001	Total Dissolved Solids	lbs/day	56718	Monitor and Report	Average Monthly	86319	135790	Daily Maximum	mg/L	14050	Monitor and Report	Average Monthly	15600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
1/1/2018	1/31/2018	001	Total Dissolved Solids	lbs/day	70511.4	Monitor and Report	Average Monthly	90132	135790	Daily Maximum	mg/L	13914	Monitor and Report	Average Monthly	17400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
2/1/2018	2/28/2018	001	Total Dissolved Solids	lbs/day	71600	Monitor and Report	Average Monthly	98342	135790	Daily Maximum	mg/L	13538	Monitor and Report	Average Monthly	17800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
3/1/2018	3/31/2018	001	Total Dissolved Solids	lbs/day	73516	Monitor and Report	Average Monthly	88754	135790	Daily Maximum	mg/L	14406	Monitor and Report	Average Monthly	17400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
4/1/2018	4/30/2018	001	Total Dissolved Solids	lbs/day	75987	Monitor and Report	Average Monthly	87255	135790	Daily Maximum	mg/L	15078	Monitor and Report	Average Monthly	16200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
5/1/2018	5/31/2018	001	Total Dissolved Solids	lbs/day	72027	Monitor and Report	Average Monthly	109854	135790	Daily Maximum	mg/L	15087	Monitor and Report	Average Monthly	19400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
6/1/2018	6/30/2018	001	Total Dissolved Solids	lbs/day	78601	Monitor and Report	Average Monthly	95749	135790	Daily Maximum	mg/L	14888	Monitor and Report	Average Monthly	17300	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
7/1/2018	7/31/2018	001	Total Dissolved Solids	lbs/day	56896	Monitor and Report	Average Monthly	98055	135790	Daily Maximum	mg/L	11609	Monitor and Report	Average Monthly	18200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
8/1/2018	8/31/2018	001	Total Dissolved Solids	lbs/day	78909	Monitor and Report	Average Monthly	118027	135790	Daily Maximum	mg/L	14138	Monitor and Report	Average Monthly	17100	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
9/1/2018	9/30/2018	001	Total Dissolved Solids	lbs/day	88223	Monitor and Report	Average Monthly	102255	135790	Daily Maximum	mg/L	15825	Monitor and Report	Average Monthly	18500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
10/1/2018	10/31/2018	001	Total Dissolved Solids	lbs/day	70642	Monitor and Report	Average Monthly	80911	135790	Daily Maximum	mg/L	13922	Monitor and Report	Average Monthly	16000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
11/1/2018	11/30/2018	001	Total Dissolved Solids	lbs/day	56237	Monitor and Report	Average Monthly	89448	135790	Daily Maximum	mg/L	11103	Monitor and Report	Average Monthly	16100	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
12/1/2018	12/31/2018	001	Total Dissolved Solids	lbs/day	62945	Monitor and Report	Average Monthly	91867	135790	Daily Maximum	mg/L	15084	Monitor and Report	Average Monthly	19600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
1/1/2019	1/31/2019	001	Total Dissolved Solids	lbs/day	69410	Monitor and Report	Average Monthly	82048	135790	Daily Maximum	mg/L	14833	Monitor and Report	Average Monthly	18700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
2/1/2019	2/28/2019	001	Total Dissolved Solids	lbs/day	63372	Monitor and Report	Average Monthly	90877	135790	Daily Maximum	mg/L	12655	Monitor and Report	Average Monthly	16200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
3/1/2019	3/31/2019	001	Total Dissolved Solids	lbs/day	56718	Monitor and Report	Average Monthly	68392	135790	Daily Maximum	mg/L	11281	Monitor and Report	Average Monthly	16500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
4/1/2019	4/30/2019	001	Total Dissolved Solids	lbs/day	56718	Monitor and Report	Average Monthly	63780	135790	Daily Maximum	mg/L	9234	Monitor and Report	Average Monthly	13700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
5/1/2019	5/31/2019	001	Total Dissolved Solids	lbs/day	56718	Monitor and Report	Average Monthly	71352	135790	Daily Maximum	mg/L	9584	Monitor and Report	Average Monthly	13500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
6/1/2019	6/30/2019	001	Total Dissolved Solids	lbs/day	43051	Monitor and Report	Average Monthly	70126	135790	Daily Maximum	mg/L	9380	Monitor and Report	Average Monthly	16200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
7/1/2019	7/31/2019	001	Total Dissolved Solids	lbs/day	20349	Monitor and Report	Average Monthly	50570	135790	Daily Maximum	mg/L	5283	Monitor and Report	Average Monthly	9140	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
8/1/2019	8/31/2019	001	Total Dissolved Solids	lbs/day	46882	Monitor and Report	Average Monthly	64528	135790	Daily Maximum	mg/L	9068	Monitor and Report	Average Monthly	11700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
9/1/2019	9/30/2019	001	Total Dissolved Solids	lbs/day	38232	Monitor and Report	Average Monthly	84217	135790	Daily Maximum	mg/L	8380	Monitor and Report	Average Monthly	16500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
10/1/2019	10/31/2019	001	Total Dissolved Solids	lbs/day	53836	Monitor and Report	Average Monthly	87422	135790	Daily Maximum	mg/L	11809	Monitor and Report	Average Monthly	17600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
11/1/2019	11/30/2019	001	Total Dissolved Solids	lbs/day	43361	Monitor and Report	Average Monthly	94716	135790	Daily Maximum	mg/L	11004	Monitor and Report	Average Monthly	20800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
12/1/2019	12/31/2019	001	Total Dissolved Solids	lbs/day	47565	Monitor and Report	Average Monthly	96782	135790	Daily Maximum	mg/L	11451	Monitor and Report	Average Monthly	20700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
1/1/2020	1/31/2020	001	Total Dissolved Solids	lbs/day	78212	Monitor and Report	Average Monthly	93501	135790	Daily Maximum	mg/L	16022	Monitor and Report	Average Monthly	18700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
2/1/2020	2/29/2020	001	Total Dissolved Solids	lbs/day	74402	Monitor and Report	Average Monthly	86399	135790	Daily Maximum	mg/L	14575	Monitor and Report	Average Monthly	17800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
3/1/2020	3/31/2020	001	Total Dissolved Solids	lbs/day	71759	Monitor and Report	Average Monthly	99897	135790	Daily Maximum	mg/L	14489	Monitor and Report	Average Monthly	21200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
4/1/2020	4/30/2020	001	Total Dissolved Solids	lbs/day	63818	Monitor and Report	Average Monthly	86724	135790	Daily Maximum	mg/L	14711	Monitor and Report	Average Monthly	20500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
5/1/2020	5/31/2020	001	Total Dissolved Solids	lbs/day	57553	Monitor and Report	Average Monthly	82122	135790	Daily Maximum	mg/L	13606	Monitor and Report	Average Monthly	20600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
6/1/2020	6/30/2020	001	Total Dissolved Solids	lbs/day	58746	Monitor and Report	Average Monthly	80224	135790	Daily Maximum	mg/L	14628	Monitor and Report	Average Monthly	19900	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
7/1/2020	7/31/2020	001	Total Dissolved Solids	lbs/day	19103	Monitor and Report	Average Monthly	73379	135790	Daily Maximum	mg/L	5304	Monitor and Report	Average Monthly	14400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
8/1/2020	8/31/2020	001	Total Dissolved Solids	lbs/day	50353	Monitor and Report	Average Monthly	71282	135790	Daily Maximum	mg/L	9328	Monitor and Report	Average Monthly	14800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
9/1/2020	9/30/2020	001	Total Dissolved Solids	lbs/day	62823	Monitor and Report	Average Monthly	105059	135790	Daily Maximum	mg/L	11441	Monitor and Report	Average Monthly	19000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
10/1/2020	10/31/2020	001	Total Dissolved Solids	lbs/day	50571	Monitor and Report	Average Monthly	88377	135790	Daily Maximum	mg/L	9563	Monitor and Report	Average Monthly	14800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
11/1/2020	11/30/2020	001	Total Dissolved Solids	lbs/day	52423	Monitor and Report	Average Monthly	81678	135790	Daily Maximum	mg/L	10639	Monitor and Report	Average Monthly	15300	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
12/1/2020	12/31/2020	001	Total Dissolved Solids	lbs/day	35979	Monitor and Report	Average Monthly	68243	135790	Daily Maximum	mg/L	8587	Monitor and Report	Average Monthly	13500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
1/1/2021	1/31/2021	001	Total Dissolved Solids	lbs/day	67105	Monitor and Report	Average Monthly	79185	135790	Daily Maximum	mg/L	12425	Monitor and Report	Average Monthly	15700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
2/1/2021	2/28/2021	001	Total Dissolved Solids	lbs/day	74699	Monitor and Report	Average Monthly	88543	135790	Daily Maximum	mg/L	13970	Monitor and Report	Average Monthly	16300	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
3/1/2021	3/31/2021	001	Total Dissolved Solids	lbs/day	72134	Monitor and Report	Average Monthly	92634	135790	Daily Maximum	mg/L	12964	Monitor and Report	Average Monthly	16700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
4/1/2021	4/30/2021	001	Total Dissolved Solids	lbs/day	74297	Monitor and Report	Average Monthly	86025	135790	Daily Maximum	mg/L	11900	Monitor and Report	Average Monthly	13400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
5/1/2021	5/31/2021	001	Total Dissolved Solids	lbs/day	76413	Monitor and Report	Average Monthly	86782	135790	Daily Maximum	mg/L	13244	Monitor and Report	Average Monthly	14700	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
6/1/2021	6/30/2021	001	Total Dissolved Solids	lbs/day	64891	Monitor and Report	Average Monthly	82629	135790	Daily Maximum	mg/L	13088	Monitor and Report	Average Monthly	14800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
7/1/2021	7/31/2021	001	Total Dissolved Solids	lbs/day	30561	Monitor and Report	Average Monthly	80985	135790	Daily Maximum	mg/L	7586	Monitor and Report	Average Monthly	12000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
8/1/2021	8/31/2021	001	Total Dissolved Solids	lbs/day	76377	Monitor and Report	Average Monthly	83576	135790	Daily Maximum	mg/L	13089	Monitor and Report	Average Monthly	14600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
9/1/2021	9/30/2021	001	Total Dissolved Solids	lbs/day	73672	Monitor and Report	Average Monthly	88083	135790	Daily Maximum	mg/L	13478	Monitor and Report	Average Monthly	16400	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
10/1/2021	10/31/2021	001	Total Dissolved Solids	lbs/day	67950	Monitor and Report	Average Monthly	89614	135790	Daily Maximum	mg/L	12623	Monitor and Report	Average Monthly	15800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
11/1/2021	11/30/2021	001	Total Dissolved Solids	lbs/day	53106	Monitor and Report	Average Monthly	73862	135790	Daily Maximum	mg/L	11304	Monitor and Report	Average Monthly	14100	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
12/1/2021	12/31/2021	001	Total Dissolved Solids	lbs/day	64700	Monitor and Report	Average Monthly	90419	135790	Daily Maximum	mg/L	12377	Monitor and Report	Average Monthly	16000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
1/1/2022	1/31/2022	001	Total Dissolved Solids	lbs/day	61332	Monitor and Report	Average Monthly	79756	135790	Daily Maximum	mg/L	11974	Monitor and Report	Average Monthly	15000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
2/1/2022	2/28/2022	001	Total Dissolved Solids	lbs/day	68878	Monitor and Report	Average Monthly	76575	135790	Daily Maximum	mg/L	12886	Monitor and Report	Average Monthly	15200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
3/1/2022	3/31/2022	001	Total Dissolved Solids	lbs/day	73533	Monitor and Report	Average Monthly	86162	135790	Daily Maximum	mg/L	13733	Monitor and Report	Average Monthly	17600	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
4/1/2022	4/30/2022	001	Total Dissolved Solids	lbs/day	66764	Monitor and Report	Average Monthly	83905	135790	Daily Maximum	mg/L	13330	Monitor and Report	Average Monthly	17000	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
5/1/2022	5/31/2022	001	Total Dissolved Solids	lbs/day	42950	Monitor and Report	Average Monthly	69861	135790	Daily Maximum	mg/L	10289	Monitor and Report	Average Monthly	15900	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
6/1/2022	6/30/2022	001	Total Dissolved Solids	lbs/day	71876	Monitor and Report	Average Monthly	102923	135790	Daily Maximum	mg/L	13189	Monitor and Report	Average Monthly	16200	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
7/1/2022	7/31/2022	001	Total Dissolved Solids	lbs/day	58299	Monitor and Report	Average Monthly	74950	135790	Daily Maximum	mg/L	11759	Monitor and Report	Average Monthly	13300	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
8/1/2022	8/31/2022	001	Total Dissolved Solids	lbs/day	55913	Monitor and Report	Average Monthly	86934	135790	Daily Maximum	mg/L	11152	Monitor and Report	Average Monthly	15500	Monitor and Report	Daily Maximum	2/week	24-Hr Composite
9/1/2022	9/30/2022	001	Total Dissolved Solids	lbs/day	47354	Monitor and Report	Average Monthly	88643	135790	Daily Maximum	mg/L	10264	Monitor and Report	Average Monthly	15800	Monitor and Report	Daily Maximum	2/week	24-Hr Composite

MONITORING_START_DATE	MONITORING_END_DATE	OUTFALL	PARAMETER	CONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALUE	CONC_3_LIMIT	CONC_3_SBC	SAMPLE_FREQUENCY	SAMPLE_TYPE
10/1/2017	10/31/2017	002	Total Dissolved Solids	mg/L	278.4	Monitor and Report	Average Monthly	326	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2017	11/30/2017	002	Total Dissolved Solids	mg/L	319	Monitor and Report	Average Monthly	372	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2017	12/31/2017	002	Total Dissolved Solids	mg/L	266	Monitor and Report	Average Monthly	290	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2018	1/31/2018	002	Total Dissolved Solids	mg/L	285.6	Monitor and Report	Average Monthly	330	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2018	2/28/2018	002	Total Dissolved Solids	mg/L	246.5	Monitor and Report	Average Monthly	302	Monitor and Report	Daily Maximum	1/week	Composite
2/1/2018	2/28/2018	002	Total Dissolved Solids	mg/L	246.5	Monitor and Report	Average Monthly	302	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2018	3/31/2018	002	Total Dissolved Solids	mg/L	300	Monitor and Report	Average Monthly	322	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2018	4/30/2018	002	Total Dissolved Solids	mg/L	271.6	Monitor and Report	Average Monthly	312	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2018	5/31/2018	002	Total Dissolved Solids	mg/L	281.5	Monitor and Report	Average Monthly	308	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2018	6/30/2018	002	Total Dissolved Solids	mg/L	288	Monitor and Report	Average Monthly	312	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2018	7/31/2018	002	Total Dissolved Solids	mg/L	311.2	Monitor and Report	Average Monthly	346	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2018	8/31/2018	002	Total Dissolved Solids	mg/L	340.5	Monitor and Report	Average Monthly	442	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2018	9/30/2018	002	Total Dissolved Solids	mg/L	343.5	Monitor and Report	Average Monthly	370	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2018	10/31/2018	002	Total Dissolved Solids	mg/L	304.8	Monitor and Report	Average Monthly	336	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2018	11/30/2018	002	Total Dissolved Solids	mg/L	322.5	Monitor and Report	Average Monthly	346	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2018	12/31/2018	002	Total Dissolved Solids	mg/L	268.5	Monitor and Report	Average Monthly	298	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2019	1/31/2019	002	Total Dissolved Solids	mg/L	280	Monitor and Report	Average Monthly	348	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2019	2/28/2019	002	Total Dissolved Solids	mg/L	241	Monitor and Report	Average Monthly	288	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2019	3/31/2019	002	Total Dissolved Solids	mg/L	245.5	Monitor and Report	Average Monthly	290	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2019	4/30/2019	002	Total Dissolved Solids	mg/L	241	Monitor and Report	Average Monthly	274	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2019	5/31/2019	002	Total Dissolved Solids	mg/L	270.5	Monitor and Report	Average Monthly	424	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2019	6/30/2019	002	Total Dissolved Solids	mg/L	261	Monitor and Report	Average Monthly	328	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2019	7/31/2019	002	Total Dissolved Solids	mg/L	263.6	Monitor and Report	Average Monthly	370	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2019	8/31/2019	002	Total Dissolved Solids	mg/L	269	Monitor and Report	Average Monthly	340	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2019	9/30/2019	002	Total Dissolved Solids	mg/L	299	Monitor and Report	Average Monthly	356	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2019	10/31/2019	002	Total Dissolved Solids	mg/L	252	Monitor and Report	Average Monthly	302	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2019	11/30/2019	002	Total Dissolved Solids	mg/L	246	Monitor and Report	Average Monthly	270	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2019	12/31/2019	002	Total Dissolved Solids	mg/L	236	Monitor and Report	Average Monthly	244	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2020	1/31/2020	002	Total Dissolved Solids	mg/L	222	Monitor and Report	Average Monthly	308	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2020	2/29/2020	002	Total Dissolved Solids	mg/L	286	Monitor and Report	Average Monthly	450	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2020	3/31/2020	002	Total Dissolved Solids	mg/L	212	Monitor and Report	Average Monthly	240	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2020	4/30/2020	002	Total Dissolved Solids	mg/L	261	Monitor and Report	Average Monthly	362	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2020	5/31/2020	002	Total Dissolved Solids	mg/L	190	Monitor and Report	Average Monthly	210	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2020	6/30/2020	002	Total Dissolved Solids	mg/L	231	Monitor and Report	Average Monthly	250	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2020	7/31/2020	002	Total Dissolved Solids	mg/L	251	Monitor and Report	Average Monthly	282	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2020	8/31/2020	002	Total Dissolved Solids	mg/L	220	Monitor and Report	Average Monthly	304	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2020	9/30/2020	002	Total Dissolved Solids	mg/L	219	Monitor and Report	Average Monthly	250	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2020	10/31/2020	002	Total Dissolved Solids	mg/L	291	Monitor and Report	Average Monthly	362	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2020	11/30/2020	002	Total Dissolved Solids	mg/L	242	Monitor and Report	Average Monthly	318	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2020	12/31/2020	002	Total Dissolved Solids	mg/L	263	Monitor and Report	Average Monthly	292	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2021	1/31/2021	002	Total Dissolved Solids	mg/L	254	Monitor and Report	Average Monthly	266	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2021	2/28/2021	002	Total Dissolved Solids	mg/L	290	Monitor and Report	Average Monthly	370	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2021	3/31/2021	002	Total Dissolved Solids	mg/L	242	Monitor and Report	Average Monthly	280	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2021	4/30/2021	002	Total Dissolved Solids	mg/L	253	Monitor and Report	Average Monthly	332	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2021	5/31/2021	002	Total Dissolved Solids	mg/L	258	Monitor and Report	Average Monthly	282	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2021	6/30/2021	002	Total Dissolved Solids	mg/L	226	Monitor and Report	Average Monthly	240	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2021	7/31/2021	002	Total Dissolved Solids	mg/L	232	Monitor and Report	Average Monthly	306	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2021	8/31/2021	002	Total Dissolved Solids	mg/L	302	Monitor and Report	Average Monthly	324	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2021	9/30/2021	002	Total Dissolved Solids	mg/L	302	Monitor and Report	Average Monthly	360	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2021	10/31/2021	002	Total Dissolved Solids	mg/L	225	Monitor and Report	Average Monthly	258	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2021	11/30/2021	002	Total Dissolved Solids	mg/L	257	Monitor and Report	Average Monthly	324	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2021	12/31/2021	002	Total Dissolved Solids	mg/L	253	Monitor and Report	Average Monthly	296	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2022	1/31/2022	002	Total Dissolved Solids	mg/L	253	Monitor and Report	Average Monthly	278	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2022	2/28/2022	002	Total Dissolved Solids	mg/L	213	Monitor and Report	Average Monthly	254	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2022	3/31/2022	002	Total Dissolved Solids	mg/L	234	Monitor and Report	Average Monthly	314	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2022	4/30/2022	002	Total Dissolved Solids	mg/L	262	Monitor and Report	Average Monthly	316	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2022	5/31/2022	002	Total Dissolved Solids	mg/L	350	Monitor and Report	Average Monthly	484	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2022	6/30/2022	002	Total Dissolved Solids	mg/L	517	Monitor and Report	Average Monthly	1300	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2022	7/31/2022	002	Total Dissolved Solids	mg/L	232	Monitor and Report	Average Monthly	250	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2022	8/31/2022	002	Total Dissolved Solids	mg/L	280	Monitor and Report	Average Monthly	356	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2022	9/30/2022	002	Total Dissolved Solids	mg/L	309	Monitor and Report	Average Monthly	348	Monitor and Report	Daily Maximum	1/week	24-Hr Composite

MONITORING_START_DATE	MONITORING_END_DATE	OUTFALL	PARAMETER	CONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALUE	CONC_3_LIMIT	CONC_3_SBC	SAMPLE_FREQUENCY	SAMPLE_TYPE
10/1/2017	10/31/2017	003	Total Dissolved Solids	mg/L	273.6	Monitor and Report	Average Monthly	298	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2017	11/30/2017	003	Total Dissolved Solids	mg/L	246.5	Monitor and Report	Average Monthly	264	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2017	12/31/2017	003	Total Dissolved Solids	mg/L	268.5	Monitor and Report	Average Monthly	340	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2018	1/31/2018	003	Total Dissolved Solids	mg/L	271.6	Monitor and Report	Average Monthly	336	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2018	2/28/2018	003	Total Dissolved Solids	mg/L	300	Monitor and Report	Average Monthly	338	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2018	3/31/2018	003	Total Dissolved Solids	mg/L	261.5	Monitor and Report	Average Monthly	292	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2018	4/30/2018	003	Total Dissolved Solids	mg/L	259.6	Monitor and Report	Average Monthly	280	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2018	5/31/2018	003	Total Dissolved Solids	mg/L	276	Monitor and Report	Average Monthly	284	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2018	6/30/2018	003	Total Dissolved Solids	mg/L	269	Monitor and Report	Average Monthly	288	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2018	7/31/2018	003	Total Dissolved Solids	mg/L	295.5	Monitor and Report	Average Monthly	362	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2018	8/31/2018	003	Total Dissolved Solids	mg/L	252	Monitor and Report	Average Monthly	272	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2018	9/30/2018	003	Total Dissolved Solids	mg/L	292	Monitor and Report	Average Monthly	300	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2018	10/31/2018	003	Total Dissolved Solids	mg/L	263.2	Monitor and Report	Average Monthly	292	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2018	11/30/2018	003	Total Dissolved Solids	mg/L	272	Monitor and Report	Average Monthly	288	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2018	12/31/2018	003	Total Dissolved Solids	mg/L	231.5	Monitor and Report	Average Monthly	256	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2019	1/31/2019	003	Total Dissolved Solids	mg/L	244.4	Monitor and Report	Average Monthly	414	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2019	2/28/2019	003	Total Dissolved Solids	mg/L	302	Monitor and Report	Average Monthly	336	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2019	3/31/2019	003	Total Dissolved Solids	mg/L	358.7	Monitor and Report	Average Monthly	410	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2020	8/31/2020	003	Total Dissolved Solids	mg/L	227	Monitor and Report	Average Monthly	274	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2020	9/30/2020	003	Total Dissolved Solids	mg/L	284	Monitor and Report	Average Monthly	336	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2020	10/31/2020	003	Total Dissolved Solids	mg/L	343	Monitor and Report	Average Monthly	506	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2020	11/30/2020	003	Total Dissolved Solids	mg/L	307	Monitor and Report	Average Monthly	376	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2020	12/31/2020	003	Total Dissolved Solids	mg/L	309	Monitor and Report	Average Monthly	388	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2021	1/31/2021	003	Total Dissolved Solids	mg/L	277	Monitor and Report	Average Monthly	290	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2021	2/28/2021	003	Total Dissolved Solids	mg/L	648	Monitor and Report	Average Monthly	1360	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2021	3/31/2021	003	Total Dissolved Solids	mg/L	334	Monitor and Report	Average Monthly	356	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2021	4/30/2021	003	Total Dissolved Solids	mg/L	326	Monitor and Report	Average Monthly	392	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2021	5/31/2021	003	Total Dissolved Solids	mg/L	273	Monitor and Report	Average Monthly	318	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2021	6/30/2021	003	Total Dissolved Solids	mg/L	305	Monitor and Report	Average Monthly	356	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2021	7/31/2021	003	Total Dissolved Solids	mg/L	281	Monitor and Report	Average Monthly	328	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2021	8/31/2021	003	Total Dissolved Solids	mg/L	349	Monitor and Report	Average Monthly	360	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2021	9/30/2021	003	Total Dissolved Solids	mg/L	347	Monitor and Report	Average Monthly	404	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2021	10/31/2021	003	Total Dissolved Solids	mg/L	277	Monitor and Report	Average Monthly	306	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2021	11/30/2021	003	Total Dissolved Solids	mg/L	270	Monitor and Report	Average Monthly	326	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2021	12/31/2021	003	Total Dissolved Solids	mg/L	273	Monitor and Report	Average Monthly	306	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2022	1/31/2022	003	Total Dissolved Solids	mg/L	306	Monitor and Report	Average Monthly	544	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2022	2/28/2022	003	Total Dissolved Solids	mg/L	234	Monitor and Report	Average Monthly	322	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2022	3/31/2022	003	Total Dissolved Solids	mg/L	317	Monitor and Report	Average Monthly	370	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2022	4/30/2022	003	Total Dissolved Solids	mg/L	322	Monitor and Report	Average Monthly	480	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2022	5/31/2022	003	Total Dissolved Solids	mg/L	388	Monitor and Report	Average Monthly	410	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2022	6/30/2022	003	Total Dissolved Solids	mg/L	342	Monitor and Report	Average Monthly	400	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2022	7/31/2022	003	Total Dissolved Solids	mg/L	320	Monitor and Report	Average Monthly	334	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2022	8/31/2022	003	Total Dissolved Solids	mg/L	354	Monitor and Report	Average Monthly	502	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2022	9/30/2022	003	Total Dissolved Solids	mg/L	345	Monitor and Report	Average Monthly	364	Monitor and Report	Daily Maximum	1/week	24-Hr Composite

MONITORING_START_DATE	MONITORING_END_DATE	OUTFALL	PARAMETER	CONC_UNITS	CONC_2_VALUE	CONC_2_LIMIT	CONC_2_SBC	CONC_3_VALUE	CONC_3_LIMIT	CONC_3_SBC	SAMPLE_FREQUENCY	SAMPLE_TYPE
10/1/2017	10/31/2017	004	Total Dissolved Solids	mg/L	236.4	Monitor and Report	Average Monthly	340.7	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2017	11/30/2017	004	Total Dissolved Solids	mg/L	250.5	Monitor and Report	Average Monthly	258	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2017	12/31/2017	004	Total Dissolved Solids	mg/L	275	Monitor and Report	Average Monthly	286	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2018	1/31/2018	004	Total Dissolved Solids	mg/L	279.2	Monitor and Report	Average Monthly	312	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2018	2/28/2018	004	Total Dissolved Solids	mg/L	349.5	Monitor and Report	Average Monthly	426	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2018	3/31/2018	004	Total Dissolved Solids	mg/L	300	Monitor and Report	Average Monthly	322	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2018	4/30/2018	004	Total Dissolved Solids	mg/L	283.2	Monitor and Report	Average Monthly	314	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2018	5/31/2018	004	Total Dissolved Solids	mg/L	338.5	Monitor and Report	Average Monthly	368	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2018	6/30/2018	004	Total Dissolved Solids	mg/L	325.5	Monitor and Report	Average Monthly	340	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2018	7/31/2018	004	Total Dissolved Solids	mg/L	311.2	Monitor and Report	Average Monthly	416	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2018	8/31/2018	004	Total Dissolved Solids	mg/L	318.5	Monitor and Report	Average Monthly	354	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2018	9/30/2018	004	Total Dissolved Solids	mg/L	342.5	Monitor and Report	Average Monthly	348	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2018	10/31/2018	004	Total Dissolved Solids	mg/L	293.2	Monitor and Report	Average Monthly	326	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2018	11/30/2018	004	Total Dissolved Solids	mg/L	311.5	Monitor and Report	Average Monthly	324	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2018	12/31/2018	004	Total Dissolved Solids	mg/L	319	Monitor and Report	Average Monthly	374	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2019	1/31/2019	004	Total Dissolved Solids	mg/L	233	Monitor and Report	Average Monthly	292	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2019	2/28/2019	004	Total Dissolved Solids	mg/L	376	Monitor and Report	Average Monthly	452	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2019	3/31/2019	004	Total Dissolved Solids	mg/L	392.5	Monitor and Report	Average Monthly	562	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2019	4/30/2019	004	Total Dissolved Solids	mg/L	250	Monitor and Report	Average Monthly	328	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2019	5/31/2019	004	Total Dissolved Solids	mg/L	339.5	Monitor and Report	Average Monthly	576	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2019	6/30/2019	004	Total Dissolved Solids	mg/L	286	Monitor and Report	Average Monthly	312	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2019	7/31/2019	004	Total Dissolved Solids	mg/L	288.4	Monitor and Report	Average Monthly	384	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2019	8/31/2019	004	Total Dissolved Solids	mg/L	298	Monitor and Report	Average Monthly	304	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2019	9/30/2019	004	Total Dissolved Solids	mg/L	315.5	Monitor and Report	Average Monthly	322	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2019	10/31/2019	004	Total Dissolved Solids	mg/L	305	Monitor and Report	Average Monthly	318	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2019	11/30/2019	004	Total Dissolved Solids	mg/L	308	Monitor and Report	Average Monthly	356	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2019	12/31/2019	004	Total Dissolved Solids	mg/L	380	Monitor and Report	Average Monthly	590	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2020	1/31/2020	004	Total Dissolved Solids	mg/L	348	Monitor and Report	Average Monthly	436	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2020	2/29/2020	004	Total Dissolved Solids	mg/L	343	Monitor and Report	Average Monthly	444	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2020	3/31/2020	004	Total Dissolved Solids	mg/L	281	Monitor and Report	Average Monthly	308	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2020	4/30/2020	004	Total Dissolved Solids	mg/L	320	Monitor and Report	Average Monthly	404	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2020	5/31/2020	004	Total Dissolved Solids	mg/L	352	Monitor and Report	Average Monthly	378	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2020	6/30/2020	004	Total Dissolved Solids	mg/L	413	Monitor and Report	Average Monthly	568	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2020	7/31/2020	004	Total Dissolved Solids	mg/L	351	Monitor and Report	Average Monthly	430	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2020	8/31/2020	004	Total Dissolved Solids	mg/L	284	Monitor and Report	Average Monthly	412	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2020	9/30/2020	004	Total Dissolved Solids	mg/L	339	Monitor and Report	Average Monthly	390	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2020	10/31/2020	004	Total Dissolved Solids	mg/L	409	Monitor and Report	Average Monthly	546	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2020	11/30/2020	004	Total Dissolved Solids	mg/L	342	Monitor and Report	Average Monthly	442	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2020	12/31/2020	004	Total Dissolved Solids	mg/L	329	Monitor and Report	Average Monthly	412	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2021	1/31/2021	004	Total Dissolved Solids	mg/L	340	Monitor and Report	Average Monthly	382	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2021	2/28/2021	004	Total Dissolved Solids	mg/L	848	Monitor and Report	Average Monthly	1990	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2021	3/31/2021	004	Total Dissolved Solids	mg/L	391	Monitor and Report	Average Monthly	410	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2021	4/30/2021	004	Total Dissolved Solids	mg/L	397	Monitor and Report	Average Monthly	458	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2021	5/31/2021	004	Total Dissolved Solids	mg/L	383	Monitor and Report	Average Monthly	416	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2021	6/30/2021	004	Total Dissolved Solids	mg/L	397	Monitor and Report	Average Monthly	426	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2021	7/31/2021	004	Total Dissolved Solids	mg/L	335	Monitor and Report	Average Monthly	454	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2021	8/31/2021	004	Total Dissolved Solids	mg/L	470	Monitor and Report	Average Monthly	628	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2021	9/30/2021	004	Total Dissolved Solids	mg/L	472	Monitor and Report	Average Monthly	636	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
10/1/2021	10/31/2021	004	Total Dissolved Solids	mg/L	371	Monitor and Report	Average Monthly	428	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
11/1/2021	11/30/2021	004	Total Dissolved Solids	mg/L	264	Monitor and Report	Average Monthly	318	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
12/1/2021	12/31/2021	004	Total Dissolved Solids	mg/L	361	Monitor and Report	Average Monthly	378	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
1/1/2022	1/31/2022	004	Total Dissolved Solids	mg/L	339	Monitor and Report	Average Monthly	458	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
2/1/2022	2/28/2022	004	Total Dissolved Solids	mg/L	379	Monitor and Report	Average Monthly	436	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
3/1/2022	3/31/2022	004	Total Dissolved Solids	mg/L	426	Monitor and Report	Average Monthly	508	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
4/1/2022	4/30/2022	004	Total Dissolved Solids	mg/L	367	Monitor and Report	Average Monthly	398	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
5/1/2022	5/31/2022	004	Total Dissolved Solids	mg/L	418	Monitor and Report	Average Monthly	442	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
6/1/2022	6/30/2022	004	Total Dissolved Solids	mg/L	421	Monitor and Report	Average Monthly	428	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
7/1/2022	7/31/2022	004	Total Dissolved Solids	mg/L	384	Monitor and Report	Average Monthly	444	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
8/1/2022	8/31/2022	004	Total Dissolved Solids	mg/L	393	Monitor and Report	Average Monthly	414	Monitor and Report	Daily Maximum	1/week	24-Hr Composite
9/1/2022	9/30/2022	004	Total Dissolved Solids	mg/L	417	Monitor and Report	Average Monthly	452	Monitor and Report	Daily Maximum	1/week	24-Hr Composite

ATTACHMENT E

Model Input / Output Data and Supporting Documentation

ATTACHMENT E.1

TOX_CONC Input / Output Data

Facility: Global Tungsten & Powders Corp.
NPDES #: PA0009024
Outfall No: 001
n (Samples/Month): 4
Reviewer/Permit Engineer: Derek Garner

Parameter Name	Arsenic	Bromide	Chloride	Cobalt	Copper	Fluoride	Lead	Molybdenum	Nickel	Selenium	Sulfate	TDS	Zinc
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Detection Limit													
Sample Date	*When entering values below the detection limit, enter "ND" or use the < notation (eg. <0.02)*												
	0.08	6.44	798	0.312	0.23	7.86	0.04	8.61	0.32	0.1	6.44	15900	0.028
	0.06	2	740	0.489	0.17	8.6	0.04	1.16	0.23	0.1	3600	17300	0.024
	0.31	1.21	733	0.081	0.1	0.5	0.04	1.27	0.06	0.1	7150	15600	0.02
	0.11	1.34	831	0.598	0.09	3.22	0.04	1.72	0.51	0.1	7580	17400	0.02
	0.05	1.07	908	0.679	0.04	8.96	0.04	2.26	0.2	0.1	8510		0.02
	0.08	1.06	984	0.481	0.04	10.4	0.04	2.44	0.17	0.1	6900	17800	0.024
	0.05	2.63	1180	1.65	0.06	4	0.04	1.09	0.63	0.1	9030	17400	0.02
	0.05	1.44	847	1.04	0.07	3.44	0.04	2.89	0.16	0.1	6380	16200	0.0201
	0.05	1.33	924	0.57	0.04	6.87	0.04	1.01	0.12	0.1	8310	19400	0.02
	0.05	1	887	0.547	0.21	6.46	0.04	2.87	0.19	0.1	8580	17300	0.02
	0.05	1	873	0.104	0.09	9.86	0.04	2.58	0.06	0.1	8070	18200	0.02
	0.05	1	800	1.55	0.17	5.64	0.04	2.93	0.29	0.1	9480	17100	0.02
	0.05	0.61	816	0.862	0.09	11.2	0.04	7.64	0.16	0.1	6040	18500	0.02
	0.08	0.52	1360	0.249	0.21	9.1	0.04	7.26	0.13	0.24	7520	16000	0.02
	0.08	1.11	1250	0.528	1.83	11.5	0.08	3.29	0.5	0.2	10700	16100	0.02
	0.06	2	1220	1.04	0.87	10	0.01	0.94	0.31	0.17	10600	19600	0.02
	0.04	0.97	1100	0.738	0.49	10	0.04	1.72	0.25	0.14	8580	18700	0.1
	0.04	0.78	1240	0.33	0.09	10.5	0.04	0.42	0.25	0.12	9300		0.1
	0.06	1.63	1340	0.208	0.17	11.5	0.04	2.16	0.25	0.16	9180	16200	0.1
	0.04	0.63	865	0.316	0.35	13	0.04	3.8	0.25	0.14	984	16500	0.1
	0.08	0.08	901	1.7	0.1	10	0.08	1.16	0.5	0.2	11200	13700	0.02
	0.01	1.22	1450	0.083	0.07	10	0.01	1.05	0.05	0.29	6720	13500	0.02
	0.04	1.02	1170	0.096	0.17	10	0.04	1.54	0.25	0.21	8260	16200	0.1
	0.05	0.06	877	0.512	0.04	0.5	0.04	1.59	0.15	0.1	808	9140	0.079
	0.05	1.1	1160	0.64	0.16	0.92	0.04	5.18	0.12	0.1	8120	11700	0.028
	0.12	2	900	0.189	0.17	2.37	0.04	0.29	0.06	0.1	1190	16500	0.067
	0.05	2	697	0.219	0.0983	2.69	0.04	1.52	0.0871	0.1	2270	17600	0.02
	0.05	1.8	824	0.0985	0.0674	51.2	0.04	2.12	0.0678	0.1	12700	20800	0.0559
	0.05	2	929	0.093	0.237	0.69	0.04	1.99	0.0443	0.1	6980	20700	0.0839
	0.05	2	1020	0.0533	0.0737	0.5	0.04	2.86	0.0835	0.1	9210	18700	0.0356
	0.05	2	809	0.159	0.0925	5.25	0.04	0.532	0.0598	0.1	10500		0.02
	0.05	1.6	884	1.05	0.0375	0.5	0.04	1.13	0.394	0.1	11200	17800	0.0358
	0.05	1.2	1130	0.226	1.2	12.6	0.04	0.726	0.162	0.1	9740	21200	0.02
	0.05	2	964	0.423	0.131	9.92	0.04	2.14	0.167	0.1	1350	20500	0.0441
	0.016	2	935	0.0461	0.216	10	0.016	1.79	0.1	0.367	1130	20600	0.04
	0.05	2	735	0.16	0.149	10.5	0.04	1.06	0.05	0.34	1120	19900	0.02
	0.05	2	897	0.0363	0.17	10.8	0.04	1.6	0.031	0.1	7060	14400	0.02
	0.05	8.5	1030	0.083	0.14	8.84	0.04	0.99	0.057	0.1	8250	14800	0.023
	0.05	2	935	0.062	0.085	3.7	0.04	0.55	0.066	0.1	1580	19000	0.02
	0.05	2.6	1160	0.165	0.155	10.6	0.04	0.557	0.0496	0.1	5320	14800	0.02
	0.05	3	775	0.33	0.11	10.5	0.04	0.316	0.09	0.1	8080	15300	0.02
	1.85	2.9	793	1.5	0.1	8.4	0.04	0.27	0.04	0.1	7460	13500	0.02
	0.05	2	623	1.7	0.082	10.5	0.04	0.4	0.064	0.1	6340	15700	0.02
	0.05	2.2	509	0.15	0.047	12.5	0.04	1.1	0.064	0.1	7131		0.095
	0.05	2.8	689	0.37	0.23	2.76	0.04	1.8	0.19	0.1	7700	16300	0.02
	0.05	4.9	614	0.03	0.028	9.11	0.04	1.7	0.05	0.1	6630	16700	0.02
	0.05	2	648	0.037	0.078	9.4	0.04	2.1	0.029	0.1	8410	13400	0.02
	0.05	3.7	651	0.057	0.049	0.8	0.04	0.87	0.032	0.1	8640	14700	0.023
	0.05	2	634	0.059	0.056	15.1	0.04	1.8	0.084	0.1	7740	14800	0.032
	0.05	0.36	498	0.13	0.083	11.5	0.04	1.2	0.22	0.1	7260	12000	0.044
	0.05	1.8	680	0.24	0.08	8.8	0.04	1.1	0.12	0.1	8880	14600	0.066
	0.05	1.7	523	0.18	0.035	8.9	0.04	1.8	0.11	0.1	6990	16400	0.052
	0.05	2.2	676	0.11	0.049	13.3	0.04	2	0.14	0.1	8130	15800	0.053
	0.05	2.8	634	0.16	0.068	13.1	0.04	1.1	0.12	0.1	8350	14100	0.043
	0.05	0.36	667	0.23	0.042	15.5	0.04	2.8	0.12	0.1	8750	16000	0.037
	0.05	5.8	644	0.2	0.033	9.63	0.04	3.6	0.115	0.121	5700	15000	0.074
	0.05	0.36	522	0.189	0.0251	15.4	0.0636	1.42	0.127	0.121	6180	15200	0.0297
	0.05	2.9	711	0.33	0.088	12.1	0.04	2.08	0.0662	0.42	6970	17600	0.043
	0.04	3.9	510	0.0562	0.05	2.5	0.04	1.67	0.25	0.437	5910	17000	0.1
	0.04	2.03	678	0.0583	0.05	2.5	0.02	1.67	0.25	0.437	7210	15900	0.1
	0.16			0.238	0.2	9.56	0.1	3.04	1	0.243		16200	0.4
												13300	
												15500	
												15800	

Reviewer/Permit Engineer: Derek Garner

Facility: Global Tungsten & Powders Corp.
NPDES #: PA0009024
Outfall No: 001
n (Samples/Month): 4

Parameter	Distribution Applied	Coefficient of Variation (daily)	Avg. Monthly
Arsenic (mg/L)	Lognormal	0.6956305	0.1417728
Bromide (mg/L)	Lognormal	1.0552195	6.0887054
Chloride (mg/L)	Lognormal	0.2689194	1168.4974023
Cobalt (mg/L)	Lognormal	1.4896796	1.5890384
Copper (mg/L)	Lognormal	1.0579340	0.4264830
Fluoride (mg/L)	Lognormal	1.3135918	34.7460179
Lead (mg/L)	Lognormal	0.3553908	0.0613399
Molybdenum (mg/L)	Lognormal	0.8564113	4.8469937
Nickel (mg/L)	Lognormal	0.9514552	0.4573709
Selenium (mg/L)	Lognormal	0.4568193	0.2282017
Sulfate (mg/L)	Lognormal	1.5580302	39539.8162147
TDS (mg/L)	Lognormal	0.1529951	19535.0795865
Zinc (mg/L)	Lognormal	0.7665743	0.0957238

ATTACHMENT E.2

TMS Input / Output Data

Discharge Information

Instructions | Discharge | Stream

Facility: **Global Tungsten & Powders Corp.** NPDES Permit No.: **PA0009024** Outfall No.: **001**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial Waste**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.5424	682	7	0.75	0.75	0.75	0.75		

					0 if left blank		*0.5 if left blank*		*0 if left blank*			*1 if left blank*	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		19535.0796			0.153						
	Chloride (PWS)	mg/L		1168.4974			0.2689						
	Bromide	mg/L		6.0887054			1.0552						
	Sulfate (PWS)	mg/L		39539.8162			1.558						
	Fluoride (PWS)	mg/L		47.42									
Group 2	Total Aluminum	µg/L		1590									
	Total Antimony	µg/L		1.31									
	Total Arsenic	mg/L		0.1417728			0.6956						
	Total Barium	µg/L		89.6									
	Total Beryllium	µg/L	<	0.676									
	Total Boron	µg/L		603									
	Total Cadmium	µg/L		6.16									
	Total Chromium (III)	µg/L		16									
	Hexavalent Chromium	µg/L	<	0.06									
	Total Cobalt	mg/L		1.5890384			1.4897						
	Total Copper	mg/L		1.16									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		7									
	Dissolved Iron	µg/L		67									
	Total Iron	µg/L		70.4									
	Total Lead	mg/L		0.26									
	Total Manganese	µg/L		7.75									
	Total Mercury	µg/L	<	0.104									
	Total Nickel	mg/L		3.99									
	Total Phenols (Phenolics) (PWS)	µg/L	<	1									
	Total Selenium	mg/L	<	0.2282017			0.4568						
	Total Silver	µg/L	<	0.274									
	Total Thallium	µg/L		0.684									
	Total Zinc	mg/L		0.84									
	Total Molybdenum	mg/L		71.34									
	Acrolein	µg/L	<	1.95									
	Acrylamide	µg/L		108									
	Acrylonitrile	µg/L	<	0.51									
	Benzene	µg/L	<	0.43									
	Bromoform	µg/L	<	0.34									

Group 3	Carbon Tetrachloride	µg/L	<	0.51									
	Chlorobenzene	µg/L		0.21									
	Chlorodibromomethane	µg/L	<	0.39									
	Chloroethane	µg/L	<	0.42									
	2-Chloroethyl Vinyl Ether	µg/L	<	4									
	Chloroform	µg/L	<	0.51									
	Dichlorobromomethane	µg/L	<	0.32									
	1,1-Dichloroethane	µg/L	<	0.42									
	1,2-Dichloroethane	µg/L	<	0.39									
	1,1-Dichloroethylene	µg/L	<	0.33									
	1,2-Dichloropropane	µg/L	<	0.42									
	1,3-Dichloropropylene	µg/L	<	0.33									
	1,4-Dioxane	µg/L	<	0.4									
	Ethylbenzene	µg/L	<	0.27									
	Methyl Bromide	µg/L	<	0.46									
	Methyl Chloride	µg/L	<	0.36									
	Methylene Chloride	µg/L	<	0.45									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.36									
	Tetrachloroethylene	µg/L	<	0.39									
	Toluene	µg/L	<	0.33									
	1,2-trans-Dichloroethylene	µg/L	<	0.39									
	1,1,1-Trichloroethane	µg/L	<	0.38									
	1,1,2-Trichloroethane	µg/L	<	0.24									
	Trichloroethylene	µg/L	<	0.46									
	Vinyl Chloride	µg/L	<	0.46									
Group 4	2-Chlorophenol	µg/L		0.13									
	2,4-Dichlorophenol	µg/L	<	0.25									
	2,4-Dimethylphenol	µg/L	<	0.26									
	4,6-Dinitro-o-Cresol	µg/L	<	0.9									
	2,4-Dinitrophenol	µg/L	<	0.86									
	2-Nitrophenol	µg/L	<	0.25									
	4-Nitrophenol	µg/L	<	0.19									
	p-Chloro-m-Cresol	µg/L	<	0.4									
	Pentachlorophenol	µg/L	<	0.97									
	Phenol	µg/L	<	0.25									
	2,4,6-Trichlorophenol	µg/L	<	0.24									
Group 5	Acenaphthene	µg/L	<	0.26									
	Acenaphthylene	µg/L	<	0.22									
	Anthracene	µg/L	<	0.13									
	Benzidine	µg/L	<	0.35									
	Benzo(a)Anthracene	µg/L	<	0.21									
	Benzo(a)Pyrene	µg/L	<	0.29									
	3,4-Benzofluoranthene	µg/L	<	0.31									
	Benzo(ghi)Perylene	µg/L	<	0.32									
	Benzo(k)Fluoranthene	µg/L	<	0.4									
	Bis(2-Chloroethoxy)Methane	µg/L	<	0.15									
	Bis(2-Chloroethyl)Ether	µg/L	<	0.25									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	0.34									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	0.64									
	4-Bromophenyl Phenyl Ether	µg/L	<	0.19									
	Butyl Benzyl Phthalate	µg/L		0.63									
	2-Chloronaphthalene	µg/L	<	0.28									
	4-Chlorophenyl Phenyl Ether	µg/L	<	0.29									
	Chrysene	µg/L	<	0.45									
	Dibenzo(a,h)Anthrancene	µg/L	<	0.28									
	1,2-Dichlorobenzene	µg/L	<	0.32									
	1,3-Dichlorobenzene	µg/L	<	0.17									
	1,4-Dichlorobenzene	µg/L	<	0.15									
	3,3-Dichlorobenzidine	µg/L	<	0.13									
	Diethyl Phthalate	µg/L	<	0.27									
	Dimethyl Phthalate	µg/L	<	0.23									
	Di-n-Butyl Phthalate	µg/L		0.34									
	2,4-Dinitrotoluene	µg/L	<	0.77									

	2,6-Dinitrotoluene	µg/L	<	0.32									
	Di-n-Octyl Phthalate	µg/L	<	0.28									
	1,2-Diphenylhydrazine	µg/L	<	0.2									
	Fluoranthene	µg/L	<	0.35									
	Fluorene	µg/L	<	0.25									
	Hexachlorobenzene	µg/L	<	0.25									
	Hexachlorobutadiene	µg/L	<	0.27									
	Hexachlorocyclopentadiene	µg/L	<	0.22									
	Hexachloroethane	µg/L	<	0.26									
	Indeno(1,2,3-cd)Pyrene	µg/L	<	0.25									
	Isophorone	µg/L	<	0.23									
	Naphthalene	µg/L	<	0.25									
	Nitrobenzene	µg/L		0.36									
	n-Nitrosodimethylamine	µg/L	<	0.4									
	n-Nitrosodi-n-Propylamine	µg/L	<	0.31									
	n-Nitrosodiphenylamine	µg/L	<	0.27									
	Phenanthrene	µg/L	<	0.21									
	Pyrene	µg/L	<	0.16									
	1,2,4-Trichlorobenzene	µg/L	<	0.17									
Group 6	Aldrin	µg/L	<	0.004									
	alpha-BHC	µg/L	<	0.006									
	beta-BHC	µg/L	<	0.011									
	gamma-BHC	µg/L	<	0.003									
	delta BHC	µg/L	<	0.006									
	Chlordane	µg/L	<	0.125									
	4,4-DDT	µg/L	<	0.003									
	4,4-DDE	µg/L	<	0.005									
	4,4-DDD	µg/L	<	0.003									
	Dieldrin	µg/L	<	0.004									
	alpha-Endosulfan	µg/L	<	0.017									
	beta-Endosulfan	µg/L	<	0.002									
	Endosulfan Sulfate	µg/L	<	0.004									
	Endrin	µg/L	<	0.006									
	Endrin Aldehyde	µg/L	<	0.013									
	Heptachlor	µg/L	<	0.006									
	Heptachlor Epoxide	µg/L	<	0.003									
	PCB-1016	µg/L	<	0.044									
	PCB-1221	µg/L	<	0.023									
	PCB-1232	µg/L	<	0.024									
	PCB-1242	µg/L	<	0.01									
	PCB-1248	µg/L	<	0.015									
	PCB-1254	µg/L	<	0.033									
	PCB-1260	µg/L	<	0.026									
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<	0.208									
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

Stream / Surface Water Information

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 001

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	274.07	690	7780			Yes
End of Reach 1	006685	271.72	686	8070			Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	274.07	0.0823										100	7		
End of Reach 1	271.72	0.0823													

Q $_{h}$

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	274.07														
End of Reach 1	271.72														

Model Results

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 001

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.750 Analysis Hardness (mg/l): 101.02 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	750	750	429,982	
Total Antimony	0	0		0	1,100	1,100	630,640	
Total Arsenic	0	0		0	340	340	194,925	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	12,039,492	
Total Boron	0	0		0	8,100	8,100	4,643,804	
Total Cadmium	0	0		0	2.034	2.16	1,236	Chem Translator of 0.944 applied
Total Chromium (III)	0	0		0	574.496	1,818	1,042,291	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	9,341	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	54,464	
Total Copper	0	0		0	13.568	14.1	8,103	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	65.295	82.7	47,414	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	944	Chem Translator of 0.85 applied
Total Nickel	0	0		0	472.254	473	271,290	Chem Translator of 0.998 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	Chem Translator of 0.922 applied
Total Silver	0	0		0	3.273	3.85	2,208	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	37,265	
Total Zinc	0	0		0	118.188	121	69,282	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	1,720	

Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	372,651	
Benzene	0	0		0	640	640	366,918	
Bromoform	0	0		0	1,800	1,800	1,031,956	
Carbon Tetrachloride	0	0		0	2,800	2,800	1,605,266	
Chlorobenzene	0	0		0	1,200	1,200	687,971	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	10,319,565	
Chloroform	0	0		0	1,900	1,900	1,089,287	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	8,599,637	
1,1-Dichloroethylene	0	0		0	7,500	7,500	4,299,819	
1,2-Dichloropropane	0	0		0	11,000	11,000	6,306,401	
1,3-Dichloropropylene	0	0		0	310	310	177,726	
Ethylbenzene	0	0		0	2,900	2,900	1,662,597	
Methyl Bromide	0	0		0	550	550	315,320	
Methyl Chloride	0	0		0	28,000	28,000	16,052,657	
Methylene Chloride	0	0		0	12,000	12,000	6,879,710	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	573,309	
Tetrachloroethylene	0	0		0	700	700	401,316	
Toluene	0	0		0	1,700	1,700	974,626	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	3,898,502	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	1,719,927	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	1,949,251	
Trichloroethylene	0	0		0	2,300	2,300	1,318,611	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	321,053	
2,4-Dichlorophenol	0	0		0	1,700	1,700	974,626	
2,4-Dimethylphenol	0	0		0	660	660	378,384	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	45,865	
2,4-Dinitrophenol	0	0		0	660	660	378,384	
2-Nitrophenol	0	0		0	8,000	8,000	4,586,473	
4-Nitrophenol	0	0		0	2,300	2,300	1,318,611	
p-Chloro-m-Cresol	0	0		0	160	160	91,729	
Pentachlorophenol	0	0		0	8.723	8.72	5,001	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	263,722	
Acenaphthene	0	0		0	83	83.0	47,585	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	171,993	
Benzo(a)Anthracene	0	0		0	0.5	0.5	287	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	30,000	30,000	17,199,275	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	2,579,891	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	154,793	

Butyl Benzyl Phthalate	0	0		0	140	140	80,263	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	820	820	470,114	
1,3-Dichlorobenzene	0	0		0	350	350	200,658	
1,4-Dichlorobenzene	0	0		0	730	730	418,516	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	2,293,237	
Dimethyl Phthalate	0	0		0	2,500	2,500	1,433,273	
Di-n-Butyl Phthalate	0	0		0	110	110	63,064	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	917,295	
2,6-Dinitrotoluene	0	0		0	990	990	567,576	
1,2-Diphenylhydrazine	0	0		0	15	15.0	8,600	
Fluoranthene	0	0		0	200	200	114,662	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	10	10.0	5,733	
Hexachlorocyclopentadiene	0	0		0	5	5.0	2,867	
Hexachloroethane	0	0		0	60	60.0	34,399	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	5,733,092	
Naphthalene	0	0		0	140	140	80,263	
Nitrobenzene	0	0		0	4,000	4,000	2,293,237	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	9,746,256	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	171,993	
Phenanthrene	0	0		0	5	5.0	2,867	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	74,530	
Aldrin	0	0		0	3	3.0	1,720	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	0.95	0.95	545	
Chlordane	0	0		0	2.4	2.4	1,376	
4,4-DDT	0	0		0	1.1	1.1	631	
4,4-DDE	0	0		0	1.1	1.1	631	
4,4-DDD	0	0		0	1.1	1.1	631	
Dieldrin	0	0		0	0.24	0.24	138	
alpha-Endosulfan	0	0		0	0.22	0.22	126	
beta-Endosulfan	0	0		0	0.22	0.22	126	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.086	0.086	49.3	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.52	0.52	298	
Heptachlor Epoxide	0	0		0	0.5	0.5	287	
Toxaphene	0	0		0	0.73	0.73	419	

☑ ***CFC*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): 101.02 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	
Total Antimony	0	0		0	220	220	126,128	
Total Arsenic	0	0		0	150	150	85,996	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	2,350,568	
Total Boron	0	0		0	1,600	1,600	917,295	
Total Cadmium	0	0		0	0.248	0.27	156	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.730	86.9	49,818	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	5,960	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	10,893	
Total Copper	0	0		0	9.033	9.41	5,395	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	1,500	1,500	1,146,118	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.544	3.22	1,848	Chem Translator of 0.79 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	519	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.453	52.6	30,162	Chem Translator of 0.997 applied
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	4.600	4.99	2,860	Chem Translator of 0.922 applied
Total Silver	0	0		0	N/A	N/A	N/A	Chem Translator of 1 applied
Total Thallium	0	0		0	13	13.0	7,453	
Total Zinc	0	0		0	119.154	121	69,282	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	1,720	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	74,530	
Benzene	0	0		0	130	130	74,530	
Bromoform	0	0		0	370	370	212,124	
Carbon Tetrachloride	0	0		0	560	560	321,053	
Chlorobenzene	0	0		0	240	240	137,594	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	2,006,582	
Chloroform	0	0		0	390	390	223,591	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	1,777,258	
1,1-Dichloroethylene	0	0		0	1,500	1,500	859,964	
1,2-Dichloropropane	0	0		0	2,200	2,200	1,261,280	
1,3-Dichloropropylene	0	0		0	61	61.0	34,972	
Ethylbenzene	0	0		0	580	580	332,519	

Methyl Bromide	0	0		0	110	110	63,064	
Methyl Chloride	0	0		0	5,500	5,500	3,153,200	
Methylene Chloride	0	0		0	2,400	2,400	1,375,942	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	120,395	
Tetrachloroethylene	0	0		0	140	140	80,263	
Toluene	0	0		0	330	330	189,192	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	802,633	
1,1,1-Trichloroethane	0	0		0	610	610	349,719	
1,1,2-Trichloroethane	0	0		0	680	680	389,850	
Trichloroethylene	0	0		0	450	450	257,989	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	63,064	
2,4-Dichlorophenol	0	0		0	340	340	194,925	
2,4-Dimethylphenol	0	0		0	130	130	74,530	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	9,173	
2,4-Dinitrophenol	0	0		0	130	130	74,530	
2-Nitrophenol	0	0		0	1,600	1,600	917,295	
4-Nitrophenol	0	0		0	470	470	269,455	
p-Chloro-m-Cresol	0	0		0	500	500	286,655	
Pentachlorophenol	0	0		0	6.693	6.69	3,837	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	52,171	
Acenaphthene	0	0		0	17	17.0	9,746	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	33,825	
Benzo(a)Anthracene	0	0		0	0.1	0.1	57.3	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	6,000	6,000	3,439,855	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	521,711	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	30,959	
Butyl Benzyl Phthalate	0	0		0	35	35.0	20,066	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	160	160	91,729	
1,3-Dichlorobenzene	0	0		0	69	69.0	39,558	
1,4-Dichlorobenzene	0	0		0	150	150	85,996	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	458,647	
Dimethyl Phthalate	0	0		0	500	500	286,655	
Di-n-Butyl Phthalate	0	0		0	21	21.0	12,039	
2,4-Dinitrotoluene	0	0		0	320	320	183,459	

2,6-Dinitrotoluene	0	0		0	200	200	114,662	
1,2-Diphenylhydrazine	0	0		0	3	3.0	1,720	
Fluoranthene	0	0		0	40	40.0	22,932	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	2	2.0	1,147	
Hexachlorocyclopentadiene	0	0		0	1	1.0	573	
Hexachloroethane	0	0		0	12	12.0	6,880	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	1,203,949	
Naphthalene	0	0		0	43	43.0	24,652	
Nitrobenzene	0	0		0	810	810	464,380	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	1,949,251	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	33,825	
Phenanthrene	0	0		0	1	1.0	573	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	14,906	
Aldrin	0	0		0	0.1	0.1	57.3	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0043	0.004	2.47	
4,4-DDT	0	0		0	0.001	0.001	0.57	
4,4-DDE	0	0		0	0.001	0.001	0.57	
4,4-DDD	0	0		0	0.001	0.001	0.57	
Dieldrin	0	0		0	0.056	0.056	32.1	
alpha-Endosulfan	0	0		0	0.056	0.056	32.1	
beta-Endosulfan	0	0		0	0.056	0.056	32.1	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	0.036	0.036	20.6	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.0038	0.004	2.18	
Heptachlor Epoxide	0	0		0	0.0038	0.004	2.18	
Toxaphene	0	0		0	0.0002	0.0002	0.11	

☑ ***THH*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	
Total Aluminum	0	0		0	N/A	N/A	N/A	

Total Antimony	0	0		0	5.6	5.6	3,211	
Total Arsenic	0	0		0	10	10.0	5,733	
Total Barium	0	0		0	2,400	2,400	1,375,942	
Total Boron	0	0		0	3,100	3,100	1,777,258	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	300	300	171,993	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	1,000	1,000	573,309	
Total Mercury	0	0		0	0.050	0.05	28.7	
Total Nickel	0	0		0	610	610	349,719	
Total Phenols (Phenolics) (PWS)	0	0		0	5	5.0	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	0.24	0.24	138	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	1,720	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	N/A	N/A	N/A	
Benzene	0	0		0	N/A	N/A	N/A	
Bromoform	0	0		0	N/A	N/A	N/A	
Carbon Tetrachloride	0	0		0	N/A	N/A	N/A	
Chlorobenzene	0	0		0	100	100.0	57,331	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	3,268	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	18,919	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	
1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	38,985	
Methyl Bromide	0	0		0	100	100.0	57,331	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	N/A	N/A	N/A	
1,1,2,2-Tetrachloroethane	0	0		0	N/A	N/A	N/A	
Tetrachloroethylene	0	0		0	N/A	N/A	N/A	
Toluene	0	0		0	57	57.0	32,679	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	57,331	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	5,733,092	
1,1,2-Trichloroethane	0	0		0	N/A	N/A	N/A	

Trichloroethylene	0	0		0	N/A	N/A	N/A	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	30	30.0	17,199	
2,4-Dichlorophenol	0	0		0	10	10.0	5,733	
2,4-Dimethylphenol	0	0		0	100	100.0	57,331	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	1,147	
2,4-Dinitrophenol	0	0		0	10	10.0	5,733	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	
p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	N/A	N/A	N/A	
Phenol	0	0		0	4,000	4,000	2,293,237	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	40,132	
Anthracene	0	0		0	300	300	171,993	
Benzidine	0	0		0	N/A	N/A	N/A	
Benzo(a)Anthracene	0	0		0	N/A	N/A	N/A	
Benzo(a)Pyrene	0	0		0	N/A	N/A	N/A	
3,4-Benzofluoranthene	0	0		0	N/A	N/A	N/A	
Benzo(k)Fluoranthene	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroethyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Chloroisopropyl)Ether	0	0		0	200	200	114,662	
Bis(2-Ethylhexyl)Phthalate	0	0		0	N/A	N/A	N/A	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	0.1	0.1	57.3	
2-Chloronaphthalene	0	0		0	800	800	458,647	
Chrysene	0	0		0	N/A	N/A	N/A	
Dibenzo(a,h)Anthrancene	0	0		0	N/A	N/A	N/A	
1,2-Dichlorobenzene	0	0		0	1,000	1,000	573,309	
1,3-Dichlorobenzene	0	0		0	7	7.0	4,013	
1,4-Dichlorobenzene	0	0		0	300	300	171,993	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	343,985	
Dimethyl Phthalate	0	0		0	2,000	2,000	1,146,618	
Di-n-Butyl Phthalate	0	0		0	20	20.0	11,466	
2,4-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
2,6-Dinitrotoluene	0	0		0	N/A	N/A	N/A	
1,2-Diphenylhydrazine	0	0		0	N/A	N/A	N/A	
Fluoranthene	0	0		0	20	20.0	11,466	
Fluorene	0	0		0	50	50.0	28,665	
Hexachlorobenzene	0	0		0	N/A	N/A	N/A	
Hexachlorobutadiene	0	0		0	N/A	N/A	N/A	
Hexachlorocyclopentadiene	0	0		0	4	4.0	2,293	
Hexachloroethane	0	0		0	N/A	N/A	N/A	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	

Isophorone	0	0		0	34	34.0	19,493	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	5,733	
n-Nitrosodimethylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	N/A	N/A	N/A	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	20	20.0	11,466	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	40.1	
Aldrin	0	0		0	N/A	N/A	N/A	
alpha-BHC	0	0		0	N/A	N/A	N/A	
beta-BHC	0	0		0	N/A	N/A	N/A	
gamma-BHC	0	0		0	4.2	4.2	2,408	
Chlordane	0	0		0	N/A	N/A	N/A	
4,4-DDT	0	0		0	N/A	N/A	N/A	
4,4-DDE	0	0		0	N/A	N/A	N/A	
4,4-DDD	0	0		0	N/A	N/A	N/A	
Dieldrin	0	0		0	N/A	N/A	N/A	
alpha-Endosulfan	0	0		0	20	20.0	11,466	
beta-Endosulfan	0	0		0	20	20.0	11,466	
Endosulfan Sulfate	0	0		0	20	20.0	11,466	
Endrin	0	0		0	0.03	0.03	17.2	
Endrin Aldehyde	0	0		0	1	1.0	573	
Heptachlor	0	0		0	N/A	N/A	N/A	
Heptachlor Epoxide	0	0		0	N/A	N/A	N/A	
Toxaphene	0	0		0	N/A	N/A	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylamide	0	0		0	0.07	0.07	132	
Acrylonitrile	0	0		0	0.06	0.06	113	
Benzene	0	0		0	0.58	0.58	1,093	
Bromoform	0	0		0	7	7.0	13,193	
Carbon Tetrachloride	0	0		0	0.4	0.4	754	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	1,508	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1,790	
1,2-Dichloroethane	0	0		0	9.9	9.9	18,659	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1,696	
1,3-Dichloropropylene	0	0		0	0.27	0.27	509	
Ethylbenzene	0	0		0	N/A	N/A	N/A	
Methyl Bromide	0	0		0	N/A	N/A	N/A	
Methyl Chloride	0	0		0	N/A	N/A	N/A	
Methylene Chloride	0	0		0	20	20.0	37,694	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	377	
Tetrachloroethylene	0	0		0	10	10.0	18,847	
Toluene	0	0		0	N/A	N/A	N/A	
1,2-trans-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,1,1-Trichloroethane	0	0		0	N/A	N/A	N/A	
1,1,2-Trichloroethane	0	0		0	0.55	0.55	1,037	
Trichloroethylene	0	0		0	0.6	0.6	1,131	
Vinyl Chloride	0	0		0	0.02	0.02	37.7	
2-Chlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dichlorophenol	0	0		0	N/A	N/A	N/A	
2,4-Dimethylphenol	0	0		0	N/A	N/A	N/A	
4,6-Dinitro-o-Cresol	0	0		0	N/A	N/A	N/A	
2,4-Dinitrophenol	0	0		0	N/A	N/A	N/A	
2-Nitrophenol	0	0		0	N/A	N/A	N/A	
4-Nitrophenol	0	0		0	N/A	N/A	N/A	

p-Chloro-m-Cresol	0	0		0	N/A	N/A	N/A	
Pentachlorophenol	0	0		0	0.030	0.03	56.5	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	2,827	
Acenaphthene	0	0		0	N/A	N/A	N/A	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	0.0001	0.0001	0.19	
Benzo(a)Anthracene	0	0		0	0.001	0.001	1.88	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.19	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	1.88	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	18.8	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	56.5	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	603	
4-Bromophenyl Phenyl Ether	0	0		0	N/A	N/A	N/A	
Butyl Benzyl Phthalate	0	0		0	N/A	N/A	N/A	
2-Chloronaphthalene	0	0		0	N/A	N/A	N/A	
Chrysene	0	0		0	0.12	0.12	226	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.19	
1,2-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,3-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
1,4-Dichlorobenzene	0	0		0	N/A	N/A	N/A	
3,3-Dichlorobenzidine	0	0		0	0.05	0.05	94.2	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	94.2	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	94.2	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	56.5	
Fluoranthene	0	0		0	N/A	N/A	N/A	
Fluorene	0	0		0	N/A	N/A	N/A	
Hexachlorobenzene	0	0		0	0.00008	0.00008	0.15	
Hexachlorobutadiene	0	0		0	0.01	0.01	18.8	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	188	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	1.88	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	
n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	1.32	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	9.42	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	6,220	
Phenanthrene	0	0		0	N/A	N/A	N/A	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	N/A	N/A	N/A	

Aldrin	0	0		0	0.0000008	8.00E-07	0.002	
alpha-BHC	0	0		0	0.0004	0.0004	0.75	
beta-BHC	0	0		0	0.008	0.008	15.1	
gamma-BHC	0	0		0	N/A	N/A	N/A	
Chlordane	0	0		0	0.0003	0.0003	0.57	
4,4-DDT	0	0		0	0.00003	0.00003	0.057	
4,4-DDE	0	0		0	0.00002	0.00002	0.038	
4,4-DDD	0	0		0	0.0001	0.0001	0.19	
Dieldrin	0	0		0	0.000001	0.000001	0.002	
alpha-Endosulfan	0	0		0	N/A	N/A	N/A	
beta-Endosulfan	0	0		0	N/A	N/A	N/A	
Endosulfan Sulfate	0	0		0	N/A	N/A	N/A	
Endrin	0	0		0	N/A	N/A	N/A	
Endrin Aldehyde	0	0		0	N/A	N/A	N/A	
Heptachlor	0	0		0	0.000006	0.000006	0.011	
Heptachlor Epoxide	0	0		0	0.00003	0.00003	0.057	
Toxaphene	0	0		0	0.0007	0.0007	1.32	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments
Total Cobalt	Report	Report	Report	Report	Report	mg/L	10.9	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Copper	Report	Report	Report	Report	Report	mg/L	5.19	AFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	Report	Report	Report	Report	Report	mg/L	1.85	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Nickel	Report	Report	Report	Report	Report	mg/L	30.2	CFC	Discharge Conc > 10% WQBEL (no RP)
Acrylamide	0.6	0.93	132	206	330	µg/L	132	CRL	Discharge Conc ≥ 50% WQBEL (RP)

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	275,601	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	3,211	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	5.73	mg/L	Discharge Conc ≤ 10% WQBEL

Total Barium	1,375,942	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	917,295	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	156	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	49,818	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	5,960	µg/L	Discharge Conc < TQL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	171,993	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	1,146,118	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	573,309	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	28.7	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	2.86	mg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	1,415	µg/L	Discharge Conc < TQL
Total Thallium	138	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	44.4	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	1,102	µg/L	Discharge Conc < TQL
Acrylonitrile	113	µg/L	Discharge Conc < TQL
Benzene	1,093	µg/L	Discharge Conc < TQL
Bromoform	13,193	µg/L	Discharge Conc < TQL
Carbon Tetrachloride	754	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorobenzene	57,331	µg/L	Discharge Conc ≤ 25% WQBEL
Chlorodibromomethane	1,508	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	2,006,582	µg/L	Discharge Conc < TQL
Chloroform	3,268	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1,790	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	18,659	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	18,919	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1,696	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	509	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	38,985	µg/L	Discharge Conc < TQL
Methyl Bromide	57,331	µg/L	Discharge Conc < TQL
Methyl Chloride	3,153,200	µg/L	Discharge Conc < TQL
Methylene Chloride	37,694	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	377	µg/L	Discharge Conc < TQL
Tetrachloroethylene	18,847	µg/L	Discharge Conc < TQL
Toluene	32,679	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	57,331	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	349,719	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	1,037	µg/L	Discharge Conc < TQL
Trichloroethylene	1,131	µg/L	Discharge Conc < TQL

Vinyl Chloride	37.7	µg/L	Discharge Conc < TQL
2-Chlorophenol	17,199	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dichlorophenol	5,733	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	57,331	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	1,147	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	5,733	µg/L	Discharge Conc < TQL
2-Nitrophenol	917,295	µg/L	Discharge Conc < TQL
4-Nitrophenol	269,455	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	58,795	µg/L	Discharge Conc < TQL
Pentachlorophenol	56.5	µg/L	Discharge Conc < TQL
Phenol	2,293,237	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	2,827	µg/L	Discharge Conc < TQL
Acenaphthene	9,746	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	171,993	µg/L	Discharge Conc < TQL
Benzidine	0.19	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	1.88	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.19	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	1.88	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	18.8	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	56.5	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	114,662	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	603	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	30,959	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	57.3	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chloronaphthalene	458,647	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	226	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.19	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	91,729	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	4,013	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	85,996	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	94.2	µg/L	Discharge Conc < TQL
Diethyl Phthalate	343,985	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	286,655	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	11,466	µg/L	Discharge Conc ≤ 25% WQBEL
2,4-Dinitrotoluene	94.2	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	94.2	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	56.5	µg/L	Discharge Conc < TQL
Fluoranthene	11,466	µg/L	Discharge Conc < TQL
Fluorene	28,665	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.15	µg/L	Discharge Conc < TQL

Hexachlorobutadiene	18.8	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	573	µg/L	Discharge Conc < TQL
Hexachloroethane	188	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	1.88	µg/L	Discharge Conc < TQL
Isophorone	19,493	µg/L	Discharge Conc < TQL
Naphthalene	24,652	µg/L	Discharge Conc < TQL
Nitrobenzene	5,733	µg/L	Discharge Conc ≤ 25% WQBEL
n-Nitrosodimethylamine	1.32	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	9.42	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	6,220	µg/L	Discharge Conc < TQL
Phenanthrene	573	µg/L	Discharge Conc < TQL
Pyrene	11,466	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	40.1	µg/L	Discharge Conc < TQL
Aldrin	0.002	µg/L	Discharge Conc < TQL
alpha-BHC	0.75	µg/L	Discharge Conc < TQL
beta-BHC	15.1	µg/L	Discharge Conc < TQL
gamma-BHC	349	µg/L	Discharge Conc < TQL
delta BHC	N/A	N/A	No WQS
Chlordane	0.57	µg/L	Discharge Conc < TQL
4,4-DDT	0.057	µg/L	Discharge Conc < TQL
4,4-DDE	0.038	µg/L	Discharge Conc < TQL
4,4-DDD	0.19	µg/L	Discharge Conc < TQL
Dieldrin	0.002	µg/L	Discharge Conc < TQL
alpha-Endosulfan	32.1	µg/L	Discharge Conc < TQL
beta-Endosulfan	32.1	µg/L	Discharge Conc < TQL
Endosulfan Sulfate	11,466	µg/L	Discharge Conc < TQL
Endrin	17.2	µg/L	Discharge Conc < TQL
Endrin Aldehyde	573	µg/L	Discharge Conc < TQL
Heptachlor	0.011	µg/L	Discharge Conc < TQL
Heptachlor Epoxide	0.057	µg/L	Discharge Conc < TQL
PCB-1016	N/A	N/A	No WQS
PCB-1221	N/A	N/A	No WQS
PCB-1232	N/A	N/A	No WQS
PCB-1242	N/A	N/A	No WQS
PCB-1248	N/A	N/A	No WQS
PCB-1254	N/A	N/A	No WQS
PCB-1260	N/A	N/A	No WQS
Toxaphene	0.11	µg/L	Discharge Conc < TQL

Discharge Information

Instructions | Discharge | Stream

Facility: **Global Tungsten & Powders Corp.** NPDES Permit No.: **PA0009024** Outfall No.: **002**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial Waste**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
2.2269	175	7	0.75	0.75	0.75	0.75		

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		370									
	Chloride (PWS)	mg/L		48.9									
	Bromide	mg/L	<	0.072									
	Sulfate (PWS)	mg/L		13.8									
	Fluoride (PWS)	mg/L		0.527									
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

Stream / Surface Water Information

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 002

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	274.27	689.98	7780.02			Yes
End of Reach 1	006685	271.72	686	8070			Yes

Q *7-10*

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	274.27	0.0823										100	7		
End of Reach 1	271.72	0.0823													

Q *h*

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	274.27														
End of Reach 1	271.72														

Model Results

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 002

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.27	640.30		640.30	3.445	0.0003	1.199	536.084	447.286	1.002	0.156	17274.535
271.72	664.16		664.161								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.27	2107.49		2107.49	3.445	0.0003	2.021	536.084	265.246	1.948	0.08	7947.753
271.72	2175.984		2175.98								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.750 Analysis Hardness (mg/l): 100.53 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): 100.53 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable

Discharge Information

Instructions | Discharge | Stream

Facility: **Global Tungsten & Powders Corp.** NPDES Permit No.: **PA0009024** Outfall No.: **003**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial Waste**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.4059	192	7	0.75	0.75	0.75	0.75		

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1360									
	Chloride (PWS)	mg/L		55.7									
	Bromide	mg/L	<	0.072									
	Sulfate (PWS)	mg/L		14.7									
	Fluoride (PWS)	mg/L		0.467									
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

Stream / Surface Water Information

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 003

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	274.5	689.99	7780.01			Yes
End of Reach 1	006685	271.72	686	8070			Yes

Q *7-10*

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	274.5	0.0823										100	7		
End of Reach 1	271.72	0.0823													

Q *h*

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	274.5														
End of Reach 1	271.72														

Model Results

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 003

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.5	640.29		640.29	0.628	0.00027	1.201	536.391	446.598	0.995	0.171	18136.157
271.72	664.16		664.161								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.5	2107.49		2107.49	0.628	0.00027	2.028	536.391	264.483	1.938	0.088	8276.742
271.72	2175.984		2175.98								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.750 Analysis Hardness (mg/l): 100.12 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): 100.12 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable

Discharge Information

Instructions | Discharge | Stream

Facility: **Global Tungsten & Powders Corp.** NPDES Permit No.: **PA0009024** Outfall No.: **004**

Evaluation Type: **Major Sewage / Industrial Waste** Wastewater Description: **Industrial Waste**

Discharge Characteristics								
Design Flow (MGD)*	Hardness (mg/l)*	pH (SU)*	Partial Mix Factors (PMFs)				Complete Mix Times (min)	
			AFC	CFC	THH	CRL	Q_{7-10}	Q_h
0.3906	256	7	0.75	0.75	0.75	0.75		

					0 if left blank		0.5 if left blank		0 if left blank			1 if left blank	
	Discharge Pollutant	Units	Max Discharge Conc		Trib Conc	Stream Conc	Daily CV	Hourly CV	Stream CV	Fate Coeff	FOS	Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		1990									
	Chloride (PWS)	mg/L		91									
	Bromide	mg/L	<	0.072									
	Sulfate (PWS)	mg/L		25.8									
	Fluoride (PWS)	mg/L		0.451									
Group 2	Total Aluminum	µg/L											
	Total Antimony	µg/L											
	Total Arsenic	µg/L											
	Total Barium	µg/L											
	Total Beryllium	µg/L											
	Total Boron	µg/L											
	Total Cadmium	µg/L											
	Total Chromium (III)	µg/L											
	Hexavalent Chromium	µg/L											
	Total Cobalt	µg/L											
	Total Copper	µg/L											
	Free Cyanide	µg/L											
	Total Cyanide	µg/L											
	Dissolved Iron	µg/L											
	Total Iron	µg/L											
	Total Lead	µg/L											
	Total Manganese	µg/L											
	Total Mercury	µg/L											
	Total Nickel	µg/L											
	Total Phenols (Phenolics) (PWS)	µg/L											
	Total Selenium	µg/L											
	Total Silver	µg/L											
	Total Thallium	µg/L											
	Total Zinc	µg/L											
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<										
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<										
	Benzene	µg/L	<										
	Bromoform	µg/L	<										

Group 3	Carbon Tetrachloride	µg/L	<										
	Chlorobenzene	µg/L											
	Chlorodibromomethane	µg/L	<										
	Chloroethane	µg/L	<										
	2-Chloroethyl Vinyl Ether	µg/L	<										
	Chloroform	µg/L	<										
	Dichlorobromomethane	µg/L	<										
	1,1-Dichloroethane	µg/L	<										
	1,2-Dichloroethane	µg/L	<										
	1,1-Dichloroethylene	µg/L	<										
	1,2-Dichloropropane	µg/L	<										
	1,3-Dichloropropylene	µg/L	<										
	1,4-Dioxane	µg/L	<										
	Ethylbenzene	µg/L	<										
	Methyl Bromide	µg/L	<										
	Methyl Chloride	µg/L	<										
	Methylene Chloride	µg/L	<										
	1,1,2,2-Tetrachloroethane	µg/L	<										
	Tetrachloroethylene	µg/L	<										
	Toluene	µg/L	<										
	1,2-trans-Dichloroethylene	µg/L	<										
	1,1,1-Trichloroethane	µg/L	<										
	1,1,2-Trichloroethane	µg/L	<										
	Trichloroethylene	µg/L	<										
	Vinyl Chloride	µg/L	<										
Group 4	2-Chlorophenol	µg/L	<										
	2,4-Dichlorophenol	µg/L	<										
	2,4-Dimethylphenol	µg/L	<										
	4,6-Dinitro-o-Cresol	µg/L	<										
	2,4-Dinitrophenol	µg/L	<										
	2-Nitrophenol	µg/L	<										
	4-Nitrophenol	µg/L	<										
	p-Chloro-m-Cresol	µg/L	<										
	Pentachlorophenol	µg/L	<										
	Phenol	µg/L	<										
	2,4,6-Trichlorophenol	µg/L	<										
Group 5	Acenaphthene	µg/L	<										
	Acenaphthylene	µg/L	<										
	Anthracene	µg/L	<										
	Benzidine	µg/L	<										
	Benzo(a)Anthracene	µg/L	<										
	Benzo(a)Pyrene	µg/L	<										
	3,4-Benzofluoranthene	µg/L	<										
	Benzo(ghi)Perylene	µg/L	<										
	Benzo(k)Fluoranthene	µg/L	<										
	Bis(2-Chloroethoxy)Methane	µg/L	<										
	Bis(2-Chloroethyl)Ether	µg/L	<										
	Bis(2-Chloroisopropyl)Ether	µg/L	<										
	Bis(2-Ethylhexyl)Phthalate	µg/L	<										
	4-Bromophenyl Phenyl Ether	µg/L	<										
	Butyl Benzyl Phthalate	µg/L	<										
	2-Chloronaphthalene	µg/L	<										
	4-Chlorophenyl Phenyl Ether	µg/L	<										
	Chrysene	µg/L	<										
	Dibenzo(a,h)Anthrancene	µg/L	<										
	1,2-Dichlorobenzene	µg/L	<										
	1,3-Dichlorobenzene	µg/L	<										
	1,4-Dichlorobenzene	µg/L	<										
	3,3-Dichlorobenzidine	µg/L	<										
	Diethyl Phthalate	µg/L	<										
	Dimethyl Phthalate	µg/L	<										
	Di-n-Butyl Phthalate	µg/L	<										
	2,4-Dinitrotoluene	µg/L	<										

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

Stream / Surface Water Information

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 004

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Susquehanna River**

No. Reaches to Model: **1**

- (●) Statewide Criteria
- ( ) Great Lakes Criteria
- ( ) ORSANCO Criteria

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	006685	274.59	690	7780			Yes
End of Reach 1	006685	271.72	686	8070			Yes

Q $_{7\text{-}10}$

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	274.59	0.0823										100	7		
End of Reach 1	271.72	0.0823													

Q $_{h}$

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	274.59														
End of Reach 1	271.72														

Model Results

Global Tungsten & Powders Corp., NPDES Permit No. PA0009024, Outfall 004

Instructions | *Results* | RETURN TO INPUTS | SAVE AS PDF | PRINT | (●) All ( ) Inputs ( ) Results ( ) Limits

☑ ***Hydrodynamics***

Q_{7-10}

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.59	640.29		640.29	0.604	0.00026	1.202	536.938	446.796	0.993	0.177	18427.315
271.72	664.16		664.161								

Q_h

RMI	Stream Flow (cfs)	PWS Withdrawal (cfs)	Net Stream Flow (cfs)	Discharge Analysis Flow (cfs)	Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Travel Time (days)	Complete Mix Time (min)
274.59	2107.48		2107.48	0.604	0.00026	2.029	536.938	264.597	1.935	0.091	8409.041
271.72	2175.984		2175.98								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.750 Analysis Hardness (mg/l): 100.2 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***CFC*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): 100.2 Analysis pH: 7.00

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***THH*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
Fluoride (PWS)	0	0		0	2,000	2,000	N/A	

☑ ***CRL*** CCT (min): 720 PMF: 0.750 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	N/A	N/A	N/A	
Chloride (PWS)	0	0		0	N/A	N/A	N/A	
Sulfate (PWS)	0	0		0	N/A	N/A	N/A	
Fluoride (PWS)	0	0		0	N/A	N/A	N/A	

☑ ***Recommended WQBELs & Monitoring Requirements***

No. Samples/Month: 4

	Mass Limits		*Concentration Limits*						
Pollutants	AML (lbs/day)	MDL (lbs/day)	AML	MDL	IMAX	Units	Governing WQBEL	WQBEL Basis	Comments

☑ ***Other Pollutants without Limits or Monitoring***

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable

ATTACHMENT E.3

WQM Input / Output Data

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	**274.590**	690.00	7780.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 004	PA0009024	0.3906	0.3906	0.3906	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	1.44	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	0.05	0.00	0.00	0.70

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	**274.500**	689.99	7780.01	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 003	PA0009024	0.4059	0.4059	0.4059	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	0.81	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	0.05	0.00	0.00	0.70

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	**274.270**	689.98	7780.02	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 002	PA0009024	2.2269	2.2269	2.2269	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	2.34	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	0.05	0.00	0.00	0.70

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	**274.070**	689.97	7780.03	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Outfall 001	PA0009024	0.5424	0.5424	0.5424	0.000	20.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	13.70	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	310.80	0.00	0.00	0.70

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	271.720	686.00	8070.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	25.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
6685	SUSQUEHANNA RIVER	**268.560**	677.00	8180.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.082	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (ºC)	Analysis pH
Q7-10 Flow												
274.590	640.29	0.00	640.29	.6043	0.00002	1.279	579.56	452.96	0.86	0.006	25.00	7.00
274.500	640.29	0.00	640.29	1.2322	0.00001	1.312	595.22	453.55	0.82	0.017	25.00	7.00
274.270	640.30	0.00	640.30	4.6772	0.00001	1.307	594.7	455.18	0.83	0.015	25.00	7.00
274.070	640.30	0.00	640.30	5.5163	0.00032	1.196	535.49	447.6	1.01	0.142	24.99	7.00
271.720	664.16	0.00	664.16	5.5163	0.00054	1.184	536.97	453.37	1.05	0.183	24.99	7.00
Q1-10 Flow												
274.590	601.88	0.00	601.88	.6043	0.00002	NA	NA	NA	0.83	0.007	25.00	7.00
274.500	601.88	0.00	601.88	1.2322	0.00001	NA	NA	NA	0.79	0.018	25.00	7.00
274.270	601.88	0.00	601.88	4.6772	0.00001	NA	NA	NA	0.80	0.015	25.00	7.00
274.070	601.88	0.00	601.88	5.5163	0.00032	NA	NA	NA	0.97	0.147	24.99	7.00
271.720	624.31	0.00	624.31	5.5163	0.00054	NA	NA	NA	1.02	0.190	24.99	7.00
Q30-10 Flow												
274.590	787.56	0.00	787.56	.6043	0.00002	NA	NA	NA	0.97	0.006	25.00	7.00
274.500	787.56	0.00	787.56	1.2322	0.00001	NA	NA	NA	0.92	0.015	25.00	7.00
274.270	787.56	0.00	787.56	4.6772	0.00001	NA	NA	NA	0.93	0.013	25.00	7.00
274.070	787.56	0.00	787.56	5.5163	0.00032	NA	NA	NA	1.13	0.127	24.99	7.00
271.720	816.92	0.00	816.92	5.5163	0.00054	NA	NA	NA	1.18	0.163	24.99	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.94	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.23	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
274.590	Outfall 004	11.07	.09	11.07	.09	0	0
274.500	Outfall 003	11.07	.09	11.07	.09	0	0
274.270	Outfall 002	11.07	.09	11.07	.09	0	0
274.070	Outfall 001	11.08	621.6	11.08	621.6	0	0
271.720		NA	NA	11.08	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
274.590	Outfall 004	1.37	.05	1.37	.05	0	0
274.500	Outfall 003	1.37	.05	1.37	.05	0	0
274.270	Outfall 002	1.37	.05	1.37	.05	0	0
274.070	Outfall 001	1.37	310.8	1.37	310.8	0	0
271.720		NA	NA	1.37	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
274.59	Outfall 004	1.44	1.44	.05	.05	3	3	0	0
274.50	Outfall 003	.81	.81	.05	.05	3	3	0	0
274.27	Outfall 002	2.34	2.34	.05	.05	3	3	0	0
274.07	Outfall 001	13.7	13.7	310.8	310.8	3	3	0	0
271.72		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
274.590	0.391	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
579.556	1.279	452.963	0.864
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.00	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.238	0.096	Tsivoglou	5
Reach Travel Time (days)			
0.006			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	2.00	0.00	7.54
0.001	2.00	0.00	7.54
0.002	2.00	0.00	7.54
0.003	2.00	0.00	7.54
0.003	2.00	0.00	7.54
0.004	2.00	0.00	7.54
0.004	2.00	0.00	7.54
0.005	2.00	0.00	7.54
0.006	2.00	0.00	7.54
0.006	2.00	0.00	7.54

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
274.500	0.796	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
595.217	1.312	453.546	0.821
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.000	0.00	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.534	0.036	Tsivoglou	5
Reach Travel Time (days)			
0.017			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.002	2.00	0.00	7.53
0.003	2.00	0.00	7.53
0.005	2.00	0.00	7.53
0.007	2.00	0.00	7.53
0.009	2.00	0.00	7.53
0.010	2.00	0.00	7.53
0.012	2.00	0.00	7.53
0.014	2.00	0.00	7.53
0.015	2.00	0.00	7.53
0.017	2.00	0.00	7.53

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
274.270	3.023	25.000	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
594.700	1.307	455.181	0.830
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.00	0.009	0.00	1.029
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.510	0.041	Tsivoglou	5
Reach Travel Time (days)			
0.015			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.001	2.00	0.00	7.51
0.003	2.00	0.00	7.51
0.004	2.00	0.00	7.51
0.006	2.00	0.00	7.51
0.007	2.00	0.00	7.51
0.009	2.00	0.00	7.51
0.010	2.00	0.00	7.51
0.012	2.00	0.00	7.51
0.013	2.00	0.00	7.51
0.015	2.00	0.00	7.51

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
274.070	3.566	24.994	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
535.485	1.196	447.600	1.008
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.02	0.016	0.40	1.028
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.504	1.694	Tsivoglou	5
Reach Travel Time (days)			
0.142			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.014	2.02	0.40	7.50
0.028	2.02	0.39	7.49
0.043	2.01	0.39	7.49
0.057	2.01	0.38	7.48
0.071	2.01	0.38	7.48
0.085	2.01	0.37	7.47
0.100	2.01	0.36	7.47
0.114	2.01	0.36	7.47
0.128	2.01	0.35	7.46
0.142	2.01	0.35	7.46

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Total Discharge Flow (mgd)	Analysis Temperature (ºC)	Analysis pH
271.720	3.566	24.994	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
536.972	1.184	453.374	1.053
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.01	0.008	0.34	1.028
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.489	2.983	Tsivoglou	5
Reach Travel Time (days)			
0.183			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.018	2.01	0.33	7.51
0.037	2.01	0.32	7.53
0.055	2.01	0.32	7.54
0.073	2.01	0.31	7.54
0.092	2.01	0.31	7.54
0.110	2.01	0.30	7.54
0.128	2.01	0.30	7.54
0.147	2.01	0.29	7.54
0.165	2.01	0.28	7.54
0.183	2.01	0.28	7.54

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
07K	6685	SUSQUEHANNA RIVER

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
274.590	Outfall 004	PA0009024	0.391	CBOD5	1.44		
				NH3-N	0.05	0.1	
				Dissolved Oxygen			3

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
274.500	Outfall 003	PA0009024	0.406	CBOD5	0.81		
				NH3-N	0.05	0.1	
				Dissolved Oxygen			3

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
274.270	Outfall 002	PA0009024	2.227	CBOD5	2.34		
				NH3-N	0.05	0.1	
				Dissolved Oxygen			3

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
274.070	Outfall 001	PA0009024	0.542	CBOD5	13.7		
				NH3-N	310.8	621.6	
				Dissolved Oxygen			3

ATTACHMENT E.4

Thermal Discharge Analysis

Facility: **Global Tungsten & Powders Corp.**
Permit Number: PA0009024
Stream Name: Susquehanna River
Analyst/Engineer: Derek Garner
Stream Q7-10 (cfs): 641

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	3.57	0	3.57	0.75	1980.69	1485.52	1491.04
Feb 1-29	0	3.57	0	3.57	0.75	2243.50	1682.63	1688.15
Mar 1-31	0	3.57	0	3.57	0.75	4166.50	3124.88	3130.40
Apr 1-15	0	3.57	0	3.57	0.75	5743.36	4307.52	4313.04
Apr 16-30	0	3.57	0	3.57	0.75	5743.36	4307.52	4313.04
May 1-15	0	3.57	0	3.57	0.75	3256.28	2442.21	2447.73
May 16-31	0	3.57	0	3.57	0.75	3256.28	2442.21	2447.73
Jun 1-15	0	3.57	0	3.57	0.75	1897.36	1423.02	1428.54
Jun 16-30	0	3.57	0	3.57	0.75	1897.36	1423.02	1428.54
Jul 1-31	0	3.57	0	3.57	0.75	871.76	653.82	659.34
Aug 1-15	0	3.57	0	3.57	0.75	890.99	668.24	673.77
Aug 16-31	0	3.57	0	3.57	0.75	890.99	668.24	673.77
Sep 1-15	0	3.57	0	3.57	0.75	692.28	519.21	524.73
Sep 16-30	0	3.57	0	3.57	0.75	692.28	519.21	524.73
Oct 1-15	0	3.57	0	3.57	0.75	820.48	615.36	620.88
Oct 16-31	0	3.57	0	3.57	0.75	820.48	615.36	620.88
Nov 1-15	0	3.57	0	3.57	0.75	1160.21	870.16	875.68
Nov 16-30	0	3.57	0	3.57	0.75	1160.21	870.16	875.68
Dec 1-31	0	3.57	0	3.57	0.75	1923.00	1442.25	1447.77

Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.

Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017

NOTE: The user can only edit fields that are blue.

NOTE: MGD x 1.547 = cfs.

Facility: **Global Tungsten & Powders Corp.**
Permit Number: PA0009024
Stream: Susquehanna River

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	**WWF** Daily WLA[2] (Million BTUs/day)	**WWF** Daily WLA[3] (ºF)	at Discharge Flow (MGD)	**PMF**
Jan 1-31	35	0	40	N/A -- Case 2	110.0	3.57	0.75
Feb 1-29	35	0	40	N/A -- Case 2	110.0	3.57	0.75
Mar 1-31	40	0	46	N/A -- Case 2	110.0	3.57	0.75
Apr 1-15	47	0	52	N/A -- Case 2	110.0	3.57	0.75
Apr 16-30	53	0	58	N/A -- Case 2	110.0	3.57	0.75
May 1-15	58	0	64	N/A -- Case 2	110.0	3.57	0.75
May 16-31	62	0	72	N/A -- Case 2	110.0	3.57	0.75
Jun 1-15	67	0	80	N/A -- Case 2	110.0	3.57	0.75
Jun 16-30	71	0	84	N/A -- Case 2	110.0	3.57	0.75
Jul 1-31	75	0	87	N/A -- Case 2	110.0	3.57	0.75
Aug 1-15	74	0	87	N/A -- Case 2	110.0	3.57	0.75
Aug 16-31	74	0	87	N/A -- Case 2	110.0	3.57	0.75
Sep 1-15	71	0	84	N/A -- Case 2	110.0	3.57	0.75
Sep 16-30	65	0	78	N/A -- Case 2	110.0	3.57	0.75
Oct 1-15	60	0	72	N/A -- Case 2	110.0	3.57	0.75
Oct 16-31	54	0	66	N/A -- Case 2	110.0	3.57	0.75
Nov 1-15	48	0	58	N/A -- Case 2	110.0	3.57	0.75
Nov 16-30	42	0	50	N/A -- Case 2	110.0	3.57	0.75
Dec 1-31	37	0	42	N/A -- Case 2	110.0	3.57	0.75

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.

[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.

[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.

Facility: **Global Tungsten & Powders Corp.**
Permit Number: PA0009024
Stream Name: Susquehanna River
Analyst/Engineer: Derek Garner
Stream Q7-10 (cfs): 641

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	3.57	0	3.57	0.75	1980.69	1485.52	1491.04
Feb 1-29	0	3.57	0	3.57	0.75	2243.50	1682.63	1688.15
Mar 1-31	0	3.57	0	3.57	0.75	4166.50	3124.88	3130.40
Apr 1-15	0	3.57	0	3.57	0.75	5743.36	4307.52	4313.04
Apr 16-30	0	3.57	0	3.57	0.75	5743.36	4307.52	4313.04
May 1-15	0	3.57	0	3.57	0.75	3256.28	2442.21	2447.73
May 16-31	0	3.57	0	3.57	0.75	3256.28	2442.21	2447.73
Jun 1-15	0	3.57	0	3.57	0.75	1897.36	1423.02	1428.54
Jun 16-30	0	3.57	0	3.57	0.75	1897.36	1423.02	1428.54
Jul 1-31	0	3.57	0	3.57	0.75	871.76	653.82	659.34
Aug 1-15	0	3.57	0	3.57	0.75	890.99	668.24	673.77
Aug 16-31	0	3.57	0	3.57	0.75	890.99	668.24	673.77
Sep 1-15	0	3.57	0	3.57	0.75	692.28	519.21	524.73
Sep 16-30	0	3.57	0	3.57	0.75	692.28	519.21	524.73
Oct 1-15	0	3.57	0	3.57	0.75	820.48	615.36	620.88
Oct 16-31	0	3.57	0	3.57	0.75	820.48	615.36	620.88
Nov 1-15	0	3.57	0	3.57	0.75	1160.21	870.16	875.68
Nov 16-30	0	3.57	0	3.57	0.75	1160.21	870.16	875.68
Dec 1-31	0	3.57	0	3.57	0.75	1923.00	1442.25	1447.77

Please forward all comments to Tom Starosta at 717-787-4317, tstarosta@state.pa.us.

Version 2.0 -- 07/01/2005 Reference: Implementation Guidance for Temperature Criteria, DEP-ID: 391-2000-017

NOTE: The user can only edit fields that are blue.

NOTE: MGD x 1.547 = cfs.

Facility: **Global Tungsten & Powders Corp.**
Permit Number: PA0009024
Stream: Susquehanna River

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	WWF Daily WLA[2] (Million BTUs/day)	WWF Daily WLA[3] (ºF)	at Discharge Flow (MGD)	PMF
Jan 1-31	35	0	40	N/A -- Case 2	110.0	3.57	0.75
Feb 1-29	35	0	40	N/A -- Case 2	110.0	3.57	0.75
Mar 1-31	40	0	46	N/A -- Case 2	110.0	3.57	0.75
Apr 1-15	47	0	52	N/A -- Case 2	110.0	3.57	0.75
Apr 16-30	53	0	58	N/A -- Case 2	110.0	3.57	0.75
May 1-15	58	0	64	N/A -- Case 2	110.0	3.57	0.75
May 16-31	62	0	72	N/A -- Case 2	110.0	3.57	0.75
Jun 1-15	67	0	80	N/A -- Case 2	110.0	3.57	0.75
Jun 16-30	71	0	84	N/A -- Case 2	110.0	3.57	0.75
Jul 1-31	75	0	87	N/A -- Case 2	110.0	3.57	0.75
Aug 1-15	74	0	87	N/A -- Case 2	110.0	3.57	0.75
Aug 16-31	74	0	87	N/A -- Case 2	110.0	3.57	0.75
Sep 1-15	71	0	84	N/A -- Case 2	110.0	3.57	0.75
Sep 16-30	65	0	78	N/A -- Case 2	110.0	3.57	0.75
Oct 1-15	60	0	72	N/A -- Case 2	110.0	3.57	0.75
Oct 16-31	54	0	66	N/A -- Case 2	110.0	3.57	0.75
Nov 1-15	48	0	58	N/A -- Case 2	110.0	3.57	0.75
Nov 16-30	42	0	50	N/A -- Case 2	110.0	3.57	0.75
Dec 1-31	37	0	42	N/A -- Case 2	110.0	3.57	0.75

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.

[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.

[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.