pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

Application Type	**Renewal**	Application No.	**PA0040274**
Facility Type	**Industrial**	APS ID	**935334**
Major / Minor	**Major**	Authorization ID	**1172899**

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

Applicant and Facility Information

Applicant Name	**ATI Flat Rolled Products Holdings, LLC**	Facility Name	**Vandergrift Facility**
Applicant Address	100 River Road	Facility Address	130 Lincoln Avenue
	Brackenridge, PA 15014-1537		Vandergrift, PA 15690-1249
Applicant Contact	Deborah Calderazzo	Facility Contact	Same
Applicant Phone	(724) 226-5947	Facility Phone	Same
Client ID	332685	Site ID	192917
SIC Code	3316	Municipality	Vandergrift Borough
SIC Description	Manufacturing - Cold Finishing of Steel Shapes	County	Westmoreland
Date Application Received	July 1, 2008	EPA Waived?	No
Date Application Accepted	March 9, 2017	If No, Reason	Major Facility

Purpose of Application: Renewal NPDES Permit

Summary of Review

The Department received an NPDES permit renewal application from Allegheny Ludlum Corporation for its Vandergrift Facility on July 1, 2008. The Department later received a transfer application on February 2, 2017 to change the company name from Allegheny Ludlum Corporation to ATI Flat Rolled Products Holdings, LLC.

ATI produces and finishes specialty steel sheets and strips at the Vandergrift Facility. The Standard Industrial Classification Code for this type of operation is 3316 (Finishing Stainless Steel Sheet and Strip.) Wastewater generated and discharged from this facility includes process wastewater, non-contact cooling water, boiler blowdown and plant area stormwater. The site has a cooling water intake structure on the Kiskiminetas River.

ATI is proposing to upgrade the facility, which includes modification to an existing operation and the installation of new operating lines. The construction is expected to commence on July 1, 2021. The existing No. 91 Anneal and Pickle line is being modified to add an additional fume scrubber.

The facility has two existing operation lines, the No. 90 anneal and pickle line, and the No. 91 anneal and pickle line. The proposed two new operation lines are the Bright Anneal Line and the Cleaning Line. The Bright Anneal Line is planned to be installed by the end of 2021 and the Cleaning Line is planned to be installed by the middle of 2022.

This facility has three outfalls, Outfalls 007, 008, and 009, which discharge wastewater and stormwater runoff to the Kiskiminetas River, designated in the 25 PA Code Chapter 93 as a Warm Water Fishery (WWF).

Outfall 007 discharges wastewater from two internal monitoring points, IMP 107 and 207, intake strainer backwash, and stormwater runoff. The drainage area of Outfall 007 is 1,282,000 square feet. IMP 107 receives and discharges non-contact cooling water and air compressor condensate. IMP 207 discharges treated process wastewater from contact water and waste

Approve	Deny	Signatures	Date
X		Adam Olesnanik / Project Manager	10/25/2021
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	10/25/2021

Summary of Review

pickle liquor from No. 90 and No.91 anneal and pickle lines, salt bath descaling, blowdown from 9 fume scrubbers, boiler blowdown, cooling tower blowdown, compressor condensate and the future wastewater from the proposed Bright Anneal Line and the proposed Cleaning Line. The pickling process uses hydrofluoric acid, nitric acid, and sulfuric acid. The discharge from IMP 207 is subject to the Federal Effluent Limitation Guidelines (ELGs) in 40 CFR 420 (Iron and Steel Manufacturing ELGs) and 40 CFR 471 (Non-ferrous Metals Forming and Metal Powders). The discharge from IMP 207 is treated prior to being discharged via Outfall 007. The IMP 207 treatment system consists of flow equalization, 2-stage neutralization, polymer addition, sedimentation, sand filtration, post neutralization, sludge conditioning, and dewatering. Miscellaneous wastewaters such as boiler blowdown, cooling tower blowdown, air compressor condensate and maintenance wastewaters/equipment cleaning are also treated at the WWTP and discharged via IMP 207.

The WWTP consists of equalization, flocculation, chemical precipitation, neutralization, sedimentation, sand filtration, chemical conditioning, post neutralization and dewatering. Filtrate from the Plate and Frame Filter Press is retreated through the WWTP. The lime-stabilized wastewater pickle liquor sludge is land disposed at a permitted landfill. The NPDES monitoring location for the treated wastewater is IMP 207. All non-contact cooling water flows through a sewer system that is sampled at IMP 107 located near the WWTP, prior to being mixed with other wastewaters. The treated wastewaters from IMP 207 and non-contact cooling water from IMP 107 are ultimately discharged through Outfall 007 into the Kiskiminetas River. Outfall 007 is submerged. Discharges from the Vandergrift Borough sewer system and the Kiski Valley Pollution Control Authority CSO combine with the wastewaters from the Vandergrift facility and discharge through Outfall 007.

Outfalls 008 and 009 discharge stormwater runoff. The drainage area of Outfall 008 is 375,000 square feet. Outfall 008 is a stormwater only outfall that principally serves roof drains at the center of the Facility. The drainage area of Outfall 009 is 607,000 square feet. Outfall 009 is a stormwater only outfall that principally serves the west side of the Facility. Stormwater and other wastewater from a Vandergrift Borough and the Kiski Valley Pollution Control Authority CSO also combine with the site's discharges to Outfall 009. All significant materials are stored, processed and handled under cover or within the facility buildings and or containments.

The No. 90 Anneal and Pickle Line operations consist of combination acid pickling of stainless and non-ferrous metals (titanium proposed.). Contact wastewaters, spent pickle liquors and discharges/backwash from the Acid Purification Units (APU) are treated at the on-site wastewater treatment plant (WWTP). The blowdown from two (2) wet air pollution control scrubbers is also treated at the on-site WWTP (IMP 207). Non-contact cooling water principally for cooling elements of the annealing furnace is a once-though system and is discharged through IMP 107. The No. 90 Anneal and Pickle Line is subject to the following ELGs; 420.92(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate – Continuous, 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS), 471.63(n) Titanium Forming Surface Treatment Rise(NSPS), 420.92(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers, and 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS).

The No. 91 Anneal and Pickle Line operations consist of combination acid pickling of stainless and non-ferrous metals (titanium, proposed). There is also a salt bath decaling process (Kolene) to promote scale removal after annealing. Contact wastewaters, spent pickle liquors and discharges/backwash from the Acid Purification Units (APU) are treated at the on-site wastewater treatment plant (WWTP). The blowdown from three (3) wet air pollution control scrubbers is also treated at the on-site WWTP (IMP 207). Non-contact cooling water principally for cooling elements of the annealing furnace is a once-though system and is discharged through IMP 107. The No. 91 Anneal and Pickle Line is subject to the following ELGs; 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS), 420.84(a)(4) Iron and Steel Manufacturing Salt Bath Descaling Oxidizing - Continuous (NSPS), 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS), 471.63(n) Titanium Forming Surface Treatment Rise(NSPS), 471.63(r) Titanium Forming Molten Salt Rinse (NSPS), 420.94(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers (NSPS), and 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS).

The proposed Bright Anneal Line is planned to be comprised of an alkaline degreasing process, an atmosphere-controlled furnace and a combination acid passivation process. Stainless steels and non-ferrous metals (titanium) will be processed on the Bright Anneal Line. Wastewater from the alkaline degreasing and combination acid passivation process are treated at the on-site wastewater treatment plant. Noncontact cooling water principally for cooling elements of the muffle furnace is a recirculated cooling system and is discharge through IMP 107. The proposed Bright Anneal Line is subject to the following ELGs; 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS), 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS), 471.63(n) Titanium Forming Surface Treatment Rise(NSPS), 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS), 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS), and 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS).

Summary of Review

The proposed Cleaning Line is planned to be comprised of an alkaline degreasing process, an electric furnace and a combination acid pickling process. Stainless steels and non-ferrous metals (titanium) will be processed on the cleaning line. Wastewaters from the alkaline degreasing and combination acid pickling processes are treated at the on-site wastewater treatment plant (WWTP). The blowdown from one wet air pollution control scrubber is also treated at the on-site WWTP (IMP 207). Non-recirculated cooling system and is discharge through 107. The proposed Cleaning Line is subject to the following ELGs; 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS), 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS), 471.63(n) Titanium Forming Surface Treatment Rise(NSPS), 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS), 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS), 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS), 420.94(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers (NSPS), and 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS).

Clean Water Act § 316(b) – Cooling Water Intake Structures

On August 15, 2014, EPA promulgated Clean Water Act Section 316(b) regulations applicable to cooling water intake structures. The regulations established best technology available ("BTA") standards to reduce impingement mortality and entrainment of all life stages of fish and shellfish at existing power generating and manufacturing facilities. The Final Rule took effect on October 14, 2014. Regulations implementing the 2014 Final Rule (and the previously promulgated Phase I Rule) are provided in 40 CFR Part 125, Subparts I and J for new facilities and existing facilities, respectively. Associated NPDES permit application requirements for facilities with cooling water intake structures are provided in 40 CFR Part 122, Subpart B – Permit Application and Special NPDES Program Requirements (§ 122.21(r)).

The ATI Vandergrift Facility is an "existing facility" as defined in 40 CFR § 125.92(k). As an existing facility, the ATI Vandergrift Facility is subject to 40 CFR Part 125, Subpart J – Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act (§§ 125.90 – 125.99) if the facility meets the rule's applicability criteria. Pursuant to the applicability criteria given by § 125.91(a), the ATI Vandergrift Facility is subject to the requirements of §§ 125.94 – 125.99 if:

(1) The facility is a point source;

(2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and

(3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

The ATI Vandergrift Facility is a point source as defined in 40 CFR § 122.2. The ATI Vandergrift Facility uses a cooling water intake structure with a Design Intake Flow less than 2 MGD (1.44 MGD). And the ATI Vandergrift Facility uses more than 25% of the water it withdraws for cooling purposes. Because the design intake is less than 2 MGD, the site is not subject to the requirements of §§ 125.94 – 125.99, but the intake structure can be evaluated on a Best Professional Judge basis.

Cooling Water Intake Structure BPJ Analysis:

The Federal Clean Water Act (CWA), 33 U.S.C. § 1326(b), requires that the location, design, construction, and capacity of cooling water intake structures (CWIS) associated with NPDES facilities reflect the best technology available (BTA) for minimizing adverse environmental impact. This standard is incorporated into Pennsylvania's regulations at 25 Pa. Code § 92a.34(b) (relating to cooling water intake structures). U.S. Environmental Protection Agency (EPA) regulations at 40 CFR 125.90(b) require that, cooling water intake structures not subject to requirements under sections 125.94 through 125.99 or subparts I (relating to new facilities) or N (relating to new offshore oil and gas extraction facilities) of Part 125 must meet requirements under section 316(b) of the CWA established by the Director on a case-by- case, best professional judgment (BPJ) basis.

Based on the intake screen specifications, Attachment G of this Fact Sheet, the Department has determined that the permittee operates Best Technology Available (BTA) for impingement and entrainment mortality standard based on the facility's operation of a design through screen velocity of 0.5 fps. However, no studies have been conducted to ensure that the CWIS is not having an adverse environmental impact on the waterway. The following modified cooling water intake structure requirements will be included in Part C of the Draft permit:

Summary of Review

COOLING WATER INTAKE STRUCTURE(S)

A. Based upon information provided by the permittee, the Department has determined that the permittee operates Best Technology Available (BTA) to comply with the impingement and entrainment mortality standard based on the facility's operation or proposed operation of A Design Through Screen Velocity less than 0.5 fps. This BTA determination may be revised upon submission of additional information by the permittee with the NPDES permit renewal application. Revisions to the BTA determination shall be effective only through amendment or renewal of the NPDES permit.

B. Nothing in this permit authorizes a take of endangered or threatened species under the Endangered Species Act.

C. Technology and operational measures currently employed at the cooling water intake structures must be operated in a way that minimizes impingement mortality and entrainment to the fullest extent possible.

D. The location, design, construction or capacity of the intake structure(s) may not be altered without prior approval of DEP.

E. Cooling water intake monitoring, including through-screen velocity (if applicable), and cooling water withdrawal rates shall be reported on the Cooling Water Intake Monitoring Supplemental Report (3800-FM-BCW0010).

F. If DEP requests additional information to make a BTA determination, the permittee shall submit information within 30 days unless an alternate schedule is approved by DEP.

G. If DEP determines the methods to meet impingement and entrainment BTA requirements are not sufficient, the permittee shall employ additional controls to reduce adverse impacts from impingement and entrainment.

H. The permittee shall retain data and other records for any information developed pursuant to Section 316(b) of the Clean Water Act for a minimum of ten years.

I. New Units - The permittee must submit applicable information in 40 CFR §122.21(r) at least 180 days prior to the planned commencement of cooling water withdrawals associated with the operation of a new unit (as defined in 40 CFR §125.92(u)).

J. The permittee shall submit the following information:

1. Within 18-months of the permit effective date, the permittee will submit a source water baseline biological characterization in support of developing the permittee's selection and justification for impingement and entrainment compliance. The permittee may use surrogate data where appropriate data exists or collect sampling data to support the report. The permittee may optionally submit a study plan for DEP approval prior to collecting data.

2. Within 24-months of DEP's approval of the source water baseline biological characterization, the permittee will submit a facility and cooling water intake structure report in support of the permittee's selection and justification for impingement and entrainment compliance. This report should include an analysis of a minimum of three options to meet Best Technology Available (BTA) for both impingement and entrainment. The report should also include details of the source water physical data, cooling water intake structure data, cooling water system data, and operational status. The permittee may optionally conduct impingement and entrainment sampling to determine if current operations meet BTA.

3. Upon written approval from DEP, the permittee will implement technologies or BMPs that constitute BTA for impingement and entrainment within the shortest, reasonable period of time.

4. The permittee shall submit a progress report by the anniversary of the effective date of the permit each year detailing the status of activities being conducted until BTA for impingement and entrainment is implemented.

Summary of Review

Public Participation

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

Discharge, Receiving Waters and Water Supply Information

Outfall No.	007	Design Flow (MGD)	0.98
Latitude	40º 36' 10"	Longitude	-79º 33' 21"
Quad Name	Vandergrift	Quad Code	1409
Wastewater Description:	IW Process Effluent with ELG		
Receiving Waters	Kiskiminetas River (WWF)	Stream Code	42816
NHD Com ID	125290768	RMI	11.7
Drainage Area	1,530	Yield (cfs/mi^2)	0.086
Q_{7-10} Flow (cfs)	132	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	775	Slope (ft/ft)	0.0001
Watershed No.	18-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Total Suspended Solids (TSS)		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	1.25
PWS RMI	29.57	Distance from Outfall (mi)	13.06

Discharge, Receiving Waters and Water Supply Information

Outfall No.	008	Design Flow (MGD)	0
Latitude	40º 36' 32"	Longitude	-79º 34' 11"
Quad Name	Vandergrift	Quad Code	1409
Wastewater Description:	Stormwater		
Receiving Waters	Kiskiminetas River (WWF)	Stream Code	42816
NHD Com ID	125290764	RMI	11.7
Drainage Area	1,530	Yield (cfs/mi^2)	0.086
Q_{7-10} Flow (cfs)	132	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	775	Slope (ft/ft)	0.0001
Watershed No.	18-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Total Suspended Solids (TSS)		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	1.25
PWS RMI	29.57	Distance from Outfall (mi)	13.06

Discharge, Receiving Waters and Water Supply Information

Outfall No.	009	Design Flow (MGD)	0
Latitude	40º 36' 15"	Longitude	-79º 34' 08"
Quad Name	Vandergrift	Quad Code	1409
Wastewater Description:	Stormwater		
Receiving Waters	Kiskiminetas River (WWF)	Stream Code	42816
NHD Com ID	125290764	RMI	11.55
Drainage Area	1,530	Yield (cfs/mi^2)	0.086
Q_{7-10} Flow (cfs)	132	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	775	Slope (ft/ft)	0.0001
Watershed No.	18-B	Chapter 93 Class.	WWF
Existing Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Metals, Total Suspended Solids (TSS),		
Source(s) of Impairment	Acid Mine Drainage		
TMDL Status	Final	Name	Kiskiminetas-Conemaugh River Watersheds TMDL
Nearest Downstream Public Water Supply Intake	Buffalo Township Municipal Authority Freeport		
PWS Waters	Allegheny River	Flow at Intake (cfs)	1.25
PWS RMI	29.57	Distance from Outfall (mi)	12.91

Development of Effluent Limitations

Outfall No.	007	**Design Flow (MGD)**	0.98
Latitude	40º 36' 10"	**Longitude**	-79º 33' 21"

Wastewater Description: Stormwater, strainer backwash water, discharges from IMP 107 and IMP 207

Due to the configuration of the Outfall, the site's industrial wastewater will be monitored at Internal Monitoring Points, IMP 107 and IMP 207.

Additionally, the following statement from the current permit will remain in Part A of the new permit:

> *Debris collected on the intake trash racks shall not be returned to the waterway*.

Development of Effluent Limitations

IMP No.	107	**Design Flow (MGD)**	0.40
Latitude	40º 36' 10"	**Longitude**	-79º 33' 21"

Wastewater Description: Non-contact cooling water, stormwater, air compressor condensate

Technology-Based Limitations

Regulatory Effluent Standards and Monitoring Requirements

25 PA Code Chapter 92 requires pH requirements to be a minimum of 6.0 and a maximum of 9.0 S.U. for all industrial waste process and non-process discharges.

Flow Reporting requirements is in accordance with the 25 PA Code Chapter 92 regulations.

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

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes a maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

Table 1: Regulatory Effluent Standards and Monitoring Requirements for IMP 107

Parameter	Monthly Average	Daily Maximum	Instantaneous Maximum	Units
Flow	Monitor and Report		-	MGD
Total Residual Chlorine	0.5	1.0	-	mg/L
Temperature	-	-	110	°F
pH	Between 6.0 and 9.0			S.U.

Water Quality-Based Limitations

Toxic Pollutants Water Quality Analysis

The discharges from IMP 107 are non-contact cooling water and are non-process discharges, therefore a toxic pollutant water quality analysis was not conducted for the discharge from IMP 107.

Thermal WQBELs for Heated Discharges

Thermal WQBELs are evaluated using DEP's "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel for Windows. The program calculates temperature WLAs through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is determined by the input data which include the receiving stream flow rate ($Q_{7\text{-}10}$ or the minimum regulated flow for large rivers), the stream intake flow rate, external source intake flow rates, consumptive flow rates and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

Since the temperature criteria from 25 Pa. Code Chapter 93.7(a) are expressed on monthly and semi-monthly bases for three different aquatic life-uses—cold water fishes, warm water fishes and trout stocking—the program generates monthly and semi-monthly limits for each use. DEP selects the output that corresponds to the aquatic life-use of the receiving stream and consequently which limits apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F for the safety of sampling personnel and anyone who may come into contact with the heated discharge where it enters the receiving water. If no WLAs below 110°F are calculated, an instantaneous maximum limit of 110°F is recommended by the program.

Due to the nature of the discharges and their relative locations on the receiving stream, all heated discharges will be evaluated as one discharge to ensure the temperature criteria is met instream from all of the heated discharges and a combined flow of 0.93 MGD was used in the model. Discharges from IMP 107 and 207 are classified under Case 1 because water is obtained via an intake structure owned by the permittee on the Kiskiminetas River. The results of the thermal

analysis, included in Attachment B, indicate that no WQBELs for temperature are required at IMP 107. Therefore, the 110°F daily maximum temperature limit will be imposed at IMP 107.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in Attachment C, indicate that no WQBELs are required for TRC.

Total Maximum Daily Loads for IMP 107

The ATI Vandergrift facility is within the watershed area covered by the Kiskiminetas-Conemaugh Watershed TMDL, approved as final by EPA in 2010. This TMDL addresses certain impairments of water quality standards associated with elevated instream concentrations of iron, aluminum, and manganese. A pH impairment is addressed through a surrogate relationship with these metals. This TMDL establishes wasteload allocations for these metals for point sources, and load allocations for these metals for nonpoint sources in the watershed. DEP must assure that any effluent limitations assigned to point sources are consistent with the assumptions and requirements of any available wasteload allocation for the discharge pursuant to 40 CFR 130.7 (i.e., a final TMDL). The Vandergrift Facility's permit PA0040274 is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations. Wasteload allocations were delegated for IMP 107 and 207. These wasteload allocations are equivalent to the listed concentration limits under various flow scenarios. In this case, the concentration limits are prosed rather than the load limits to simplify compliance assessments. The effluent limits from the TMDL are displayed below in Table 2.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL.

The specific water quality criterion for iron is expressed as a 30-day average of 1.5 $^{mg}/_{L}$ in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers.

The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply (PWS). Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 1 on Page 10 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively).

Table 2 – TMDL Limits for IMP 107

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L
Iron, total	1.5	3.0	mg/L
Manganese, total	1.0	2.0	mg/L

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous limitations for IMP 107 are displayed below in Table 3.

Table 3: Effluent Limitations in the Current Permit for IMP 107

Parameter	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	Report	XXX	XXX	2/month	Measured
Temperature (°F)	XXX	XXX	110	2/month	I-S
Total Residual Chlorine	0.5	XXX	1.25	2/month	Grab
pH (S.U.)	Not less than 6.0 nor greater than 9.0			2/month	Grab

Proposed Effluent Limitations

The proposed effluent limitations for IMP 107 are displayed in Table 4 and 5 below, they are the most stringent values from the above effluent limitation development. Because the TMDL limitations for Aluminum, Iron and Manganese are new to the IMP, IMP 107 will receive monitor and report interim limitations for the first three years of the permit cycle to ensure that the site can meet the final effluent limitations.

Table 4: Proposed Interim Effluent Limitations for IMP 107

Parameter	Instantaneous Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	2/month	Measured
Temperature (°F)	XXX	XXX	XXX	110	2/month	I-S
Total Residual Chlorine (mg/l)	XXX	0.5	1.0	1.25	2/month	grab
Total Aluminum (mg/l)	XXX	Monitor	Monitor	XXX	2/month	grab
Total Iron(mg/l)	XXX	Monitor	Monitor	XXX	2/month	grab
Total Manganese(mg/l)	XXX	Monitor	Monitor	XXX	2/month	grab
pH (S.U.)	6.0	XXX	XXX	9.0	2/month	Grab

Table 5: Proposed Final Effluent Limitations for IMP 107

Parameter	Instantaneous Minimum	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Flow (MGD)	XXX	Report	Report	XXX	2/month	Measured
Temperature (°F)	XXX	XXX	XXX	110	2/month	I-S
Total Residual Chlorine (mg/l)	XXX	0.5	1.0	1.25	2/month	grab
Total Aluminum (mg/l)	XXX	0.75	0.75	XXX	2/month	grab
Total Iron(mg/l)	XXX	1.5	3.0	XXX	2/month	grab
Total Manganese(mg/l)	XXX	1.0	2.0	XXX	2/month	grab
pH (S.U.)	6.0	XXX	XXX	9.0	2/month	Grab

Development of Effluent Limitations

IMP No.	207	**Design Flow (MGD)**	1.2
Latitude	40º 36' 10"	**Longitude**	-79º 33' 21"

Wastewater Description: Contact wastewater, waste pickle liquor, wastewater from the acid purification units, salt bath descaling wastewater, caustic wastewater, fume scrubber blowdown, boiler blowdown, cooling tower blowdown, air compressor condensate and miscellaneous cooling water

Technology-Based Limitations

Federal Effluent Limitation Guidelines (ELGs)

IMP 207 is subject to Federal Effluent Limitation Guidelines (ELGs) under 40 CFR 420 Iron and Steel Manufacturing and 40 CFR 471 Nonferrous Metals Forming and Metal Powders.

The No. 90 line is subject to 420.92 (c) (3) (Iron and Steel Manufacturing Subpart I- Combination Acid Pickling, Strip, Sheet and Plate – Continuous Subcategory), 40 CFR 420.92 (c) (6) (Iron and Steel Manufacturing Subpart I- Combination Acid Pickling, Fume Scrubbers), 471.63(m) (Titanium Forming Surface Treatment Spent Baths), 471.63(n) (Titanium Forming Surface Treatment Rise), and 471.63(0) (Titanium Forming Wet Air Pollutant Control Scrubber Blowdown).

The No. 91 line is subject to 420.94 (c) (3) (Iron and Steel Manufacturing Subpart I- New Source Performance Standard (NSPS) Combination Acid Pickling, Strip, Sheet and Plate – Continuous Subcategory), 40 CFR 420.94 (c) (6) (Iron and Steel Manufacturing Subpart I- NSPS Combination Acid Pickling, Fume Scrubbers) and 40 CFR 420.84 (a)(4) (Iron and Steel Manufacturing Subpart H- NSPS Salt Bath Descaling Oxidizing Subcategory), 471.63(m) Titanium Forming Surface Treatment Spent Baths, 471.63(n) Titanium Forming Surface Treatment Rise, 471.63(r) Titanium Forming Molten Salt Rinse, and 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown.

The proposed Cleaning Line is subject to 420.94 (c) (3) (Iron and Steel Manufacturing Subpart I- New Source Performance Standard (NSPS) Combination Acid Pickling, Strip, Sheet and Plate – Continuous Subcategory), 40 CFR 420.94 (c) (6) (Iron and Steel Manufacturing Subpart I- NSPS Combination Acid Pickling, Fume Scrubbers), 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing – Continuous), 471.63(m) Titanium Forming Surface Treatment Spent Baths, 471.63(n) Titanium Forming Surface Treatment Rise, 471.63(p) Titanium - Alkaline Cleaning Spent Bath, 471.63(q) Titanium - Alkaline Cleaning Rinse, and 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown.

The proposed Bright Anneal Line is subject to 420.94 (c) (3) (Iron and Steel Manufacturing Subpart I- New Source Performance Standard (NSPS) Combination Acid Pickling, Strip, Sheet and Plate – Continuous Subcategory), 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing – Continuous), 471.63(m) Titanium Forming Surface Treatment Spent Baths, 471.63(n) Titanium Forming Surface Treatment Rise, and 471.63(p) Titanium - Alkaline Cleaning Spent Bath, 471.63(q) Titanium - Alkaline Cleaning Rinse.

Each subcategory of each production line is broken down in detail in Attachment D. The maximum daily production rate from the past five years was used for the existing production lines and the proposed average daily production rate was used for the proposed lines and new processes. The mass-based limitations from the ELGs are displayed below in Tables 6, 7 and 8. The limits are the summation of all of the above subparts for each of the production lines. Because the permittee is proposing to install two new operation lines during the permit term, the limitations from the ELGs will be broken up into three limitation periods that will become effective once construction of the new lines are completed. The Bright Anneal Line is estimated to be completed by the end of 2021 and the Cleaning Line is estimated to be completed by mid-2021.The interim period 1 is the limitations for the existing production lines, interim period 2 is the limitations for the existing production lines and the proposed bright anneal line, and interim period 3 is the limitations for the existing production lines, the proposed bright anneal line, and the proposed cleaning line. Additionally, it should be noted that the Oil and Grease limitations from 420.92(c)(3), 420.92(c)(6), 420.94(c)(3), and 420.94(c)(6) on all of the production lines are not applicable because cold rolling wastewaters are not treated with the acid pickling wastewaters.

Table 6: Interim Period 1 Total Mass Based Limits (Existing Production Lines)

Pollutant	Mass-Based Effluent Limits (lbs./day)	
	Average Monthly	Max Daily
Cyanide	0.116	0.280
Lead	0.193	0.406
Zinc	0.588	1.41
Ammonia	56.4	129
Fluoride	25.5	57.5
O&G	11.6	19.3
TSS	432	1000
Chromium	5.50	13.8
Nickel	4.14	12.4
pH	Within Range of 7.5 to 9.0	

Table 7: Interim Period 2 Total Mass Based Limits (Existing Production Lines and the Bright Anneal Line)

Pollutant	Mass-Based Effluent Limits (lbs./day)	
	Average Monthly	Max Daily
Cyanide	0.204	0.492
Lead	0.339	0.713
Zinc	1.03	2.48
Ammonia	99.1	226
Fluoride	44.7	101
O&G	20.3	33.9
TSS	465	1080
Chromium	5.74	14.4
Nickel	4.32	12.9
pH	Within Range of 7.5 to 9.0	

Table 8: Interim Period 3 Mass Based Limits (Existing Production Lines, The Bright Anneal Line, and the Cleaning Line)

Pollutant	Mass-Based Effluent Limits (lbs./day)	
	Average Monthly	Max Daily
Cyanide	0.250	0.604
Lead	0.416	0.876
Zinc	1.27	3.04
Ammonia	122	277
Fluoride	54.9	124
O&G	25.0	41.6
TSS	479	1100
Chromium	5.84	14.6
Nickel	4.39	13.1
pH	Within Range of 7.5 to 9.0	

Oil and Grease

The first period Oil and Grease mass-based effluent limitations of 11.6 lbs/day as an average monthly limit and 19.3 lbs/day as a daily maximum limit and the second period Oil and Grease mass-based effluent limitations of 20.3 lbs/day as an average monthly limit were determined from the Federal Effluent Limitation Guidelines to be imposed at IMP 207. However, if these limitations were converted to concentration limitations using an average discharge flow rate of 0.53 MGD and a conversion factor of 8.34, the concentrations limits would be 2.62 mg/L, 4.36 mg/L, and 4.89 mg/L, respectively. These concentration limits are less than the Department's Quantitation limits for Oil and Grease. Therefore, even if the discharge is reported as "non-detect" at the QL, the mass-based results often exceed the mass-based limitations. This is true even when there are no detectible concentrations of oil and grease in the discharge. The concentration from the current most sensitive method is the lowest concentration achievable by approved laboratories and when converted to mass-loading, the results may be greater than the mass-based effluent limitations, leading to illegitimate violations of the permit limits. Therefore, for compliance purposes, if the permittee reports a non-detect concentration value using the current most sensitive method (i.e. less than 5.0 mg/L), the mass-based limitation will be considered to be in compliance and should be reported as non-detect. The Department believes that imposing a non-detect limitation at IMP 207 for Oil and Grease is more stringent than the mass-based limitations from the Federal ELGs, because it represents the lowest concentration the permittee can currently detect. A Part C condition is included in the Draft permit including the applicable mass-based limitations; as well as, a condition requiring the permittee to use the most sensitive EPA approved analytical method when evaluating discharges of oil and grease. Monitoring and report requirements for the loading of Oil and Grease and a 5.0 mg/L concentration limit will be imposed on both of the interim limitation periods. The calculated loading limits from the ELG and the concentration from the development document will be imposed for the third period because both the monthly and daily maximum loading limit can be calculated using the most sensitive method.

Concentration Limits Associated with ELGs

To ensure that the mass-based limitations are met, the concentration limits that EPA used to develop the ELGs will be imposed as well. This is due to the fact that the wastewater being treated and discharged via IMP 207 is a combination of multiple wastewater streams, as well as, the production values used to determine the mass-based contributions from the proposed new lines and the new titanium operations are estimated values. These concentration values come from EPA's Development documents, Table 9 below is from Tables VII-21 and Table VII-22 in Volume III of the Nonferrous metals Development document and Table 10 below is from Table I-1 from the Iron and Steel Development Document. The concentrations used to develop the ELGs for the Titanium subcategory are based upon the model treatment technology consisting of Lime and Settling.

Table 9: Concentration Limits from the Non-Ferrous Metals Development Document

Pollutant	Concentration Effluent Limits (mg/L)		
	Average Monthly	Max Daily	IMax
Cyanide	0.12	0.29	0.36
Lead	0.20	0.42	0.52
Zinc	0.61	1.46	1.82
Ammonia	58.6	133.3	166.6
Fluoride	26.4	59.5	74.4
O&G	12.0	20.0	25.0
TSS	19.5	41.0	51.2

Table 10: Concentration Limits from the Iron and Steel Development Document

Pollutant	Concentration Effluent Limits (mg/L)		
	Average Monthly	Max Daily	IMax
TSS	30.0	70.0	87.5
Chromium	0.4	1.0	1.25
Nickel	0.3	0.9	1.13

The NPDES permitting regulations at 40 CFR 122.21(g)(5) require the Department to use a reasonable measure of production (a production rate) to calculate the allowable mass loadings (mass effluent limitations). Should production increase significantly in the future, ATI may apply to amend the permit. EPA allows the imposition of concentration limits in addition to mass effluent limitations, as provided in 40 CFR 122.45(f)(2). In accordance with this regulation, the Department imposed both mass effluent limitations and concentration limits for the parameters total suspended solids and oil and grease to ensure adequate treatment under any production scenario. Since only 10-15% of production is titanium, only concentration effluent limitations are imposed for Titanium Forming wastewater pollutants. Because only about 10-15% of the production is titanium, it is not feasible to impose mass-based effluent limitations for Titanium Forming wastewaters. Titanium wastewaters are comingled with ferrous wastewaters making it impossible to accurately regulate the titanium regulated pollutants on a mass-basis separate from the ferrous wastewater contributions. The proposed mass-based effluent limitations for lead, zinc, cyanide, ammonia, fluoride, iron, and titanium at IMP 102 have therefore been removed from the NPDES permit. In order to ensure compliance with the ELG however, the Department has preserved the concentration limits for titanium regulated pollutants. Concentration limits are more flexible when regulating variable flows and production rates and ensures adequate treatment is installed and operated.

The option of including concentration based effluent limits was evaluated by the permit writer for use (in addition to mass limits for some parameters) pursuant to the BPJ authority in Section 402(a)(1) of the Clean Water Act. This option is also discussed in the U.S. EPA NPDES Permit Writers' Manual. This option allows the addition of both a monthly average and daily maximum concentration limit from the appropriate subcategory tables in the development document for the specific subcategory and pollutants involved into the permit as effluent limits (not mass x flow at the facility). EPA used the concentrations in the development documents, in conjunction with the production normalizing flow, to derive the effluent limitation guidelines. The main reason for this approach is to assure proper operation and maintenance of the treatment facility during periods of low production. The major advantage of this approach is simplicity, and it in no way restricts production levels at the facility. This approach is particularly useful at facilities where production is either moderately or highly variable and/or multiple production lines with a centralized treatment facility are involved. It is also useful at new facilities where production records do not exist since mass limits are based solely on production.

The use of concentration limits also assures compliance with the unit production figures in the ELG, especially during low production periods when mass limits alone can be achieved without treatment in some cases. This approach provides concentration limits that will not change over time and also represent what BAT for the particular production line involved can achieve in a well-operated treatment facility. This approach is preferable to calculating a concentration limit using the current flow at the facility and the mass limits from the ELG, which often yields concentration limits far less stringent than what BAT can achieve. The use of existing waste-flow at a facility also leads to a moving target since waste-flows are constantly changing at treatment facilities as production changes due to market factors, maintenance, product changes, down times, breakdowns, and facility modifications. If there are multiple subcategories involved, production ratios in conjunction with the various regulated pollutants for each process may be used as the basis for deriving the concentration limits.

Some permittees have argued that they are being penalized for water conservation/reuse efforts, i.e., their flows are now much less than the normalized flows used by EPA in the development document to convert the concentrations to mass in the ELG, and as a result, effluent concentrations are higher. Some conservation/reuse efforts result in higher influent concentrations to the treatment plants since less water is being used, but the pollutant load remains the same. Other efforts involve the elimination/reduction of both the flows and pollutant loadings (going to air cooling for example) resulting in less flow to the treatment plant but no increase in concentration. In either case, even if the influent pollutant concentration does increase due to reduced flows, the effluent concentration from a properly operated lime and settle system, for example, will not increase accordingly, if at all.

The effluent concentration from a pH adjustment/settling system is essentially a function of a pollutant's solubility at a certain pH and settling properties, not influent concentration. In fact, in many cases, the more concentrated the influent, the easier it is to treat through co-precipitation and sweeping effects of floc in the water column. If the treatment system is being operated at an optimum pH, and adequate settling time is provided, the effluent concentrations can routinely be met regardless of influent levels. This is further evidenced by higher pollutant removal percentages currently being realized by many industrial treatment plants compared to what was originally found by EPA in early 1980 surveys. Concentration limits also help our inspectors to more readily evaluate if the treatment system is being properly operated and maintained. By including both mass and concentration limit in permits, dilution cannot be used to comply with the concentration limits.

Concentration limits for TSS were available from both the iron & steel and nonferrous development documents. In this case, the Department compared the concentration limits from each process and selected the most stringent limits for IMP 207. In

this way, the limits comply with all pertinent ELGs. Concentration limits for Nickel and Chromium were selected from the iron and steel ELGs. Concentration limits for TSS, oil and grease, lead, zinc, cyanide, ammonia and fluoride have been imposed based upon the model system treatment effectiveness listed in the Non-Ferrous Metals Forming and Metal Powders Point Source Category. The model system treatment effectiveness values are based upon lime and settle technology. Projected discharge concentrations included in the NPDES permit application indicate that the proposed concentration limits will be achieved through the employment of the selected technology. Utilization of filtration technologies (as is proposed for all discharges from IMP 207) should provide additional benefits to the effluent quality and ensure compliance with the NPDES permit.

Ammonia

Concentration limits for ammonia taken from the Non-Ferrous Metal development document, Vol. III are 58.6 mg/L for the average monthly limit and 133.3 mg/L for the maximum daily limit. These concentrations were determined using BPJ to be inappropriately high considering the wastewater quality discharging at IMP 207. Treatment facility influent sampling results included in the NPDES permit application indicate a maximum concentration of ammonia of 5.0 mg/L. Considering that ammonia is not a significant pollutant of concern at IMP 207, concentration-based monitoring and reporting of ammonia is proposed.

Technology Limitations Developed from the *Iron and Steel and Non-Ferrous ELGs*

The limits for iron and titanium are evaluated from the iron and steel forming and titanium forming development documents and are representative of the treatment effectiveness of lime and settle treatment technology. Utilization of filtration technologies should ensure compliance with the NPDES permit. The proposed technology-based effluent limits for IMP 207 are shown in Tables 11, 12, and 13.

Table 11: Interim Period 1 Technology Limits from ELGs

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)
Total Cyanide	Report	Report	0.12	0.29	0.36
Total Lead	Report	Report	0.20	0.42	0.52
Total Zinc	Report	Report	0.61	1.46	1.82
Ammonia	Report	Report	Report	Report	XXX
Fluoride	Report	Report	26.4	59.5	74.4
Total Suspended Solids	432	1000	19.5	41.0	51.2
Oil and Grease	11.6	19.3	5.0	5.0	XXX
Total Chromium	5.5	13.8	0.4	1.0	1.25
Total Nickel	4.14	12.4	0.3	0.9	1.13
pH (S.U.)	Between 7.5 and 9.0				

*Effective Upon Permit Issuance

Table 12: Interim Period 2 Technology Limits from ELGs

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)
Total Cyanide	Report	Report	0.12	0.29	0.36
Total Lead	Report	Report	0.20	0.42	0.52
Total Zinc	Report	Report	0.61	1.46	1.82
Ammonia	Report	Report	Report	Report	XXX
Fluoride	Report	Report	26.4	59.5	74.4
Total Suspended Solids	465	1080	19.5	41.0	51.2
Oil and Grease	20.3	33.9	5.0	5.0	XXX
Total Chromium	5.74	14.4	0.4	1.0	1.25
Total Nickel	4.32	12.9	0.3	0.9	1.13
pH (S.U.)	Between 7.5 and 9.0				

*Effective Upon Completion of Construction of the Bright Anneal Line

Table 13: Interim Period 3 Technology Limits from ELGs

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)
Total Cyanide	Report	Report	0.12	0.29	0.36
Total Lead	Report	Report	0.20	0.42	0.52
Total Zinc	Report	Report	0.61	1.46	1.82
Ammonia	Report	Report	Report	Report	XXX
Fluoride	Report	Report	26.4	59.5	74.4
Total Suspended Solids	479	1100	19.5	41.0	51.2
Oil and Grease	25.0	41.6	10.0	20.0	25.0
Total Chromium	5.84	14.6	0.4	1.0	1.25
Total Nickel	4.39	13.1	0.3	0.9	1.13
pH (S.U.)	Between 7.5 and 9.0				

*Effective Upon Completion of Construction of the Cleaning Line

Regulatory Effluent Standards and Monitoring Requirements

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

As oil-bearing wastewaters, discharges from IMP 207 are subject to effluent standards for oil and grease from 25 Pa. Code § 95.2(2).

Temperature limits will be imposed per the Department's "*Implementation Guidance for Temperature Criteria*." As a policy, DEP normally imposes an Instantaneous maximum temperature limit of 110°F on discharges that contain residual heat. The limit is intended as a safety measure to protect sampling personnel or anyone who may come into contact with the heated discharge where it enters the receiving water.

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

Effluent standards for pH are also imposed on industrial wastes by 25 Pa. Code § 95.2(1) as indicated in Table 14.

Table 14: Regulatory Effluent Standards and Monitoring Requirements for IMP 207

Parameter	Monthly Average	Daily Maximum	IMAX	Units
Flow	Monitor and Report		XXX	MGD
Oil & Grease	15	30	XXX	mg/L
Temperature	-	XXX	110	°F
Total Residual Chlorine	0.5	1.0	XXX	mg/L
pH	Not less than 6.0 nor greater than 9.0			S.U.

Water Quality-Based Limitations

Toxics Management Spread Sheet

The Department of Environmental Protection (DEP) has developed the DEP Toxics Management Spreadsheet ("TMS") to facilitate calculations necessary for completing a reasonable potential (RP) analysis and determining water quality-based effluent limitations for discharges of toxic pollutants. The Toxics Management Spreadsheet is a macro-enabled Excel binary file that combines the functions of the PENTOXSD model and the Toxics Screening Analysis spreadsheet to evaluate the reasonable potential for discharges to cause excursions above water quality standards and to determine WQBELs. The Toxics Management Spread Sheet is a single discharge, mass-balance water quality calculation spread sheet that includes consideration for mixing, first-order decay and other factors to determine recommended WQBELs for toxic substances and several non-toxic substances. Required input data including stream code, river mile index, elevation, drainage area, discharge name, NPDES permit number, discharge flow rate and the discharge concentrations for parameters in the permit application or in DMRs, which are entered into the spread sheet to establish site-specific discharge conditions. Other data such as low flow yield, reach dimensions and partial mix factors may also be entered to further characterize the conditions of the discharge and receiving water. Discharge concentrations for the parameters are chosen to represent the "worst case" quality of the discharge (i.e., maximum reported discharge concentrations). The

spread sheet then evaluates each parameter by computing a Waste Load Allocation for each applicable criterion, determining a recommended maximum WQBEL and comparing that recommended WQBEL with the input discharge concentration to determine which is more stringent. Based on this evaluation, the Toxics Management Spread sheet recommends average monthly and maximum daily WQBELs.

Reasonable Potential Analysis and WQBEL Development for IMP 207

Discharges from IMP 207 are evaluated based on concentrations reported on the application and on DMRs; data from those sources are entered into the Toxics Management Spread Sheet. The maximum reported value of the parameters from the application form or from previous DMRs is used as the input concentration in the Toxics Management Spread Sheet. All toxic pollutants whose maximum concentrations, as reported in the permit application or on DMRs, are greater than the most stringent applicable water quality criterion are considered to be pollutants of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion]. The Toxics Management Spread Sheet is run with the discharge and receiving stream characteristics shown in Table 15. For IW discharges, the design flow used in modeling is the average flow during production or operation taken from the permit application. Pollutants for which water quality standards have not been promulgated (e.g., TSS, oil and grease) are excluded from the analysis. All the parameters are evaluated using the model to determine the water quality-based effluent limits applicable to the discharge and the receiving stream. The spreadsheet then compares the reported discharge concentrations to the calculated water quality-based effluent limitations to determine if a reasonable potential exists to exceed the calculated WQBELs. Effluent limitations are established in the draft permit where a pollutant's maximum reported discharge concentration equals or exceeds 50% of the WQBEL. For non-conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 25% - 50% of the WQBEL. For conservative pollutants, monitoring requirements are established where the maximum reported concentration is between 10% - 50% of the WQBEL. The information described above including the maximum reported discharge concentrations, the most stringent water quality criteria, the pollutant-of-concern (reasonable potential) determinations, the calculated WQBELs, and the WQBEL/monitoring recommendations are displayed in the Toxics Management Spread Sheet in Attachment D of this Fact Sheet. The water quality-based effluent limitations and monitoring requirements that are recommended by the Toxics Management Spread Sheet are displayed below in Table 16.

Table 15: TMS Inputs for IMP 207

Parameter	**Value**
River Mile Index	11.7
Discharge Flow (MGD)	0.53
Basin/Stream Characteristics	
Parameter	**Value**
Area in Square Miles	1,530
Q_{7-10} (cfs)	132
Low-flow yield (cfs/mi^2)	0.086
Elevation (ft)	775
Slope	0.0001

Table 16: Water Quality Based Effluent Limitations at IMP 207

Parameters	**Average Monthly (µg/L)**	**Daily Maximum (µg/L)**
Total Thallium	Report	Report

Thermal WQBELs for Heated Discharges

Thermal WQBELs are evaluated using a DEP program called "Thermal Discharge Limit Calculation Spreadsheet" created with Microsoft Excel for Windows. The program calculates temperature WLAs through the application of a heat transfer equation, which takes two forms in the program depending on the source of the facility's cooling water. In Case 1, intake water to a facility is from the receiving stream. In Case 2, intake water is from a source other than the receiving stream (e.g., municipal water supply). The determination of which case applies to a given discharge is determined by the input data which include the receiving stream flow rate ($Q_{7\text{-}10}$ or the minimum regulated flow for large rivers), the stream intake flow rate, external source intake flow rates, consumptive flow rates and site-specific ambient stream temperatures. Case 1 limits are generally expressed as heat rejection rates while Case 2 limits are usually expressed as temperatures.

Since the temperature criteria from 25 Pa. Code Chapter 93.7(a) are expressed on monthly and semi-monthly bases for three different aquatic life-uses—cold water fishes, warm water fishes and trout stocking—the program generates monthly and semi-monthly limits for each use. DEP selects the output that corresponds to the aquatic life-use of the receiving stream and consequently which limits apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F for the safety of sampling personnel and anyone who may come into contact with the heated discharge where it enters the receiving water. If no WLAs below 110°F are calculated, an instantaneous maximum limit of 110°F is recommended by the program.

Due to the nature of the discharge and the location on the receiving stream, all heated discharges will be evaluated as one discharge to ensure the temperature criteria is met instream from all of the heated discharges and a combined flow of 0.93 MGD was used in the model. Discharges from IMP 107 and 207 are classified under Case 1 because water is obtained via an intake structure owned by the permittee on the Kiskiminetas River. The results of the thermal analysis, included in Attachment B, indicate that no WQBELs for temperature are required at IMP 207. Therefore, the 110°F daily maximum temperature limit will be imposed at IMP 207.

Total Residual Chlorine

To determine if WQBELs are required for discharges containing total residual chlorine (TRC), a discharge evaluation is performed using a DEP program called TRC_CALC created with Microsoft Excel for Windows. TRC_CALC calculates TRC Waste Load Allocations (WLAs) through the application of a mass balance model which considers TRC losses due to stream and discharge chlorine demands and first-order chlorine decay. Input values for the program include flow rates and chlorine demands for the receiving stream and the discharge, the number of samples taken per month, coefficients of TRC variability, partial mix factors, and an optional factor of safety. The mass balance model calculates WLAs for acute and chronic criteria that are then converted to long term averages using calculated multipliers. The multipliers are functions of the number of samples taken per month and the TRC variability coefficients (normally kept at default values unless site specific information is available). The most stringent limitation between the acute and chronic long-term averages is converted to an average monthly limit for comparison to the BAT average monthly limit of 0.5 mg/l from 25 Pa. Code § 92a.48(b)(2). The more stringent of these average monthly TRC limitations is imposed in the permit. The results of the modeling, included in Attachment F, indicate that no WQBELs are required for TRC.

Total Maximum Daily Loads for IMP 207

The ATI Vandergrift facility is within the watershed area covered by the Kiskiminetas-Conemaugh Watershed TMDL, approved as final by EPA in 2010. This TMDL addresses certain impairments of water quality standards associated with elevated instream concentrations of iron, aluminum, and manganese. A pH impairment is addressed through a surrogate relationship with these metals. This TMDL establishes wasteload allocations for these metals for point sources, and load allocations for these metals for nonpoint sources in the watershed. DEP must assure that any effluent limitations assigned to point sources are consistent with the assumptions and requirements of any available wasteload allocation for the discharge pursuant to 40 CFR 130.7 (i.e., a final TMDL). The Vandergrift Facility's permit PA0040274 is listed in the Appendix G of the Kiskiminetas-Conemaugh River Watershed TMDL, requiring load allocations. Wasteload allocations were delegated for IMP 107 and 207. These wasteload allocations are equivalent to the listed concentration limits under various flow scenarios. In this case, the concentration limits are proposed rather than the mass load limits to simplify compliance assessments. The effluent limits from the TMDL are displayed below in Table 17.

The specific water quality criterion for aluminum is expressed as an acute or maximum daily in 25 Pa. Code Chapter 93. Discharges of aluminum may only be authorized to the extent that they will not cause or contribute to any violation of the water quality standards. Therefore, the water quality criterion for aluminum (0.75 mg/L) is imposed as a maximum daily effluent limit (MDL). Whenever the most stringent criterion is selected for the MDL, the Department should also impose an average monthly limit (AML) and instantaneous maximum limit (IMAX) if applicable. The imposition of an AML

that is more stringent than the MDL is typically not appropriate because the water quality concerns have already been fully addressed by setting the MDL equal to the most stringent applicable criterion. Therefore, where the MDL is set at the value of the most stringent applicable criterion, the AML should be set equal to the MDL.

The specific water quality criterion for iron is expressed as a 30-day average of 1.5 $^{mg}/_{L}$ in 25 Pa. Code § 93.7(a). The criterion is based on the protection of aquatic life and is associated with chronic exposure. There are no other criteria for total iron. Since the duration of the total iron criterion coincides with the 30-day duration of the AML, the 30-day average criterion for total iron is set equal to the AML. In addition, because the total iron criterion is associated with chronic exposure, the MDL (representing acute exposure) and the IMAX may be made less stringent according to established procedures described in Section III.C.3.h on Page 13 of the Water Quality Toxics Management Strategy (Doc. # 361-0100-003). These procedures state that a MDL and IMAX may be set at 2 times and 2.5 times the AML, respectively, or there is the option to use multipliers from EPA's Technical Support Document for Water Quality-based Toxics Control, if data are available to support the use of alternative multipliers.

The specific water quality criterion for manganese is expressed as an acute or maximum daily of 1.0 mg/L in 25 Pa. Code § 93.7(a). The criterion is based on the protection of human health and is associated with chronic exposure associated with a potable water supply (PWS). Since no duration is given in Chapter 93 for the manganese criterion, a duration of 30 days is used based on the water quality criteria duration for Threshold Human Health (THH) criteria given in Section III.C.3.a., Table 1 on Page 10 of DEP's Water Quality Toxics Management Strategy. The 30-day duration for THH criteria coincides with the 30-day duration of an AML, which is why the manganese criterion is set equal to the AML for a "permitting at criteria" scenario. Because the manganese criterion is interpreted as having chronic exposure, the manganese MDL and IMAX may be made less stringent according to procedures established in Section III.C.2.h. of the Water Quality Toxics Management Strategy (AML multipliers of 2.0 and 2.5 for the MDL and IMAX respectively).

Table 17 – TMDL Limits for IMP 207

Parameter	TMDL Limits		Units
	Average Monthly	Maximum Daily	
Aluminum, total	0.75	0.75	mg/L
Iron, total	1.5	3.0	mg/L
Manganese, total	1.0	2.0	mg/L

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l) and are displayed below in Table 18. The mass-based limitations for total suspended solids, oil and grease, total chromium, and total nickel were developed using the ELGs in 40 CFR 420 and previous production data. These limitations will be replaced with the new production-based mass limitations to reflect how the site is currently operating.

Table 18: Effluent Limitations in the Current Permit for IMP 207

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Recorded
Total Suspended Solids	365.94	852.98	30.0	70.0	87.5	1/week	24-hr composite
Oil and Grease	XXX	XXX	15	XXX	30	1/week	Grab
Total Chromium	4.88	12.19	0.4	1.0	1.25	1/week	24-hr composite
Total Nickel	3.65	10.97	0.3	0.9	1.13	1/week	24-hr composite
Total Residual Chlorine	XXX	XXX	0.5	XXX	1.25	1/week	Grab
pH (S.U.)	Not less than 6.0 nor greater than 9.0					1/week	Grab

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent limitations for IMP 207 are displayed in Tables 19, 20, 21 and 22 below, they are the most stringent values from the above effluent limitation development. As described above the interim period 1 limitations are for the existing No. 90 and No. 91 anneal and pickle lines, the interim period 2 limitations are for the existing No. 90 and No. 91 anneal and pickle lines and the proposed Bright Anneal Line, and the interim period 3 limitations are for the existing No. 90 and No. 91 anneal and pickle lines, the proposed bright anneal line, and the proposed cleaning line. Additionally, Because the TMDL limitations for Aluminum, Iron and Manganese are new to the IMP, IMP 207 will receive monitor and report interim

limitations for the first three years of the permit cycle to ensure that the site can meet the final effluent limitations when the TMDL WQBEL become effective. The effective dates in which the interim 2 and interim 3 limitations become effective are based on upon completion of the construction of the proposed new production lines and will not be hard dates in the permit. these limitations will become effective when AIT notifies the Department when the construction of the production lines are completed. A Part C condition will be included in the Draft Permit requiring ATI to notify the Department when the construction of the new lines are completed, so that the Department can activate the associated limitations for eDMR reporting. If these lines do not become effective within the first three years of the permit term, ATI must notify the Department to Amend the permit to modify when these limitations will become effective.

Table 19: Proposed Interim 1 Effluent Limitations for IMP 207

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Recorded
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Cyanide	Report	Report	0.12	0.29	0.36 (1)	1/week	24-hr composite
Total Lead	Report	Report	0.20	0.42	0.52 (1)	1/week	24-hr composite
Total Zinc	Report	Report	0.61	1.46	1.82 (1)	1/week	24-hr composite
Ammonia	Report	Report	Report	Report	XXX	1/week	24-hr composite
Fluoride	Report	Report	26.4	59.5	74.4 (1)	1/week	24-hr composite
Total Suspended Solids	432	1000	19.5	41.0	51.2 (1)	1/week	24-hr composite
Oil and Grease	11.6	19.3	5.0	5.0	XXX	1/week	Grab
Total Chromium	5.5	13.8	0.4	1.0	1.25 (1)	1/week	24-hr composite
Total Nickel	4.14	12.4	0.3	0.9	1.13 (1)	1/week	24-hr composite
Total Aluminum	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Iron	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Manganese	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Residual Chlorine	XXX	XXX	0.5	1.0	1.25	1/week	Grab
Total Thallium	XXX	XXX	Report	Report	XXX	1/week	Grab
pH (S.U.)	Between 7.5 and 9.0					1/week	Grab

***Effective from the Permit Effective Date until the Completion of the Construction of the Bright Anneal Line. The Bright Anneal Line is estimated to be operational by the end of 2021.**

Table 20: Proposed Interim 2 Effluent Limitations for IMP 207

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Recorded
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Cyanide	Report	Report	0.12	0.29	0.36 (1)	1/week	24-hr composite
Total Lead	Report	Report	0.20	0.42	0.52 (1)	1/week	24-hr composite
Total Zinc	Report	Report	0.61	1.46	1.82 (1)	1/week	24-hr composite
Ammonia	Report	Report	Report	Report	XXX	1/week	24-hr composite
Fluoride	Report	Report	26.4	59.5	74.4 (1)	1/week	24-hr composite
Total Suspended Solids	465	1080	19.5	41.0	51.2 (1)	1/week	24-hr composite
Oil and Grease	20.3	33.9	5.0	5.0	XXX	1/week	Grab
Total Chromium	5.74	14.4	0.4	1.0	1.25 (1)	1/week	24-hr composite
Total Nickel	4.32	12.9	0.3	0.9	1.13 (1)	1/week	24-hr composite
Total Aluminum	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Iron	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Manganese	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Residual Chlorine	XXX	XXX	0.5	1.0	1.25	1/week	Grab
Total Thallium	XXX	XXX	Report	Report	XXX	1/week	Grab
pH (S.U.)	Between 7.5 and 9.0					1/week	Grab

***These limitations become effective once the Construction of the Bright Anneal Line is Completed. The Bright Anneal Line is estimated to be operational by the end of 2021. These limitations will be effective until the Construction of the Cleaning Line is Completed. The Cleaning Line is estimated to be operations by the middle of 2021.**

Table 21: Proposed Interim 3 Effluent Limitations for IMP 207

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Recorded
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Cyanide	Report	Report	0.12	0.29	0.36 (1)	1/week	24-hr composite
Total Lead	Report	Report	0.20	0.42	0.52 (1)	1/week	24-hr composite
Total Zinc	Report	Report	0.61	1.46	1.82 (1)	1/week	24-hr composite
Ammonia	Report	Report	Report	Report	XXX	1/week	24-hr composite
Fluoride	Report	Report	26.4	59.5	74.4 (1)	1/week	24-hr composite
Total Suspended Solids	479	1100	19.5	41.0	51.2 (1)	1/week	24-hr composite
Oil and Grease	25.0	41.6	12.0	20.0	25.0	1/week	Grab
Total Chromium	5.84	14.6	0.4	1.0	1.25 (1)	1/week	24-hr composite
Total Nickel	4.39	13.1	0.3	0.9	1.13 (1)	1/week	24-hr composite
Total Aluminum	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Iron	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Manganese	XXX	XXX	Monitor	Monitor	XXX	1/week	Grab
Total Residual Chlorine	XXX	XXX	0.5	1.0	1.25	1/week	Grab
Total Thallium	XXX	XXX	Report	Report	XXX	1/week	Grab
pH (S.U.)	Between 7.5 and 9.0					1/week	Grab

***These limitations will be effective once the Construction of the Cleaning Line is Completed. The Cleaning Line is estimated to be operational by the middle of 2021. These limitations will be effective until three years after the Permit Effective Date.**

Table 22: Proposed Final Effluent Limitations for IMP 207

Parameter	Average Monthly (lbs/day)	Daily Maximum (lbs/day)	Average Monthly (mg/L)	Daily Maximum (mg/L)	Instant. Maximum (mg/L)	Sample Frequency	Sample Type
Flow (MGD)	Report	Report	XXX	XXX	XXX	Continuous	Recorded
Temperature (°F)	XXX	XXX	XXX	XXX	110	1/week	I-S
Total Cyanide	Report	Report	0.12	0.29	0.36 (1)	1/week	24-hr composite
Total Lead	Report	Report	0.20	0.42	0.52 (1)	1/week	24-hr composite
Total Zinc	Report	Report	0.61	1.46	1.82 (1)	1/week	24-hr composite
Ammonia	Report	Report	Report	Report	XXX	1/week	24-hr composite
Fluoride	Report	Report	26.4	59.5	74.4 (1)	1/week	24-hr composite
Total Suspended Solids	479	1100	19.5	41.0	51.2 (1)	1/week	24-hr composite
Oil and Grease	25.0	41.6	12.0	20.0	25.0	1/week	Grab
Total Chromium	5.84	14.6	0.4	1.0	1.25 (1)	1/week	24-hr composite
Total Nickel	4.39	13.1	0.3	0.9	1.13 (1)	1/week	24-hr composite
Total Aluminum	XXX	XXX	0.75	0.75	XXX	1/week	Grab
Total Iron	XXX	XXX	1.5	3.0	XXX	1/week	Grab
Total Manganese	XXX	XXX	1.0	2.0	XXX	1/week	Grab
Total Residual Chlorine	XXX	XXX	0.5	1.0	1.25	1/week	Grab
Total Thallium	XXX	XXX	Report	Report	XXX	1/week	Grab
pH (S.U.)	Between 7.5 and 9.0					1/week	Grab

***These limitations will become effective three years after the permit effective date. These limitations will be effective until the Permit Expiration date.**

(1) These Instantaneous maximum limitations are imposed to allow for a grab sample to be collected by the appropriate regulatory agency to determine compliance. The permittee is not required to monitoring for the instantaneous maximum limitation. However, if grab samples are collected by the permittee, the results must be reported.

Development of Effluent Limitations

Outfall No. 008 **Design Flow (MGD)** 0
Latitude 40º 36' 32" **Longitude** -79º 34' 11"
Wastewater Description: Stormwater

Stormwater Technology Limits

Outfall 008 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall receives stormwater. The SIC code for the site is 3316 and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix B. The reporting requirements applicable to stormwater discharges are shown in Table 23 below.

Table 23: PAG-03 Appendix (B) Monitoring Requirements

Parameter	Max Daily Concentration	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Monitor and Report	1/6 Months	Grab
Total Aluminum	Monitor and Report	1/6 Months	Grab
Total Zinc	Monitor and Report	1/6 Months	Grab
Total Copper	Monitor and Report	1/6 Months	Grab
Total Iron	Monitor and Report	1/6 Months	Grab
Total Lead	Monitor and Report	1/6 Months	Grab

Water Quality-Based Limitations

Stormwater WQBELs

Water quality analyses are typically performed under low-flow (Q7-10) conditions. Stormwater discharges occur at variable rates and frequencies but not however during Q7-10 conditions. Since the discharges from Outfall 008 are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations based on water quality analyses are not proposed.

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous limitations for Outfalls 008 are displayed below in Table 24.

Table 24: Effluent Limitations in the Current Permit for Outfall 008

Parameter	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Zinc	Report	Report	XXX	1/quarter	grab

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent monitoring requirements for Outfall 008 are displayed in Table 25 below, they are the most stringent values from the above effluent limitation development. The monitoring frequency for the existing monitoring requirements has been changed from 1/quarter to semi-annually to reflect that monitoring frequency in the PAG-03 general permit. The Draft Permit requires a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are displayed below in Table 21. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a corrective action plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 25: Proposed Effluent Monitoring Requirements – Outfall 008

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Report	100	1/6 Months	Grab
Total Aluminum	Report	XXX	1/6 Months	Grab
Total Zinc	Report	XXX	1/6 Months	Grab
Total Copper	Report	XXX	1/6 Months	Grab
Total Iron	Report	XXX	1/6 Months	Grab
Total Lead	Report	XXX	1/6 Months	Grab

Development of Effluent Limitations

Outfall No.	009	**Design Flow (MGD)**	0
Latitude	40º 36' 15"	**Longitude**	-79º 34' 08"

Wastewater Description: Stormwater

Stormwater Technology Limits

Outfall 009 will be subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because the outfall receives stormwater. The SIC code for the site is 3316 and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix B. The reporting requirements applicable to stormwater discharges are shown in Table 26 below.

Table 26: PAG-03 Appendix (B) Monitoring Requirements

Parameter	Max Daily Concentration	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Monitor and Report	1/6 Months	Grab
Total Aluminum	Monitor and Report	1/6 Months	Grab
Total Zinc	Monitor and Report	1/6 Months	Grab
Total Copper	Monitor and Report	1/6 Months	Grab
Total Iron	Monitor and Report	1/6 Months	Grab
Total Lead	Monitor and Report	1/6 Months	Grab

Water Quality-Based Limitations

Stormwater WQBELs

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

Anti-Backsliding

Previous limits can be used pursuant to EPA's anti-backsliding regulation, 40 CFR 122.44(l). The previous limitations for Outfalls 009 are displayed below in Table 27.

Table 27: Effluent Limitations in the Current Permit for Outfall 009

Parameter	Average Monthly	Daily Maximum	Instantaneous Maximum	Sample Frequency	Sample Type
Zinc	Report	Report	XXX	1/6 months	grab

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent monitoring requirements for Outfall 009 are displayed in Table 28 below, they are the most stringent values from the above effluent limitation development. The Draft Permit requires a Corrective Action Plan when there are two consecutive exceedances of the benchmark values, which are also included in the Part C condition. The benchmark values are displayed below in Table 28. These values are not effluent limitations, an exceedance of the benchmark value is not a violation. As described above, if there are two consecutive exceedances of the benchmark value, a corrective action plan must be conducted to evaluate site stormwater controls and BMPs. Benchmark monitoring is a feedback tool, along with routine inspections and visual assessments, for assessing the effectiveness of stormwater controls and BMPs. An exceedance of the benchmark provides permittees with an indication that the facility's controls may not be sufficiently controlling pollutants in stormwater.

Table 28: Proposed Effluent Monitoring Requirements – Outfall 009

Parameter	Max Daily Concentration	Benchmark Values (mg/L)	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Report	100	1/6 Months	Grab
Total Aluminum	Report	XXX	1/6 Months	Grab
Total Zinc	Report	XXX	1/6 Months	Grab
Total Copper	Report	XXX	1/6 Months	Grab
Total Iron	Report	XXX	1/6 Months	Grab
Total Lead	Report	XXX	1/6 Months	Grab

Tools and References Used to Develop Permit	
☐	WQM for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C, F**)
☒	Temperature Model Spreadsheet (see Attachment **B**)
☒	Toxics Management Spreadsheet (see Attachment E)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☐	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☐	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☐	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☐	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☐	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☐	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☐	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☐	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☐	SOP:
☐	Other:

Attachments

Attachment A: StreamStats Report

Attachment B: Site Thermal Discharge Evaluation

Attachment C: IMP 107 Total Residual Chlorine Evaluation

Attachment D: IMP 207 Federal Effluent Limitation Guideline Calculations

Attachment E: IMP 207 Toxics Management Spreadsheet

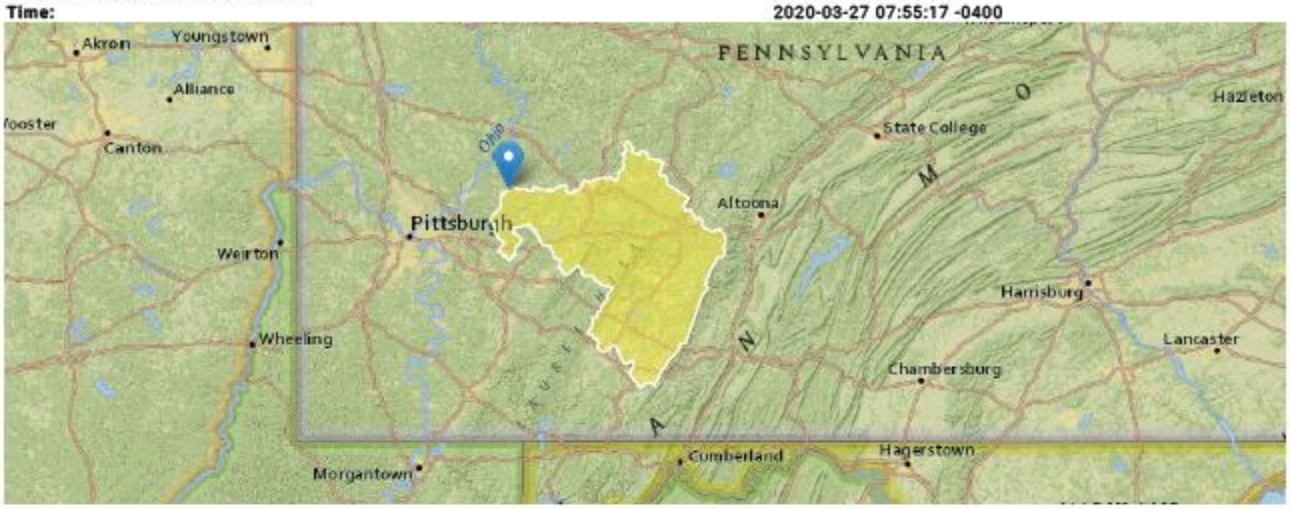
Attachment F: IMP 207 Total Residual Chlorine Evaluation

Attachment A:

StreamStats Report

StreamStats Report

Region ID:	PA
Workspace ID:	PA20200327115457528000
Clicked Point (Latitude, Longitude):	40.60489, -79.55202
Time:	2020-03-27 07:55:17 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	1530	square miles
ELEV	Mean Basin Elevation	1765.2	feet
PRECIP	Mean Annual Precipitation	44.7	inches

Low-Flow Statistics Parameters[100 Percent (1530 square miles) Low Flow Region 3]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	1530	square miles	2.33	1720
ELEV	Mean Basin Elevation	1765.2	feet	898	2700
PRECIP	Mean Annual Precipitation	44.7	inches	38.7	47.9

Low-Flow Statistics Flow Report[100 Percent (1530 square miles) Low Flow Region 3]

PII: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	SE	SEp
7 Day 2 Year Low Flow	215	ft^3/s	43	43
30 Day 2 Year Low Flow	282	ft^3/s	38	38
7 Day 10 Year Low Flow	132	ft^3/s	54	54
30 Day 10 Year Low Flow	161	ft^3/s	49	49
90 Day 10 Year Low Flow	221	ft^3/s	41	41

Low-Flow Statistics Citations

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

Attachment B:

Site Thermal Discharge Evaluation

Facility:	**ATI Vandergrift**							
Permit Number:	PA0040274							**PMF**
Stream Name:	Kiskiminetas River							1.00
Analyst/Engineer:	Adam Olesnanik							
Stream Q7-10 (cfs):	132							
	Facility Flows					**Stream Flows**		
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)		Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0.93	0	0	0.93		422.40	420.96	422.40
Feb 1-29	0.93	0	0	0.93		462.00	460.56	462.00
Mar 1-31	0.93	0	0	0.93		924.00	922.56	924.00
Apr 1-15	0.93	0	0	0.93		1227.60	1226.16	1227.60
Apr 16-30	0.93	0	0	0.93		1227.60	1226.16	1227.60
May 1-15	0.93	0	0	0.93		673.20	671.76	673.20
May 16-30	0.93	0	0	0.93		673.20	671.76	673.20
Jun 1-15	0.93	0	0	0.93		396.00	394.56	396.00
Jun 16-30	0.93	0	0	0.93		396.00	394.56	396.00
Jul 1-31	0.93	0	0	0.93		224.40	222.96	224.40
Aug 1-15	0.93	0	0	0.93		184.80	183.36	184.80
Aug 16-31	0.93	0	0	0.93		184.80	183.36	184.80
Sep 1-15	0.93	0	0	0.93		145.20	143.76	145.20
Sep 16-30	0.93	0	0	0.93		145.20	143.76	145.20
Oct 1-15	0.93	0	0	0.93		158.40	156.96	158.40
Oct 16-31	0.93	0	0	0.93		158.40	156.96	158.40
Nov 1-15	0.93	0	0	0.93		211.20	209.76	211.20
Nov 16-30	0.93	0	0	0.93		211.20	209.76	211.20
Dec 1-31	0.93	0	0	0.93		316.80	315.36	316.80

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:	**ATI Vandergrift**						
Permit Number:	PA0040274						
Stream:	Kiskiminetas River						
	WWF Criteria	**CWF Criteria**	**TSF Criteria**	**316 Criteria**		**Q7-10 Multipliers**	**Q7-10 Multipliers**
	(ºF)	(ºF)	(ºF)	(ºF)		(Used in Analysis)	(Default - Info Only)
Jan 1-31	40	38	40	0		3.2	3.2
Feb 1-29	40	38	40	0		3.5	3.5
Mar 1-31	46	42	46	0		7	7
Apr 1-15	52	48	52	0		9.3	9.3
Apr 16-30	58	52	58	0		9.3	9.3
May 1-15	64	54	64	0		5.1	5.1
May 16-30	72	58	68	0		5.1	5.1
Jun 1-15	80	60	70	0		3	3
Jun 16-30	84	64	72	0		3	3
Jul 1-31	87	66	74	0		1.7	1.7
Aug 1-15	87	66	80	0		1.4	1.4
Aug 16-31	87	66	87	0		1.4	1.4
Sep 1-15	84	64	84	0		1.1	1.1
Sep 16-30	78	60	78	0		1.1	1.1
Oct 1-15	72	54	72	0		1.2	1.2
Oct 16-31	66	50	66	0		1.2	1.2
Nov 1-15	58	46	58	0		1.6	1.6
Nov 16-30	50	42	50	0		1.6	1.6
Dec 1-31	42	40	42	0		2.4	2.4
NOTES:							
WWF= Warm water fishes							
CWF= Cold water fishes							
TSF= Trout stocking							

Facility:	**ATI Vandergrift**						
Permit Number:	PA0040274						**PMF**
Stream:	Kiskiminetas River						1.00
	WWF			**WWF**		**WWF**	
	Ambient Stream	Ambient Stream	Target Maximum	Daily		Daily	
	Temperature (ºF)	Temperature (ºF)	Stream Temp.[1]	WLA[2]		WLA[3]	at Discharge
	(Default)	(Site-specific data)	(ºF)	(Million BTUs/day)		(ºF)	Flow (MGD)
Jan 1-31	35	0	40	11,384		110.0	0.93
Feb 1-29	35	0	40	12,451		110.0	0.93
Mar 1-31	40	0	46	29,882		110.0	0.93
Apr 1-15	47	0	52	33,084		110.0	0.93
Apr 16-30	53	0	58	33,084		110.0	0.93
May 1-15	58	0	64	21,771		110.0	0.93
May 16-30	62	0	72	36,285		110.0	0.93
Jun 1-15	67	0	80	27,748		110.0	0.93
Jun 16-30	71	0	84	27,748		110.0	0.93
Jul 1-31	75	0	87	14,514		110.0	0.93
Aug 1-15	74	0	87	12,949		110.0	0.93
Aug 16-31	74	0	87	12,949		110.0	0.93
Sep 1-15	71	0	84	10,174		110.0	0.93
Sep 16-30	65	0	78	10,174		110.0	0.93
Oct 1-15	60	0	72	10,245		110.0	0.93
Oct 16-31	54	0	66	10,245		110.0	0.93
Nov 1-15	48	0	58	11,384		110.0	0.93
Nov 16-30	42	0	50	9,107		110.0	0.93
Dec 1-31	37	0	42	8,538		110.0	0.93

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be

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.

Attachment C:

IMP 107 Total Residual Chlorine Evaluation

TRC EVALUATION

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

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	34.043	**1.3.2.iii**	WLA cfc =	33.182
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	12.685	**5.1d**	LTA_cfc =	19.290

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

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

Attachment D:

IMP 207 Federal Effluent Limitation Guideline Calculations

ATI - Vandergrift Facility ATI Flat Rolled Products Holdings, LLC
Federal ELG Calculations
PA0040274
Authorization 1172899
IMP 207

No. 90 Anneal and Pickle Line Operations

ELG 40 CFR 420.92(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous
NO. 90 Anneal and Pickle Line

Parameter	Production Year 2016	2017	2018	2019	2020
Total Annual Production (tons)	223,258	257,972	257,836	234,622	202,798
Max Monthly Production (tons)	25,508	**26,817**	25,838	24,083	25,709
Month of Max Production	December	June	March	April	April
Avg Annual Production (tons/day)	656	760	784	767	728
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	28	28	27	25	23
Avg Annual Water Usage (MGD)	0.446	0.555	0.520	0.545	0.506
Avg Annual Wastewater Flow (MGD)	0.405	**0.504**	0.473	0.496	0.460

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**235,297**	**Daily Max Production**	**957.75**
5-yr Anticipated Annual Production (tons)	**250,000**		

ELG 40 CFR 420.92(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous
NO. 90 Anneal and Pickle Line

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	0.438	0.188	360.114	838.989
O&G*	0.188	0.0626	119.910	360.114
Chromium	0.00626	0.0025	4.789	11.991
Nickel	0.00563	0.00188	3.601	10.784
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.438 lbs/1,000 lbs production) * [((957.75 tons production/day) * (2,000 lbs/ton)) / (1,000 lbs production)]
TSS Max Daily (lbs/day) = 838.989 lbs/day

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
NO. 90 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	800
Max Monthly Production (tons)					80
Month of Max Production					
Avg Annual Production (tons/day)					80
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**80.00 tons/day**
5-yr Anticipated Annual Production (tons)	**640**		

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
NO. 90 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.847	0.351	0.056	0.136
Lead	1.23	0.584	0.093	0.197
Zinc	4.27	1.78	0.285	0.683
Ammonia	389	171	27.360	62.240
Fluoride	174	77.1	12.336	27.840
O&G	58.40	35.1	5.616	9.344
TSS	120.00	57.00	9.120	19.200
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (120 lbs/1,000 lbs production) * [((60 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 14.4 lbs/day

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
NO. 90 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	800
Max Monthly Production (tons)					80
Month of Max Production					
Avg Annual Production (tons/day)					80
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**80.00 tons/day**
5-yr Anticipated Annual Production (tons)	**640**		

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
NO. 90 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.061	0.025	0.004	0.010
Lead	0.088	0.042	0.007	0.014
Zinc	0.304	0.127	0.020	0.049
Ammonia	27.7	12.2	1.952	4.432
Fluoride	12.4	5.49	0.878	1.984
O&G	4.16	2.5	0.400	0.666
TSS	8.53	4.06	0.650	1.365
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.8.53 lbs/1,000 lbs production) * [((60 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 1.024 lbs/day

ELG 40 CFR 420.92(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers
NO. 90 Anneal and Pickle Line
(2 Scrubbers)

Pollutant	ELG - BPT Effluent Limitations (Kg/day) per each scrubber		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	5.720	2.45	10.803	25.221
O&G*	2.45	0.816	3.598	10.803
Chromium	0.0816	0.0327	0.144	0.360
Nickel	0.07350	0.0245	0.108	0.324
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (Kg/Day] * (mass unit conversion)*number of scrubbers
TSS Max Daily (lbs/day) = (5.720 kg/day) * (2.2046 lbs/Kg) * (2 Scrubbers)
TSS Max Daily (lbs/day) = 25.2 lbs/day

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)
NO. 90 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	800
Max Monthly Production (tons)					80
Month of Max Production					
Avg Annual Production (tons/day)					80
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**80.00 tons/day**
5-yr Anticipated Annual Production (tons)	**640**		

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)
NO. 90 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.062	0.026	0.004	0.010
Lead	0.09	0.043	0.007	0.014
Zinc	0.313	0.131	0.021	0.050
Ammonia	28.5	12.3	1.968	4.560
Fluoride	12.8	5.65	0.904	2.048
O&G	4.28	2.57	0.411	0.685
TSS	8.78	4.18	0.669	1.405
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (8.78 lbs/1,000 lbs production) * [((60 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 1.054 lbs/day

No. 91 Anneal and Pickle Line Operations

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
NO. 91 Anneal and Pickle Line

Parameter	Production Year 2016	2017	2018	2019	2020
Total Annual Production (tons)	175,659	206,965	208,789	194,953	161,459
Max Monthly Production (tons)	20,046	**21,581**	20,481	20,026	20,708
Month of Max Production	June	September	September	October	January
Avg Annual Production (tons/day)	516	591	607	613	603
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	27	29	29	26	22
Avg Annual Water Usage (MGD)	0.446	0.555	0.520	0.545	0.506
Avg Annual Wastewater Flow (MGD)	0.405	**0.504**	0.473	0.496	0.460

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**189,565**	**Daily Max Production**	**744.17 tons/day**
5-yr Anticipated Annual Production (tons)	**200,000**		

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	0.0496	0.0213	31.702	73.822
O&G*	0.0213	0.0071	10.567	31.702
Chromium	0.000710	0.000284	0.423	1.057
Nickel	0.000638	0.000213	0.317	0.950
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.0496 lbs/1,000 lbs production) * [((744.17 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 73.822 lbs/day

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

ELG 40 CFR 420.84(a)(4) Iron and Steel Manufacturing Salt Bath Descaling Oxidixing - Continuous (NSPS)
NO. 91 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	175,659	206,965	208,789	194,953	164,459
Max Monthly Production (tons)	20,046	**21,581**	20,481	20,026	20,708
Month of Max Production	June	September	September	October	January
Avg Annual Production (tons/day)	516	591	607	613	603
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	27	29	29	26	22
Avg Annual Water Usage (MGD)	0.446	0.555	0.520	0.545	0.506
Avg Annual Wastewater Flow (MGD)	0.405	**0.504**	0.473	0.496	0.460

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**190,165**	**Daily Max Production**	**744.17 tons/day**
5-yr Anticipated Annual Production (tons)	**201,000**		

ELG 40 CFR 420.84(a)(4) Iron and Steel Manufacturing Salt Bath Descaling Oxidixing - Continuous (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
TSS	0.0964	0.0413	0.061	0.143
Chromium	0.00138	0.000551	0.001	0.002
Nickel	0.00124	0.000413	0.001	0.002
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.0964 lbs/1,000 lbs production) * [((744.17 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 0.143lbs/day

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
NO. 91 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	550
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**550**		

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.061	0.025	0.003	0.006
Lead	0.088	0.042	0.004	0.009
Zinc	0.304	0.127	0.013	0.030
Ammonia	27.7	12.2	1.220	2.770
Fluoride	12.4	5.49	0.549	1.240
O&G	4.16	2.5	0.250	0.416
TSS	8.53	4.06	0.406	0.853
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (8.53 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 0.853 lbs/day

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
NO. 91 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	550
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**550**		

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)

NO. 91 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.847	0.351	0.035	0.085
Lead	1.23	0.584	0.058	0.123
Zinc	4.27	1.78	0.178	0.427
Ammonia	389	171	17.100	38.900
Fluoride	174	77.1	7.710	17.400
O&G	58.40	35.1	3.510	5.840
TSS	120.00	57.00	5.700	12.000
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (120 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 12.0 lbs/day

ELG 40 CFR 471.63(r) Titanium Forming Molten Salt Rinse (NSPS)
NO. 91 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	550
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**550**		

ELG 40 CFR 471.63(r) Titanium Forming Molten Salt Rinse (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.277	0.115	0.012	0.028
Lead	0.401	0.191	0.019	0.040
Zinc	1.4	0.583	0.058	0.140
Ammonia	128	56	5.600	12.800
Fluoride	56.8	25.2	2.520	5.680
O&G	19.10	11.5	1.150	1.910
TSS	39.20	18.60	1.860	3.920
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (39.2 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 3.92 lbs/day

ELG 40 CFR 420.94(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - BPT Effluent Limitations (Kg/day) per each scrubber		Mass-Based Effluent Limtis (lbs./day) (2 scrubbers)		Mass-Based Effluent Limtis (lbs./day) (3 scrubbers)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily	Average Monthly	Max Daily
TSS	5.720	2.45	10.803	25.221	16.204	37.831
O&G*	2.45	0.816	3.598	10.803	5.397	16.204
Chromium	0.0816	0.0327	0.144	0.360	0.216	0.540
Nickel	0.07350	0.0245	0.108	0.324	0.162	0.486
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (Kg/Day] * (mass unit conversion)*number of scrubbers

TSS Max Daily (lbs/day) = (5.720 kg/day) * (2.2046 lbs/Kg) * (2 Scrubbers)

TSS Max Daily (lbs/day) = 25.2 lbs/day

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)

NO. 91 Anneal and Pickle Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	550
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**960**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**550**		

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)
NO. 91 Anneal and Pickle Line

Pollutant	ELG - NSPS Effluent Limitations		Mass-Based Effluent Limtis	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.062	0.026	0.003	0.006
Lead	0.09	0.043	0.004	0.009
Zinc	0.313	0.131	0.013	0.031
Ammonia	28.5	12.3	1.230	2.850
Fluoride	12.8	5.65	0.565	1.280
O&G	4.28	2.57	0.257	0.428
TSS	8.78	4.18	0.418	0.878
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (8.78 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 0.878 lbs/day

Proposed Cleaning Line Operations

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
Proposed Cleaning Line

Parameter	Production Year 2016	2017	2018	2019	2020
Total Annual Production (tons)					10,400
Max Monthly Production (tons)					900
Month of Max Production					
Avg Annual Production (tons/day)					35
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**35.00 tons/day**
5-yr Anticipated Annual Production (tons)	**10,400**		

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
Proposed Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	0.0496	0.0213	1.491	3.472
O&G*	0.0213	0.0071	0.497	1.491
Chromium	0.000710	0.000284	0.020	0.050
Nickel	0.000638	0.000213	0.015	0.045
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.0496 lbs/1,000 lbs production) * [((35.0 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 3.472 lbs/day

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
Proposed Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	600
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	48		
5-yr Average Annual Production (tons)	NA	Daily Max Production	50.00 tons/day
5-yr Anticipated Annual Production (tons)	600		

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
Proposed Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.061	0.025	0.003	0.006
Lead	0.088	0.042	0.004	0.009
Zinc	0.304	0.127	0.013	0.030
Ammonia	27.7	12.2	1.220	2.770
Fluoride	12.4	5.49	0.549	1.240
O&G	4.16	2.5	0.250	0.416
TSS	8.53	4.06	0.406	0.853
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (0.8.53 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 0.853 lbs/day

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
Proposed Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	600
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
Proposed Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.847	0.351	0.035	0.085
Lead	1.23	0.584	0.058	0.123
Zinc	4.27	1.78	0.178	0.427
Ammonia	389	171	17.100	38.900
Fluoride	174	77.1	7.710	17.400
O&G	58.40	35.1	3.510	5.840
TSS	120.00	57.00	5.700	12.000
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (120 lbs/1,000 lbs production) * [((60 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 14.4 lbs/day

ELG 40 CFR 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS)
Proposes Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	10,400
Max Monthly Production (tons)					900
Month of Max Production					
Avg Annual Production (tons/day)					35
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**35.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS)

Proposes Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
TSS	0.102	0.0438	0.00307	0.00714
O&G	0.0438	0.0146	0.00102	0.00307
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (0.102 lbs/1,000 lbs production) * [((35 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 0.00714 lbs/day

ELG 40 CFR 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS)
Proposed Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	600
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS)
Proposed Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.07	0.03	0.003	0.007
Lead	0.101	0.048	0.005	0.010
Zinc	0.351	0.147	0.015	0.035
Ammonia	32	14.1	1.410	3.200
Fluoride	14.3	6.34	0.634	1.430
O&G	4.80	2.88	0.288	0.480
TSS	9.84	4.68	0.468	0.984
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]

TSS Max Daily (lbs/day) = (9.84 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]

TSS Max Daily (lbs/day) = 0.984 lbs/day

ELG 40 CFR 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS)
Proposed Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	600
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS)

Proposed Cleaning Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.08	0.033	0.003	0.008
Lead	0.116	0.055	0.006	0.012
Zinc	0.403	0.169	0.017	0.040
Ammonia	36.8	16.2	1.620	3.680
Fluoride	16.4	7.29	0.729	1.640
O&G	5.52	3.31	0.331	0.552
TSS	11.30	5.38	0.538	1.130
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (11.3 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 1.130 lbs/day

ELG 40 CFR 420.94(c)(6) Iron and Steel Manufacturing Combination Acid Pickling -Fume Scrubbers (NSPS)
Proposed Cleaning Line

(1 scrubbers)

Pollutant	ELG - BPT Effluent Limitations (Kg/day) per each scrubber		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	5.720	2.45	5.401	12.610
O&G*	2.45	0.816	1.799	5.401
Chromium	0.0816	0.0327	0.072	0.180
Nickel	0.07350	0.0245	0.054	0.162
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (Kg/Day] * (mass unit conversion)*number of scrubbers

TSS Max Daily (lbs/day) = (5.720 kg/day) * (2.2046 lbs/Kg) * (1 Scrubbers)

TSS Max Daily (lbs/day) = 12.61 lbs/day

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)
Proposed Cleaning Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	600
Max Monthly Production (tons)					50
Month of Max Production					
Avg Annual Production (tons/day)					50
Avg Production (hrs/day)					16-24
Avg Production (days/month)					1-4
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**48**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**50.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(0) Titanium Forming Wet Air Pollutant Control Scrubber Blowdown (NSPS)
Proposed Cleaning Line

Pollutant	(lbs/1,000,000 off-lb titanium		Mass-Based Effluent Limtis	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.062	0.026	0.003	0.006
Lead	0.09	0.043	0.004	0.009
Zinc	0.313	0.131	0.013	0.031
Ammonia	28.5	12.3	1.230	2.850
Fluoride	12.8	5.65	0.565	1.280
O&G	4.28	2.57	0.257	0.428
TSS	8.78	4.18	0.418	0.878
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (8.78 lbs/1,000 lbs production) * [((50 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 0.878 lbs/day

Proposed Bright Anneal Line Operations

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
Proposed Bright Anneal Line

Parameter	Production Year 2016	2017	2018	2019	2020
Total Annual Production (tons)					43,000
Max Monthly Production (tons)					4,500
Month of Max Production					
Avg Annual Production (tons/day)					300
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**300**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**300.00 tons/day**
5-yr Anticipated Annual Production (tons)	**53,000**		

ELG 40 CFR 420.94(c)(3) Iron and Steel Manufacturing Combination Acid Pickling -Strip, sheet, and plate - Continuous (NSPS)
Proposed Bright Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Average Daily Value for 30 consectutive days	Average Monthly	Max Daily
TSS	0.0496	0.0213	12.780	29.760
O&G*	0.0213	0.0071	4.260	12.780
Chromium	0.000710	0.000284	0.170	0.426
Nickel	0.000638	0.000213	0.128	0.383
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.0496 lbs/1,000 lbs production) * [((144.0 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 14.285 lbs/day

* the limitations for oil and grease shall be applicable when acid picking wastewaters are treated with cold rolling wastewaters

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
Proposed Bright Anneal Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	5,500
Max Monthly Production (tons)					500
Month of Max Production					
Avg Annual Production (tons/day)					100
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**144**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**100.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(m) Titanium Forming Surface Treatment Spent Baths (NSPS)
Proposed Bright Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.061	0.025	0.005	0.012
Lead	0.088	0.042	0.008	0.018
Zinc	0.304	0.127	0.025	0.061
Ammonia	27.7	12.2	2.440	5.540
Fluoride	12.4	5.49	1.098	2.480
O&G	4.16	2.5	0.500	0.832
TSS	8.53	4.06	0.812	1.706
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.8.53 lbs/1,000 lbs production) * [((100 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 1.706 lbs/day

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
Proposed Bright Anneal Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	5,500
Max Monthly Production (tons)					500
Month of Max Production					
Avg Annual Production (tons/day)					100
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**144**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**100.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(n) Titanium Forming Surface Treatment Rise(NSPS)
Proposed Bright Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.847	0.351	0.070	0.169
Lead	1.23	0.584	0.117	0.246
Zinc	4.27	1.78	0.356	0.854
Ammonia	389	171	34.200	77.800
Fluoride	174	77.1	15.420	34.800
O&G	58.40	35.1	7.020	11.680
TSS	120.00	57.00	11.400	24.000
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (120 lbs/1,000 lbs production) * [((100 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 24.0 lbs/day

ELG 40 CFR 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS)
Proposes Bright Anneal Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	43,000
Max Monthly Production (tons)					4,500
Month of Max Production					
Avg Annual Production (tons/day)					300
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**300**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**300.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 420.114(b) Iron and Steel Manufacturing Alkaline Degreasing - Continuous (NSPS)

Proposes Bright Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
TSS	0.102	0.0438	0.02628	0.06120
O&G	0.0438	0.0146	0.00876	0.02628
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (0.102 lbs/1,000 lbs production) * [((144 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 0.02938 lbs/day

ELG 40 CFR 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS)
Proposed Bright Anneal Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	5,500
Max Monthly Production (tons)					500
Month of Max Production					
Avg Annual Production (tons/day)					100
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	**144**		
5-yr Average Annual Production (tons)	**NA**	**Daily Max Production**	**100.00 tons/day**
5-yr Anticipated Annual Production (tons)	**600**		

ELG 40 CFR 471.63(p) Titanium - Alkaline Cleaning Spent Bath (NSPS)
Proposed Bright Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.07	0.03	0.006	0.014
Lead	0.101	0.048	0.010	0.020
Zinc	0.351	0.147	0.029	0.070
Ammonia	32	14.1	2.820	6.400
Fluoride	14.3	6.34	1.268	2.860
O&G	4.80	2.88	0.576	0.960
TSS	9.84	4.68	0.936	1.968
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (9.84 lbs/1,000 lbs production) * [((100 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) = 1.968 lbs/day

ELG 40 CFR 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS)
Proposed Anneal Line

Parameter	Production Year 2017	2018	2019	2020	2021-Future
Total Annual Production (tons)	NA	NA	NA	NA	5,500
Max Monthly Production (tons)					500
Month of Max Production					
Avg Annual Production (tons/day)					100
Avg Production (hrs/day)					8-16
Avg Production (days/month)					10-20
Avg Annual Water Usage (MGD)					0.500
Avg Annual Wastewater Flow (MGD)					0.450

Design Production Capacity (tons/day)	144		
5-yr Average Annual Production (tons)	NA	Daily Max Production	100.00 tons/day
5-yr Anticipated Annual Production (tons)	600		

ELG 40 CFR 471.63(q) Titanium - Alkaline Cleaning Rinse (NSPS)

Proposed Anneal Line

Pollutant	ELG - NSPS Effluent Limitations (lbs/1,000,000 off-lb titanium suface treated)		Mass-Based Effluent Limtis (lbs./day)	
	Max for any 1 day	Maxium for Monthly Average	Average Monthly	Max Daily
Cyanide	0.08	0.033	0.007	0.016
Lead	0.116	0.055	0.011	0.023
Zinc	0.403	0.169	0.034	0.081
Ammonia	36.8	16.2	3.240	7.360
Fluoride	16.4	7.29	1.458	3.280
O&G	5.52	3.31	0.662	1.104
TSS	11.30	5.38	1.076	2.260
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Based Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Max Daily (lbs/day) = (11.3 lbs/1,000 lbs production) * [((100 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Max Daily (lbs/day) =2.26 lbs/day

Attachment E:

IMP 207 Toxics Management Spreadsheet

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Toxics Management Spreadsheet
Version 1.3, March 2021

Discharge Information

Instructions | Discharge | Stream

Facility: **ATI Vandergrift** NPDES Permit No.: **PA0040274** Outfall No.: **207**

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

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
0.53	257	7						

					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		5500									
	Chloride (PWS)	mg/L		15									
	Bromide	mg/L		0.2									
	Sulfate (PWS)	mg/L		843									
	Fluoride (PWS)	mg/L		10									
Group 2	Total Aluminum	µg/L		160									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L		4.5									
	Total Barium	µg/L		20									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		200									
	Total Cadmium	µg/L		0.5									
	Total Chromium (III)	µg/L		290									
	Hexavalent Chromium	µg/L		5									
	Total Cobalt	µg/L	<	1									
	Total Copper	µg/L		6									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		80									
	Total Iron	µg/L		180									
	Total Lead	µg/L		5									
	Total Manganese	µg/L		30									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		150									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		6									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L		10									
	Total Zinc	µg/L	<	10									
	Total Molybdenum	µg/L		330									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<	2.5									
	Acrylonitrile	µg/L	<	5									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L		16									

Group 3	Carbon Tetrachloride	µg/L	<	0.5									
	Chlorobenzene	µg/L	<	0.5									
	Chlorodibromomethane	µg/L	<	0.5									
	Chloroethane	µg/L	<	0.5									
	2-Chloroethyl Vinyl Ether	µg/L	<	5									
	Chloroform	µg/L	<	0.5									
	Dichlorobromomethane	µg/L	<	0.5									
	1,1-Dichloroethane	µg/L	<	0.5									
	1,2-Dichloroethane	µg/L	<	0.5									
	1,1-Dichloroethylene	µg/L	<	0.5									
	1,2-Dichloropropane	µg/L	<	0.5									
	1,3-Dichloropropylene	µg/L	<	0.5									
	1,4-Dioxane	µg/L	<	10									
	Ethylbenzene	µg/L	<	0.5									
	Methyl Bromide	µg/L	<	0.5									
	Methyl Chloride	µg/L	<	0.5									
	Methylene Chloride	µg/L	<	0.5									
	1,1,2,2-Tetrachloroethane	µg/L	<	0.5									
	Tetrachloroethylene	µg/L	<	0.5									
	Toluene	µg/L	<	0.5									
	1,2-trans-Dichloroethylene	µg/L	<	0.5									
	1,1,1-Trichloroethane	µg/L	<	0.5									
	1,1,2-Trichloroethane	µg/L	<	0.5									
	Trichloroethylene	µg/L	<	0.5									
	Vinyl Chloride	µg/L	<	0.5									
Group 4	2-Chlorophenol	µg/L	<	10									
	2,4-Dichlorophenol	µg/L	<	10									
	2,4-Dimethylphenol	µg/L	<	10									
	4,6-Dinitro-o-Cresol	µg/L	<	10									
	2,4-Dinitrophenol	µg/L	<	10									
	2-Nitrophenol	µg/L	<	10									
	4-Nitrophenol	µg/L	<	10									
	p-Chloro-m-Cresol	µg/L	<	10									
	Pentachlorophenol	µg/L	<	10									
	Phenol	µg/L	<	10									
	2,4,6-Trichlorophenol	µg/L	<	10									
Group 5	Acenaphthene	µg/L	<	2.5									
	Acenaphthylene	µg/L	<	2.5									
	Anthracene	µg/L	<	2.5									
	Benzidine	µg/L	<	50									
	Benzo(a)Anthracene	µg/L	<	2.5									
	Benzo(a)Pyrene	µg/L	<	2.5									
	3,4-Benzofluoranthene	µg/L	<	2.5									
	Benzo(ghi)Perylene	µg/L	<	2.5									
	Benzo(k)Fluoranthene	µg/L	<	2.5									
	Bis(2-Chloroethoxy)Methane	µg/L	<	5									
	Bis(2-Chloroethyl)Ether	µg/L	<	5									
	Bis(2-Chloroisopropyl)Ether	µg/L	<	5									
	Bis(2-Ethylhexyl)Phthalate	µg/L	<	5									
	4-Bromophenyl Phenyl Ether	µg/L	<	5									
	Butyl Benzyl Phthalate	µg/L	<	5									
	2-Chloronaphthalene	µg/L	<	5									
	4-Chlorophenyl Phenyl Ether	µg/L	<	5									
	Chrysene	µg/L	<	2.5									
	Dibenzo(a,h)Anthrancene	µg/L	<	2.5									
	1,2-Dichlorobenzene	µg/L	<	0.5									
	1,3-Dichlorobenzene	µg/L	<	0.5									
	1,4-Dichlorobenzene	µg/L	<	0.5									
	3,3-Dichlorobenzidine	µg/L	<	5									
	Diethyl Phthalate	µg/L	<	5									
	Dimethyl Phthalate	µg/L	<	5									
	Di-n-Butyl Phthalate	µg/L	<	5									
	2,4-Dinitrotoluene	µg/L	<	5									

2,6-Dinitrotoluene	µg/L	<	5										
Di-n-Octyl Phthalate	µg/L	<	5										
1,2-Diphenylhydrazine	µg/L	<	10										
Fluoranthene	µg/L	<	2.5										
Fluorene	µg/L	<	2.5										
Hexachlorobenzene	µg/L	<	5										
Hexachlorobutadiene	µg/L	<	1										
Hexachlorocyclopentadiene	µg/L	<	5										
Hexachloroethane	µg/L	<	5										
Indeno(1,2,3-cd)Pyrene	µg/L	<	2.5										
Isophorone	µg/L	<	5										
Naphthalene	µg/L	<	0.5										
Nitrobenzene	µg/L	<	5										
n-Nitrosodimethylamine	µg/L	<	5										
n-Nitrosodi-n-Propylamine	µg/L	<	5										
n-Nitrosodiphenylamine	µg/L	<	5										
Phenanthrene	µg/L	<	2.5										
Pyrene	µg/L	<	2.5										
1,2,4-Trichlorobenzene	µg/L	<	0.5										

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Toxics Management Spreadsheet
Version 1.3, March 2021

Stream / Surface Water Information

ATI Vandergrift, NPDES Permit No. PA0040274, Outfall 207

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Kiskiminetas River**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi^2)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	042816	11.7	775	1530	0.0001		Yes
End of Reach 1	042816	11	774	1531	0.0001		Yes

$Q_{7\text{-}10}$

Location	RMI	LFY (cfs/mi^2)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	11.7	0.1	132			200	15					100	7		
End of Reach 1	11	0.1	132			190	15								

Q_h

Location	RMI	LFY (cfs/mi^2)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	11.7														
End of Reach 1	11														

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Toxics Management Spreadsheet
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Model Results

ATI Vandergrift, NPDES Permit No. PA0040274, Outfall 207

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

☑ ***Hydrodynamics***

$Q_{7\text{-}10}$

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)
11.7	132		132	0.82	0.0001	15.	200.	13.333	0.044	0.966	93.212
11	132		132								

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)
11.7	530.12		530.12	0.82	0.0001	27.598	200.	7.247	0.096	0.445	37.699
11	530.115		530.12								

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 15 PMF: 0.401 Analysis Hardness (mg/l): 102.39 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	49,187	
Total Antimony	0	0		0	1,100	1,100	72,141	
Total Arsenic	0	0		0	340	340	22,298	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	1,377,240	
Total Boron	0	0		0	8,100	8,100	531,221	
Total Cadmium	0	0		0	2.061	2.19	143	Chem Translator of 0.943 applied
Total Chromium (III)	0	0		0	580.910	1,838	120,563	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	1,069	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	6,230	
Total Copper	0	0		0	13.742	14.3	939	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	66.266	84.1	5,518	Chem Translator of 0.788 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	108	Chem Translator of 0.85 applied
Total Nickel	0	0		0	477.701	479	31,392	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	3.350	3.94	259	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	4,263	
Total Zinc	0	0		0	119.553	122	8,017	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	197	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	650	650	42,629	
Benzene	0	0		0	640	640	41,973	
Bromoform	0	0		0	1,800	1,800	118,049	
Carbon Tetrachloride	0	0		0	2,800	2,800	183,632	
Chlorobenzene	0	0		0	1,200	1,200	78,699	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	1,180,491	
Chloroform	0	0		0	1,900	1,900	124,607	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	983,743	
1,1-Dichloroethylene	0	0		0	7,500	7,500	491,871	
1,2-Dichloropropane	0	0		0	11,000	11,000	721,411	
1,3-Dichloropropylene	0	0		0	310	310	20,331	
Ethylbenzene	0	0		0	2,900	2,900	190,190	
Methyl Bromide	0	0		0	550	550	36,071	
Methyl Chloride	0	0		0	28,000	28,000	1,836,320	
Methylene Chloride	0	0		0	12,000	12,000	786,994	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	65,583	
Tetrachloroethylene	0	0		0	700	700	45,908	
Toluene	0	0		0	1,700	1,700	111,491	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	445,963	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	196,749	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	222,982	
Trichloroethylene	0	0		0	2,300	2,300	150,841	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	36,726	
2,4-Dichlorophenol	0	0		0	1,700	1,700	111,491	
2,4-Dimethylphenol	0	0		0	660	660	43,285	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	5,247	
2,4-Dinitrophenol	0	0		0	660	660	43,285	
2-Nitrophenol	0	0		0	8,000	8,000	524,663	
4-Nitrophenol	0	0		0	2,300	2,300	150,841	
p-Chloro-m-Cresol	0	0		0	160	160	10,493	
Pentachlorophenol	0	0		0	8.723	8.72	572	
Phenol	0	0		0	N/A	N/A	N/A	

2,4,6-Trichlorophenol	0	0		0	460	460	30,168	
Acenaphthene	0	0		0	83	83.0	5,443	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	19,675	
Benzo(a)Anthracene	0	0		0	0.5	0.5	32.8	
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	1,967,486	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	295,123	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	17,707	
Butyl Benzyl Phthalate	0	0		0	140	140	9,182	
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	53,778	
1,3-Dichlorobenzene	0	0		0	350	350	22,954	
1,4-Dichlorobenzene	0	0		0	730	730	47,875	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	262,331	
Dimethyl Phthalate	0	0		0	2,500	2,500	163,957	
Di-n-Butyl Phthalate	0	0		0	110	110	7,214	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	104,933	
2,6-Dinitrotoluene	0	0		0	990	990	64,927	
1,2-Diphenylhydrazine	0	0		0	15	15.0	984	
Fluoranthene	0	0		0	200	200	13,117	
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	656	
Hexachlorocyclopentadiene	0	0		0	5	5.0	328	
Hexachloroethane	0	0		0	60	60.0	3,935	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	655,829	
Naphthalene	0	0		0	140	140	9,182	
Nitrobenzene	0	0		0	4,000	4,000	262,331	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	1,114,909	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	19,675	
Phenanthrene	0	0		0	5	5.0	328	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	8,526	

☑ *CFC* CCT (min): 93.212 PMF: 1 Analysis Hardness (mg/l): 100.97 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	35,639	
Total Arsenic	0	0		0	150	150	24,299	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	664,172	
Total Boron	0	0		0	1,600	1,600	259,189	
Total Cadmium	0	0		0	0.248	0.27	44.2	Chem Translator of 0.909 applied
Total Chromium (III)	0	0		0	74.702	86.9	14,071	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,684	Chem Translator of 0.962 applied
Total Cobalt	0	0		0	19	19.0	3,078	
Total Copper	0	0		0	9.030	9.41	1,524	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	242,990	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.543	3.22	522	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	147	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.433	52.6	8,519	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	808	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	2,106	
Total Zinc	0	0		0	119.108	121	19,569	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	486	
Acrylamide	0	0		0	N/A	N/A	N/A	
Acrylonitrile	0	0		0	130	130	21,059	
Benzene	0	0		0	130	130	21,059	
Bromoform	0	0		0	370	370	59,938	
Carbon Tetrachloride	0	0		0	560	560	90,716	
Chlorobenzene	0	0		0	240	240	38,878	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	566,976	
Chloroform	0	0		0	390	390	63,177	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	502,179	
1,1-Dichloroethylene	0	0		0	1,500	1,500	242,990	
1,2-Dichloropropane	0	0		0	2,200	2,200	356,385	
1,3-Dichloropropylene	0	0		0	61	61.0	9,882	
Ethylbenzene	0	0		0	580	580	93,956	
Methyl Bromide	0	0		0	110	110	17,819	
Methyl Chloride	0	0		0	5,500	5,500	890,963	
Methylene Chloride	0	0		0	2,400	2,400	388,784	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	34,019	
Tetrachloroethylene	0	0		0	140	140	22,679	

Toluene	0	0		0	330	330	53,458	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	226,791	
1,1,1-Trichloroethane	0	0		0	610	610	98,816	
1,1,2-Trichloroethane	0	0		0	680	680	110,155	
Trichloroethylene	0	0		0	450	450	72,897	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	17,819	
2,4-Dichlorophenol	0	0		0	340	340	55,078	
2,4-Dimethylphenol	0	0		0	130	130	21,059	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	2,592	
2,4-Dinitrophenol	0	0		0	130	130	21,059	
2-Nitrophenol	0	0		0	1,600	1,600	259,189	
4-Nitrophenol	0	0		0	470	470	76,137	
p-Chloro-m-Cresol	0	0		0	500	500	80,997	
Pentachlorophenol	0	0		0	6.693	6.69	1,084	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	14,741	
Acenaphthene	0	0		0	17	17.0	2,754	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	9,558	
Benzo(a)Anthracene	0	0		0	0.1	0.1	16.2	
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	971,960	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	147,414	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	8,748	
Butyl Benzyl Phthalate	0	0		0	35	35.0	5,670	
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	25,919	
1,3-Dichlorobenzene	0	0		0	69	69.0	11,178	
1,4-Dichlorobenzene	0	0		0	150	150	24,299	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	129,595	
Dimethyl Phthalate	0	0		0	500	500	80,997	
Di-n-Butyl Phthalate	0	0		0	21	21.0	3,402	
2,4-Dinitrotoluene	0	0		0	320	320	51,838	
2,6-Dinitrotoluene	0	0		0	200	200	32,399	
1,2-Diphenylhydrazine	0	0		0	3	3.0	486	
Fluoranthene	0	0		0	40	40.0	6,480	
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	324	
Hexachlorocyclopentadiene	0	0		0	1	1.0	162	
Hexachloroethane	0	0		0	12	12.0	1,944	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	340,186	
Naphthalene	0	0		0	43	43.0	6,966	
Nitrobenzene	0	0		0	810	810	131,215	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	550,777	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	9,558	
Phenanthrene	0	0		0	1	1.0	162	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	26	26.0	4,212	

☑ *THH* CCT (min): 93.212 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

Pollutants	Stream Conc (µg/L)	Stream CV	Trib Conc (µg/L)	Fate Coef	WQC (µg/L)	WQ Obj (µg/L)	WLA (µg/L)	Comments
Total Dissolved Solids (PWS)	0	0		0	500,000	500,000	N/A	
Chloride (PWS)	0	0		0	250,000	250,000	N/A	
Sulfate (PWS)	0	0		0	250,000	250,000	N/A	
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	907	
Total Arsenic	0	0		0	10	10.0	1,620	
Total Barium	0	0		0	2,400	2,400	388,784	
Total Boron	0	0		0	3,100	3,100	502,179	
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	48,598	
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	161,993	
Total Mercury	0	0		0	0.050	0.05	8.1	
Total Nickel	0	0		0	610	610	98,816	
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	38.9	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	486	
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	16,199	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	N/A	N/A	N/A	
1,1-Dichloroethylene	0	0		0	33	33.0	5,346	
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	11,016	
Methyl Bromide	0	0		0	100	100.0	16,199	
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	9,234	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	16,199	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	1,619,933	
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	4,860	
2,4-Dichlorophenol	0	0		0	10	10.0	1,620	
2,4-Dimethylphenol	0	0		0	100	100.0	16,199	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	324	
2,4-Dinitrophenol	0	0		0	10	10.0	1,620	
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	647,973	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	11,340	
Anthracene	0	0		0	300	300	48,598	
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	32,399	

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	16.2	
2-Chloronaphthalene	0	0		0	800	800	129,595	
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	161,993	
1,3-Dichlorobenzene	0	0		0	7	7.0	1,134	
1,4-Dichlorobenzene	0	0		0	300	300	48,598	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	97,196	
Dimethyl Phthalate	0	0		0	2,000	2,000	323,987	
Di-n-Butyl Phthalate	0	0		0	20	20.0	3,240	
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	3,240	
Fluorene	0	0		0	50	50.0	8,100	
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	648	
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	5,508	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	1,620	
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	3,240	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	11.3	

☑ *CRL* CCT (min): 37.699 PMF: 1 Analysis Hardness (mg/l): N/A Analysis pH: N/A

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

Total Boron	0	0		0	N/A	N/A	N/A	
Total Cadmium	0	0		0	N/A	N/A	N/A	
Total Chromium (III)	0	0		0	N/A	N/A	N/A	
Hexavalent Chromium	0	0		0	N/A	N/A	N/A	
Total Cobalt	0	0		0	N/A	N/A	N/A	
Total Copper	0	0		0	N/A	N/A	N/A	
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	N/A	N/A	N/A	
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	N/A	N/A	N/A	
Total Nickel	0	0		0	N/A	N/A	N/A	
Total Phenols (Phenolics) (PWS)	0	0		0	N/A	N/A	N/A	
Total Selenium	0	0		0	N/A	N/A	N/A	
Total Silver	0	0		0	N/A	N/A	N/A	
Total Thallium	0	0		0	N/A	N/A	N/A	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	N/A	N/A	N/A	
Acrylamide	0	0		0	0.07	0.07	45.3	
Acrylonitrile	0	0		0	0.06	0.06	38.9	
Benzene	0	0		0	0.58	0.58	376	
Bromoform	0	0		0	7	7.0	4,533	
Carbon Tetrachloride	0	0		0	0.4	0.4	259	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	518	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	3,691	
Dichlorobromomethane	0	0		0	0.95	0.95	615	
1,2-Dichloroethane	0	0		0	9.9	9.9	6,411	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	583	
1,3-Dichloropropylene	0	0		0	0.27	0.27	175	
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	12,951	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	130	
Tetrachloroethylene	0	0		0	10	10.0	6,476	
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	356	
Trichloroethylene	0	0		0	0.6	0.6	389	
Vinyl Chloride	0	0		0	0.02	0.02	13.0	
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	19.4	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	971	
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	0.065	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.65	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.065	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.65	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	6.48	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	19.4	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	207	
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	77.7	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.065	
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	32.4	
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	32.4	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	32.4	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	19.4	
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	0.052	
Hexachlorobutadiene	0	0		0	0.01	0.01	6.48	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	64.8	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.65	
Isophorone	0	0		0	N/A	N/A	N/A	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	N/A	N/A	N/A	

n-Nitrosodimethylamine	0	0		0	0.0007	0.0007	0.45	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	3.24	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	2,137	
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	

☑ ***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 Thallium	Report	Report	Report	Report	Report	µg/L	38.9	THH	Discharge Conc > 10% WQBEL (no 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	31,527	µg/L	Discharge Conc ≤ 10% WQBEL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	1,620	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	388,784	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	259,189	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	44.2	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	14,071	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	685	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	3,078	µg/L	Discharge Conc < TQL
Total Copper	602	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	48,598	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	242,990	µg/L	Discharge Conc ≤ 10% WQBEL
Total Lead	522	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	161,993	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	8.1	µg/L	Discharge Conc < TQL

Total Nickel	8,519	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	808	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	166	µg/L	Discharge Conc < TQL
Total Zinc	5,139	µg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	126	µg/L	Discharge Conc < TQL
Acrylamide	45.3	µg/L	Discharge Conc ≤ 25% WQBEL
Acrylonitrile	38.9	µg/L	Discharge Conc < TQL
Benzene	376	µg/L	Discharge Conc < TQL
Bromoform	4,533	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	259	µg/L	Discharge Conc < TQL
Chlorobenzene	16,199	µg/L	Discharge Conc < TQL
Chlorodibromomethane	518	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	566,976	µg/L	Discharge Conc < TQL
Chloroform	3,691	µg/L	Discharge Conc < TQL
Dichlorobromomethane	615	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	6,411	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	5,346	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	583	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	175	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	11,016	µg/L	Discharge Conc < TQL
Methyl Bromide	16,199	µg/L	Discharge Conc < TQL
Methyl Chloride	890,963	µg/L	Discharge Conc < TQL
Methylene Chloride	12,951	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	130	µg/L	Discharge Conc < TQL
Tetrachloroethylene	6,476	µg/L	Discharge Conc < TQL
Toluene	9,234	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	16,199	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	98,816	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	356	µg/L	Discharge Conc < TQL
Trichloroethylene	389	µg/L	Discharge Conc < TQL
Vinyl Chloride	13.0	µg/L	Discharge Conc < TQL
2-Chlorophenol	4,860	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	1,620	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	16,199	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	324	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	1,620	µg/L	Discharge Conc < TQL
2-Nitrophenol	259,189	µg/L	Discharge Conc < TQL
4-Nitrophenol	76,137	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	6,726	µg/L	Discharge Conc < TQL
Pentachlorophenol	19.4	µg/L	Discharge Conc < TQL

Phenol	647,973	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	971	µg/L	Discharge Conc < TQL
Acenaphthene	2,754	µg/L	Discharge Conc < TQL
Acenaphthylene	N/A	N/A	No WQS
Anthracene	48,598	µg/L	Discharge Conc < TQL
Benzidine	0.065	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.65	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.065	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.65	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	6.48	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	19.4	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	32,399	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	207	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	8,748	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	16.2	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	129,595	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	77.7	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.065	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	25,919	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	1,134	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	24,299	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	32.4	µg/L	Discharge Conc < TQL
Diethyl Phthalate	97,196	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	80,997	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	3,240	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	32.4	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	32.4	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	19.4	µg/L	Discharge Conc < TQL
Fluoranthene	3,240	µg/L	Discharge Conc < TQL
Fluorene	8,100	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.052	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	6.48	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorocyclopentadiene	162	µg/L	Discharge Conc < TQL
Hexachloroethane	64.8	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.65	µg/L	Discharge Conc < TQL
Isophorone	5,508	µg/L	Discharge Conc < TQL
Naphthalene	5,885	µg/L	Discharge Conc < TQL
Nitrobenzene	1,620	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.45	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	3.24	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	2,137	µg/L	Discharge Conc < TQL

Phenanthrene	162	µg/L	Discharge Conc < TQL
Pyrene	3,240	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	11.3	µg/L	Discharge Conc < TQL

Attachment F:

IMP 207 Total Residual Chlorine Evaluation

TRC EVALUATION

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

Source	Reference	AFC Calculations		Reference	CFC Calculations	
TRC	**1.3.2.iii**	WLA afc =	25.697	**1.3.2.iii**	WLA cfc =	25.045
PENTOXSD TRG	**5.1a**	LTAMULT afc =	0.373	**5.1c**	LTAMULT cfc =	0.581
PENTOXSD TRG	**5.1b**	LTA_afc=	9.575	**5.1d**	LTA_cfc =	14.560

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

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

Attachment G:

Site Cooling Water Intake Structure Specifications

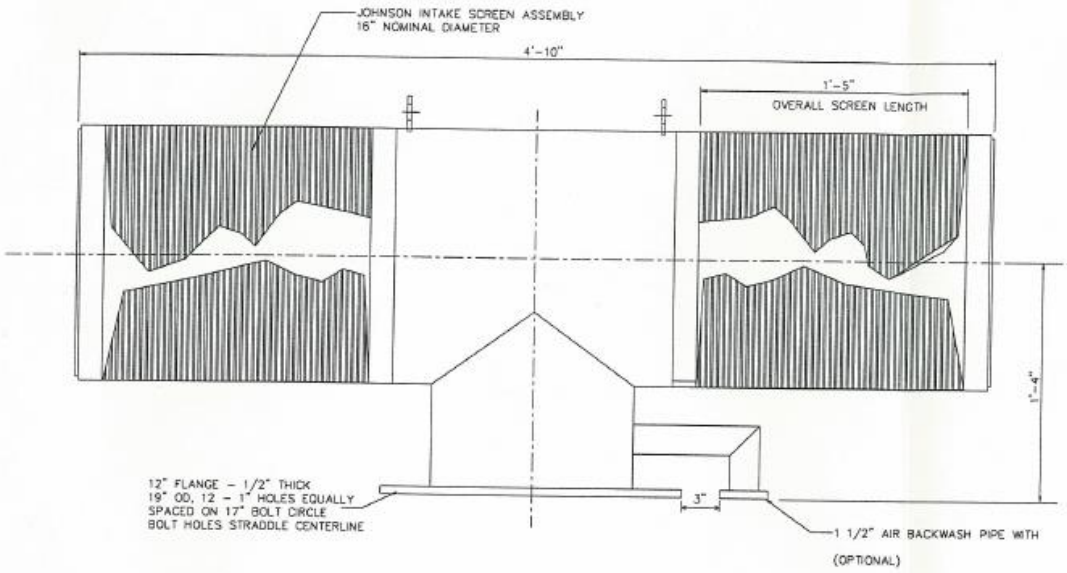
06-09-1995 15:30 P.08
06. 06. 95 08:55AM *ALS ENGINEERING POS
412-269-2710 MCCARLS PROCESS SYS. 630 P08 JUN 07 '95 16:27

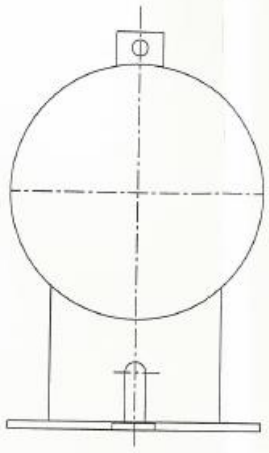
ALLEGHENY LUDLUM STEEL
VANDERGRIFT PLANT

EQUIPMENT PROPOSAL QUESTIONNAIRE
RIVER INTAKE SCREENS
SPECIFICATION NUMBER 940060-S-002

SELF-CLEANING STAINERS

Vendor Name/Address:	WHEELABRATOR ENGINEERED SYSTEM'S INC. 441 MAIN STREET, STURBRIDGE, MA. 01566
Manufacturer:	WHEELABRATOR ENGINEERED SYSTEM'S INC.
Model No./Size:	T -16, 12, F,A,2,10,.125",B,OV,(N) (U)
Quantity:	TWO
Design Flow:	1000 GPM
Pressure Loss Clean:	SCREEN SURFACE .0002, PSI. TOTAL ASSM .18 PSI
Maximum Design Pressure:	625 lb/sq ft (4.33 psi)
Slot Size:	.125 "
Open Area (%):	63 %
Slot Velocity at Max. Flow:	.45 ft/sec. at 1000 gpm
Materials of Construction:	316 L SST
End Type:	FLAT PLATE
Upstream:	SEE ATTACHED SCOPE OF SUPPLY
Downstream:	SEE ATTACHED SCOPE OF SUPPLY
Water Connection Size:	12 INCHES
Air Connection Size:	2 INCHES
Air Requirements:	
Flow:	NOT INCLUDED IN PROPOSAL
Pressure:	NOT INCLUDED IN PROPOSAL
Duration:	N/A





APPROVED FOR CONSTRUCTION

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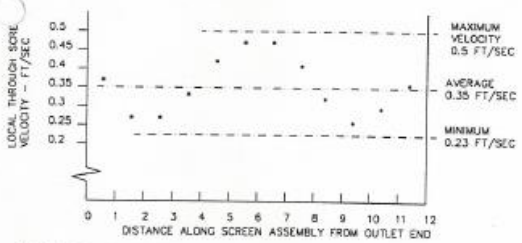
_____ DATE



READING THE VELOCITY PROFILE

JOHNSON INTAKE SCREENS INCORPORATE AN INTERNAL FLOW BALANCING SYSTEM TO DEVELOP PREDICTABLE AND MORE UNIFORM VELOCITIES THROUGH THE SCREEN SLOTS. THE MATHEMATICAL MODEL USED TO PRODUCE THE PROFILE HAS BEEN VERIFIED BY AN INDEPENDENT LABORATORY USING PHYSICAL MODELS TO ENSURE ITS ACCURACY.

THE MAXIMUM VELOCITY IS THE TRUE LOCAL VELOCITY THROUGH THE SCREEN ASSEMBLY. THIS IS DIFFERENT FROM THE HIGHEST AVERAGE VELOCITY. THE RATIO OF THE MAXIMUM VELOCITY TO THE AVERAGE VELOCITY IS THE SCREEN INDEX. FOR FIRST GENERATION JOHNSON INTAKE SCREENS THE SCREEN INDEX IS 1.4.

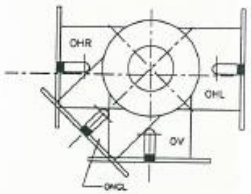
VELOCITIES PRESENTED ON THE GRAPH ARE THE LOCAL VELOCITY THROUGH THE SCREEN AS A RESULT OF WATER WITHDRAWAL.

IN THE ABSENCE OF FLOW BALANCING THE MAXIMUM VELOCITY THROUGH THE SCREEN CAN BE AS MUCH AS 12 TIMES THE AVERAGE. CLOGGING OF THE SCREEN IS CAUSED BY DEBRIS BEING FORCED AGAINST THE SCREEN BY THE INFLOWING WATER. TESTING HAS SHOWN THAT THE RATE OF SCREEN CLOGGING IS RELATED TO THE SQUARE OF THE MAXIMUM VELOCITY THROUGH THE SCREEN, I.E. IF THE MAXIMUM VELOCITY IS DOUBLED THEN THE TIME TO CLOG THE SCREEN IS 4 TIMES FASTER.

TABLE 1 - SCREEN CAPACITY AT 0.5 FEET PER SECOND MAXIMUM THROUGH SCREEN VELOCITY

SLOT	CAPACITY IN GPM	% OPEN AREA
0.020"	386	22
0.040"	633	36
0.060"	804	46
0.080"	929	53
0.094"	999	57
0.100"	1024	58
0.118"	1094	62
0.125"	1117	63
0.156"	1209	69
0.188"	1276	72
0.250"	1157	66
0.375"	1307	74

ORIENTATION LOOKING "UPSTREAM"



REQUIRED SLOT OPENING SIZE IN INCHES: ~~.125~~ .094
REQUIRED MATERIAL OF FABRICATION: 316L SST
DEBRIS DEFLECTORS X NONE __UPSTREAM __DOWNSTREAM
AIR BACKWASH _X_ YES ____ NO

NOTES:
1. SPECIFY SLOT OPENING SIZE
2. SPECIFY MATERIAL
3. SEE TABLE 1 FOR SCREEN CAPACITY FOR SELECTED SLOT
4. SEE GRAPH FOR VELOCITY PROFILE AND PROFILE DESCRIPTION

REV. NO.	REVISION	DATE	BY	APPR.

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2-PLACE DECIMALS +/- ALL SURF.
3-PLACE DECIMALS +/- ✓
ANGLES +/-
FRACTIONS +/-
BREAK ALL SHARP EDGES

Wheelabrator Engineered Systems Inc. — Water Process Division, Sturbridge, MA 01566

TITLE: ALLEGHENY LUDLUM STEEL INTAKE SCREEN S-2.
SCREEN MODEL T-16,12, F, A, 2,10,.125",316L,OV,N
APPROX WGT 135 POUNDS

APPR. BY	DRAWN BY	SCALE	DATE	SHEET NUMBER	DRAWING NUMBER	REV.
	D.LEBLANC		6/22/95		PA-482 S	