pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

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

Application Type	**Renewal**	Application No.	**PA0001902**
Facility Type	**Industrial**	APS ID	**322597**
Major / Minor	**Major**	Authorization ID	**326692**

Applicant and Facility Information

Applicant Name	**Jessop Steel Company**	Facility Name	**Washington Plant**
Applicant Address	100 River Road	Facility Address	500 Green Street
	Brackenridge, PA 15014-1537		Washington, PA 15301-2335
Applicant Contact	Deborah Calderazzo	Facility Contact	Deborah Calderazzo
Applicant Phone	(724) 226-5947	Facility Phone	(724) 226-5947
Client ID	109805	Site ID	241986
SIC Code	3312 & 3316	Municipality	Canton Township
SIC Description	Manufacturing - Blast Furnaces and Rolling Mills; Cold Rolled Steel, Strip and Plate	County	Washington
Date Application Received	March 30, 2000	EPA Waived?	No
Date Application Accepted	March 30, 2000	If No, Reason	Major Facility <250 MGD

Purpose of Application: Renewal of Major Industrial Waste Facility <250 MGD.

Summary of Review

History:

In 1999, the Department became aware that some of the Allegheny Ludlum Steel Mills were manufacturing both steel and titanium products. Steel and titanium manufacturing are regulated under two different Effluent Limit Guidelines (ELGs). Historically, ATI's NPDES permit was developed based only on steel manufacturing, therefore, the Department requested production data updates along with revisions to the permit renewal application to include titanium. On January 6, 1999, the facility submitted the requested additional information and revision to the permit renewal application outfall information along with new sampling data, which includes titanium. On March 24, 1999, the facility submitted additional application forms. On November 5, 1999, the Department received an additional submission which summarizes titanium activities associated with the subject facilities. The Jessop Steel Company (Jessop) submitted a renewal application of NPDES permit PA0001902, dated March 2000 for the Washington Plant. The facility submitted the Stormwater Sampling Plan to the Department on March 13, 2000. The renewal application was determined to be administratively complete on March 30, 2000. On June 27, 2000, the facility submitted the current Preparedness, Prevention and Contingency (PPC) Plan. The stormwater results were submitted to the Department on April 16, 2001. The Department received an additional update to production data, Module 1 – Stormwater and the GIF on December 8, 2020. Along with the renewal application and these additional submittals detailed above, the Department is also including the additional information, submitted in 1999, pertaining to titanium operations while developing the NPDES permit. On March 30, 2000, the facility submitted updated Stormwater Sampling Plan and MSDS data sheets. On April 16, 2001, the facility submitted Stormwater sample results. Updated Production Data for Effluent Limitation

Approve	Deny	Signatures	Date
X		Curtis Holes, P.E. / Environmental Engineering Specialist	March 31, 2025
X		Michael E. Fifth, P.E. / Environmental Engineer Manager	March 31, 2025

Summary of Review

Guidelines was submitted on September 20, 2020. Updated Monitoring Data for Industrial Wastewater Outfalls (111, 211, and 011) was submitted October 08, 2020.

Commented [MF1]: I think this paragraph should be merged with the first paragraph under your "History" section. It includes about half of the details pertaining to that section up to and including their most recent submissions.

A small quantity of titanium products are hot rolled at the Washington Plant at the 110' Mill. From January through August 1999, approximately 1,470 tons of titanium products were hot-rolled, which represents approximately 1.9% of the total quantity of material that was hot-rolled. There are no operational changes at the facility between processing steel and titanium. The facility does not draw or extrude nonferrous metals.

US EPA confirmed the Department's approach to account for the use of titanium at Allegheny Ludlum's Steel Mills. BAT calculations based on combined loads from 40 CFR 420 and 471 are appropriate; there are no categorical exemptions for a facility that conducts both titanium and iron and steel manufacturing that exclude accounting for the titanium manufacturing.

Review:

Jessop's Washington Plant operates as specialty metals manufacturing facility of stainless and tool steel plate and bar products. The plant is located in Canton Township, Washington County, Pennsylvania and is bounded to the north and west by Chartiers Creek, to the south by Findlay Refractory Company, and to the east by residential and commercial properties and U.S. Interstate 70. The plant has been located at this site since approximately 1901.

Commented [MF2]: U.S.?

Specific processes at the Washington Plant include hot rolling, annealing, pickling, and finishing of stainless-steel plates and tool steel plates and bars. Scarfing is not part of the process. Raw and ancillary materials used in these processes include primarily stainless and tool steel ingots and slabs, acids, coolants, and various oils. These materials are brought into the plant by trucks and stored at various locations throughout the plant. From the raw material storage areas, the stainless and tool steel ingots and slabs are transferred by forklifts to the 110" Mill Building where they are heated and hot rolled into plates. After hot rolling, stainless steel plates are annealed, shot blasted and pickled to remove scale, and finished by processes such as leveling, cutting, and grinding. After hot rolling, tool steel plates are ground, annealed and either finished as plate or sawed into bars and then finished. Similar to stainless steel, tool steel finishing operations may include leveling, cutting, etching and grinding. Wastes generated by these manufacturing operations include waste pickle liquor, steel scrap, baghouse dust, waste oil and waste coolant.

Except for steel ingots and slabs, the raw and ancillary materials utilized in Jessop's manufacturing processes are generally stored indoors, within tanks or containers, or otherwise covered and, therefore, should not normally be exposed to stormwater. Stainless and tool steel ingots and slabs are stored outdoors primarily in the scrap yard and along the roadway between the Plate Mill and Chartiers Creek. These areas/raw materials may be exposed to stormwater. Best management practices used by the Washington Plant to minimize the impact of these storage activities on storm water quality include good housekeeping practices and management of runoff.

Except for steel scrap, wastes generated by the plant's manufacturing processes are also generally stored within tanks or containers or otherwise covered and, therefore, should not normally be exposed to stormwater. Steel scrap (e.g., plate ends and side trim, tool steel grindings, and stainless and tool steel grinding swarf) are stored outdoors in the scrap yard and in the swarf bin located at the northern end of the Plate Mill Building. These areas/wastes may be exposed to stormwater. Best management practices used by the Washington Plant to minimize the impact of these storage activities on stormwater quality include good housekeeping practices, structural controls and management of runoff.

The Washington Plant also generates wastewater and air pollutant emissions. Wastewaters (e.g., Pickle Rinse Water and 110 Mill Process Water) are treated separately by the on-site wastewater treatment plants (WQM Part II permit numbers 436I10 for the pickling rinse, and 6375202 for hot rolling and quenching) and then either discharged to Chartiers Creek authorized by National Pollutant Discharge Elimination System (NPDES) Permit No. PA0001902 or recycled.

On August 28, 2019, the Department conducted a site inspection of the Washington Facility. Attendees of the site inspection from the Department were Curt Holes and Amanda Schmidt; Deborah Calderazzo, John Howlett, William McCaslin, Darrin Sebastian and Mitch (the WWTP operator) on behalf of the permittee. The facility confirmed that they were working on providing updated production data along with new outfall sampling data. No violations were identified during the inspection.

Summary of Review

Wastewater is generated by stainless steel plate combination acid (i.e., nitric, hydrofluoric, and sulfuric acids) pickling operations and the 110" Mill hot rolling operations. Both process wastewater streams are pumped to the WWTP, treated, and either discharged to Chartiers Creek in accordance with NPDES Permit No. PA0001902 or recycled. Raw materials/wastes present at the Wastewater Treatment Plant include the following:

- Pickle Rinsewater
- 110" Mill Process Water
- Wastewater Treatment Sludge
- Miscellaneous Wastewater Treatment Chemicals

Pickling Wastewater

Pickle rinse water is generated by hose rinsing plates which had previously been placed in one of the acid pickling solutions or by dipping the pickled plates into a water rinse tank which is periodically emptied. The rinse water flows into an acid proof sump from which it is pumped to the WWTP. A daily record is kept of the volume of liquid pumped to the WWTP. This information is to be used as confirmation of the integrity of the pumping and transfer system. Any inconsistencies between the volumes of liquid pumped and the volume of wastewater entering the treatment plant are identified and reported to the appropriate plant personnel so that an investigation to determine if there is a leak in the system may be initiated.

The sump area consists of a concrete basin lined with an acid proof mastic which is protected by a layer of acid proof brick. No leaks or spills are expected in this area. The sump is visually inspected monthly. In addition, the sump has been evaluated to verify that there are no interconnections with the plant's storm water management system.

The two 20,000-gallon batch tanks at the WWTP are rubber lined steel tanks. They are located indoors and all floor drains in the building lead to a sump from which the material is pumped back to one of the two tanks. An operator is assigned to the Water Treatment Plant on a continuous basis. The tanks are formally inspected daily to identify leaks or any conditions which might cause or contribute to an accidental release.

110' Mill Process Water

The 110' mill process water is generated by water sprays which cool the mill during hot rolling. This cooling water drains into a sump located beneath the mill and is pumped to the WWTP. This wastewater stream is filtered to remove oil and grease and then recycled back through the plant's cooling water system.

The sump is concrete, and no releases are expected in this area. The sump is visually inspected monthly and has been evaluated to verify that there are no interconnections with the plant's storm water management system.

Wastewater Treatment Sludge

Wastewater Treatment Sludge is generated during the treatment of Pickle Rinse Water and 110" Mill Process Water. Solids (e.g., scale and oil and grease) are settled out of both streams in lamella plate-type separators, pumped to a sludge surge tank, and dewatered using vacuum belt filters. From the vacuum filters the sludge is dropped onto the loading bay area floor prior to being scooped up and loaded into trucks for transfer off site and disposal. The sludge consists of primarily metal hydroxides and lime and is a hazardous waste. The typical quantity of WWTP Sludge accumulated on site is approximately 10 tons.

Since it is relatively inert and is stored indoors, the Wastewater Treatment Sludge does not have a high potential for impacting the environment or human health and safety through accidental releases. However, due to its proximity to the loading bay area door, it may occasionally be exposed to stormwater. Stormwater may be blown into the loading bay door and leach through the sludge pile. Any stormwater runoff from the sludge pile could contain significant concentrations of heavy metals and, therefore, could adversely impact stormwater quality. To minimize this potential the loading bay is equipped with a temporary containment structure to keep the sludge within the doorway and the garage door is kept closed during storm events except during loading operations. In addition, WWTP Operators are instructed to promptly clean up all spills of sludge which may occur during loading operations.

Miscellaneous Wastewater Treatment Chemicals

A minimum number (approx. 6) of sulfuric acid carboys are also stored at the WWTP for use during the treatment process. In general, the sulfuric acid carboys do not have a high potential for impacting the environment or human health and safety

Summary of Review

through accidental releases. Spills or leaks from the carboys would be limited to the volume of a carboy and would be captured by the WWTP Building floor drains. All floor drains in this building are acid proof and drain into a sump which is pumped into one of the rubber lined treatment tanks. Since the carboys are stored indoors, they are not normally exposed to stormwater.

A lime slurry tank is also present at the WWTP. The slurry is pumped from the storage tank to a mix tank to neutralize the incoming Pickle Rinse Water and to precipitate heavy metals. Spills/leaks from the slurry tank and associated piping would also be captured/contained by the WWTP building floor drains. Dry Lime spills will be promptly shoveled back into the slurry tank.

The facility has two (2) Internal monitoring points (IMP111 and IMP211) which monitor the industrial wastewaters prior to the wastewater treatment systems, which ultimately recycle the treated wastewaters or discharges to the Chartiers Creek.

The applicant has complied with Act 14.

A PPC Plan was submitted to the Department.

Residual waste disposal must meet solid waste regulations.

Part C language in the draft permit provides controls on floating solids, stormwater outfalls, chemical additives, residual solids.

The Washington Plant has no open violations.

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

Public Participation

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

Compliance History

DMR Data for Outfall 001 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.1	7.1	7.6
TSS (mg/L) Annual Average	**M&R**	10	**110**	51
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	< 0.04	< 0.04
Total Iron (mg/L) Annual Average	**M&R**	0.7	5.8	1.7
Total Nickel (mg/L) Annual Average	**M&R**	< 0.04	< 0.04	< 0.04
Total Zinc (mg/L) Annual Average	**M&R**	0.04	0.09	< 0.04

DMR Data for Outfall 002 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.8	7.3	8.4
TSS (mg/L) Annual Average	**M&R**	26	**210**	46
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.1	0.2	0.1
Total Iron (mg/L) Annual Average	**M&R**	3	1	5.7
Total Nickel (mg/L) Annual Average	**M&R**	0.15	0.39	0.2
Total Zinc (mg/L) Annual Average	**M&R**	0.1	0.1	0.08

DMR Data for Outfall 003 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.6	8.5	7.0
TSS (mg/L) Annual Average	**M&R**	50	9	6
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.15	< 0.04	< 0.04
Total Iron (mg/L) Annual Average	**M&R**	11	1	0.8
Total Nickel (mg/L) Annual Average	**M&R**	0.2	0.08	0.05
Total Zinc (mg/L) Annual Average	**M&R**	0.3	0.1	0.1

DMR Data for Outfall 004 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	6.9	8.1	7.8
TSS (mg/L) Annual Average	**M&R**	68	**149**	**179**
Oil and Grease (mg/L) Annual Average	**M&R**	7.8	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.2	0.06	0.19
Total Iron (mg/L) Annual Average	**M&R**	1.7	5	7
Total Nickel (mg/L) Annual Average	**M&R**	0.7	0.15	0.3
Total Zinc (mg/L) Annual Average	**M&R**	0.3	0.07	0.1

DMR Data for Outfall 005 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.3	6.4	8.2
TSS (mg/L) Annual Average	**M&R**	32	11	13
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	< 0.04	< 0.04
Total Iron (mg/L) Annual Average	**M&R**	1.6	0.78	1
Total Nickel (mg/L) Annual Average	**M&R**	0.2	0.1	0.1
Total Zinc (mg/L) Annual Average	**M&R**	0.06	0.1	0.1

DMR Data for Outfall 006 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	8.0	7.6	8.4
TSS (mg/L) Annual Average	**M&R**	67	62	27
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.19	0.08	0.16
Total Iron (mg/L) Annual Average	**M&R**	12.7	4	7.6
Total Nickel (mg/L) Annual Average	**M&R**	0.4	0.1	0.2
Total Zinc (mg/L) Annual Average	**M&R**	0.28	0.1	0.09

DMR Data for Outfall 007 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.7	8.1	7.3
TSS (mg/L) Annual Average	**M&R**	< 4	27	9
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	0.05	0.06
Total Iron (mg/L) Annual Average	**M&R**	0.1	1.6	1.6
Total Nickel (mg/L) Annual Average	**M&R**	< 0.04	0.1	0.26
Total Zinc (mg/L) Annual Average	**M&R**	0.07	< 0.04	< 0.04

DMR Data for Outfall 009 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.3	7.4	8.8
TSS (mg/L) Annual Average	**M&R**	**216**	55	69
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.2	0.07	0.1
Total Iron (mg/L) Annual Average	**M&R**	18.6	3	4
Total Nickel (mg/L) Annual Average	**M&R**	0.75	0.1	0.25
Total Zinc (mg/L) Annual Average	**M&R**	0.35	0.1	0.1

DMR Data for Outfall 010 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.5	6.3	8.4
TSS (mg/L) Annual Average	**M&R**	14	89	84
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	0.1	0.05
Total Iron (mg/L) Annual Average	**M&R**	0.66	6	2.8
Total Nickel (mg/L) Annual Average	**M&R**	0.08	0.48	0.1
Total Zinc (mg/L) Annual Average	**M&R**	0.07	0.1	0.06

DMR Data for Outfall 011 (from October 1, 2023 to September 30, 2024)

Parameter	Limit	SEP-24	AUG-24	JULY-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23
Flow (MGD) Average Monthly	**M&R**	0.09	0.07	0.07	0.079	0.067	0.076	0.07	0.060	0.0588	0.107	0.11	0.118
Flow (MGD) Daily Maximum	**M&R**	0.12	0.10	0.10	0.117	0.106	0.14	0.09	0.094	0.0905	0.188	0.14	0.14
pH (S.U.) Minimum	**6.0**	7.9	7.7	7.9	8.0	7.9	7.9	7.8	7.7	7.7	7.5	7.6	7.6
pH (S.U.) Maximum	**10.0**	8.2	8.1	8.2	8.1	8.1	8.2	7.8	7.9	7.9	7.8	7.8	8.2
Temperature (ºF) Instantaneous Maximum	**110.0**	83	85	86	89	80	76	72	72	66	70	78	76
TSS (mg/L) Average Monthly	**30.0**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
TSS (mg/L) Daily Maximum	**50.0**	< 4	< 4	4.5	5.5	< 4	< 4	< 4	5	< 4	< 4	4	4.5
Oil and Grease (mg/L) Average Monthly	**15.0**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Oil and Grease (mg/L) Instantaneous Maximum	**30.0**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Total Chromium (mg/L) Average Monthly	**0.40**	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total Chromium (mg/L) Daily Maximum	**0.80**	< 0.04	< 0.04	0.18	0.06	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Total Copper (mg/L) Average Monthly	**0.04**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.026	< 0.01
Total Copper (mg/L) Daily Maximum	**0.06**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	< 0.01	< 0.01	0.01	< 0.01	0.05	0.02
Total Lead (mg/L) Average Monthly	**0.01**	< 0.001	< 0.001	0.001	0.001	< 0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Total Lead (mg/L) Daily Maximum	**0.02**	< 0.001	< 0.001	0.001	0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Total Nickel (mg/L) Average Monthly	**0.40**	0.10	0.08	0.001	0.09	0.09	0.12	0.20	0.12	0.08	0.14	0.23	0.11
Total Nickel (mg/L) Daily Maximum	**0.80**	0.13	0.11	0.06	0.10	0.10	0.21	0.33	0.15	0.12	0.18	0.38	0.15

DMR Data for Outfall 013 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.2	6.5	7.2
TSS (mg/L) Annual Average	**M&R**	19	20	8
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	< 0.04	< 0.04
Total Iron (mg/L) Annual Average	**M&R**	1	3.7	1
Total Nickel (mg/L) Annual Average	**M&R**	0.09	< 0.04	0.06
Total Zinc (mg/L) Annual Average	**M&R**	0.09	< 0.04	0.05

DMR Data for Outfall 014 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7.1	7.5	7.9
TSS (mg/L) Annual Average	**M&R**	47	66	**163**
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	< 0.04	0.1	0.06
Total Iron (mg/L) Annual Average	**M&R**	0.89	4	6
Total Nickel (mg/L) Annual Average	**M&R**	0.16	0.48	0.2
Total Zinc (mg/L) Annual Average	**M&R**	0.09	0.2	0.07

DMR Data for Outfall 015 (from December 1, 2018 to December 31, 2023)

Parameter	Limit	DEC-23	DEC-19	DEC-18
pH (S.U.) Maximum	**M&R**	7	7.3	7.3
TSS (mg/L) Annual Average	**M&R**	25	60	**121**
Oil and Grease (mg/L) Annual Average	**M&R**	< 5	< 5	< 5
Total Chromium (mg/L) Annual Average	**M&R**	0.05	0.09	< 0.04
Total Iron (mg/L) Annual Average	**M&R**	2	2.6	6
Total Nickel (mg/L) Annual Average	**M&R**	0.05	0.09	< 0.04
Total Zinc (mg/L) Annual Average	**M&R**	< 0.04	0.1	0.06

DMR Data for Outfall 111 (from October 1, 2023 to September 30, 2024)

Parameter	Limit	SEP-24	AUG-24	JULY-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23
Flow (MGD) Average Monthly	**M&R**	0.09	0.06	0.07	0.06	0.06	0.07	0.06	0.05	0.05	0.10	0.11	0.118
Flow (MGD) Daily Maximum	**M&R**	0.12	0.09	0.098	0.1	0.10	0.13	0.08	0.08	0.08	0.17	0.13	0.13
pH (S.U.) Minimum	**6.0**	7.8	7.8	7.8	7.8	7.8	7.7	7.6	7.5	7.5	7.4	7.5	7.6
pH (S.U.) Maximum	**9.0**	8.2	8.2	8.3	7.9	8.0	8.0	7.8	8.0	7.7	7.7	8.0	7.9
Temperature (ºF) Instantaneous Maximum	**110.0**	83	88	87	87	81	76	73	71	69	71	80	78
TSS (lbs/day) Average Monthly	**39.0**	< 3	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 3	< 3	< 4	< 3
TSS (lbs/day) Daily Maximum	**105.0**	< 3	< 3	< 3	< 3	< 3	< 4	< 4	5.5	< 4	< 4.4	< 4	< 4
TSS (mg/L) Average Monthly	**M&R**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
TSS (mg/L) Instantaneous Maximum	**40.0**	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Oil and Grease (lbs/day) Daily Maximum	**26.0**	< 4	< 3	< 3	< 3	< 3	< 5	< 5	< 5.5	< 4	< 5.5	< 6	< 4
Oil and Grease (mg/L) Average Monthly	**M&R**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Oil and Grease (mg/L) Instantaneous Maximum	**10.0**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

DMR Data for Outfall 211 (from October 1, 2023 to September 30, 2024)

Parameter	Limit	SEP-24	AUG-24	JULY-24	JUN-24	MAY-24	APR-24	MAR-24	FEB-24	JAN-24	DEC-23	NOV-23	OCT-23
Flow (MGD) Average Monthly	**M&R**	0.005	0.006	0.0056	0.008	0.005	0.008	0.01	0.007	0.0079	0.007	0.006	0.005
Flow (MGD) Daily Max	**M&R**	0.006	0.009	0.00675	0.015	0.007	0.0135	0.016	0.012	0.013	0.016	0.0075	0.008
pH (S.U.) Min	**6.0**	9.1	9.2	9.1	9.3	8.6	8.5	9.2	9.1	9.0	9.0	8.7	8.7
pH (S.U.) Max	**10.0**	9.9	9.7	9.3	9.5	9.3	9.5	9.6	9.7	9.4	9.3	9.2	9.7
TSS (lbs/day) Average Monthly	**24.0**	< 0.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TSS (lbs/day) Daily Max	**56.0**	< 0.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2.3
TSS (mg/L) Average Monthly	**M&R**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 8
TSS (mg/L) IMAX	**70.0**	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Oil and Grease (lbs/day) Average Monthly	**4.0**	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1
Oil and Grease (lbs/day) Daily Max	**12.0**	< 0.5	< 0.5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Oil and Grease (mg/L) Average Monthly	**M&R**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Oil and Grease (mg/L) IMAX	**30.0**	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Total Chromium (lbs/day) Average Monthly	**0.30**	< 0.01	< 0.01	<0.01	0.01	< 0.01	0.01	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total Chromium (lbs/day) Daily Max	**0.80**	< 0.01	< 0.01	<0.01	0.01	< 0.01	0.025	0.016	< 0.01	< 0.01	0.01	< 0.01	0.03
Total Chromium (mg/L) Average Monthly	**M&R**	0.08	0.1	0.1	0.16	< 0.04	0.1	0.08	0.08	< 0.06	0.08	0.1	0.15
Total Chromium (mg/L) IMAX	**0.80**	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
Total Nickel (lbs/day) Average Monthly	**0.20**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03	0.02	< 0.01	< 0.01	0.02	< 0.07	0.02
Total Nickel (lbs/day) Daily Max	**0.70**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.1	0.03	< 0.01	0.01	0.04	0.1	0.06
Total Nickel (mg/L) Average Monthly	**M&R**	< 0.05	< 0.05	0.07	0.08	< 0.04	0.39	0.1	< 0.08	0.08	0.3	0.3	0.4
Total Nickel (mg/L) IMAX	**1.0**	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG

Discharge, Receiving Waters and Water Supply Information

Outfall No.	011	Design Flow (MGD)	0.086
Latitude	40º 10' 26"	Longitude	-80º 16' 34"
Quad Name	Washington West	Quad Code	1703
Wastewater Description:	Discharge from Equalization Tank that receives both treated NCCW from hot-rolled process IMP 111 and treated pickling rinse water from IMP 211.		

Receiving Waters	Chartiers Creek	Stream Code	36777
NHD Com ID	99694612	RMI	42.4
Drainage Area	18.2 miles^2	Yield (cfs/mi^2)	0.1751
Q_{7-10} Flow (cfs)	3.187	Q_{7-10} Basis	USGS Stream Gage 3085500
Elevation (ft)	1011	Slope (ft/ft)	
Watershed No.	20-F	Chapter 93 Class.	WWF
Assessed Use		Existing Use Qualifier	
Exceptions to Use		Exceptions to Criteria	
Assessment Status	Impaired		
Cause(s) of Impairment	Chlordane, Polychlorinated Biphenyls (PCBs), Pesticides, Organics		
Source(s) of Impairment			
TMDL Status	Final April 9, 2001	Name	Chartiers/Little Chartiers Creek TMDL

Nearest Downstream Public Water Supply Intake	West View Water Authority (40 MGD)		
PWS Waters	Ohio River	Flow at Intake (cfs)	4,730
PWS RMI	35.2	Distance from Outfall (mi)	Approximately 45 miles

Changes Since Last Permit Issuance: None

Other Comments: None

Outfall 011 Drainage Basin

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	111	Design Flow (MGD)	0.076
Latitude		Longitude	
Quad Name	Washington West	Quad Code	1703
Wastewater Description:	Rolling Mill, Specialty Plate Mill Contact Cooling Water, Annealing Quench Water, Boiler and Cooling Tower Blowdown, and Noncontact Cooling Water.		
Receiving Waters	Chartiers Creek	Stream Code	36777

Changes Since Last Permit Issuance: None

Other Comments: None

Discharge, Receiving Waters and Water Supply Information			
Outfall No.	211	Design Flow (MGD)	0.011
Latitude		Longitude	
Quad Name	Washington West	Quad Code	1703
Wastewater Description:	Treated Pickling Rinse waters and Spent Pickle Liquors.		
Receiving Waters	Chartiers Creek	Stream Code	36777

Changes Since Last Permit Issuance: None

Other Comments: None

Stormwater Outfalls

Outfall 002 Lat. 40° 10′ 40″ Long. -80° 16′ 25″ RMI 41.01 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from paved traffic area on the southeast side, plates storage area.

Outfall 003 Lat. 40° 10′ 38″ Long. -80° 16′ 32″ RMI 42.13 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from traffic areas, roof areas from the northern portion of the mill buildings.

Outfall 004 Lat. 40° 10′ 39″ Long. -80° 16′ 31″ RMI 42.1 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from traffic area on the east side of the shipping department, portion of the shipping building roof, unpaved traffic area.

Outfall 005 Lat. 40° 10′ 35″ Long. -80° 16′ 33″ RMI 42.17 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from several facility roof areas at the east end of the Facility.

Outfall 006 Lat. 40° 10′ 43″ Long. -80° 16′ 28″ RMI 42.0 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from a small area of the shipping department roof.

Outfall 007 Lat. 40° 10′ 34″ Long. -80° 16′ 34″ RMI 42.19 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from portion of the Plate Mill roof and small portion of the yard south of the building.

Outfall 009 Lat. 40° 10′ 40″ Long. -80° 16′ 25″ RMI 41.02 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from roof areas of the Specialties Building and traffic areas around the building.

Outfall 010 Lat. 40° 10′ 33″ Long. -80° 16′ 34″ RMI 42.25 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from roof areas of the Bar Mill Building, Storeroom and Machine Shop, along with open areas between these buildings.

Outfall 013 Lat. 40° 10′ 32″ Long. -80° 16′ 34″ RMI 42.26 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from roof areas of the Bar Mill Building, Storeroom and Machine Shop, along with open areas between these buildings.

Outfall 014 Lat. 40° 10′ 29″ Long. -80° 16′ 34″ RMI 42.3 Stream Chartiers Creek
Source and Characteristics: Stormwater runoff from roof areas of the Bar Mill Building and open areas between these buildings.

Development of Effluent Limitations

Outfall No.	111 (IMP)	**Design Flow (MGD)**	0.0767
Latitude		**Longitude**	
Wastewater Description:	Rolling Mill, Specialty Plate Mill Contact Cooling Water, Annealing Quench Water, Boiler and Cooling Tower Blowdown, and Noncontact Cooling Water.		

Technology-Based Limitations

IMP 111 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 ELGs provide effluent limitations representing the degree of effluent reduction attainable by the application of Best Practicable Control Technology (BPT) currently available.

The Rolling Mill industrial activities are subject to 420.72(a)(1) – Primary Mill, Specialty without Scarfing, 420.72(c)(3) – Flat Mills, Specialty Plate Mills, and 471.61(b) – Titanium Rolling Contact Water.

On October 9, 2020, the permittee provided updated production values, covering the last five years. The average annual production over that period was divided by the average number of production days over that same period to calculate the average production rate in $^{lbs}/_{day}$.

The waste streams of the Iron & Steel and Titanium activities are conducted on the same production lines and are combined prior to treatment. To account for this the Combined Waste Formula (CWF) - Alternative Mass Limit Formula was used to calculate an Alternative Mass-Bass Limit for the titanium parameters that accounts for the Iron & Steel activities contribution to their concentrations in the wastewater. The formula accounts for regulated and unregulated flows when calculating the Mass-Based Limitation using the Titanium Mass-Based (lbs./day) ELG production factor. The total flow minus any dilute flow is divided by the regulated flow and then multiplied by the Titanium ELG production factor to give the Alternative Mass-Based Limitation for the parameter.

The ELG calculations are contained in Attachment D and the CWF calculations are in Attachment E. A summary of the CWF adjusted ELG effluent limitations is below in Table 1.

Table 1. CWF Adjusted ELG Effluent Limitations Summary for Outfall 111

	Cumulative Mass-Bass Limits (lbs./day)		Cumulative Concentration-Bass Limits (mg/L)	
Pollutant	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Cyanide	1.17	2.79	0.751	1.795
Lead	1.94	4.08	1.252	2.629
Zinc	5.93	14.18	3.822	9.144
Ammonia	284.47	647.53	366.771	834.852
Fluoride	128.31	289.45	165.432	373.183
O&G	57.69	289.32	74.380*****	373.021
TSS	383.98	971.58	495.066	1252.654
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

***** The Iron & Steel ELGs (420.72(a)(1) – Primary Mill, Specialty without Scarfing, 420.72(c)(3) – Flat Mills, Specialty Plate Mills) only calculate a Daily Maximum Effluent Limitation.

CWF: Alternative Mass Limit Formula

$$M_T = \sum_{i=1}^{N} M_i \times \left(\frac{(F_T - F_D)}{\sum_{i=1}^{N} F_i} \right)$$

Solving for Titanium Alternative Mass Limit:

Where:

$\mathbf{M_T}$ = Alternative CWF Mass Limit
$\mathbf{M_i}$ = Categorical Mass Limit for Regulated Stream "i" multiplied by appropriate measure of production, **57.691** $^{\mathbf{lbs}}/_{\mathbf{day}}$

$\mathbf{F_i}$ = Average Daily Flow for Regulated Stream "i", **0.093 MGD**

$\mathbf{F_T}$ = Average Daily Flow through combined treatment facility (Total Flow)

$\mathbf{F_T}$ = I&S Flow + Titanium Flow + Dilute Flow

$\mathbf{F_T}$ = (0.093 MGD) + (0.093 MGD) + (0.022 MGD) = **0.208 MGD**

$\mathbf{F_D}$ = Average Daily Flow of "Dilute" Streams, **0.022 MGD**

Sample Calculations for Cyanide Average Monthly
Cyanide M_T (lbs/day) = (0.583 lbs./day) * [(0093 MGD + 0.093 MGD) / 0.0.093 MGD]
Cyanide M_T = 1.166 lbs./day

Cyanide Cumulative Limit = Cyanide M_T + I&S Average Monthly
Cyanide Cumulative Limit = 1.166 lbs./day + 0.0 lbs./day
Cyanide Cumulative Limit = 1.17 lbs./day

Cyanide Cumulative Average Monthly Concentration-Bass Limits
= (I&S Average Monthly Concentration) + (CWF Titanium Average Monthly Concentration)
= (I&S Mass Limit lbs/day)/(Flow MGD*8.34)+(CWF Mass Limit lbs./day)/(Flow MGD*8.34)
= [(0.0 lbs/day)/(0.093 MGD*8.34)]+[(1.7 lbs/day)/((0.093 + 0.093 MGD)*8.34)]
Cyanide I&S Average Monthly Concentration Limit mg/L = 0.751 mg/L

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 95.2 is 6.0 – 9.0 S.U.

The Oil and Grease effluent limitations of 15 $^{mg}/_{L}$ Monthly Average and 30 $^{mg}/_{L}$ Instantaneous Maximum pursuant of 25 Pa. Code § 95.2(2)(ii).

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

Total Suspended Solids effluent standard that are applicable to Industrial Wastewater Discharges are 30 $^{mg}/_{L}$ Monthly Average and 60 $^{mg}/_{L}$.

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used as the basis for the existing mass loading. The facility is not new or expanding waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Water Quality Based Effluent Limitations

IMP 111 flows to Outfall 011 before discharging to the Chartiers Creek. Water quality-based effluent limitations will be evaluated at Outfall 011. The TBELs will be evaluated to determine if they are sufficiently protective of water quality. The daily maximum TBELs were used for the maximum discharge concentration in the water quality assessment using the TMS model.

Toxics Management Analysis

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

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

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

2. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 111 are evaluated based on concentrations reported on the application and the developed TBELs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 2 below.

Table 2. TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Jessop Steel
Evaluation Type	Industrial
NPDES Permit No.	PA0001902
Wastewater Description	Treated Industrial Wastewater
Outfall ID	111
Design Flow (MGD)	0.0767
Hardness ($^{mg}/_{L}$)	291
pH (S.U.)	8.0
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
$Q_{7\text{-}10}$ (min)	
Q_h (min)	

Stream Inputs	
Receiving Surface Water	Chartiers Creek
Number of Reaches to Model	1
Stream Code	036777
RMI	42.4
Elevation (ft)	1011/1010*
Drainage Area (mi^2)	18.2/18.4*
Slope (ft/ft)	
PWS Withdrawal (MGD)	
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	3.187/3.187*
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	
Stream pH (S.U.)	

***** Denotes discharge location/downstream location values.

Table 3 below is a summary of the recommendations of the TMS at Outfall 111. Analysis Report from the TMS run is included in Attachment B.

Table 3: TMS Model WQBELs

Parameter	Mass Load (lbs/day)		Concentration Limit ($^{mg}/_{L}$)	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Lead	0.062	0.096	0.096	0.150
Total Thallium[1]	Report	Report	Report	Report
Total Zinc	1.45	2.26	2.26	3.53

1) Total Thallium was reported to be “non-detect” above the Department’s Target QLs. The Department will allow the facility the opportunity to resample this parameter during the 30-day Draft permit comment period. If the new analytical results verify that the thallium is not present in Jessop’s wastewater discharge at the Department’s minimum quantitation limit, effluent limitations and/or monitoring requirements for this pollutant may be removed from the Final permit.

Thermal WQBELs for Heated Discharges (Non-Contact Cooling Water)

Thermal WQBELs are evaluated using the Department’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 accounts for two scenarios 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 modeling program generates monthly and semi-monthly limits for each use. The Department selects the output that corresponds to the aquatic life-use of the receiving stream and consequently the limits that apply to the discharge. Temperature WLAs are bounded by an upper limit of 110°F (as discussed in Technology-Based Limitations) 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.

The Department’s *Implementation Guidance for Temperature Criteria* directs permit writers to assume instantaneous complete mixing of the discharge with the receiving stream when calculating thermal effluent limits unless adverse factors exist. One such factor listed in the guidance is that the "discharge is to a receiving water that is very wide, resulting in restricted dispersion of the plume, and horizontal stratification of the plume." Since wastewaters from Outfall 111 will be discharged to the Chartiers Creek, the dispersion of the discharge plume is assumed to be instantaneous.

Discharges from Outfall 111 are classified under Case 2 because the facility's cooling water is obtained from a groundwater well. The flow rates used for modeling are 0.022 MGD, which is the monthly average flow of the facility's heated effluent sources (NCCW) and 3.187 cfs, which is the Q_{7-10} from stream gauge 03085500 – Chartiers Creek at Carnegie, Pa. The results of the thermal analysis, included in Attachment C, indicate that 110.0°F provides adequate protection to the environment at Outfall 111 as summarized below in Table 4.

Table 4: Outfall 111 WQBELs for Temperature

Date	WWF Daily WLA (°F)
Jan 1-31	110.0
Feb 1-29	110.0
Mar 1-31	110.0
Apr 1-15	110.0
Apr 16-30	110.0
May 1-15	110.0
May 16-30	110.0
Jun 1-15	110.0
Jun 16-30	110.0
Jul 1-31	110.0
Aug 1-15	110.0
Aug 16-31	110.0
Sep 1-15	110.0
Sep 16-30	110.0
Oct 1-15	110.0
Oct 16-31	110.0
Nov 1-15	110.0
Nov 16-30	110.0
Dec 1-31	110.0

WQM 7.0 Model

WQM 7.0 for Windows determines wasteload allocations and effluent limitations for dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) for single and multiple point source discharge scenarios. To accomplish this, the model simulates two basic processes (NH_3-N and DO modules). In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of $DBOD_5$ and NH_3-N, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.1 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

In addition to flow and load mixing, WQM 7.1 also models deoxygenation, reaeration, and nitrification in calculating instream NH_3-N, $CBOD_5$, and DO concentrations. Temperature effects in these processes are considered and two (2) models (Summary and Winter) are run. These models are setup to reflect the varying stream and discharge temperatures.

Discharges from Outfall 111 are evaluated based on the initial default values and TBELs (Discharge Temperature, $CBOD_5$, DO, NH_3-N, and Stream Temperature). The WQM 7.1 model is run with the discharge and receiving stream characteristics shown in Table 5.

Table 5. WQM 7.1 Inputs

		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index	42.4 / 42.0*	Area (mi^2)	18.2 / 18.6*
Discharge Flow (MGD)	0.0767	Q_{7-10} (cfs)	3.19
Discharge Temp.		Low-flow yield (cfs/mi^2)	
Summer (°C)	20.0	Elevation (ft)	1011 / 1009*
Winter (°C)	15.0	Slope	
$CBOD_5$ ($^{mg}/_{L}$)	25.0	Stream Temp. (WWF)	
DO ($^{mg}/_{L}$)	4.0	Summer Temp. (°C)	25.0
NH_3-N ($^{mg}/_{L}$)	835.0	Winter Temp. (°C)	5.0

* Indicates Upstream and Downstream values

WQM 7.1 modeling recommends effluent limits as summarized below in Table 6. Analysis Report from the WQM 7.1 model runs are included in Attachment F.

Table 6. WQM 7.1 Effluent Limitations

Parameter	Average Monthly	Daily Maximum
CBOD5 ($^{mg}/_{L}$)	25.0	-
DO ($^{mg}/_{L}$)	3.0 (minimum)	-
NH_3-N ($^{mg}/_{L}$)	70.21	140.42

Anti-Backsliding

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

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits of IMP111.

The current effluent limitations at Outfall 111 are summarized in Table 7.

Table 7: Current Effluent limits and Monitoring Requirements for IMP 111

Parameter	Mass Loading ($^{lbs.}/_{day}$)		Concentration ($^{mg}/_{L}$)		
	Average Monthly	Daily Maximum	Daily Minimum	Daily Maximum	Instant Maximum
Flow (MGD)	Report	Report	-	-	
TSS	39	105	-	-	40.0
Oil & Grease	-	26	-	-	10.0
Temperature (°F)	-	-	-	-	110.0
pH	-	-	6	-	9

Commented [MF3]: You should include two tables here. One should summarize the current effluent limits and the second should summarize the proposed effluent limits.

Effluent Limitations and Monitoring Requirements for Outfall 111

Effluent limits applicable at Outfall 111 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 8.

Table 8: Proposed Effluent limits and Monitoring Requirements for IMP 111

Parameter	Mass Loading ($^{lbs.}/_{day}$)		Concentration ($^{mg}/_{L}$)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	-	-		25 Pa. Code § 92a.61(d)(1)
TSS	384.0	972.0	30.0	60.0	60.0	25 Pa. Code § 92a.47(a)(1)
Oil & Grease	58.0	289.0	15.0	30.0	30.0	25 Pa. Code § 95.2(2)(ii)
Cyanide	1.17	2.79	0.75	1.8	1.88	40 CFR § 471
Lead	0.062	0.096	0.096	0.150	0.24	25 Pa. Code § 93.7
Zinc	1.45	2.26	2.26	3.53	5.65	25 Pa. Code § 93.7
Ammonia-N	284.0	648.0	70.2	140.4	175.5	25 Pa. Code § 93.7
Fluoride	128.3	289.5	165.4	373.2	413.5	40 CFR § 471
Temperature (°F)	-	-	-	-	110.0	25 Pa. Code § 93.7
pH (S.U.)	-	-	6.0 (Instant Minimum)	-	9.0	25 Pa. Code § 95.2
Total Thallium	-	-	Report	Report	-	25 Pa. Code § 93.7

Monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 9 below.

Table 9: Monitoring Requirements for IMP 111

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Measured	1/Week
TSS	24-Hr Composite	1/Week
Oil & Grease	Grab	1/Week
Cyanide	24-Hr Composite	1/Week
Lead	24-Hr Composite	1/Week
Zinc	24-Hr Composite	1/Week
Ammonia-N	24-Hr Composite	1/Week
Fluoride	24-Hr Composite	1/Week
Temperature	I-S	1/Week
pH (S.U.)	Grab	1/Week
Total Thallium	24-Hr Composite	1/Week

Commented [MF4]: You should include two tables here. One should summarize the current effluent limits and the second should summarize the proposed effluent limits.

Commented [MF5]: Should TSS and O&G be rounded to account for significant figures? TSS includes 0.02lbs sensitivity out of 384 lbs. If you change anything, please update permit and WMS.

Commented [CH7R6]: I modeled IMP111 as it was discharging at Outfall 011 without dilution of IMP211.

Commented [MF6]: It doesn't look like these Tech limits were modeled @ 011but the FS says they would be. The 011 model for instance uses 0.2 as the fluoride level. But, 211 also has a limit of 94 mg/L so the flow weighted average is still significant?

Development of Effluent Limitations

Outfall No. 211 (IMP) **Design Flow (MGD)** 0.01086
Latitude **Longitude**
Wastewater Description: Treated Pickling Rinse waters and Spent Pickle Liquors.

Technology-Based Limitations

IMP 211 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 pickling industrial activities are subject to 420.92(c)(4) – Strip, Sheet, and Plate Picking-Batch, 471.62(m) – Non-Ferrous Surface Treatment Spent Batch, and 471.62(n) – Non-Ferrous Surface Treatment Rinsewater.

On October 9, 2020, the permittee provided updated production values, covering the last five years. The average annual production over that period was divided by the average number of production days over that same period to calculate the average production rate in $^{lbs}/_{day}$.

The waste streams of the Iron & Steel and Titanium activities are conducted on the same production lines and are combined prior to treatment. To account for this the Combined Waste Formula (CWF): Alternative Mass Limit Formula was used to calculate an Alternative Mass-Bass Limit for the titanium parameters that accounts for the Iron & Steel activities contribution to their concentrations in the wastewater. The formula accounts for regulated and unregulated flows when calculating the Mass-Based Limitation using the Titanium Mass-Based (lbs./day) ELG production factor. The total flow minus any dilute flow is divided by the regulated flow and then multiplied by the Titanium ELG production factor to give the Alternative Mass-Based Limitation for the parameter.

The ELG calculations are contained in Attachment D and the CWF calculations are in Attachment E. A summary of the CWF adjusted ELG effluent limitations is below in Table 10.

Table 10. CWF Adjusted ELG Effluent Limitations Summary for Outfall 211

	Cumulative Mass-Bass Limits (lbs./day)		Cumulative Concentration-Bass Limits (mg/L)	
Pollutant	**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Cyanide	0.42	1.02	0.482	1.164
Lead	0.70	1.48	0.803	1.690
Zinc	2.14	5.14	2.446	5.865
Ammonia	182.22	414.48	207.871	534.382
Fluoride	82.15	185.41	93.712	239.042
TSS	54.89	127.71	543.479	1264.488
Chromium	0.73	1.83	7.228	18.119
Nickel	0.55	1.65	5.446	16.337
pH	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Below are the sample calculations using the CWF – Alternative Mass Limit Formula for calculating Cyanide average monthly mass and concentration effluent limitations.

CWF: Alternative Mass Limit Formula

$$M_T = \sum_{i=1}^{N} M_i \times \left(\frac{(F_T - F_D)}{\sum_{i=1}^{N} F_i} \right)$$

Solving for Titanium Alternative Mass Limit:

Where:

M_T = Alternative CWF Mass Limit
M_i = Categorical Mass Limit for Regulated Stream "i" multiplied by appropriate measure of production, **0.374 $^{lbs}/_{day}$**

F_i = Average Daily Flow for Regulated Stream "i", **0.093 MGD**

F_T = Average Daily Flow through combined treatment facility (Total Flow)

F_T = I&S Flow + Titanium Flow + Dilute Flow

F_T = (0.01211 MGD) + (0.093 MGD) + (0.0 MGD) = **0.10511 MGD**

F_D = Average Daily Flow of "Dilute" Streams, **0.0 MGD**

Sample Calculations for Cyanide Average Monthly

Cyanide M_T (lbs/day) = (0.374 lbs./day) * [(0.10511 MGD - 0.0 MGD)/ 0.093 MGD]

Cyanide M_T = 0.423 lbs./day

Cyanide Cumulative Limit = Cyanide M_T + I&S Average Monthly

Cyanide Cumulative Limit = 0.423 lbs./day + 0.0 lbs./day

Cyanide Cumulative Limit = 0.423 lbs./day

Cyanide Cumulative Average Monthly Concentration-Bass Limits

= (I&S Average Monthly Concentration) + (CWF Titanium Average Monthly Concentration)

= (I&S Mass Limit lbs/day) / (Flow MGD * 8.34) +(CWF Mass Limit lbs./day) / (Flow MGD*8.34)

= [(0.0 lbs/day) / (0.01211 MGD * 8.34)] + [(0.423 lbs/day) / ((0.01211 + 0.093 MGD) * 8.34)]

Cyanide I&S Average Monthly Concentration Limit mg/L = 0.482 mg/L

Regulatory Effluent Standards and Monitoring Requirements

The pH effluent range for all Industrial waste process and non-process discharges pursuant of 25 Pa. Code § 95.2 is 6.0 – 9.0 S.U.

The Oil and Grease effluent limitations of 15 $^{mg}/_{L}$ Monthly Average and 30 $^{mg}/_{L}$ Instantaneous Maximum pursuant of 25 Pa. Code § 95.2(2)(ii).

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

Total Suspended Solids effluent standard that are applicable to Industrial Wastewater Discharges are 30 $^{mg}/_{L}$ Monthly Average and 60 $^{mg}/_{L}$.

Total Dissolved Solids (TDS)

Integral to the implementation of 25 Pa. Code § 95.10 is the principle that existing, authorized mass loadings of TDS are exempt from any treatment requirements under these provisions. Existing mass loadings of TDS up to and including the maximum daily discharge loading for any existing discharge, provided that the loading was authorized prior to August 21, 2010 are exempt. Discharge loadings of TDS authorized by the Department are typically exempt from the treatment requirements of Chapter 95.10 until the net TDS loading is increased, an existing discharge proposes a hydraulic expansion or a change in the waste stream. If there are existing mass or production-based TDS effluent limits, then these are used

as the basis for the existing mass loading. The facility is not new or expanding waste loading of TDS, therefore, the facility is exempt from 25 Pa. Code § 95.10 treatment requirements.

Water Quality Based Effluent Limitations

IMP 211 discharges via Outfall 011 into Chartiers Creek. Water quality-based effluent limitations will be evaluated at Outfall 011 instead of at IMP 211. Also, calculated TBELs will be evaluated to determine if they are sufficiently protective of water quality. The daily maximum TBELs were used for the maximum discharge concentration in the water quality assessment using the TMS model.

Toxics Management Analysis

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

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

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

4. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 211 are evaluated based on concentrations reported on the application and the developed TBELs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 11 below.

Table 11. TMS Inputs

Parameter	Value
Discharge Inputs	
Facility	Jessop Steel
Evaluation Type	Industrial
NPDES Permit No.	PA0001902
Wastewater Description	Treated Industrial Wastewater
Outfall ID	211
Design Flow (MGD)	0.011
Hardness ($^{mg}/_{L}$)	428
pH (S.U.)	9.8
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
$Q_{7\text{-}10}$ (min)	
Q_h (min)	

Table 11. TMS Inputs (Cont.)

Stream Inputs	
Receiving Surface Water	Chartiers Creek
Number of Reaches to Model	1
Stream Code	036777
RMI	42.4
Elevation (ft)	1011/1010*
Drainage Area (mi^2)	18.2/18.4*
Slope (ft/ft)	
PWS Withdrawal (MGD)	
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	3.187/3.187*
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	
Stream pH (S.U.)	

***** Denotes discharge location/downstream location values.

Table 12 below is a summary of the recommendations of the TMS at Outfall 211. Analysis Report from the TMS run is included in Attachment B.

Table 12: TMS Model WQBELs

Parameter	Mass Load (lbs/day)		Concentration Limit ($^{mg}/_{L}$)	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Lead	0.056	0.088	0.612	0.955
Total Nickel	0.91	1.43	9.97	15.55
Total Zinc	1.35	2.1	14.7	22.9

WQM 7.0 Model

WQM 7.0 for Windows determines wasteload allocations and effluent limitations for dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) for single and multiple point source discharge scenarios. To accomplish this, the model simulates two basic processes (NH_3-N and DO modules). In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of $DBOD_5$ and NH_3-N, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.1 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

In addition to flow and load mixing, WQM 7.1 also models deoxygenation, reaeration, and nitrification in calculating instream NH_3-N, $CBOD_5$, and DO concentrations. Temperature effects in these processes are considered and two (2) models (Summary and Winter) are run. These models are setup to reflect the varying stream and discharge temperatures.

Discharges from Outfall 211 are evaluated based on the initial default values and TBELs (Discharge Temperature, $CBOD_5$, DO, NH_3-N, and Stream Temperature). The WQM 7.1 model is run with the discharge and receiving stream characteristics shown in Table 13.

Table 13. WQM 7.1 Inputs

		Basin/Stream Characteristics	
Parameter	Value	Parameter	Value
River Mile Index	42.4 / 42.0*	Area (mi^2)	18.2 / 18.6*
Discharge Flow (MGD)	0.011	Q_{7-10} (cfs)	3.19
Discharge Temp.		Low-flow yield (cfs/mi^2)	
Summer (°C)	20.0	Elevation (ft)	1011 / 1009*
Winter (°C)	15.0	Slope	
$CBOD_5$ ($^{mg}/_{L}$)	25.0	Stream Temp. (WWF)	
DO ($^{mg}/_{L}$)	4.0	Summer Temp. (°C)	25.0

NH_3-N ($^{mg}/_{L}$)	534.3	Winter Temp. (°C)	5.0

* Indicates Upstream and Downstream values

WQM 7.1 modeling recommends effluent limits as summarized below in Table 14. Analysis Report from the WQM 7.1 model runs are included in Attachment F.

Table 14. WQM 7.1 Effluent Limitations

Parameter	Average Monthly	Daily Maximum
CBOD5 ($^{mg}/_{L}$)	25.0	-
DO ($^{mg}/_{L}$)	3.0 (minimum)	-
NH_3-N ($^{mg}/_{L}$)	535	1070

Anti-Backsliding

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

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits of IMP 211.

The current effluent limitations at IMP 211 are summarized in Table 15.

Table 15: Proposed Effluent limits and Monitoring Requirements for IMP 211

Parameter	Mass Loading ($^{lbs.}/_{day}$)		Concentration ($^{mg}/_{L}$)		
	Average Monthly	Daily Maximum	Daily Minimum	Daily Maximum	Instant Maximum
Flow (MGD)	Report	Report	-	-	
TSS	24	56	-	-	70
Chromium	0.3	0.8	-	-	0.8
Nickel	0.2	0.7	-	-	1
Oil and Grease	4	12	-	-	30
pH (S.U.)	-	-	6	-	10

Effluent Limitations and Monitoring Requirements for IMP 211

Effluent limits applicable at Outfall 211 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 16.

Table 16: Proposed Effluent limits and Monitoring Requirements for IMP 211

Parameter	Mass Loading ($^{lbs.}/_{day}$)		Concentration ($^{mg}/_{L}$)			Basis
	Average Monthly	Daily Maximum	Average Monthly	Daily Maximum	Instant Maximum	
Flow (MGD)	Report	Report	-	-		25 Pa. Code § 92a.61(d)(1)
TSS	54.89	127.70	30.0	60.0	60.0	40 CFR § 420 & 471, 25 Pa. Code § 92a.47(a)(1)
Chromium	0.73	1.83	7.23	18.12	18.12	40 CFR § 471
Nickel	0.55	1.65	5.45	16.34	16.34	40 CFR § 471
Cyanide	0.42	1.02	0.482	1.164	1.21	40 CFR § 471
Lead	0.70	1.48	0.803	1.69	2.0	25 Pa. Code § 93.7
Zinc	2.14	5.14	2.45	5.87	6.12	25 Pa. Code § 93.7
Ammonia	182.2	414.5	207.9	534.4	534.4	40 CFR § 420
Fluoride	82.15	185.41	93.71	239.04	239.04	40 CFR § 420
pH (S.U.)	-	-	6.0 (Daily Minimum)	-	9.0	25 Pa. Code § 95.2

Monitoring requirements are based on the previous permits monitoring requirements for the facility are displayed in Table 17 below.

Table 17: Proposed Monitoring Requirements for IMP 211

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Meter	1/Week
TSS	24-Hr Composite	1/Week
Cyanide	24-Hr Composite	1/Week
Lead	24-Hr Composite	1/Week
Zinc	24-Hr Composite	1/Week
Ammonia-N	24-Hr Composite	1/Week
Fluoride	24-Hr Composite	1/Week
Chromium	24-Hr Composite	1/Week
Nickel, Total	24-Hr Composite	1/Week
pH (S.U.)	Grab	1/Week

Development of Effluent Limitations

Outfall No.	011	**Design Flow (MGD)**	0.086
Latitude	40º 10' 26"	**Longitude**	-80º 16' 34"

Wastewater Description: Discharge from Equitation Tank that receives both treated NCCW from hot-rolled process IMP 111 and treated pickling rinse water from IMP 211.

Technology Based Limitations

Outfall 011 discharges consist of a combination of the IMPs 111 and 211 which collectively consist of process wastewater with an ELG-regulated source, Non-Contact Cooling Water (source water is from groundwater) and treated pickling rinse water.

The industrial activity wastewaters of IMPs 111 and 211 are subject to ELG requirements prior to comingling.

Regulatory Effluent Standards and Monitoring Requirements

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

Effluent standards for pH (6.0 to 9.0 S.U.) are also imposed on industrial wastes by 25 Pa. Code § 95.2(1).

Pursuant to 25 PA Code Chapter 95.2 effluent standards for industrial wastes may not contain more than 15.0 $^{mg}/_{L}$ average monthly and 30.0 $^{mg}/_{L}$ daily maximum oil and grease.

The previous permit contained total suspended solids effluent limitations of 30 $^{mg}/_{L}$ average monthly and 50 $^{mg}/_{L}$ daily maximum.

The previous permit contained instantaneous maximum temperature limits of 110ºF.

In accordance with the recommendations given in Chapter 6, Table 6-4 of the Department's Permit Writers' Manual for NCCW discharges, self-monitoring requirements at Outfall 011 will include, at a minimum, the following parameters: flow, pH and temperature. Monitoring frequency is determined by the flowrate of the NCCW discharge. 20,000 - 100,000 GPD requires weekly monitoring of the three (3) previously mentioned parameters.

The source water for the NCCW is groundwater. Chlorine is not added to the water and TRC monitoring is not required.

Per- and Polyfluoroalkyl Substances (PFAS)

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

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

a. If sampling that is completed as part of the permit renewal application reveals a detection of PFOA, PFOS, HFPO-DA or PFBS (any of these compounds), the application manager will establish a quarterly monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds) in the permit.

b. If sampling that is completed as part of the permit renewal application demonstrates non-detect values at or below the Target QLs for PFOA, PFOS, HFPO-DA and PFBS (all of these compounds in a minimum of 3 samples), the application manager will establish an annual monitoring requirement for PFOA, PFOS, HFPO-DA and PFBS in the permit.

c. In all cases the application manager will include a condition in the permit that the permittee may cease monitoring for PFOA, PFOS, HFPO-DA and PFBS when the permittee reports non-detect values at or below the Target QL for four consecutive monitoring periods for each PFAS parameter that is analyzed. Use the following language: The permittee may discontinue monitoring for PFOA, PFOS, HFPO-DA, and PFBS if the results in 4 consecutive monitoring periods indicate non-detects at or below Quantitation Limits of 4.0 ng/L for PFOA, 3.7 ng/L for PFOS, 3.5 ng/L for PFBS and 6.4 ng/L for HFPO-DA. When monitoring is discontinued, permittees should enter a No Discharge Indicator (NODI) Code of “GG” on DMRs.

Water Quality-Based Limitations

Total Maximum Daily Load (TMDL)

Wastewater discharges from Jessop Steel are to the Chartiers Creek for which the Department has developed a TMDL. The TMDL was finalized on April 9, 2001 and establishes waste load allocations for the discharge of PCBs, Chlordane, Pesticides and Organics within the Chartiers Creek Watershed. Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency’s Water Quality Planning and Management Regulations (codified at Title 40 of the *Code of Federal Regulations* Part 130) require states to develop a TMDL for impaired water bodies. A TMDL establishes the amount of a pollutant that a water body can assimilate without exceeding the water quality criteria for that pollutant. TMDLs provide the scientific basis for a state to establish water quality-based controls to reduce pollution from both point and non-point sources in order to restore and maintain the quality of the state’s water resources (USEPA 1991a).

Jessop Steel is not identified in the TMDL and the facility discharges are not expected to add to the impairments identified in the TMDL.

Toxics Management Analysis

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

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

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

6. Perform a Toxics Screening Analysis to identify toxic pollutants of concern. All toxic pollutants, as reported in the permit application or on DMRs, are modeled by the TMS to determine the parameters of concern. [This includes pollutants reported as "Not Detectable" or as "<MDL" where the method detection limit for the analytical method used by the applicant is greater than the most stringent water quality criterion].

    - Establish limits in the draft permit where the maximum reported concentration equals or exceeds 50% of the WQBEL. Use the average monthly and maximum daily limits for the permit as recommended by TMS. Establish an IMAX limit at 2.5 times the average monthly limit.

    - For non-conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 25% - 50% of the WQBEL.

    - For conservative pollutants, establish monitoring requirements where the maximum reported concentration is between 10% - 50% of the WQBEL.

Discharges from Outfall 011 are evaluated based on concentrations reported on the application and contained in the DMRs; data from those sources are used as inputs into the TMS. A summary of TMS Inputs is contained in Table 18 below.

Table 18. TMS Inputs – Outfall 011

Parameter	Value
Discharge Inputs	
Facility	Jessop Steel
Evaluation Type	Industrial
NPDES Permit No.	PA0001902
Wastewater Description	Treated Industrial Wastewater
Outfall ID	011
Design Flow (MGD)	0.086
Hardness ($^{mg}/_{L}$)	303
pH (S.U.)	8.4
Partial Mix Factors	Unknown – Calculated by TMS
Complete Mix Times	
Q_{7-10} (min)	
Q_h (min)	
Stream Inputs	
Receiving Surface Water	Chartiers Creek
Number of Reaches to Model	1
Stream Code	036777
RMI	42.4
Elevation (ft)	1011/1010*
Drainage Area (mi^2)	18.2/18.4*
Slope (ft/ft)	
PWS Withdrawal (MGD)	
Apply Fish Criteria	Yes
Low Flow Yield (cfs/mi^2)	
Flows	
Stream (cfs)	3.187/3.187*
Tributary (cfs)	N/A
Width (ft)	
Stream Hardness ($^{mg}/_{L}$)	
Stream pH (S.U.)	

***** Denotes discharge location/downstream location values.

Below is a summary of the recommendations of the TMS at Outfall 019. Analysis Report from the TMS run is included in Attachment B.

Table 19: TMS Model WQBELs – Outfall 011

Parameter	Mass Load (lbs/day)		Concentration Limit ($^{mg}/_{L}$)	
	Average Monthly	Maximum Daily	Average Monthly	Maximum Daily
Total Cadmium[1]	Report	Report	Report	Report
Total Nickel[2]	Report	Report	Report	Report
Total Thallium[1]	0.004	0.007	0.006	0.009
Total Lead[3]	0.063	0.098	0.088	0.137

1) The two (2) parameters (Total Cadmium and Total Thallium) all had non-detect concentrations above the Department's Target QLs. The Department will allow the facility the opportunity to resample these parameters during the 30-day Draft permit comment period. If the new analytical results verify that the parameters are not present in its wastewater discharge at the Department's minimum quantitation limits, effluent limitations / monitoring requirements for these pollutants may be eliminated prior to Final permit issuance.
2) TMS Model recommends Report of average monthly and maximum daily concentrations for Total Nickel. The previous permit imposed effluent limitations of 0.4 $^{mg}/_{L}$ average monthly and 0.8 $^{mg}/_{L}$ maximum daily for Total Nickel. The previously imposed Total Nickel effluent limitations will be maintained.
3) TMS Model recommends 0.088 mg/L average monthly and 0.137 mg/L maximum daily concentrations for Total Lead. The previous permit imposed effluent limitations of 0.01 $^{mg}/_{L}$ average monthly and 0.02 $^{mg}/_{L}$ maximum daily for Total Lead. The previously imposed Total Lead effluent limitations will be maintained.
4) The previous permit imposed Total Copper effluent limitations 0.08 $^{mg}/_{L}$ Average Monthly and 0.1 $^{mg}/_{L}$ Daily Maximum. Review of the permit cycle of monitoring data for Total Copper, the reported concentration on the eDMRs is typically non-detect at <0.01 $^{mg}/_{L}$ with a maximum concentration of 0.02 $^{mg}/_{L}$. The maximum concentration was used for TMS input and no WQBEL is recommended. Total Copper has no reasonable potential and no monitoring will be imposed.

5) The previous permit imposed Total Chromium effluent limitations 0.04 mg/L Average Monthly and 0.08 mg/L Daily Maximum. The reported concentration on the eDMRs is typically non-detect at <0.04 mg/L. The maximum concentration from the eDMRs and the application were used for TMS input and no WQBEL is recommended. Total Chromium has no reasonable potential, and no monitoring will be imposed.

WQM 7.0 Model

WQM 7.0 for Windows determines wasteload allocations and effluent limitations for dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia nitrogen (NH_3-N) for single and multiple point source discharge scenarios. To accomplish this, the model simulates two basic processes (NH_3-N and DO modules). In the NH_3-N module, the model simulates the mixing and degradation of NH_3-N in the stream and compares calculated instream NH_3-N concentrations to NH_3-N water quality criteria. In the DO module, the model simulates the mixing and consumption of DO in the stream due to the degradation of $DBOD_5$ and NH_3-N, and compares calculated instream DO concentrations to DO water quality criteria. WQM 7.1 then determines the highest pollutant loadings that the stream can assimilate while still meeting water quality criteria under design conditions.

In addition to flow and load mixing, WQM 7.1 also models deoxygenation, reaeration, and nitrification in calculating instream NH_3-N, $CBOD_5$, and DO concentrations. Temperature effects in these processes are considered and two (2) models (Summary and Winter) are run. These models are setup to reflect the varying stream and discharge temperatures.

Discharges from Outfall 011 are evaluated based on the mass balance of the effluent limitations of IMPs 111 and 211. The WQM 7.1 model is run with the discharge and receiving stream characteristics shown in Table 20.

Table 20. WQM 7.1 Inputs

		Basin/Stream Characteristics	
Parameter	**Value**	**Parameter**	**Value**
River Mile Index	42.4 / 42.0*	Area (mi^2)	18.2 / 18.6*
Discharge Flow (MGD)	0.086	Q_{7-10} (cfs)	3.19
Discharge Temp.		Low-flow yield (cfs/mi^2)	
Summer (°C)	20.0	Elevation (ft)	1011 / 1009*
Winter (°C)	15.0	Slope	
$CBOD_5$ (mg/L)	25.0	Stream Temp. (WWF)	
DO (mg/L)	4.0	Summer Temp. (°C)	25.0
NH_3-N (mg/L)	193	Winter Temp. (°C)	5.0

* Indicates Upstream and Downstream values

WQM 7.1 modeling recommends effluent limits as summarized below in Table 21. Analysis Report from the WQM 7.1 model runs are included in Attachment F.

Table 21. WQM 7.1 Effluent Limitations

Parameter	Average Monthly	Daily Maximum
CBOD5 (mg/L)	25.0	-
DO (mg/L)	3.0 (minimum)	-
NH_3-N (mg/L)	36.4	72.8

Anti-Backsliding

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

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 *(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the*

time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

The facility is not seeking to revise the previously permitted effluent limits. Total Copper, Total Lead, and Total Chromium no longer have reasonable potential and are being removed from monitoring requirements. Total Nickel and Total Chromium are both ELG parameters and are monitored at IMPs 111 and 211. New information has removed reasonable potential for Total Copper, Total Lead, and Total Chromium and are being removed from monitoring requirements.

Commented [MF8]: Add Existing effluent limits table here.

The current effluent limitations at Outfall 011 are summarized in Table 22.

Table 22: Proposed Effluent limits and Monitoring Requirements for Outfall 011

Parameter	Mass (pounds)		Concentration (mg/L)			
	Average Monthly	Daily Maximum	Daily Minimum	Average Monthly	Daily Maximum	Instant. Maximum
Flow (MGD)	Report	Report	—	—	—	—
TSS	—	—	—	30	50	—
Total Nickel	—	—	—	0.40	0.80	1.0
Oil & Grease	—	—	—	15.0	-	30.0
Total Chromium	—	—	—	0.40	0.80	1.0
pH (S.U.)	—	—	6.0	—	—	10.0
Temperature (ºF)	—	—	—	—	—	110.0
Total Lead	—	—	—	0.01	0.02	0.03
Total Copper	—	—	—	0.04	0.06	0.1

Effluent Limitations and Monitoring Requirements for Outfall 011

Effluent limits applicable at Outfall 011 are the more stringent of TBELs, regulatory effluent standards, previously permitted effluent limits and the monitoring requirements are summarized in Table 23.

Table 23: Proposed Effluent limits and Monitoring Requirements for Outfall 011

Parameter	Mass (pounds)		Concentration (mg/L)				Basis
	Average Monthly	Daily Maximum	Instant. Minimum	Average Monthly	Daily Maximum	Instant. Maximum	
Flow (MGD)	Report	Report	—	—	—	—	25 Pa. Code § 92a.61(d)(1)
Total Cadmium	—	—	—	Report	Report	—	25 Pa. Code § 93.7
Total Thallium	—	—	—	Report	Report	—	25 Pa. Code § 93.7
Oil & Grease	—	—	—	15.0	30.0	—	25 Pa. Code § 95.2
Total Nickel	—	—	—	0.40	0.80	1.0	40 CFR § 122.44(l)(1)
pH (S.U.)	—	—	6.0	—	—	9.0	25 Pa. Code § 95.2
Temperature (ºF)	—	—	—	—	—	110.0	40 CFR § 122.44(l)(1)
TSS	—	—	—	30.0	50.0	—	40 CFR § 122.44(l)(1)
Total Lead	—	—	—	0.01	0.02	0.03	40 CFR § 122.44(l)(1)
Ammonia-Nitrogen	—	—	—	36.4	72.8	91.0	25 Pa. Code § 93.7
PFOA (ng/L)	—	—	—	—	Report	—	25 Pa. Code § 92.a.61(b)
PFOS (ng/L)	—	—	—	—	Report	—	25 Pa. Code § 92.a.61(b)
PFBS (ng/L)	—	—	—	—	Report	—	25 Pa. Code § 92.a.61(b)
HFPO-DA (ng/L)	—	—	—	—	Report	—	25 Pa. Code § 92.a.61(b)

Monitoring requirements for the interim and final effluent limits are based on the previous permit's monitoring requirements for the facility and displayed in Table 24 below.

Table 24: Proposed Monitoring Requirements for Outfall 011

Parameter	Sample Type	Minimum Sample Frequency
Flow (MGD)	Measured	1/week
Total Cadmium	24-Hr Composite	1/week
Total Thallium	24-Hr Composite	1/week
Oil & Grease	Grab	1/week
Total Nickel	24-Hr Composite	1/week
pH (S.U.)	Grab	1/week
Temperature	I-S	2/month
TSS	24-Hr Composite	1/week
Total Lead	24-Hr Composite	1/week
PFOA (ng/L)	Grab	1/year
PFOS (ng/L)	Grab	1/year
PFBS (ng/L)	Grab	1/year
HFPO-DA (ng/L)	Grab	1/year

Development of Effluent Limitations

Outfall No. 002 - 007, 009, 010, 013, and 014 **Design Flow (MGD)** 0.0 (Varies)
Latitude See Below **Longitude** See Below
Wastewater Description: Stormwater runoff

Stormwater Technology Limits

The facility has ten (10) stormwater outfalls that are subject to PAG-03 General Stormwater Permit conditions as a minimum requirement because these outfalls discharge stormwater associated with industrial activity Chartiers Creek. The facility's industrial activities are classified by SIC Codes 3312 & 3316, and the corresponding appendix of the PAG-03 that would apply to the facility is Appendix B – Primary Metals. The reporting requirements applicable to stormwater discharges are shown in Table 25 below.

Table 25: PAG-03 Appendix (B) Monitoring Requirements

Parameter	Max Daily Concentration ($^{mg}/_{L}$)	Measurement Frequency	Sample Type	Benchmark Value ($^{mg}/_{L}$)
Total Suspended Solids (TSS)	Report	1/6 Months	Grab	100.0
Total Aluminum	Report	1/6 Months	Grab	XXX
Total Zinc	Report	1/6 Months	Grab	XXX
Total Copper	Report	1/6 Months	Grab	XXX
Total Iron	Report	1/6 Months	Grab	XXX
Total Lead	Report	1/6 Months	Grab	XXX
Oil and Grease	Report	1/6 Months	Grab	30.0
Total Nitrogen	Report	1/6 Months	Grab	XXX
Total Phosphorus	Report	1/6 Months	Grab	XXX

Outfall 002 location is 40º 10' 40", -80º 16' 25". The drainage area of Outfall 002 is 24,900 ft^2 and is approximately 45% impervious. The drainage area consists of paved traffic area on the southeast side. Some plates are stored in the area. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 003 location is 40º 10' 38", -80º 16' 32". The drainage area of Outfall 003 is 60,000 ft^2 and is approximately 100% impervious. The drainage area consists of paved traffic area on the roof drainage from the northern portion on the mill building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 004 location is 40º 10' 39", -80º 16' 31". The drainage area of Outfall 004 is 106,400 ft^2 and is approximately 40% impervious. The drainage area consists of paved traffic area on the roof drainage from the east side of the shipping building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 005 location is 40º 10' 35", -80º 16' 33". The drainage area of Outfall 005 is 152,800 ft^2 and is approximately 9% impervious. The drainage area consists of a very small area of the shipping department building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 006 location is 40º 10' 43", -80º 16' 28". The drainage area of Outfall 006 is 12,600 ft^2 and is approximately 60% impervious. The drainage area consists of several facility roof areas at the east end of the facility roof drainage from the east side of the shipping building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all

stored underroof, along with employee training.

Outfall 007 location is 40º 10' 34", -80º 16' 34". The drainage area of Outfall 007 is 27,800 ft^2 and is approximately 18% impervious. The drainage area consists of a portion of the plate mill roof and a small portion of the yard south of the building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 009 location is 40º 10' 40", -80º 16' 25". The drainage area of Outfall 009 is 173,000 ft^2 and is approximately 50% impervious. The drainage area consists of roof areas of the specialties building and traffic around the building. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 010 location is 40º 10' 33", -80º 16' 34". The drainage area of Outfall 010 is 116,500 ft^2 and is approximately 60% impervious. The drainage area consists of roof areas of the bar mill building, storeroom and machine shop and open area between these buildings. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 013 location is 40º 10' 32", -80º 16' 34". The drainage area of Outfall 013 is 60,900 ft^2 and is approximately 35% impervious. The drainage area consists of the bar mill building, storeroom and main office and open area between these buildings. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Outfall 014 location is 40º 10' 29", -80º 16' 34". The drainage area of Outfall 014 is 146,300 ft^2 and is approximately 40% impervious. The drainage area consists of the bar mill building and open area between these buildings. Best management practices implemented in the drainage consists of street sweeping, storm drain/catch basin inlet protectors (where practical), general housekeeping, raw materials/chemicals/product are all stored underroof, along with employee training.

Below is a summary of the stormwater sample data in Table 26.

Table 26: Stormwater Outfall Sample Data

	Maximum Value ($^{mg}/_{L}$)										
Outfall	**Oil & Grease**	**BOD5**	**COD**	**TSS**	**Nitrogen**	**Phosphorus**	**pH (S.U.)**	**Chromium**	**Nickel**	**Iron**	**Zinc**
002	<5	5	<25	71	<2	0.01	8.4	0.2	0.3	3	0.1
003	<5	3	<25	60	<2	0.01	8.5	0.2	0.2	2	0.2
004	<5	8	<25	**149**	2	0.04	8.5	0.19	0.3	5	0.17
005	<5	3	28	42	<2	0.02	8.2	0.09	0.1	1	0.15
006	<5	<3	<25	66	<2	<0.01	8.4	0.16	0.2	5	0.4
007	<5	<3	<25	9	<2	<0.01	8.1	0.06	0.26	1.5	0.1
009	<5	5	<25	83	<2	<0.01	8.9	0.17	0.25	3	0.25
010	<5	7	31	89	<2	0.04	8.4	0.35	0.3	6	0.2
013	<5	<3	<25	71	<2	<0.01	7.9	<0.04	0.1	4	0.09
014	<5	4	32	66	<2	0.02	8.3	0.1	0.2	4	0.2

Water Quality-Based Effluent Limitations

Water quality analyses are typically performed under low-flow ($Q_{7\text{-}10}$) conditions. Stormwater discharges occur at variable rates and frequencies but not however during $Q_{7\text{-}10}$ conditions. Since the discharges from stormwater outfalls (002 - 007, 009, 010, 013, and 014) are composed entirely of stormwater, a formal water quality analysis cannot be accurately conducted. Accordingly, water quality-based effluent limitations are not proposed.

Anti-Backsliding

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

Previous limits can be used pursuant to EPA's anti-backsliding regulation 40 CFR 122.44 *(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued. Interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under §122.62). (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.*

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

Commented [MF9]: Summarize any existing limits/monitoring if applicable.

The current effluent limitations at Outfalls 002 - 007, 009, 010, 013, and 014 are summarized in Table 27.

Table 27: Current Effluent Monitoring Requirements for Stormwater Outfalls

Parameter	Max Daily Concentration ($^{mg}/_{L}$)	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Report	1/6 Months	Grab
Total Chromium	Report	1/6 Months	Grab
Total Zinc	Report	1/6 Months	Grab
Total Nickel	Report	1/6 Months	Grab
Total Iron	Report	1/6 Months	Grab
pH	Report	1/6 Months	Grab
Oil and Grease	Report	1/6 Months	Grab

Proposed Effluent Limitations and Monitoring Requirements

The proposed effluent monitoring requirements for the ten (10) stormwater outfalls (002 - 007, 009, 010, 013, and 014) are displayed in Table 28 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/year 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 17. 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 developed and submitted to the Department which evaluates 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 for Stormwater Outfalls

Parameter	Max Daily Concentration ($^{mg}/_{L}$)	Measurement Frequency	Sample Type
Total Suspended Solids (TSS)	Report	1/6 Months	Grab
Total Aluminum	Report	1/6 Months	Grab
Total Zinc	Report	1/6 Months	Grab
Total Copper	Report	1/6 Months	Grab
Total Iron	Report	1/6 Months	Grab
Total Lead	Report	1/6 Months	Grab
Oil and Grease	Report	1/6 Months	Grab
Total Nitrogen	Report	1/6 Months	Grab
Total Phosphorus	Report	1/6 Months	Grab

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

Attachment A – Site Plan

Attachment B - TMS Output Files

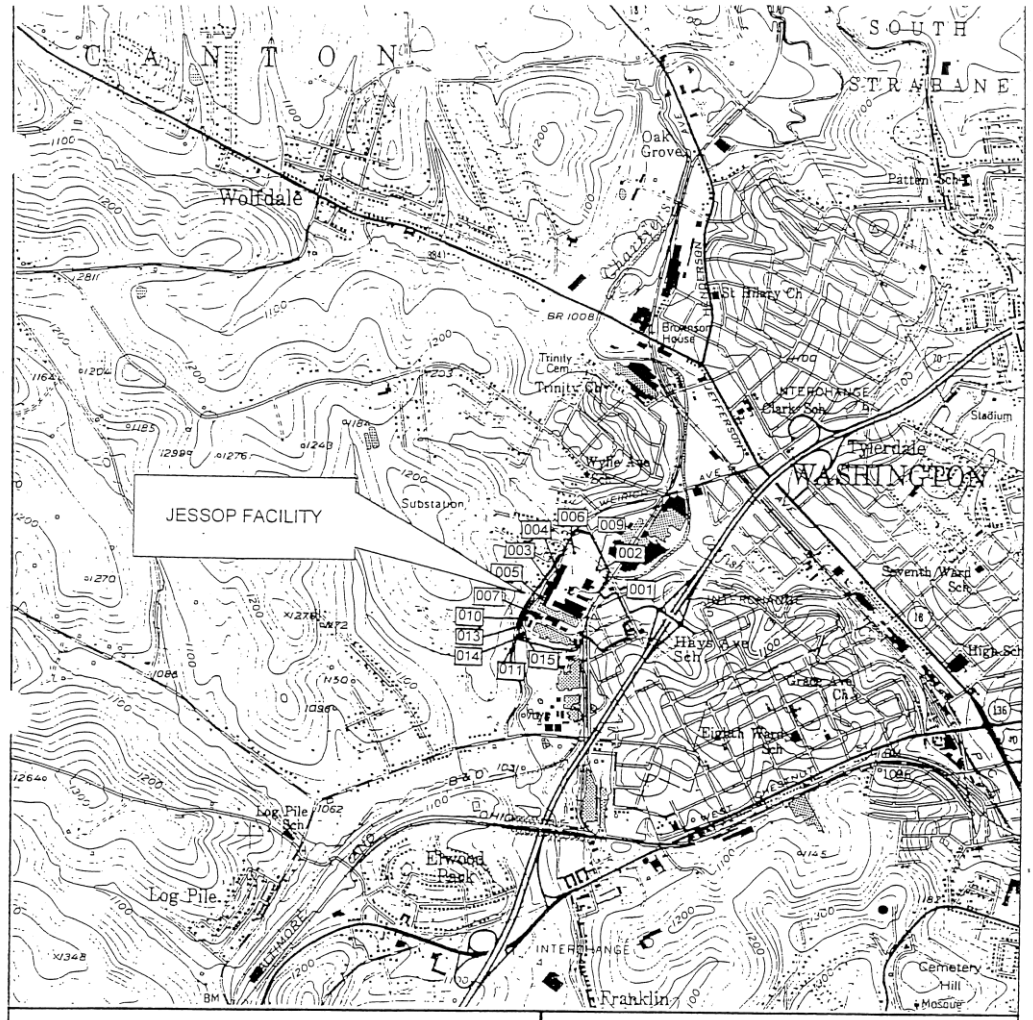
Attachment C – Temperature Model Spreadsheet

Attachment D – ELG Effluent Limit Calculations

Attachment E – CWF Calculations

Attachment F - WQM Model Output

Attachment A – Site Plan



OUTFALL	LATITUDE	LONGITUDE
001	40°10'36"	80°16' 25"
002	40°10'40"	80°16' 25"
003	40°10'38"	80°16' 32"
004	40°10'39"	80°16' 31"
005	40°10'35"	80°16' 33"
006	40°10'43"	80°16' 28"
007	40°10'34"	80°16' 34"
009	40°10'40"	80°16' 25"
010	40°10'33"	80°16' 34"
011	40°10'26"	80°16' 34"
013	40°10'32"	80°16' 34"
014	40°10'29"	80°16' 34"
015	40°10'28"	80°16' 34"

OUTFALL NUMBERS ARE INDICATED IN NPDES PERMIT No. PA0001902

FIGURE 1

JESSOP STEEL COMPANY
WASHINGTON FACILITY

SCALE: 1" = 2000' FEB., 2000

USGS WASHINGTON WEST QUADRANGLES


Marra Ave
Chartiers Creek
Welrich Ave
ATI Inc.
Green St
Welrich Ave

Attachment B - TMS Output Files

Outfall 011

Outfall 111

Outfall 211

Outfall 011

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: **Jessop Steel - Washington Plant** NPDES Permit No.: **PA0001902** Outfall No.: **011**

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

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
0.08578	303	8.4						

					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	Strea m CV	Fate Coeff	FOS	Criteri a Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		326									
	Chloride (PWS)	mg/L		161									
	Bromide	mg/L		0.6									
	Sulfate (PWS)	mg/L		219									
	Fluoride (PWS)	mg/L	<	0.2									
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L		13									
	Total Arsenic	µg/L	<	5									
	Total Barium	µg/L		70									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		31									
	Total Cadmium	µg/L	<	3									
	Total Chromium (III)	µg/L		37									
	Hexavalent Chromium	µg/L	<	10									
	Total Cobalt	µg/L	<	5									
	Total Copper	mg/L		0.02									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L	<	10									
	Dissolved Iron	µg/L		270									
	Total Iron	µg/L		550									
	Total Lead	µg/L		200									
	Total Manganese	µg/L		8									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		330									
	Total Phenols (Phenolics) (PWS)	µg/L	<	50									
	Total Selenium	µg/L	<	8									
	Total Silver	µg/L	<	6									
	Total Thallium	µg/L	<	10									
	Total Zinc	mg/L		0.02									
	Total Molybdenum	µg/L		110									
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	4									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L		24									

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	<	2									
	Chloroform	µg/L		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	<	2.5									
	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	<	0.5									
	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									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 011

Instructions | Discharge | *Stream*

Receiving Surface Water Name: **Chartiers Creek**

No. Reaches to Model: **1**

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

Location	Stream Code*	RMI*	Elevation (ft)*	DA (mi²)*	Slope (ft/ft)	PWS Withdrawal (MGD)	Apply Fish Criteria*
Point of Discharge	036777	42.4	1011	18.2			Yes
End of Reach 1	036777	42	1010	18.4			Yes

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

Location	RMI	LFY (cfs/mi²)*	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness*	pH*	Hardness	pH
Point of Discharge	42.4	0.1	3.187			25	5					100	7		
End of Reach 1	42	0.1	3.187			25	5								

Q_h

Location	RMI	LFY (cfs/mi²)	Flow (cfs)		W/D Ratio	Width (ft)	Depth (ft)	Velocity (fps)	Travel Time (days)	Tributary		Stream		Analysis	
			Stream	Tributary						Hardness	pH	Hardness	pH	Hardness	pH
Point of Discharge	42.4														
End of Reach 1	42														

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Model Results

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 011

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

☐ ***Hydrodynamics***

☑ ***Wasteload Allocations***

☑ ***AFC*** CCT (min): 3.245 PMF: 1 Analysis Hardness (mg/l): 108.11 Analysis pH: 7.02

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	18,762	
Total Antimony	0	0		0	1,100	1,100	27,518	
Total Arsenic	0	0		0	340	340	8,506	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	525,342	
Total Boron	0	0		0	8,100	8,100	202,632	
Total Cadmium	0	0		0	2.172	2.31	57.8	Chem Translator of 0.941 applied
Total Chromium (III)	0	0		0	607.360	1,922	48,082	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	408	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,377	
Total Copper	0	0		0	14.464	15.1	377	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	70.300	90.2	2,256	Chem Translator of 0.78 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	41.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	500.186	501	12,538	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	3.679	4.33	108	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,626	
Total Zinc	0	0		0	125.189	128	3,202	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	75.0	

Acrylonitrile	0	0		0	650	650	16,261	
Benzene	0	0		0	640	640	16,010	
Bromoform	0	0		0	1,800	1,800	45,029	
Carbon Tetrachloride	0	0		0	2,800	2,800	70,046	
Chlorobenzene	0	0		0	1,200	1,200	30,020	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	450,293	
Chloroform	0	0		0	1,900	1,900	47,531	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	375,244	
1,1-Dichloroethylene	0	0		0	7,500	7,500	187,622	
1,2-Dichloropropane	0	0		0	11,000	11,000	275,179	
1,3-Dichloropropylene	0	0		0	310	310	7,755	
Ethylbenzene	0	0		0	2,900	2,900	72,547	
Methyl Bromide	0	0		0	550	550	13,759	
Methyl Chloride	0	0		0	28,000	28,000	700,456	
Methylene Chloride	0	0		0	12,000	12,000	300,195	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	25,016	
Tetrachloroethylene	0	0		0	700	700	17,511	
Toluene	0	0		0	1,700	1,700	42,528	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	170,111	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	75,049	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	85,055	
Trichloroethylene	0	0		0	2,300	2,300	57,537	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	14,009	
2,4-Dichlorophenol	0	0		0	1,700	1,700	42,528	
2,4-Dimethylphenol	0	0		0	660	660	16,511	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	2,001	
2,4-Dinitrophenol	0	0		0	660	660	16,511	
2-Nitrophenol	0	0		0	8,000	8,000	200,130	
4-Nitrophenol	0	0		0	2,300	2,300	57,537	
p-Chloro-m-Cresol	0	0		0	160	160	4,003	
Pentachlorophenol	0	0		0	8.874	8.87	222	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	11,507	
Acenaphthene	0	0		0	83	83.0	2,076	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	7,505	
Benzo(a)Anthracene	0	0		0	0.5	0.5	12.5	
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	750,488	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	112,573	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	6,754	
Butyl Benzyl Phthalate	0	0		0	140	140	3,502	

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	20,513	
1,3-Dichlorobenzene	0	0		0	350	350	8,756	
1,4-Dichlorobenzene	0	0		0	730	730	18,262	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	100,065	
Dimethyl Phthalate	0	0		0	2,500	2,500	62,541	
Di-n-Butyl Phthalate	0	0		0	110	110	2,752	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	40,026	
2,6-Dinitrotoluene	0	0		0	990	990	24,766	
1,2-Diphenylhydrazine	0	0		0	15	15.0	375	
Fluoranthene	0	0		0	200	200	5,003	
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	250	
Hexachlorocyclopentadiene	0	0		0	5	5.0	125	
Hexachloroethane	0	0		0	60	60.0	1,501	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	250,163	
Naphthalene	0	0		0	140	140	3,502	
Nitrobenzene	0	0		0	4,000	4,000	100,065	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	425,277	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	7,505	
Phenanthrene	0	0		0	5	5.0	125	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	3,252	

☑ ***CFC*** CCT (min): 3.245 PMF: 1 Analysis Hardness (mg/l): 108.11 Analysis pH: 7.02

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	5,504	
Total Arsenic	0	0		0	150	150	3,752	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	102,567	
Total Boron	0	0		0	1,600	1,600	40,026	
Total Cadmium	0	0		0	0.260	0.29	7.17	Chem Translator of 0.906 applied
Total Chromium (III)	0	0		0	79.005	91.9	2,298	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	260	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	475	
Total Copper	0	0		0	9.573	9.97	249	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	37,524	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.739	3.51	87.9	Chem Translator of 0.78 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	22.7	Chem Translator of 0.85 applied
Total Nickel	0	0		0	55.555	55.7	1,394	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	125	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	325	
Total Zinc	0	0		0	126.213	128	3,202	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	75.0	
Acrylonitrile	0	0		0	130	130	3,252	
Benzene	0	0		0	130	130	3,252	
Bromoform	0	0		0	370	370	9,256	
Carbon Tetrachloride	0	0		0	560	560	14,009	
Chlorobenzene	0	0		0	240	240	6,004	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	87,557	
Chloroform	0	0		0	390	390	9,756	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	77,550	
1,1-Dichloroethylene	0	0		0	1,500	1,500	37,524	
1,2-Dichloropropane	0	0		0	2,200	2,200	55,036	
1,3-Dichloropropylene	0	0		0	61	61.0	1,526	
Ethylbenzene	0	0		0	580	580	14,509	
Methyl Bromide	0	0		0	110	110	2,752	
Methyl Chloride	0	0		0	5,500	5,500	137,590	
Methylene Chloride	0	0		0	2,400	2,400	60,039	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	5,253	
Tetrachloroethylene	0	0		0	140	140	3,502	
Toluene	0	0		0	330	330	8,255	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	35,023	
1,1,1-Trichloroethane	0	0		0	610	610	15,260	
1,1,2-Trichloroethane	0	0		0	680	680	17,011	
Trichloroethylene	0	0		0	450	450	11,257	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	2,752	
2,4-Dichlorophenol	0	0		0	340	340	8,506	
2,4-Dimethylphenol	0	0		0	130	130	3,252	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	400	
2,4-Dinitrophenol	0	0		0	130	130	3,252	
2-Nitrophenol	0	0		0	1,600	1,600	40,026	

4-Nitrophenol	0	0		0	470	470	11,758	
p-Chloro-m-Cresol	0	0		0	500	500	12,508	
Pentachlorophenol	0	0		0	6.808	6.81	170	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	2,276	
Acenaphthene	0	0		0	17	17.0	425	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,476	
Benzo(a)Anthracene	0	0		0	0.1	0.1	2.5	
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	150,098	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	22,765	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,351	
Butyl Benzyl Phthalate	0	0		0	35	35.0	876	
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	4,003	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,726	
1,4-Dichlorobenzene	0	0		0	150	150	3,752	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	20,013	
Dimethyl Phthalate	0	0		0	500	500	12,508	
Di-n-Butyl Phthalate	0	0		0	21	21.0	525	
2,4-Dinitrotoluene	0	0		0	320	320	8,005	
2,6-Dinitrotoluene	0	0		0	200	200	5,003	
1,2-Diphenylhydrazine	0	0		0	3	3.0	75.0	
Fluoranthene	0	0		0	40	40.0	1,001	
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	50.0	
Hexachlorocyclopentadiene	0	0		0	1	1.0	25.0	
Hexachloroethane	0	0		0	12	12.0	300	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	52,534	
Naphthalene	0	0		0	43	43.0	1,076	
Nitrobenzene	0	0		0	810	810	20,263	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	85,055	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,476	
Phenanthrene	0	0		0	1	1.0	25.0	
Pyrene	0	0		0	N/A	N/A	N/A	

1,2,4-Trichlorobenzene	0	0		0	26	26.0	650	

☑ ***THH*** CCT (min): 3.245 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	140	
Total Arsenic	0	0		0	10	10.0	250	
Total Barium	0	0		0	2,400	2,400	60,039	
Total Boron	0	0		0	3,100	3,100	77,550	
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	7,505	
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	25,016	
Total Mercury	0	0		0	0.050	0.05	1.25	
Total Nickel	0	0		0	610	610	15,260	
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	6.0	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	75.0	
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	2,502	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	143	
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	826	
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	1,701	
Methyl Bromide	0	0		0	100	100.0	2,502	
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	1,426	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	2,502	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	250,163	
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	750	
2,4-Dichlorophenol	0	0		0	10	10.0	250	
2,4-Dimethylphenol	0	0		0	100	100.0	2,502	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	50.0	
2,4-Dinitrophenol	0	0		0	10	10.0	250	
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	100,065	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	1,751	
Anthracene	0	0		0	300	300	7,505	
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	5,003	
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	2.5	
2-Chloronaphthalene	0	0		0	800	800	20,013	
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	25,016	
1,3-Dichlorobenzene	0	0		0	7	7.0	175	
1,4-Dichlorobenzene	0	0		0	300	300	7,505	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	15,010	
Dimethyl Phthalate	0	0		0	2,000	2,000	50,033	

Di-n-Butyl Phthalate	0	0		0	20	20.0	500	
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	500	
Fluorene	0	0		0	50	50.0	1,251	
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	100	
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	851	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	250	
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	500	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	1.75	

☑ ***CRL*** CCT (min): 1.042 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	
Acrylonitrile	0	0		0	0.06	0.06	9.31	
Benzene	0	0		0	0.58	0.58	90.0	
Bromoform	0	0		0	7	7.0	1,086	
Carbon Tetrachloride	0	0		0	0.4	0.4	62.1	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	124	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	147	
1,2-Dichloroethane	0	0		0	9.9	9.9	1,536	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	140	
1,3-Dichloropropylene	0	0		0	0.27	0.27	41.9	
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	3,104	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	31.0	
Tetrachloroethylene	0	0		0	10	10.0	1,552	
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	85.4	
Trichloroethylene	0	0		0	0.6	0.6	93.1	
Vinyl Chloride	0	0		0	0.02	0.02	3.1	
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	4.66	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	233	
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	0.016	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.16	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.016	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.16	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	1.55	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	4.66	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	49.7	
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	18.6	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.016	
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	7.76	
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	7.76	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	7.76	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	4.66	
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	0.012	
Hexachlorobutadiene	0	0		0	0.01	0.01	1.55	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	15.5	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.16	
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	0.11	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.78	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	512	
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 Cadmium	Report	Report	Report	Report	Report	µg/L	7.17	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Lead	0.063	0.098	87.9	137	220	µg/L	87.9	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	Report	Report	Report	Report	Report	µg/L	1,394	CFC	Discharge Conc > 10% WQBEL (no RP)
Total Thallium	0.004	0.007	6.0	9.37	15.0	µg/L	6.0	THH	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	Discharge Conc < TQL
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	140	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	250	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	60,039	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	40,026	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	2,298	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	260	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	475	µg/L	Discharge Conc ≤ 10% WQBEL
Total Copper	0.24	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	7,505	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	37,524	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	25,016	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.25	µg/L	Discharge Conc < TQL
Total Phenols (Phenolics) (PWS)		µg/L	PWS Not Applicable

Total Selenium	125	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	69.4	µg/L	Discharge Conc ≤ 10% WQBEL
Total Zinc	2.05	mg/L	Discharge Conc ≤ 10% WQBEL
Total Molybdenum	N/A	N/A	No WQS
Acrolein	48.1	µg/L	Discharge Conc < TQL
Acrylonitrile	9.31	µg/L	Discharge Conc < TQL
Benzene	90.0	µg/L	Discharge Conc < TQL
Bromoform	1,086	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	62.1	µg/L	Discharge Conc < TQL
Chlorobenzene	2,502	µg/L	Discharge Conc < TQL
Chlorodibromomethane	124	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	87,557	µg/L	Discharge Conc < TQL
Chloroform	143	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	147	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,536	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	826	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	140	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	41.9	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	1,701	µg/L	Discharge Conc < TQL
Methyl Bromide	2,502	µg/L	Discharge Conc < TQL
Methyl Chloride	137,590	µg/L	Discharge Conc < TQL
Methylene Chloride	3,104	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	31.0	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,552	µg/L	Discharge Conc < TQL
Toluene	1,426	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	2,502	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	15,260	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	85.4	µg/L	Discharge Conc < TQL
Trichloroethylene	93.1	µg/L	Discharge Conc < TQL
Vinyl Chloride	3.1	µg/L	Discharge Conc < TQL
2-Chlorophenol	750	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	250	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,502	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	50.0	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	250	µg/L	Discharge Conc < TQL
2-Nitrophenol	40,026	µg/L	Discharge Conc < TQL
4-Nitrophenol	11,758	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	2,566	µg/L	Discharge Conc < TQL
Pentachlorophenol	4.66	µg/L	Discharge Conc < TQL
Phenol	100,065	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	233	µg/L	Discharge Conc < TQL
Acenaphthene	425	µg/L	Discharge Conc < TQL

Acenaphthylene	N/A	N/A	No WQS
Anthracene	7,505	µg/L	Discharge Conc < TQL
Benzidine	0.016	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.16	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.016	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.16	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.55	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	4.66	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	5,003	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	49.7	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,351	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	2.5	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	20,013	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	18.6	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.016	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	4,003	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	175	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	3,752	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	7.76	µg/L	Discharge Conc < TQL
Diethyl Phthalate	15,010	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	12,508	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	500	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	7.76	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	7.76	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	4.66	µg/L	Discharge Conc < TQL
Fluoranthene	500	µg/L	Discharge Conc < TQL
Fluorene	1,251	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.012	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	1.55	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	25.0	µg/L	Discharge Conc < TQL
Hexachloroethane	15.5	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.16	µg/L	Discharge Conc < TQL
Isophorone	851	µg/L	Discharge Conc < TQL
Naphthalene	1,076	µg/L	Discharge Conc < TQL
Nitrobenzene	250	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.11	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.78	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	512	µg/L	Discharge Conc < TQL
Phenanthrene	25.0	µg/L	Discharge Conc < TQL
Pyrene	500	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	1.75	µg/L	Discharge Conc < TQL

Outfall 111

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
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Discharge Information

Instructions | Discharge | Stream

Facility: Jessop Steel - Washington Plant NPDES Permit No.: PA0001902 Outfall No.: 111

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Process Wastewaters

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
0.0767	291	8						

	Discharge Pollutant	Units	Max Discharge Conc		0 if left blank: Trib Conc	Stream Conc	0.5 if left blank: Daily CV	Hourly CV	0 if left blank: Stream CV	Fate Coeff	FOS	1 if left blank: Criteria Mod	Chem Transl
Group 1	Total Dissolved Solids (PWS)	mg/L		730									
	Chloride (PWS)	mg/L		161									
	Bromide	mg/L	<	0.6									
	Sulfate (PWS)	mg/L		178									
	Fluoride (PWS)	mg/L		373.2									
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L		10									
	Total Arsenic	µg/L		4									
	Total Barium	µg/L		90									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		300									
	Total Cadmium	µg/L		0.3									
	Total Chromium (III)	µg/L	<	4									
	Hexavalent Chromium	µg/L		5									
	Total Cobalt	µg/L	<	1									
	Total Copper	mg/L		0.009									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		1800									
	Dissolved Iron	µg/L		30									
	Total Iron	µg/L		750									
	Total Lead	µg/L		2600									
	Total Manganese	µg/L		32									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		37									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L		8									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L		3									
	Total Zinc	mg/L		9.1									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	4									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L		86									

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	<	2									
	Chloroform	µg/L		2									
	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	<	2.5									
	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	<	0.5									
	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									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 111

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Chartiers Creek

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	036777	42.4	1011	18.2			Yes
End of Reach 1	036777	42	1010	18.4			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	42.4	0.1	3.187			25	5					100	7		
End of Reach 1	42	0.1	3.187			25	5								

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	42.4														
End of Reach 1	42														

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Model Results

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 111

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 3.273 PMF: 1 Analysis Hardness (mg/l): 106.86 Analysis pH: 7.01

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	20,895	
Total Antimony	0	0		0	1,100	1,100	30,645	
Total Arsenic	0	0		0	340	340	9,472	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	585,048	
Total Boron	0	0		0	8,100	8,100	225,661	
Total Cadmium	0	0		0	2.148	2.28	63.6	Chem Translator of 0.941 applied
Total Chromium (III)	0	0		0	601.562	1,904	53,035	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	454	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	2,647	
Total Copper	0	0		0	14.306	14.9	415	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	69.411	88.8	2,475	Chem Translator of 0.781 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	1.400	1.65	45.9	Chem Translator of 0.85 applied
Total Nickel	0	0		0	495.254	496	13,825	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	3.605	4.24	118	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	1,811	
Total Zinc	0	0		0	123.953	127	3,531	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	83.6	

Acrylonitrile	0	0		0	650	650	18,109	
Benzene	0	0		0	640	640	17,830	
Bromoform	0	0		0	1,800	1,800	50,147	
Carbon Tetrachloride	0	0		0	2,800	2,800	78,006	
Chlorobenzene	0	0		0	1,200	1,200	33,431	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	501,469	
Chloroform	0	0		0	1,900	1,900	52,933	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	417,891	
1,1-Dichloroethylene	0	0		0	7,500	7,500	208,946	
1,2-Dichloropropane	0	0		0	11,000	11,000	306,453	
1,3-Dichloropropylene	0	0		0	310	310	8,636	
Ethylbenzene	0	0		0	2,900	2,900	80,792	
Methyl Bromide	0	0		0	550	550	15,323	
Methyl Chloride	0	0		0	28,000	28,000	780,063	
Methylene Chloride	0	0		0	12,000	12,000	334,313	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	27,859	
Tetrachloroethylene	0	0		0	700	700	19,502	
Toluene	0	0		0	1,700	1,700	47,361	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	189,444	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	83,578	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	94,722	
Trichloroethylene	0	0		0	2,300	2,300	64,077	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	15,601	
2,4-Dichlorophenol	0	0		0	1,700	1,700	47,361	
2,4-Dimethylphenol	0	0		0	660	660	18,387	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	2,229	
2,4-Dinitrophenol	0	0		0	660	660	18,387	
2-Nitrophenol	0	0		0	8,000	8,000	222,875	
4-Nitrophenol	0	0		0	2,300	2,300	64,077	
p-Chloro-m-Cresol	0	0		0	160	160	4,458	
Pentachlorophenol	0	0		0	8.849	8.85	247	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	12,815	
Acenaphthene	0	0		0	83	83.0	2,312	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	8,358	
Benzo(a)Anthracene	0	0		0	0.5	0.5	13.9	
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	835,782	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	125,367	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	7,522	
Butyl Benzyl Phthalate	0	0		0	140	140	3,900	

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	22,845	
1,3-Dichlorobenzene	0	0		0	350	350	9,751	
1,4-Dichlorobenzene	0	0		0	730	730	20,337	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	111,438	
Dimethyl Phthalate	0	0		0	2,500	2,500	69,649	
Di-n-Butyl Phthalate	0	0		0	110	110	3,065	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	44,575	
2,6-Dinitrotoluene	0	0		0	990	990	27,581	
1,2-Diphenylhydrazine	0	0		0	15	15.0	418	
Fluoranthene	0	0		0	200	200	5,572	
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	279	
Hexachlorocyclopentadiene	0	0		0	5	5.0	139	
Hexachloroethane	0	0		0	60	60.0	1,672	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	278,594	
Naphthalene	0	0		0	140	140	3,900	
Nitrobenzene	0	0		0	4,000	4,000	111,438	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	473,610	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	8,358	
Phenanthrene	0	0		0	5	5.0	139	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	3,622	

☑ *CFC* CCT (min): 3.273 PMF: 1 Analysis Hardness (mg/l): 106.86 Analysis pH: 7.01

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	6,129	
Total Arsenic	0	0		0	150	150	4,179	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	114,224	
Total Boron	0	0		0	1,600	1,600	44,575	
Total Cadmium	0	0		0	0.258	0.28	7.92	Chem Translator of 0.906 applied
Total Chromium (III)	0	0		0	78.251	91.0	2,535	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	290	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	529	
Total Copper	0	0		0	9.478	9.87	275	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	41,789	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.705	3.46	96.4	Chem Translator of 0.781 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	25.2	Chem Translator of 0.85 applied
Total Nickel	0	0		0	55.007	55.2	1,537	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	139	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	362	
Total Zinc	0	0		0	124.967	127	3,531	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	83.6	
Acrylonitrile	0	0		0	130	130	3,622	
Benzene	0	0		0	130	130	3,622	
Bromoform	0	0		0	370	370	10,308	
Carbon Tetrachloride	0	0		0	560	560	15,601	
Chlorobenzene	0	0		0	240	240	6,686	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	97,508	
Chloroform	0	0		0	390	390	10,865	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	86,364	
1,1-Dichloroethylene	0	0		0	1,500	1,500	41,789	
1,2-Dichloropropane	0	0		0	2,200	2,200	61,291	
1,3-Dichloropropylene	0	0		0	61	61.0	1,699	
Ethylbenzene	0	0		0	580	580	16,158	
Methyl Bromide	0	0		0	110	110	3,065	
Methyl Chloride	0	0		0	5,500	5,500	153,227	
Methylene Chloride	0	0		0	2,400	2,400	66,863	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	5,850	
Tetrachloroethylene	0	0		0	140	140	3,900	
Toluene	0	0		0	330	330	9,194	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	39,003	
1,1,1-Trichloroethane	0	0		0	610	610	16,994	
1,1,2-Trichloroethane	0	0		0	680	680	18,944	
Trichloroethylene	0	0		0	450	450	12,537	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	3,065	
2,4-Dichlorophenol	0	0		0	340	340	9,472	
2,4-Dimethylphenol	0	0		0	130	130	3,622	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	446	
2,4-Dinitrophenol	0	0		0	130	130	3,622	
2-Nitrophenol	0	0		0	1,600	1,600	44,575	

4-Nitrophenol	0	0		0	470	470	13,094	
p-Chloro-m-Cresol	0	0		0	500	500	13,930	
Pentachlorophenol	0	0		0	6.789	6.79	189	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	2,535	
Acenaphthene	0	0		0	17	17.0	474	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	1,644	
Benzo(a)Anthracene	0	0		0	0.1	0.1	2.79	
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	167,156	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	25,352	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	1,504	
Butyl Benzyl Phthalate	0	0		0	35	35.0	975	
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	4,458	
1,3-Dichlorobenzene	0	0		0	69	69.0	1,922	
1,4-Dichlorobenzene	0	0		0	150	150	4,179	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	22,288	
Dimethyl Phthalate	0	0		0	500	500	13,930	
Di-n-Butyl Phthalate	0	0		0	21	21.0	585	
2,4-Dinitrotoluene	0	0		0	320	320	8,915	
2,6-Dinitrotoluene	0	0		0	200	200	5,572	
1,2-Diphenylhydrazine	0	0		0	3	3.0	83.6	
Fluoranthene	0	0		0	40	40.0	1,114	
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	55.7	
Hexachlorocyclopentadiene	0	0		0	1	1.0	27.9	
Hexachloroethane	0	0		0	12	12.0	334	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	58,505	
Naphthalene	0	0		0	43	43.0	1,198	
Nitrobenzene	0	0		0	810	810	22,566	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	94,722	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	1,644	
Phenanthrene	0	0		0	1	1.0	27.9	
Pyrene	0	0		0	N/A	N/A	N/A	

1,2,4-Trichlorobenzene	0	0		0	26	26.0	724	

THH CCT (min): 3.273 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	156	
Total Arsenic	0	0		0	10	10.0	279	
Total Barium	0	0		0	2,400	2,400	66,863	
Total Boron	0	0		0	3,100	3,100	86,364	
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	8,358	
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	27,859	
Total Mercury	0	0		0	0.050	0.05	1.39	
Total Nickel	0	0		0	610	610	16,994	
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	6.69	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	83.6	
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	2,786	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	159	
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	919	
1,2-Dichloropropane	0	0		0	N/A	N/A	N/A	

1,3-Dichloropropylene	0	0		0	N/A	N/A	N/A	
Ethylbenzene	0	0		0	68	68.0	1,894	
Methyl Bromide	0	0		0	100	100.0	2,786	
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	1,588	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	2,786	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	278,594	
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	836	
2,4-Dichlorophenol	0	0		0	10	10.0	279	
2,4-Dimethylphenol	0	0		0	100	100.0	2,786	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	55.7	
2,4-Dinitrophenol	0	0		0	10	10.0	279	
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	111,438	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	1,950	
Anthracene	0	0		0	300	300	8,358	
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	5,572	
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	2.79	
2-Chloronaphthalene	0	0		0	800	800	22,288	
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	27,859	
1,3-Dichlorobenzene	0	0		0	7	7.0	195	
1,4-Dichlorobenzene	0	0		0	300	300	8,358	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	16,716	
Dimethyl Phthalate	0	0		0	2,000	2,000	55,719	

Di-n-Butyl Phthalate	0	0		0	20	20.0	557	
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	557	
Fluorene	0	0		0	50	50.0	1,393	
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	111	
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	947	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	279	
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	557	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	1.95	

☑ *CRL* CCT (min): 1.041 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	
Acrylonitrile	0	0		0	0.06	0.06	10.4	
Benzene	0	0		0	0.58	0.58	101	
Bromoform	0	0		0	7	7.0	1,214	
Carbon Tetrachloride	0	0		0	0.4	0.4	69.4	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	139	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	165	
1,2-Dichloroethane	0	0		0	9.9	9.9	1,717	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	156	
1,3-Dichloropropylene	0	0		0	0.27	0.27	46.8	
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	3,469	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	34.7	
Tetrachloroethylene	0	0		0	10	10.0	1,734	
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	95.4	
Trichloroethylene	0	0		0	0.6	0.6	104	
Vinyl Chloride	0	0		0	0.02	0.02	3.47	
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	5.2	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	260	
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	0.017	
Benzo(a)Anthracene	0	0		0	0.001	0.001	0.17	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.017	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	0.17	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	1.73	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	5.2	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	55.5	
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	20.8	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.017	
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	8.67	
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	8.67	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	8.67	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	5.2	
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	0.014	
Hexachlorobutadiene	0	0		0	0.01	0.01	1.73	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	17.3	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	0.17	
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	0.12	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	0.87	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	572	
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 Lead	0.062	0.096	96.4	150	241	µg/L	96.4	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Thallium	Report	Report	Report	Report	Report	µg/L	6.69	THH	Discharge Conc > 10% WQBEL (no RP)
Total Zinc	1.45	2.26	2.26	3.53	5.66	mg/L	2.26	AFC	Discharge Conc ≥ 50% WQBEL (RP)

Other Pollutants without Limits or Monitoring

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	156	µg/L	Discharge Conc ≤ 10% WQBEL
Total Arsenic	279	µg/L	Discharge Conc ≤ 10% WQBEL
Total Barium	66,863	µg/L	Discharge Conc ≤ 10% WQBEL
Total Beryllium	N/A	N/A	No WQS
Total Boron	44,575	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	7.92	µg/L	Discharge Conc ≤ 10% WQBEL
Total Chromium (III)	2,535	µg/L	Discharge Conc < TQL
Hexavalent Chromium	290	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	529	µg/L	Discharge Conc < TQL
Total Copper	0.27	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	8,358	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	41,789	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	27,859	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	1.39	µg/L	Discharge Conc < TQL

Total Nickel	1,537	µg/L	Discharge Conc ≤ 10% WQBEL
Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	139	µg/L	Discharge Conc ≤ 10% WQBEL
Total Silver	75.7	µg/L	Discharge Conc < TQL
Acrolein	53.6	µg/L	Discharge Conc < TQL
Acrylonitrile	10.4	µg/L	Discharge Conc < TQL
Benzene	101	µg/L	Discharge Conc < TQL
Bromoform	1,214	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	69.4	µg/L	Discharge Conc < TQL
Chlorobenzene	2,786	µg/L	Discharge Conc < TQL
Chlorodibromomethane	139	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	97,508	µg/L	Discharge Conc < TQL
Chloroform	159	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	165	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	1,717	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	919	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	156	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	46.8	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	1,894	µg/L	Discharge Conc < TQL
Methyl Bromide	2,786	µg/L	Discharge Conc < TQL
Methyl Chloride	153,227	µg/L	Discharge Conc < TQL
Methylene Chloride	3,469	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	34.7	µg/L	Discharge Conc < TQL
Tetrachloroethylene	1,734	µg/L	Discharge Conc < TQL
Toluene	1,588	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	2,786	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	16,994	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	95.4	µg/L	Discharge Conc < TQL
Trichloroethylene	104	µg/L	Discharge Conc < TQL
Vinyl Chloride	3.47	µg/L	Discharge Conc ≤ 25% WQBEL
2-Chlorophenol	836	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	279	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	2,786	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	55.7	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	279	µg/L	Discharge Conc < TQL
2-Nitrophenol	44,575	µg/L	Discharge Conc < TQL
4-Nitrophenol	13,094	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	2,857	µg/L	Discharge Conc < TQL
Pentachlorophenol	5.2	µg/L	Discharge Conc < TQL
Phenol	111,438	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	260	µg/L	Discharge Conc < TQL
Acenaphthene	474	µg/L	Discharge Conc < TQL

Acenaphthylene	N/A	N/A	No WQS
Anthracene	8,358	µg/L	Discharge Conc < TQL
Benzidine	0.017	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	0.17	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.017	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	0.17	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	1.73	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	5.2	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	5,572	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	55.5	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	1,504	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	2.79	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	22,288	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	20.8	µg/L	Discharge Conc ≤ 25% WQBEL
Dibenzo(a,h)Anthrancene	0.017	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	4,458	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	195	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	4,179	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	8.67	µg/L	Discharge Conc < TQL
Diethyl Phthalate	16,716	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	13,930	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	557	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	8.67	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	8.67	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	5.2	µg/L	Discharge Conc < TQL
Fluoranthene	557	µg/L	Discharge Conc < TQL
Fluorene	1,393	µg/L	Discharge Conc ≤ 25% WQBEL
Hexachlorobenzene	0.014	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	1.73	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	27.9	µg/L	Discharge Conc < TQL
Hexachloroethane	17.3	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	0.17	µg/L	Discharge Conc < TQL
Isophorone	947	µg/L	Discharge Conc < TQL
Naphthalene	1,198	µg/L	Discharge Conc < TQL
Nitrobenzene	279	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.12	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	0.87	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	572	µg/L	Discharge Conc < TQL
Phenanthrene	27.9	µg/L	Discharge Conc < TQL
Pyrene	557	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	1.95	µg/L	Discharge Conc < TQL

Outfall 211

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DEPARTMENT OF ENVIRONMENTAL PROTECTION

Toxics Management Spreadsheet
Version 1.4, May 2023

Discharge Information

Instructions | Discharge | Stream

Facility: Jessop Steel - Washington Plant NPDES Permit No.: PA0001902 Outfall No.: 211

Evaluation Type: Major Sewage / Industrial Waste Wastewater Description: Process Wastewaters

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
0.011	428	9.8						

					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		1240									
	Chloride (PWS)	mg/L		25									
	Bromide	mg/L	<	0.2									
	Sulfate (PWS)	mg/L		475									
	Fluoride (PWS)	mg/L		239									
Group 2	Total Aluminum	µg/L	<	10									
	Total Antimony	µg/L	<	2									
	Total Arsenic	µg/L	<	3									
	Total Barium	µg/L	<	2									
	Total Beryllium	µg/L	<	1									
	Total Boron	µg/L		130									
	Total Cadmium	µg/L	<	0.2									
	Total Chromium (III)	µg/L		90									
	Hexavalent Chromium	µg/L		25									
	Total Cobalt	µg/L	<	1									
	Total Copper	mg/L		0.056									
	Free Cyanide	µg/L											
	Total Cyanide	µg/L		8938									
	Dissolved Iron	µg/L		11									
	Total Iron	µg/L		36									
	Total Lead	µg/L		12976									
	Total Manganese	µg/L		30									
	Total Mercury	µg/L	<	0.2									
	Total Nickel	µg/L		16337									
	Total Phenols (Phenolics) (PWS)	µg/L	<	5									
	Total Selenium	µg/L	<	5									
	Total Silver	µg/L	<	0.4									
	Total Thallium	µg/L	<	2									
	Total Zinc	mg/L		45									
	Total Molybdenum	µg/L											
	Acrolein	µg/L	<	2									
	Acrylamide	µg/L	<										
	Acrylonitrile	µg/L	<	4									
	Benzene	µg/L	<	0.5									
	Bromoform	µg/L		20									

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	<	2										
	Chloroform	µg/L		1										
	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	<	2.5										
	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)Anthracene	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	<	0.5									
	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									
Group 6	Aldrin	µg/L	<										
	alpha-BHC	µg/L	<										
	beta-BHC	µg/L	<										
	gamma-BHC	µg/L	<										
	delta BHC	µg/L	<										
	Chlordane	µg/L	<										
	4,4-DDT	µg/L	<										
	4,4-DDE	µg/L	<										
	4,4-DDD	µg/L	<										
	Dieldrin	µg/L	<										
	alpha-Endosulfan	µg/L	<										
	beta-Endosulfan	µg/L	<										
	Endosulfan Sulfate	µg/L	<										
	Endrin	µg/L	<										
	Endrin Aldehyde	µg/L	<										
	Heptachlor	µg/L	<										
	Heptachlor Epoxide	µg/L	<										
	PCB-1016	µg/L	<										
	PCB-1221	µg/L	<										
	PCB-1232	µg/L	<										
	PCB-1242	µg/L	<										
	PCB-1248	µg/L	<										
	PCB-1254	µg/L	<										
	PCB-1260	µg/L	<										
	PCBs, Total	µg/L	<										
	Toxaphene	µg/L	<										
	2,3,7,8-TCDD	ng/L	<										
Group 7	Gross Alpha	pCi/L											
	Total Beta	pCi/L	<										
	Radium 226/228	pCi/L	<										
	Total Strontium	µg/L	<										
	Total Uranium	µg/L	<										
	Osmotic Pressure	mOs/kg											

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Toxics Management Spreadsheet
Version 1.4, May 2023

Stream / Surface Water Information

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 211

Instructions | Discharge | *Stream*

Receiving Surface Water Name: Chartiers Creek

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	036777	42.4	1011	18.2			Yes
End of Reach 1	036777	42	1010	18.4			Yes

Q_{7-10}

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	42.4	0.1	3.187			25	5					100	7		
End of Reach 1	42	0.1	3.187			25	5								

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	42.4														
End of Reach 1	42														

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Model Results

Jessop Steel - Washington Plant, NPDES Permit No. PA0001902, Outfall 211

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

☐ *Hydrodynamics*

☑ *Wasteload Allocations*

☑ *AFC* CCT (min): 3.484 PMF: 1 Analysis Hardness (mg/l): 101.74 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	141,212	
Total Antimony	0	0		0	1,100	1,100	207,112	
Total Arsenic	0	0		0	340	340	64,016	Chem Translator of 1 applied
Total Barium	0	0		0	21,000	21,000	3,953,949	
Total Boron	0	0		0	8,100	8,100	1,525,095	
Total Cadmium	0	0		0	2.048	2.17	409	Chem Translator of 0.943 applied
Total Chromium (III)	0	0		0	577.880	1,829	344,320	Chem Translator of 0.316 applied
Hexavalent Chromium	0	0		0	16	16.3	3,068	Chem Translator of 0.982 applied
Total Cobalt	0	0		0	95	95.0	17,887	
Total Copper	0	0		0	13.660	14.2	2,679	Chem Translator of 0.96 applied
Dissolved Iron	0	0		0	N/A	N/A	N/A	
Total Iron	0	0		0	N/A	N/A	N/A	
Total Lead	0	0		0	65.807	83.5	15,714	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	310	Chem Translator of 0.85 applied
Total Nickel	0	0		0	475.127	476	89,638	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	3.314	3.9	734	Chem Translator of 0.85 applied
Total Thallium	0	0		0	65	65.0	12,238	
Total Zinc	0	0		0	118.908	122	22,892	Chem Translator of 0.978 applied
Acrolein	0	0		0	3	3.0	565	

Acrylonitrile	0	0		0	650	650	122,384	
Benzene	0	0		0	640	640	120,501	
Bromoform	0	0		0	1,800	1,800	338,910	
Carbon Tetrachloride	0	0		0	2,800	2,800	527,193	
Chlorobenzene	0	0		0	1,200	1,200	225,940	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	18,000	18,000	3,389,099	
Chloroform	0	0		0	1,900	1,900	357,738	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	15,000	15,000	2,824,250	
1,1-Dichloroethylene	0	0		0	7,500	7,500	1,412,125	
1,2-Dichloropropane	0	0		0	11,000	11,000	2,071,116	
1,3-Dichloropropylene	0	0		0	310	310	58,368	
Ethylbenzene	0	0		0	2,900	2,900	546,022	
Methyl Bromide	0	0		0	550	550	103,556	
Methyl Chloride	0	0		0	28,000	28,000	5,271,933	
Methylene Chloride	0	0		0	12,000	12,000	2,259,400	
1,1,2,2-Tetrachloroethane	0	0		0	1,000	1,000	188,283	
Tetrachloroethylene	0	0		0	700	700	131,798	
Toluene	0	0		0	1,700	1,700	320,082	
1,2-trans-Dichloroethylene	0	0		0	6,800	6,800	1,280,326	
1,1,1-Trichloroethane	0	0		0	3,000	3,000	564,850	
1,1,2-Trichloroethane	0	0		0	3,400	3,400	640,163	
Trichloroethylene	0	0		0	2,300	2,300	433,052	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	560	560	105,439	
2,4-Dichlorophenol	0	0		0	1,700	1,700	320,082	
2,4-Dimethylphenol	0	0		0	660	660	124,267	
4,6-Dinitro-o-Cresol	0	0		0	80	80.0	15,063	
2,4-Dinitrophenol	0	0		0	660	660	124,267	
2-Nitrophenol	0	0		0	8,000	8,000	1,506,266	
4-Nitrophenol	0	0		0	2,300	2,300	433,052	
p-Chloro-m-Cresol	0	0		0	160	160	30,125	
Pentachlorophenol	0	0		0	8.744	8.74	1,646	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	460	460	86,610	
Acenaphthene	0	0		0	83	83.0	15,628	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	300	300	56,485	
Benzo(a)Anthracene	0	0		0	0.5	0.5	94.1	
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	5,648,499	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	4,500	4,500	847,275	
4-Bromophenyl Phenyl Ether	0	0		0	270	270	50,836	
Butyl Benzyl Phthalate	0	0		0	140	140	26,360	

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	154,392	
1,3-Dichlorobenzene	0	0		0	350	350	65,899	
1,4-Dichlorobenzene	0	0		0	730	730	137,447	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	4,000	4,000	753,133	
Dimethyl Phthalate	0	0		0	2,500	2,500	470,708	
Di-n-Butyl Phthalate	0	0		0	110	110	20,711	
2,4-Dinitrotoluene	0	0		0	1,600	1,600	301,253	
2,6-Dinitrotoluene	0	0		0	990	990	186,400	
1,2-Diphenylhydrazine	0	0		0	15	15.0	2,824	
Fluoranthene	0	0		0	200	200	37,657	
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	1,883	
Hexachlorocyclopentadiene	0	0		0	5	5.0	941	
Hexachloroethane	0	0		0	60	60.0	11,297	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	10,000	10,000	1,882,833	
Naphthalene	0	0		0	140	140	26,360	
Nitrobenzene	0	0		0	4,000	4,000	753,133	
n-Nitrosodimethylamine	0	0		0	17,000	17,000	3,200,816	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	300	300	56,485	
Phenanthrene	0	0		0	5	5.0	941	
Pyrene	0	0		0	N/A	N/A	N/A	
1,2,4-Trichlorobenzene	0	0		0	130	130	24,477	

☑ *CFC* CCT (min): 3.484 PMF: 1 Analysis Hardness (mg/l): 101.74 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	41,422	
Total Arsenic	0	0		0	150	150	28,242	Chem Translator of 1 applied
Total Barium	0	0		0	4,100	4,100	771,962	
Total Boron	0	0		0	1,600	1,600	301,253	
Total Cadmium	0	0		0	0.249	0.27	51.6	Chem Translator of 0.908 applied
Total Chromium (III)	0	0		0	75.170	87.4	16,457	Chem Translator of 0.86 applied
Hexavalent Chromium	0	0		0	10	10.4	1,957	Chem Translator of 0.962 applied

Total Cobalt	0	0		0	19	19.0	3,577	
Total Copper	0	0		0	9.089	9.47	1,783	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	282,425	WQC = 30 day average; PMF = 1
Total Lead	0	0		0	2.564	3.25	612	Chem Translator of 0.788 applied
Total Manganese	0	0		0	N/A	N/A	N/A	
Total Mercury	0	0		0	0.770	0.91	171	Chem Translator of 0.85 applied
Total Nickel	0	0		0	52.772	52.9	9,966	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	939	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	2,448	
Total Zinc	0	0		0	119.880	122	22,892	Chem Translator of 0.986 applied
Acrolein	0	0		0	3	3.0	565	
Acrylonitrile	0	0		0	130	130	24,477	
Benzene	0	0		0	130	130	24,477	
Bromoform	0	0		0	370	370	69,665	
Carbon Tetrachloride	0	0		0	560	560	105,439	
Chlorobenzene	0	0		0	240	240	45,188	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	3,500	3,500	658,992	
Chloroform	0	0		0	390	390	73,430	
Dichlorobromomethane	0	0		0	N/A	N/A	N/A	
1,2-Dichloroethane	0	0		0	3,100	3,100	583,678	
1,1-Dichloroethylene	0	0		0	1,500	1,500	282,425	
1,2-Dichloropropane	0	0		0	2,200	2,200	414,223	
1,3-Dichloropropylene	0	0		0	61	61.0	11,485	
Ethylbenzene	0	0		0	580	580	109,204	
Methyl Bromide	0	0		0	110	110	20,711	
Methyl Chloride	0	0		0	5,500	5,500	1,035,558	
Methylene Chloride	0	0		0	2,400	2,400	451,880	
1,1,2,2-Tetrachloroethane	0	0		0	210	210	39,539	
Tetrachloroethylene	0	0		0	140	140	26,360	
Toluene	0	0		0	330	330	62,133	
1,2-trans-Dichloroethylene	0	0		0	1,400	1,400	263,597	
1,1,1-Trichloroethane	0	0		0	610	610	114,853	
1,1,2-Trichloroethane	0	0		0	680	680	128,033	
Trichloroethylene	0	0		0	450	450	84,727	
Vinyl Chloride	0	0		0	N/A	N/A	N/A	
2-Chlorophenol	0	0		0	110	110	20,711	
2,4-Dichlorophenol	0	0		0	340	340	64,016	
2,4-Dimethylphenol	0	0		0	130	130	24,477	
4,6-Dinitro-o-Cresol	0	0		0	16	16.0	3,013	
2,4-Dinitrophenol	0	0		0	130	130	24,477	
2-Nitrophenol	0	0		0	1,600	1,600	301,253	

4-Nitrophenol	0	0		0	470	470	88,493	
p-Chloro-m-Cresol	0	0		0	500	500	94,142	
Pentachlorophenol	0	0		0	6.708	6.71	1,263	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	91	91.0	17,134	
Acenaphthene	0	0		0	17	17.0	3,201	
Anthracene	0	0		0	N/A	N/A	N/A	
Benzidine	0	0		0	59	59.0	11,109	
Benzo(a)Anthracene	0	0		0	0.1	0.1	18.8	
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	6,000	6,000	1,129,700	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	910	910	171,338	
4-Bromophenyl Phenyl Ether	0	0		0	54	54.0	10,167	
Butyl Benzyl Phthalate	0	0		0	35	35.0	6,590	
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	30,125	
1,3-Dichlorobenzene	0	0		0	69	69.0	12,992	
1,4-Dichlorobenzene	0	0		0	150	150	28,242	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	800	800	150,627	
Dimethyl Phthalate	0	0		0	500	500	94,142	
Di-n-Butyl Phthalate	0	0		0	21	21.0	3,954	
2,4-Dinitrotoluene	0	0		0	320	320	60,251	
2,6-Dinitrotoluene	0	0		0	200	200	37,657	
1,2-Diphenylhydrazine	0	0		0	3	3.0	565	
Fluoranthene	0	0		0	40	40.0	7,531	
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	377	
Hexachlorocyclopentadiene	0	0		0	1	1.0	188	
Hexachloroethane	0	0		0	12	12.0	2,259	
Indeno(1,2,3-cd)Pyrene	0	0		0	N/A	N/A	N/A	
Isophorone	0	0		0	2,100	2,100	395,395	
Naphthalene	0	0		0	43	43.0	8,096	
Nitrobenzene	0	0		0	810	810	152,509	
n-Nitrosodimethylamine	0	0		0	3,400	3,400	640,163	
n-Nitrosodi-n-Propylamine	0	0		0	N/A	N/A	N/A	
n-Nitrosodiphenylamine	0	0		0	59	59.0	11,109	
Phenanthrene	0	0		0	1	1.0	188	
Pyrene	0	0		0	N/A	N/A	N/A	

1,2,4-Trichlorobenzene	0	0		0	26	26.0	4,895	

☑ ***THH*** CCT (min): 3.484 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	1,054	
Total Arsenic	0	0		0	10	10.0	1,883	
Total Barium	0	0		0	2,400	2,400	451,880	
Total Boron	0	0		0	3,100	3,100	583,678	
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	56,485	
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	188,283	
Total Mercury	0	0		0	0.050	0.05	9.41	
Total Nickel	0	0		0	610	610	114,853	
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	45.2	
Total Zinc	0	0		0	N/A	N/A	N/A	
Acrolein	0	0		0	3	3.0	565	
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	18,828	
Chlorodibromomethane	0	0		0	N/A	N/A	N/A	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	5.7	5.7	1,073	
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	6,213	
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	12,803	
Methyl Bromide	0	0		0	100	100.0	18,828	
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	10,732	
1,2-trans-Dichloroethylene	0	0		0	100	100.0	18,828	
1,1,1-Trichloroethane	0	0		0	10,000	10,000	1,882,833	
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	5,648	
2,4-Dichlorophenol	0	0		0	10	10.0	1,883	
2,4-Dimethylphenol	0	0		0	100	100.0	18,828	
4,6-Dinitro-o-Cresol	0	0		0	2	2.0	377	
2,4-Dinitrophenol	0	0		0	10	10.0	1,883	
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	753,133	
2,4,6-Trichlorophenol	0	0		0	N/A	N/A	N/A	
Acenaphthene	0	0		0	70	70.0	13,180	
Anthracene	0	0		0	300	300	56,485	
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	37,657	
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	18.8	
2-Chloronaphthalene	0	0		0	800	800	150,627	
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	188,283	
1,3-Dichlorobenzene	0	0		0	7	7.0	1,318	
1,4-Dichlorobenzene	0	0		0	300	300	56,485	
3,3-Dichlorobenzidine	0	0		0	N/A	N/A	N/A	
Diethyl Phthalate	0	0		0	600	600	112,970	
Dimethyl Phthalate	0	0		0	2,000	2,000	376,567	

Di-n-Butyl Phthalate	0	0		0	20	20.0	3,766	
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	3,766	
Fluorene	0	0		0	50	50.0	9,414	
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	753	
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	6,402	
Naphthalene	0	0		0	N/A	N/A	N/A	
Nitrobenzene	0	0		0	10	10.0	1,883	
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	3,766	
1,2,4-Trichlorobenzene	0	0		0	0.07	0.07	13.2	

☑ *CRL* CCT (min): 1.033 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	
Acrylonitrile	0	0		0	0.06	0.06	72.2	
Benzene	0	0		0	0.58	0.58	698	
Bromoform	0	0		0	7	7.0	8,424	
Carbon Tetrachloride	0	0		0	0.4	0.4	481	
Chlorobenzene	0	0		0	N/A	N/A	N/A	
Chlorodibromomethane	0	0		0	0.8	0.8	963	
2-Chloroethyl Vinyl Ether	0	0		0	N/A	N/A	N/A	
Chloroform	0	0		0	N/A	N/A	N/A	
Dichlorobromomethane	0	0		0	0.95	0.95	1,143	
1,2-Dichloroethane	0	0		0	9.9	9.9	11,914	
1,1-Dichloroethylene	0	0		0	N/A	N/A	N/A	
1,2-Dichloropropane	0	0		0	0.9	0.9	1,083	
1,3-Dichloropropylene	0	0		0	0.27	0.27	325	
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	24,069	
1,1,2,2-Tetrachloroethane	0	0		0	0.2	0.2	241	
Tetrachloroethylene	0	0		0	10	10.0	12,034	
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	662	
Trichloroethylene	0	0		0	0.6	0.6	722	
Vinyl Chloride	0	0		0	0.02	0.02	24.1	
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	36.1	
Phenol	0	0		0	N/A	N/A	N/A	
2,4,6-Trichlorophenol	0	0		0	1.5	1.5	1,805	
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	0.12	
Benzo(a)Anthracene	0	0		0	0.001	0.001	1.2	
Benzo(a)Pyrene	0	0		0	0.0001	0.0001	0.12	
3,4-Benzofluoranthene	0	0		0	0.001	0.001	1.2	
Benzo(k)Fluoranthene	0	0		0	0.01	0.01	12.0	
Bis(2-Chloroethyl)Ether	0	0		0	0.03	0.03	36.1	
Bis(2-Chloroisopropyl)Ether	0	0		0	N/A	N/A	N/A	
Bis(2-Ethylhexyl)Phthalate	0	0		0	0.32	0.32	385	
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	144	
Dibenzo(a,h)Anthrancene	0	0		0	0.0001	0.0001	0.12	
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	60.2	
Diethyl Phthalate	0	0		0	N/A	N/A	N/A	
Dimethyl Phthalate	0	0		0	N/A	N/A	N/A	
Di-n-Butyl Phthalate	0	0		0	N/A	N/A	N/A	
2,4-Dinitrotoluene	0	0		0	0.05	0.05	60.2	
2,6-Dinitrotoluene	0	0		0	0.05	0.05	60.2	
1,2-Diphenylhydrazine	0	0		0	0.03	0.03	36.1	
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	0.096	
Hexachlorobutadiene	0	0		0	0.01	0.01	12.0	
Hexachlorocyclopentadiene	0	0		0	N/A	N/A	N/A	
Hexachloroethane	0	0		0	0.1	0.1	120	
Indeno(1,2,3-cd)Pyrene	0	0		0	0.001	0.001	1.2	
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	0.84	
n-Nitrosodi-n-Propylamine	0	0		0	0.005	0.005	6.02	
n-Nitrosodiphenylamine	0	0		0	3.3	3.3	3,971	
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 Lead	0.056	0.088	612	955	1,531	µg/L	612	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Nickel	0.91	1.43	9,966	15,549	24,915	µg/L	9,966	CFC	Discharge Conc ≥ 50% WQBEL (RP)
Total Zinc	1.35	2.1	14.7	22.9	36.7	mg/L	14.7	AFC	Discharge Conc ≥ 50% WQBEL (RP)

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

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

Pollutants	Governing WQBEL	Units	Comments
Total Dissolved Solids (PWS)	N/A	N/A	PWS Not Applicable
Chloride (PWS)	N/A	N/A	PWS Not Applicable
Bromide	N/A	N/A	No WQS
Sulfate (PWS)	N/A	N/A	PWS Not Applicable
Fluoride (PWS)	N/A	N/A	PWS Not Applicable
Total Aluminum	N/A	N/A	Discharge Conc < TQL
Total Antimony	N/A	N/A	Discharge Conc < TQL
Total Arsenic	N/A	N/A	Discharge Conc < TQL
Total Barium	451,880	µg/L	Discharge Conc < TQL
Total Beryllium	N/A	N/A	No WQS
Total Boron	301,253	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cadmium	51.6	µg/L	Discharge Conc < TQL
Total Chromium (III)	16,457	µg/L	Discharge Conc ≤ 10% WQBEL
Hexavalent Chromium	1,957	µg/L	Discharge Conc ≤ 10% WQBEL
Total Cobalt	3,577	µg/L	Discharge Conc < TQL
Total Copper	1.72	mg/L	Discharge Conc ≤ 10% WQBEL
Total Cyanide	N/A	N/A	No WQS
Dissolved Iron	56,485	µg/L	Discharge Conc ≤ 10% WQBEL
Total Iron	282,425	µg/L	Discharge Conc ≤ 10% WQBEL
Total Manganese	188,283	µg/L	Discharge Conc ≤ 10% WQBEL
Total Mercury	9.41	µg/L	Discharge Conc < TQL

Total Phenols (Phenolics) (PWS)		µg/L	Discharge Conc < TQL
Total Selenium	939	µg/L	Discharge Conc < TQL
Total Silver	470	µg/L	Discharge Conc < TQL
Total Thallium	45.2	µg/L	Discharge Conc < TQL
Acrolein	362	µg/L	Discharge Conc < TQL
Acrylonitrile	72.2	µg/L	Discharge Conc < TQL
Benzene	698	µg/L	Discharge Conc < TQL
Bromoform	8,424	µg/L	Discharge Conc ≤ 25% WQBEL
Carbon Tetrachloride	481	µg/L	Discharge Conc < TQL
Chlorobenzene	18,828	µg/L	Discharge Conc < TQL
Chlorodibromomethane	963	µg/L	Discharge Conc < TQL
Chloroethane	N/A	N/A	No WQS
2-Chloroethyl Vinyl Ether	658,992	µg/L	Discharge Conc < TQL
Chloroform	1,073	µg/L	Discharge Conc ≤ 25% WQBEL
Dichlorobromomethane	1,143	µg/L	Discharge Conc < TQL
1,1-Dichloroethane	N/A	N/A	No WQS
1,2-Dichloroethane	11,914	µg/L	Discharge Conc < TQL
1,1-Dichloroethylene	6,213	µg/L	Discharge Conc < TQL
1,2-Dichloropropane	1,083	µg/L	Discharge Conc < TQL
1,3-Dichloropropylene	325	µg/L	Discharge Conc < TQL
1,4-Dioxane	N/A	N/A	No WQS
Ethylbenzene	12,803	µg/L	Discharge Conc < TQL
Methyl Bromide	18,828	µg/L	Discharge Conc < TQL
Methyl Chloride	1,035,558	µg/L	Discharge Conc < TQL
Methylene Chloride	24,069	µg/L	Discharge Conc < TQL
1,1,2,2-Tetrachloroethane	241	µg/L	Discharge Conc < TQL
Tetrachloroethylene	12,034	µg/L	Discharge Conc < TQL
Toluene	10,732	µg/L	Discharge Conc < TQL
1,2-trans-Dichloroethylene	18,828	µg/L	Discharge Conc < TQL
1,1,1-Trichloroethane	114,853	µg/L	Discharge Conc < TQL
1,1,2-Trichloroethane	662	µg/L	Discharge Conc < TQL
Trichloroethylene	722	µg/L	Discharge Conc < TQL
Vinyl Chloride	24.1	µg/L	Discharge Conc < TQL
2-Chlorophenol	5,648	µg/L	Discharge Conc < TQL
2,4-Dichlorophenol	1,883	µg/L	Discharge Conc < TQL
2,4-Dimethylphenol	18,828	µg/L	Discharge Conc < TQL
4,6-Dinitro-o-Cresol	377	µg/L	Discharge Conc < TQL
2,4-Dinitrophenol	1,883	µg/L	Discharge Conc < TQL
2-Nitrophenol	301,253	µg/L	Discharge Conc < TQL
4-Nitrophenol	88,493	µg/L	Discharge Conc < TQL
p-Chloro-m-Cresol	19,309	µg/L	Discharge Conc < TQL
Pentachlorophenol	36.1	µg/L	Discharge Conc < TQL
Phenol	753,133	µg/L	Discharge Conc < TQL
2,4,6-Trichlorophenol	1,805	µg/L	Discharge Conc < TQL
Acenaphthene	3,201	µg/L	Discharge Conc < TQL

Acenaphthylene	N/A	N/A	No WQS
Anthracene	56,485	µg/L	Discharge Conc < TQL
Benzidine	0.12	µg/L	Discharge Conc < TQL
Benzo(a)Anthracene	1.2	µg/L	Discharge Conc < TQL
Benzo(a)Pyrene	0.12	µg/L	Discharge Conc < TQL
3,4-Benzofluoranthene	1.2	µg/L	Discharge Conc < TQL
Benzo(ghi)Perylene	N/A	N/A	No WQS
Benzo(k)Fluoranthene	12.0	µg/L	Discharge Conc < TQL
Bis(2-Chloroethoxy)Methane	N/A	N/A	No WQS
Bis(2-Chloroethyl)Ether	36.1	µg/L	Discharge Conc < TQL
Bis(2-Chloroisopropyl)Ether	37,657	µg/L	Discharge Conc < TQL
Bis(2-Ethylhexyl)Phthalate	385	µg/L	Discharge Conc < TQL
4-Bromophenyl Phenyl Ether	10,167	µg/L	Discharge Conc < TQL
Butyl Benzyl Phthalate	18.8	µg/L	Discharge Conc < TQL
2-Chloronaphthalene	150,627	µg/L	Discharge Conc < TQL
4-Chlorophenyl Phenyl Ether	N/A	N/A	No WQS
Chrysene	144	µg/L	Discharge Conc < TQL
Dibenzo(a,h)Anthrancene	0.12	µg/L	Discharge Conc < TQL
1,2-Dichlorobenzene	30,125	µg/L	Discharge Conc < TQL
1,3-Dichlorobenzene	1,318	µg/L	Discharge Conc < TQL
1,4-Dichlorobenzene	28,242	µg/L	Discharge Conc < TQL
3,3-Dichlorobenzidine	60.2	µg/L	Discharge Conc < TQL
Diethyl Phthalate	112,970	µg/L	Discharge Conc < TQL
Dimethyl Phthalate	94,142	µg/L	Discharge Conc < TQL
Di-n-Butyl Phthalate	3,766	µg/L	Discharge Conc < TQL
2,4-Dinitrotoluene	60.2	µg/L	Discharge Conc < TQL
2,6-Dinitrotoluene	60.2	µg/L	Discharge Conc < TQL
Di-n-Octyl Phthalate	N/A	N/A	No WQS
1,2-Diphenylhydrazine	36.1	µg/L	Discharge Conc < TQL
Fluoranthene	3,766	µg/L	Discharge Conc < TQL
Fluorene	9,414	µg/L	Discharge Conc < TQL
Hexachlorobenzene	0.096	µg/L	Discharge Conc < TQL
Hexachlorobutadiene	12.0	µg/L	Discharge Conc < TQL
Hexachlorocyclopentadiene	188	µg/L	Discharge Conc < TQL
Hexachloroethane	120	µg/L	Discharge Conc < TQL
Indeno(1,2,3-cd)Pyrene	1.2	µg/L	Discharge Conc < TQL
Isophorone	6,402	µg/L	Discharge Conc < TQL
Naphthalene	8,096	µg/L	Discharge Conc < TQL
Nitrobenzene	1,883	µg/L	Discharge Conc < TQL
n-Nitrosodimethylamine	0.84	µg/L	Discharge Conc < TQL
n-Nitrosodi-n-Propylamine	6.02	µg/L	Discharge Conc < TQL
n-Nitrosodiphenylamine	3,971	µg/L	Discharge Conc < TQL
Phenanthrene	188	µg/L	Discharge Conc < TQL
Pyrene	3,766	µg/L	Discharge Conc < TQL
1,2,4-Trichlorobenzene	13.2	µg/L	Discharge Conc < TQL

Attachment C – Temperature Model Spreadsheet

Flow Data for Thermal Discharge Analysis

Facility: Jessop Steel - Washington Plant
Permit Number: PA0001902
Stream Name: Chartiers Creek
Analyst/Engineer: Curt Holes
Stream Q7-10 (cfs): 3.187

	Facility Flows				Stream Flows			
	Intake (Stream) (MGD)	Intake (External) (MGD)	Consumptive Loss (MGD)	Discharge Flow (MGD)	PMF	Upstream Stream Flow (cfs)	Adjusted Stream Flow (cfs)	Downstream Stream Flow (cfs)
Jan 1-31	0	0.022	0	0.022	1.00	9.85	9.85	9.88
Feb 1-29	0	0.022	0	0.022	1.00	11.15	11.15	11.19
Mar 1-31	0	0.022	0	0.022	1.00	20.72	20.72	20.75
Apr 1-15	0	0.022	0	0.022	1.00	28.56	28.56	28.59
Apr 16-30	0	0.022	0	0.022	1.00	28.56	28.56	28.59
May 1-15	0	0.022	0	0.022	1.00	16.19	16.19	16.22
May 16-31	0	0.022	0	0.022	1.00	16.19	16.19	16.22
Jun 1-15	0	0.022	0	0.022	1.00	9.43	9.43	9.47
Jun 16-30	0	0.022	0	0.022	1.00	9.43	9.43	9.47
Jul 1-31	0	0.022	0	0.022	1.00	4.33	4.33	4.37
Aug 1-15	0	0.022	0	0.022	1.00	4.43	4.43	4.46
Aug 16-31	0	0.022	0	0.022	1.00	4.43	4.43	4.46
Sep 1-15	0	0.022	0	0.022	1.00	3.44	3.44	3.48
Sep 16-30	0	0.022	0	0.022	1.00	3.44	3.44	3.48
Oct 1-15	0	0.022	0	0.022	1.00	4.08	4.08	4.11
Oct 16-31	0	0.022	0	0.022	1.00	4.08	4.08	4.11
Nov 1-15	0	0.022	0	0.022	1.00	5.77	5.77	5.80
Nov 16-30	0	0.022	0	0.022	1.00	5.77	5.77	5.80
Dec 1-31	0	0.022	0	0.022	1.00	9.56	9.56	9.60

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: **Jessop Steel - Washington Plant**
Permit Number: PA0001902
Stream: Chartiers Creek

	WWF Ambient Stream Temperature (ºF) (Default)	Ambient Stream Temperature (ºF) (Site-specific data)	Target Maximum Stream Temp.[1] (ºF)	WWF Daily WLA[2] (Million BTUs/day)	WWF Daily WLA[3] (ºF)	at Discharge Flow (MGD)	PMF
Jan 1-31	35	0	40	N/A -- Case 2	110.0	0.022	1.00
Feb 1-29	35	0	40	N/A -- Case 2	110.0	0.022	1.00
Mar 1-31	40	0	46	N/A -- Case 2	110.0	0.022	1.00
Apr 1-15	47	0	52	N/A -- Case 2	110.0	0.022	1.00
Apr 16-30	53	0	58	N/A -- Case 2	110.0	0.022	1.00
May 1-15	58	0	64	N/A -- Case 2	110.0	0.022	1.00
May 16-31	62	0	72	N/A -- Case 2	110.0	0.022	1.00
Jun 1-15	67	0	80	N/A -- Case 2	110.0	0.022	1.00
Jun 16-30	71	0	84	N/A -- Case 2	110.0	0.022	1.00
Jul 1-31	75	0	87	N/A -- Case 2	110.0	0.022	1.00
Aug 1-15	74	0	87	N/A -- Case 2	110.0	0.022	1.00
Aug 16-31	74	0	87	N/A -- Case 2	110.0	0.022	1.00
Sep 1-15	71	0	84	N/A -- Case 2	110.0	0.022	1.00
Sep 16-30	65	0	78	N/A -- Case 2	110.0	0.022	1.00
Oct 1-15	60	0	72	N/A -- Case 2	110.0	0.022	1.00
Oct 16-31	54	0	66	N/A -- Case 2	110.0	0.022	1.00
Nov 1-15	48	0	58	N/A -- Case 2	110.0	0.022	1.00
Nov 16-30	42	0	50	N/A -- Case 2	110.0	0.022	1.00
Dec 1-31	37	0	42	N/A -- Case 2	110.0	0.022	1.00

[1] This is the maximum of the WWF WQ criterion or the ambient temperature. The ambient temperature may be either the design (median) temperature for WWF, or the ambient stream temperature based on site-specific data entered by the user. A minimum of 1ºF above ambient stream temperature is allocated.
[2] The WLA expressed in Million BTUs/day is valid for Case 1 scenarios, and disabled for Case 2 scenarios.
[3] The WLA expressed in ºF is valid only if the limit is tied to a daily discharge flow limit (may be used for Case 1 or Case 2). WLAs greater than 110ºF are displayed as 110ºF.

Attachment D – ELG Effluent Limit Calculations

IMP 111

IMP 211

IMP 111

ATI - Jessop Steel Company
Washington Facility

PA0001902
Authorization 326692

IMP 111

ELG 40 CFR 420.72(a)(1) Specialty Steel Manufacture - Wastewater from Rolling Mill (Primary without Scarfing) - Ingot to Slab

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	112,870	87,728	96,015	100,928	100,096
Max Monthly Production (tons)	15,453	9,380	9,235	12,165	10,378
Month of Max Production	January	June	June	June	April
Avg Annual Production (tons/day)	1,550	586	924	1,220	1,040
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	10	8	10	10	10
Avg Annual Water Usage (MGD)	0.100	0.088	0.101	0.092	0.088
Avg Annual Wastewater Flow (MGD)	0.093	0.080	0.093	0.083	0.080

* Notes: There was a labor work stoppage from October 2015 through March 2016
** Bolded values are maximum values used to calculate effluent limits

Design Production Capacity (tons/day)	2,500		
5-yr Average Annual Production (tons)	99,527	Daily Max Production	1,545.30 tons/day
5-yr Anticipated Annual Production (tons)	100,000		

ELG 40 CFR 420.72(a)(1) Specialty Steel Manufacture - Wastewater from Rolling Mill (Primary without Scarfing) - Ingot to Slab

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000 lb product)		Mass-Based Effluent Limits (lbs./day)		Concentration-Based Effluent Limits (mg/L)	
	Max for any 1 day	Average Daily Value (for 30 days)	Average Monthly	Max Daily	Average Monthly	Max Daily
TSS	0.150	0.0561	173.383	463.590	223.54	597.70
O&G	0.0374	- -	- -	115.588	- -	149.03
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	

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Average Monthly (lbs/day) = (0.0561 lbs/1,000 lbs production) * [((1,545.3 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Average Monthly (lbs/day) = 173.38 lbs/day

Cancentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Unit Conversion Constant 8.34]
TSS Average Monthly (mg/L) = (173.38 lbs/day) / [(0.093 MGD) * (8.34)]
TSS Average Monthly (mg/L) = 223.54 mg/L

ATI - Jessop Steel Company
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IMP 111 (cont)

ELG 40 CFR 420.72(c)(3) Wastewater from Flat Mill Operation (Slab to Specialty Steel Plate)

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	112,870	87,728	96,015	100,928	100,096
Max Monthly Production (tons)	15,453	9,380	9,235	12,165	10,378
Month of Max Production	January	June	June	June	April
Avg Annual Production (tons/day)	1,550	586	924	1,220	1,040
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	10	8	10	10	10
Avg Annual Water Usage (MGD)	0.100	0.088	0.101	0.092	0.088
Avg Annual Wastewater Flow (MGD)	0.093	0.080	0.093	0.083	0.080

* There was a labor work stoppage from October 2015 through March 2016.
** Bolded values are maximum values used to calculate effluent limits

0.01

Design Production Capacity (tons/day)	2,500		
5-yr Average Annual Production (tons)	99,527	Daily Max Production	1,545.30 tons/day
5-yr Anticipated Annual Production (tons)	100,000		

ELG 40 CFR 420.72(c)(3) Wastewater from Flat Mill Operation (Slab to Specialty Steel Plate)

Pollutant	ELG - BPT Effluent Limitations		Mass-Based Effluent Limits (lbs./day)		Concentration-Based Effluent Limits (mg/L)	
	Max for any 1 day (lbs/1,000 lb product)	Average Daily Value	Average Monthly	Max Daily	Average Monthly	Max Daily
TSS	0.100	0.0376	116.207	309.060	149.82	398.47
O&G	0.0250	- -	- -	77.265	- -	99.62
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	

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Average Monthly (lbs/day) = (0.0376 lbs/1,000 lbs production) * [((1,545.3 tons production/day) * (2,000 lbs/ton)) / (1,000 tons production)]
TSS Average Monthly (lbs/day) = 116.207 lbs/day

Cancentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Conversion Constant 8.34]
TSS Average Monthly (mg/L) = (116.207 lbs/day) / [(0.093 MGD) * (8.34)]
TSS Average Monthly (mg/L) = 149.82 mg/L

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IMP 111 (cont)

ELG 40 CFR 471.61(b) Titanium Rolling Contact Water

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	10,214	6,788	12,707	13,283	14,915
Max Monthly Production (tons)	1,064	707	1,271	1,328	**1,492**
Month of Max Production	April	September	June	June	April
Avg Annual Production (tons/day)	204	217	374	369	414
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	6	4	3	3	3
Avg Annual Water Usage (MGD)	0.100	0.088	0.101	0.092	0.088
Avg Annual Wastewater Flow (MGD)	0.093	0.080	0.093	0.083	0.080

* There was a labor work stoppage from October 2015 through March 2016.
** Bolded values are maximum values used to calculate effluent limits

Design Production Capacity (tons/day)	2,500		
5-yr Average Annual Production (tons)	11,581	Daily Max Production	497.33 tons/day
5-yr Anticipated Annual Production (tons)	20,000		

ELG 40 CFR 471.61(b) Titanium Rolling Contact Water

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000,000 off-lb titanium rolled with contact cooling water) Max for any 1 day	Average Daily Value	Mass-Based Effluent Limits (lbs./day) Average Monthly	Max Daily	Concentration-Based Effluent Limits (mg/L) Average Monthly	Max Daily
Cyanide	1.4	0.586	0.583	1.393	0.75	1.80
Lead	2.05	0.976	0.971	2.039	1.25	2.63
Zinc	7.13	2.98	2.964	7.092	3.82	9.14
Ammonia	651	286	284.475	647.528	366.77	834.85
Fluoride	291	129	128.312	289.448	165.43	373.18
O&G	97.0	58.0	57.691	96.483	74.38	124.39
TSS	200.0	95.0	94.493	198.933	121.83	256.48
pH	Within Range of 7.5 to 10		Within Range of 7.5 to 10		Within Range of 7.5 to 10	

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000,000 lbs production)] * [Daily Max Production (1,000,000 lbs production)]
Cyanide Average Monthly (lbs/day) = (0.586 lbs/1,000,000 lbs production) * [((497.33 tons production/day) * (2,000 lbs/ton)) / (1,000,000 tons production)]
Cyanide Average Monthly (lbs/day) = 0.583 lbs/day

Concentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Conversion Constant 8.34]
Cyanide Average Monthly (mg/L) = (0.583 lbs/day) / [(0.093 MGD) * (8.34)]
Cyanide Average Monthly (mg/L) = 0.75 mg/L

IMP 211

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IMP 211

ELG 40 CFR 420.92(c)(4) Strip, Sheet, and Plate Pickling-Batch

Facility Production Summary

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	36,426	33,446	38,377	41,788	42,852
Max Monthly Production (tons)	4,765	3,591	4,317	4,614	4,728
Month of Max Production	April	June	September	September	May
Avg Annual Production (tons/day)	480	360	360	460	460
Avg Production (hrs/day)	8-16	8-16	8-16	8-16	8-16
Avg Production (days/month)	10	10	12	10	11
Avg Annual Water Usage (MGD)	0.01053	0.00930	0.01332	0.00961	0.01139
Avg Annual Wastewater Flow (MGD)	0.00960	0.00845	**0.01211**	0.00874	0.01035

* There was a labor work stoppage from October 2015 through March 2016.
** Bolded values are maximum values used to calculate effluent limits

Design Production Capacity (tons/day)	600		
5-yr Average Annual Production (tons)	38,578	Daily Max Production	476.50 tons/day
5-yr Anticipated Annual Production (tons)	50,000		

ELG 40 CFR 420.92(c)(4) Strip, Sheet, and Plate Pickling-Batch

Pollutant	ELG - BPT Effluent Limitations		Mass-Based Effluent Limits (lbs./day)		Concentration-Based Effluent Limits (mg/L)	
	Max for any 1 day (lbs/1,000 lb product)	Average Daily Value	Average Monthly	Max Daily	Average Monthly	Max Daily
TSS	0.134	0.0576	54.893	127.702	543.51	1,264.41
O&G*	0.0576	0.0192	18.298	54.893	181.17	543.51
Chromium	0.00192	0.000768	0.732	1.830	7.25	18.12
Nickel	0.00173	0.000576	0.549	1.649	5.44	16.32
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	

* Limitations for O&G shall be applicable when acid pickling wastewaters are treated with cold rolling wastewaters.

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000 lbs production)] * [Daily Max Production (1,000 lbs production)]
TSS Average Monthly (lbs/day) = (0.0576 lbs/1,000 lbs production) * [((476.5 tons production/day) * (2,000 lbs/ton)) / (1,000 lbs production)]
TSS Average Monthly (lbs/day) = 54.893 lbs/day

Cancentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Unit Conversion Constant 8.34]
TSS Average Monthly (mg/L) = (54.893 lbs/day) / [(0.01211 MGD) * (8.34)]
TSS Average Monthly (mg/L) = 543.51 mg/L

ATI - Jessop Steel Company
Washington Facility

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IMP 211 (cont)

ELG 40 CFR 471.62(m) Non-Ferrous Surface Treatment Spent Batch

Facility Production Summary

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	10,214	6,788	12,707	13,283	14,915
Max Monthly Production (tons)	1,064	707	1,271	1,328	**1,492**
Month of Max Production	April	September	June	June	April
Avg Annual Production (tons/day)	204	217	374	369	414
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	6	4	3	3	3
Avg Annual Water Usage (MGD)	0.100	0.088	0.101	0.092	0.088
Avg Annual Wastewater Flow (MGD)	0.093	0.080	**0.093**	0.083	0.080

* There was a labor work stoppage from October 2015 through March 2016.
** Bolded values are maximum values used to calculate effluent limits

Design Production Capacity (tons/day)	2,500		
5-yr Average Annual Production (tons)	13,635	Daily Max Production	497.33 tons/day
5-yr Anticipated Annual Production (tons)	20,000		

ELG 40 CFR 471.62(m) Non-Ferrous Surface Treatment Spent Batch

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000,000 off-lb of titamium surface treated)		Mass-Based Effluent Limits (lbs./day)		Concentration-Based Effluent Limits (mg/L)	
	Max for any 1 day	Average Daily Value	Average Monthly	Max Daily	Average Monthly	Max Daily
Cyanide	0.061	0.025	0.025	0.061	0.03	0.08
Lead	0.088	0.042	0.042	0.088	0.05	0.11
Zinc	0.304	0.127	0.126	0.302	0.16	0.39
Ammonia	27.7	12.2	12.135	27.552	15.65	35.52
Fluoride	12.4	5.49	5.461	12.334	7.04	15.90

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000,000 lbs production)] * [Daily Max Production (1,000,000 lbs production)]
Cyanide Average Monthly (lbs/day) = (0.025 lbs/1,000,000 lbs production) * [((497.33 tons production/day) * (2,000 lbs/ton)) / (1,000,000 lbs production)]
Cyanide Average Monthly (lbs/day) = 0.025 lbs/day

Concentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Unit Conversion Constant 8.34]
Cyanide Average Monthly (mg/L) = (0.025 lbs/day) / [(0.093 MGD) * (8.34)]
Cyanide Average Monthly (mg/L) = 0.03 mg/L

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IMP 211 (cont)

ELG 40 CFR 471.62(n) Non-Ferrous Surface Treatment Rinsewaters

Facility Production Summary

Parameter	Production Year 2015*	2016*	2017	2018	2019
Total Annual Production (tons)	10,214	6,788	12,707	13,283	14,915
Max Monthly Production (tons)	1,064	707	1,271	1,328	**1,492**
Month of Max Production	April	September	June	June	April
Avg Annual Production (tons/day)	204	217	374	369	414
Avg Production (hrs/day)	16-24	16-24	16-24	16-24	16-24
Avg Production (days/month)	6	4	3	3	3
Avg Annual Water Usage (MGD)	0.100	0.088	0.101	0.092	0.088
Avg Annual Wastewater Flow (MGD)	0.093	0.080	0.093	0.083	0.080

* There was a labor work stoppage from October 2015 through March 2016.
** Bolded values are maximum values used to calculate effluent limits

Design Production Capacity (tons/day)	2,500		
5-yr Average Annual Production (tons)	13,635	Daily Max Production	497.33 tons/day
5-yr Anticipated Annual Production (tons)	20,000		

ELG 40 CFR 471.62(n) Non-Ferrous Surface Treatment Rinsewaters

Pollutant	ELG - BPT Effluent Limitations (lbs/1,000,000 off-lb of titamium surface treated)		Mass-Based Effluent Limits (lbs./day)		Concentration-Based Effluent Limits (mg/L)	
	Max for any 1 day	Average Daily Value	Average Monthly	Max Daily	Average Monthly	Max Daily
Cyanide	0.847	0.351	0.349	0.842	0.45	1.09
Lead	1.23	0.584	0.581	1.223	0.75	1.58
Zinc	4.27	1.78	1.771	4.247	2.28	5.48
Ammonia	389	171	170.088	386.925	219.29	498.86
Fluoride	174	77.1	76.689	173.072	98.87	223.14

Sample Calculations

Mass-Bassed Effluent Limit (lbs/day) = [ELG Max for any 1 day (lbs/1,000,000 lbs production)] * [Daily Max Production (1,000,000 lbs production)]
Cyanide Average Monthly (lbs/day) = (0.351 lbs/1,000,000 lbs production) * [((497.33 tons production/day) * (2,000 lbs/ton)) / (1,000,000 lbs production)]
Cyanide Average Monthly (lbs/day) = 0.349 lbs/day

Cancentration-Based Effluent Limits (mg/L) = [Mass-Bassed Effluent Limits (lbs/day)] / [Avg Annual Wastewater Flow (MGD) * Unit Conversion Constant 8.34]
Cyanide Average Monthly (mg/L) = (0.349 lbs/day) / [(0.01 MGD) * (8.34)]
Cyanide Average Monthly (mg/L) = 0.45 mg/L

Attachment E – CWF Calculations

IMP 111

IMP 211

IMP 111

Combined Wastestream Formula Flowrates
Jessop Steel Co Outfall 111
PA0001902

Wastewater Sources	Type	ELG	Disposal	I&S Flowrate (MGD)	Titanium Flowrate (MGD)
Rolling Mill	Regulated / Unregulated	I&S / Titanium	Treatment	0.093	0.093
Specialty Plate Mill Contact Cooling Water	Regulated / Unregulated	I&S / Titanium	Treatment	0.093	0.093
boiler blowdown	Dilution	N/A	Treatment		
cooling tower blowdown	Dilution	N/A	Treatment	0.022	
Non contact cooling water	Dilution	N/A	Treatment		
		Total Flow to Treatment		**0.115**	**MGD**

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IMP 111

Pollutant	Iron & Steel Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Regulated Flow (MGD)	Titanium Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Regulated Flow (MGD)	CWF Alternative Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Cumulative Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Cumulative Concentration-Bass Limits (mg/L) Average Monthly	Maximum Daily
Cyanide	-	-	0.093	0.583	1.393	0.093	1.166	2.785	1.17	2.79	0.751	1.795
Lead	-	-	0.093	0.971	2.039	0.093	1.942	4.078	1.94	4.08	1.252	2.629
Zinc	-	-	0.093	2.964	7.092	0.093	5.928	14.184	5.93	14.18	3.822	9.144
Ammonia	-	-	0.093	284.475	647.528	0.093	-	-	284.47	647.53	366.771	834.852
Fluoride	-	-	0.093	128.312	289.448	0.093	-	-	128.31	289.45	165.432	373.183
O&G	-	192.840	0.093	57.691	96.483	0.093	-	-	57.69	289.32	74.380	373.021
TSS	289.490	772.650	0.093	94.493	198.933	0.093	-	-	383.98	971.58	495.066	1252.654
pH	Within Range of 6.0 to 9.0		0.093	Within Range of 6.0 to 9.0		0.093	Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0		Within Range of 6.0 to 9.0	

Dilution Flow **0.022 MGD**

The waste streams of the Iron & Steel and Titanium activites are conducted on the same production line and are combined prior to treatement. To account for this the Combined Waste Formula (CWF) was used to account for Iron & Steel activites contributing to the Titanium parameters that are unaccounted for from the Iron & Steel ELGs.

CWF: Alternative Mass Limit Formula

$$M_T = \sum_{i=1}^{N} M_i \times \left(\frac{(F_T - F_D)}{\sum_{i=1}^{N} F_i} \right)$$

Where:

M_T = Alternative CWF Mass Limit

M_i = Categorical Mass Limit for Regulated Stream "i" multiplied by appropriate measure of production, **57.691** $^{lbs}/_{day}$

F_i = Average Daily Flow for Regulated Stream "i", **0.093 MGD**

F_T = Average Daily Flow through combined treatment facility (Total Flow)

F_T = I&S Flow + Titanium Flow + Dilute Flow

F_T = (0.093 MGD) + (0.093 MGD) + (0.022 MGD) = **0.208 MGD**

F_D = Average Daily Flow of "Dilute" Streams, **0.022 MGD**

Sample Calculations for Cyanide Average Monthly

Cyanide M_T (lbs/day) = (0.583 lbs./day) * [(0093 MGD + 0.093 MGD)/ 0.0.093 MGD]

Cyanide M_T = 1.166 lbs./day

Cyanide Cumulative Limit = Cyanide M_T + I&S Average Monthly

Cyanide Cumulative Limit = 1.166 lbs./day + 0.0 lbs./day

Cyanide Cumulative Limit = 1.17 lbs./day

Cyanide Cumulative Average Monthly Concentration-Bass Limits

Cyanide Cumulative Average Monthly Concentration Limit mg/L =(I&S Average Monthly Concentration) + (CWF Titantium Average Monthly Concentration)

Cyanide Cumulative Average Monthly Concentration Limit mg/L = (I&S Mass Limit lbs/day) / (Flow MGD * 8.34) +(CWF Mass Limit lbs.day) / (Flow MGD*8.34)

Cyanide I&S Average Monthly Concentration Limit mg/L = [(0.0 lbs/day) / (0.093 MGD * 8.34)] +[(1.7 lbs/day) / ((0.093 + 0.093 MGD) * 8.34)]

Cyanide I&S Average Monthly Concentration Limit mg/L = 0.751 mg/L

IMP 211

Combined Wastestream Formula Flowrates
Jessop Steel Co Outfall 211
PA0001902

Wastewater Sources	Type	ELG	Disposal	I&S Flowrate (MGD)	Titanium Flowrate (MGD)
Treated Picling Rinse	Regulated / Unregulated	I&S / Titanium	Treatment	0.01211	0.093
Spent Pickle Liquors	Regulated / Unregulated	I&S / Titanium	Treatment	0.01211	0.093
			Total Flow to Treatment	**0.10511**	**MGD**

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IMP 211

Pollutant	Iron & Steel Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Regulated Flow	Titanium Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Regulated Flow	CWF Alternative Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Cumulative Mass-Bass Limits (lbs./day) Average Monthly	Maximum Daily	Cumulative Concentration-Bass Limits (mg/L) Average Monthly	Maximum Daily
Cyanide	-	-	0.01211	0.374	0.903	0.093	0.423	1.020	0.42	1.02	0.482	1.164
Lead	-	-	0.01211	0.623	1.311	0.093	0.704	1.481	0.70	1.48	0.803	1.690
Zinc	-	-	0.01211	1.897	4.549	0.093	2.144	5.142	2.14	5.14	2.446	5.865
Ammonia	-	-	0.01211	182.223	414.477	0.093	-	-	182.22	414.48	207.871	534.382
Fluoride	-	-	0.01211	82.150	185.406	0.093	-	-	82.15	185.41	93.712	239.042
TSS	54.890	127.710	0.01211			0.093	-	-	54.89	127.71	543.479	1264.488
Chromium	0.730	1.830	0.01211	-	-	0.093	-	-	0.73	1.83	7.228	18.119
Nickel	0.550	1.650	0.01211	-	-	0.093	-	-	0.55	1.65	5.446	16.337
pH	Within Range of 6.0 to 9.0		0.01211	Within Range of 6.0 to 9.0		0.093	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 waste streams of the Iron & Steel and Titanium activites are conducted on the same production line and are combined prior to treatement. To account for this the Combined Waste Formula (CWF) was used to account for Iron & Steel activites contributing to the Titanium parameters that are unaccounted for from the Iron & Steel ELGs.

CWF: Alternative Mass Limit Formula

$$M_T = \sum_{i=1}^{N} M_i \times \left(\frac{(F_T - F_D)}{\sum_{i=1}^{N} F_i} \right)$$

Where:

$\mathbf{M_T}$ = Alternative CWF Mass Limit
$\mathbf{M_i}$ = Categorical Mass Limit for Regulated Stream "i" multiplied by appropriate measure of production, **0.374 $^{lbs}/_{day}$**
$\mathbf{F_i}$ = Average Daily Flow for Regulated Stream "i", **0.093 MGD**
$\mathbf{F_T}$ = Average Daily Flow through combined treatment facility (Total Flow)
$\mathbf{F_T}$ = I&S Flow + Titanium Flow + Dilute Flow
$\mathbf{F_T}$ = (0.01211 MGD) + (0.093 MGD) + (0.0 MGD) = **0.10511 MGD**
$\mathbf{F_D}$ = Average Daily Flow of "Dilute" Streams, **0.0 MGD**

Sample Calculations for Cyanide Average Monthly
Cyanide M_T (lbs/day) = (0.374 lbs./day) * [(0.10511 MGD - 0.0 MGD)/ 0.093 MGD]
Cyanide M_T = 0.423 lbs./day

Cyanide Cumulative Limit = Cyanide M_T + I&S Average Monthly
Cyanide Cumulative Limit = 0.423 lbs./day + 0.0 lbs./day
Cyanide Cumulative Limit = 0.423 lbs./day

Cyanide Cumulative Average Monthly Concentration-Bass Limits
Cyanide Cumulative Average Monthly Concentration Limit mg/L =(I&S Average Monthly Concentration) + (CWF Titanium Average Monthly Concentration)
Cyanide Cumulative Average Monthly Concentration Limit mg/L = (I&S Mass Limit lbs/day) / (Flow MGD * 8.34) +(CWF Mass Limit lbs./day) / (Flow MGD*8.34)
Cyanide I&S Average Monthly Concentration Limit mg/L = [(0.0 lbs/day) / (0.01211 MGD * 8.34)] +[(0.423 lbs/day) / ((0.01211 + 0.093 MGD) * 8.34)]
Cyanide I&S Average Monthly Concentration Limit mg/L = 0.482 mg/L

Attachment F - WQM Model Output

IMP 111

IMP 211

Outfall 011

IMP 111 - Summer

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.400	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
ATI Jessop Stee	PA0001902	0.0000	0.0767	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	385.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.000	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.26	0.000	0.000	10.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	41.000	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	4.24	0.000	0.000	10.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	3.19	0.00	3.19	.1187	0.00095	.643	27.24	42.38	0.19	0.129	20.18	7.00
42.000	3.26	0.00	3.26	.1187	0.00208	.629	26.45	42.07	0.20	0.301	20.18	7.00
Q1-10 Flow												
42.400	2.04	0.00	2.04	.1187	0.00095	NA	NA	NA	0.15	0.164	20.27	7.00
42.000	2.09	0.00	2.09	.1187	0.00208	NA	NA	NA	0.16	0.382	20.27	7.00
Q30-10 Flow												
42.400	4.33	0.00	4.33	.1187	0.00095	NA	NA	NA	0.22	0.110	20.13	7.00
42.000	4.43	0.00	4.43	.1187	0.00208	NA	NA	NA	0.24	0.255	20.13	7.00

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	ATI Jessop Stee	16.38	298	16.38	298	0	0
42.000		NA	NA	16.39	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	ATI Jessop Stee	1.87	70.21	1.87	70.21	0	0
42.000		NA	NA	1.87	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	ATI Jessop Stee	25	25	70.21	70.21	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.077	20.179	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
27.241	0.643	42.384	0.189
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.83	0.445	2.52	0.710
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.055	1.706	Tsivoglou	6
Reach Travel Time (days)			
0.129			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.81	2.50	7.95
0.026	2.79	2.47	7.85
0.039	2.78	2.45	7.75
0.052	2.76	2.43	7.65
0.065	2.74	2.41	7.56
0.078	2.73	2.39	7.47
0.091	2.71	2.36	7.39
0.104	2.70	2.34	7.30
0.117	2.68	2.32	7.22
0.129	2.67	2.30	7.15

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.077	20.176	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.452	0.629	42.067	0.203
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.65	0.346	2.25	0.710
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.170	4.035	Tsivoglou	6
Reach Travel Time (days)			
0.301			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.030	2.62	2.20	7.15
0.060	2.60	2.16	7.14
0.090	2.57	2.11	7.13
0.120	2.54	2.07	7.13
0.151	2.52	2.02	7.13
0.181	2.49	1.98	7.14
0.211	2.46	1.94	7.15
0.241	2.44	1.90	7.17
0.271	2.41	1.86	7.18
0.301	2.39	1.82	7.20

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WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	ATI Jessop Stee	PA0001902	0.000	CBOD5	25		
				NH3-N	70.21	140.42	
				Dissolved Oxygen			3

IMP 111 – Winter

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.400	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
ATI Jessop Stee	PA0001902	0.0000	0.0767	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	385.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.000	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.26	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	41.000	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	4.24	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	3.19	0.00	3.19	.1187	0.00095	.643	27.24	42.38	0.19	0.129	5.36	7.00
42.000	3.26	0.00	3.26	.1187	0.00208	.629	26.45	42.07	0.20	0.301	5.35	7.00
Q1-10 Flow												
42.400	2.04	0.00	2.04	.1187	0.00095	NA	NA	NA	0.15	0.164	5.55	7.00
42.000	2.09	0.00	2.09	.1187	0.00208	NA	NA	NA	0.16	0.382	5.54	7.00
Q30-10 Flow												
42.400	4.33	0.00	4.33	.1187	0.00095	NA	NA	NA	0.22	0.110	5.27	7.00
42.000	4.43	0.00	4.43	.1187	0.00208	NA	NA	NA	0.24	0.255	5.26	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.077	5.359	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
27.241	0.643	42.384	0.189
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.83	0.460	5.88	0.227
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.055	1.200	Tsivoglou	6
Reach Travel Time (days)			
0.129			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.82	5.86	8.03
0.026	2.81	5.84	8.01
0.039	2.80	5.83	7.99
0.052	2.79	5.81	7.98
0.065	2.78	5.79	7.96
0.078	2.77	5.77	7.94
0.091	2.77	5.76	7.92
0.104	2.76	5.74	7.91
0.117	2.75	5.72	7.89
0.129	2.74	5.71	7.87

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.077	5.351	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.452	0.629	42.067	0.203
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.73	0.403	5.59	0.227
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.881	2.839	Tsivoglou	6
Reach Travel Time (days)			
0.301			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.030	2.71	5.55	8.08
0.060	2.69	5.51	8.24
0.090	2.68	5.47	8.24
0.120	2.66	5.44	8.24
0.151	2.64	5.40	8.24
0.181	2.63	5.36	8.24
0.211	2.61	5.33	8.24
0.241	2.59	5.29	8.24
0.271	2.58	5.25	8.24
0.301	2.56	5.22	8.24

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	ATI Jessop Stee	24.1	438.44	24.1	438.44	0	0
42.000		NA	NA	24.1	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	ATI Jessop Stee	4.36	163.73	4.36	163.73	0	0
42.000		NA	NA	4.36	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	ATI Jessop Stee	25	25	163.73	163.73	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	ATI Jessop Stee	PA0001902	0.000	CBOD5	25		
				NH3-N	163.73	327.46	
				Dissolved Oxygen			3

IMP 211 - Summer

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.400	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jessop	PA0001902	0.0000	0.0110	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	535.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.000	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	41.000	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	3.19	0.00	3.19	.017	0.00095	.64	26.98	42.14	0.19	0.132	20.03	7.00
42.000	3.19	0.00	3.19	.017	0.00208	.625	26.02	41.65	0.20	0.310	20.03	7.00
Q1-10 Flow												
42.400	2.04	0.00	2.04	.017	0.00095	NA	NA	NA	0.14	0.169	20.04	7.00
42.000	2.04	0.00	2.04	.017	0.00208	NA	NA	NA	0.15	0.397	20.04	7.00
Q30-10 Flow												
42.400	4.34	0.00	4.34	.017	0.00095	NA	NA	NA	0.22	0.111	20.02	7.00
42.000	4.34	0.00	4.34	.017	0.00208	NA	NA	NA	0.23	0.261	20.02	7.00

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WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.011	20.027	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.981	0.640	42.135	0.186
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.12	0.086	2.56	0.701
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.215	1.671	Tsivoglou	6
Reach Travel Time (days)			
0.132			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.12	2.54	8.13
0.026	2.12	2.51	8.04
0.040	2.11	2.49	7.96
0.053	2.11	2.47	7.87
0.066	2.11	2.44	7.80
0.079	2.11	2.42	7.72
0.092	2.11	2.40	7.65
0.105	2.10	2.38	7.58
0.119	2.10	2.36	7.51
0.132	2.10	2.33	7.44

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.011	20.027	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.024	0.625	41.650	0.197
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.10	0.063	2.33	0.701
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.444	3.907	Tsivoglou	6
Reach Travel Time (days)			
0.310			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.031	2.09	2.28	7.42
0.062	2.09	2.23	7.40
0.093	2.09	2.19	7.39
0.124	2.08	2.14	7.38
0.155	2.08	2.09	7.38
0.186	2.07	2.05	7.38
0.217	2.07	2.00	7.39
0.248	2.07	1.96	7.40
0.279	2.06	1.92	7.41
0.310	2.06	1.88	7.43

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WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop	16.7	1070	16.7	1070	0	0
42.000		NA	NA	16.7	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop	1.88	482.36	1.88	482.36	0	0
42.000		NA	NA	1.88	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	Jessop	25	25	482.36	482.36	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	Jessop	PA0001902	0.000	CBOD5	25		
				NH3-N	482.36	964.72	
				Dissolved Oxygen			3

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Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.400	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jessop	PA0001902	0.0000	0.0110	0.0000	0.000	15.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	535.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	42.000	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	3.19	0.000	0.000	10.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	41.000	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	3.19	0.00	3.19	.017	0.00095	.64	26.98	42.14	0.19	0.132	5.05	7.00
42.000	3.19	0.00	3.19	.017	0.00208	.625	26.02	41.65	0.20	0.310	5.05	7.00
Q1-10 Flow												
42.400	2.04	0.00	2.04	.017	0.00095	NA	NA	NA	0.14	0.169	5.08	7.00
42.000	2.04	0.00	2.04	.017	0.00208	NA	NA	NA	0.15	0.397	5.08	7.00
Q30-10 Flow												
42.400	4.34	0.00	4.34	.017	0.00095	NA	NA	NA	0.22	0.111	5.04	7.00
42.000	4.34	0.00	4.34	.017	0.00208	NA	NA	NA	0.23	0.261	5.04	7.00

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WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop	24.1	1070	24.1	1070	0	0
42.000		NA	NA	24.1	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop	4.36	535	4.36	535	0	0
42.000		NA	NA	4.36	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	Jessop	25	25	535	535	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.011	5.053	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.981	0.640	42.135	0.186
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.12	0.090	2.84	0.222
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.215	1.172	Tsivoglou	6
Reach Travel Time (days)			
0.132			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.013	2.12	2.83	8.24
0.026	2.12	2.82	8.24
0.040	2.12	2.81	8.24
0.053	2.12	2.81	8.24
0.066	2.12	2.80	8.24
0.079	2.11	2.79	8.24
0.092	2.11	2.78	8.24
0.105	2.11	2.77	8.24
0.119	2.11	2.77	8.24
0.132	2.11	2.76	8.24

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.011	5.053	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
26.024	0.625	41.650	0.197
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
2.11	0.077	2.76	0.222
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
8.243	2.739	Tsivoglou	6
Reach Travel Time (days)			
0.310			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.031	2.11	2.74	8.24
0.062	2.10	2.72	8.24
0.093	2.10	2.70	8.24
0.124	2.10	2.68	8.24
0.155	2.10	2.66	8.24
0.186	2.09	2.65	8.24
0.217	2.09	2.63	8.24
0.248	2.09	2.61	8.24
0.279	2.09	2.59	8.24
0.310	2.08	2.57	8.24

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	Jessop	PA0001902	0.000	CBOD5	25		
				NH3-N	535	1070	
				Dissolved Oxygen			3

Outfall 011 - Winter

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**42.400**	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jessop Steel	PA0001902	0.0000	0.0860	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	193.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**42.000**	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**41.000**	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	5.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	1.82	0.00	1.82	.133	0.00095	.602	23.07	38.32	0.14	0.174	6.36	7.00
42.000	1.86	0.00	1.86	.133	0.00208	.589	22.4	38.05	0.15	0.404	6.34	7.00
Q1-10 Flow												
42.400	1.16	0.00	1.16	.133	0.00095	NA	NA	NA	0.11	0.219	7.05	7.00
42.000	1.19	0.00	1.19	.133	0.00208	NA	NA	NA	0.12	0.509	7.01	7.00
Q30-10 Flow												
42.400	2.48	0.00	2.48	.133	0.00095	NA	NA	NA	0.17	0.148	6.02	7.00
42.000	2.53	0.00	2.53	.133	0.00208	NA	NA	NA	0.18	0.344	6.00	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop Steel	24.1	235.13	24.1	235.13	0	0
42.000		NA	NA	24.1	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop Steel	4.36	85.53	4.36	85.53	0	0
42.000		NA	NA	4.36	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	Jessop Steel	25	25	85.53	85.53	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.086	6.362	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.069	0.602	38.315	0.141
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.57	0.690	5.83	0.245
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.886	0.916	Tsivoglou	6
Reach Travel Time (days)			
0.174			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	3.54	5.80	7.81
0.035	3.52	5.78	7.73
0.052	3.50	5.75	7.66
0.070	3.48	5.73	7.59
0.087	3.45	5.70	7.52
0.104	3.43	5.68	7.45
0.122	3.41	5.66	7.39
0.139	3.39	5.63	7.32
0.156	3.37	5.61	7.26
0.174	3.35	5.58	7.20

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.086	6.335	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.401	0.589	38.046	0.151
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.32	0.598	5.47	0.245
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.222	2.163	Tsivoglou	6
Reach Travel Time (days)			
0.404			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.040	3.28	5.42	7.35
0.081	3.23	5.36	7.47
0.121	3.19	5.31	7.59
0.162	3.15	5.26	7.69
0.202	3.11	5.21	7.79
0.243	3.07	5.16	7.89
0.283	3.03	5.11	7.98
0.324	2.99	5.06	8.07
0.364	2.95	5.01	8.15
0.404	2.92	4.96	8.23

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	Jessop Steel	PA0001902	0.000	CBOD5	25		
				NH3-N	85.53	171.06	
				Dissolved Oxygen			3

Outfall 011 - Summer

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**42.400**	1011.00	18.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
Jessop Steel	PA0001902	0.0000	0.0860	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	193.00	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**42.000**	1009.00	18.60	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
20F	36777	CHARTIERS CREEK	**41.000**	998.00	24.20	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.100	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

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

Parameter Data

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

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	6		

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
42.400	1.82	0.00	1.82	.133	0.00095	.602	23.07	38.32	0.14	0.174	20.34	7.00
42.000	1.86	0.00	1.86	.133	0.00208	.589	22.4	38.05	0.15	0.404	20.33	7.00
Q1-10 Flow												
42.400	1.16	0.00	1.16	.133	0.00095	NA	NA	NA	0.11	0.219	20.51	7.00
42.000	1.19	0.00	1.19	.133	0.00208	NA	NA	NA	0.12	0.509	20.50	7.00
Q30-10 Flow												
42.400	2.48	0.00	2.48	.133	0.00095	NA	NA	NA	0.17	0.148	20.26	7.00
42.000	2.53	0.00	2.53	.133	0.00208	NA	NA	NA	0.18	0.344	20.25	7.00

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop Steel	16.06	156.7	16.06	156.7	0	0
42.000		NA	NA	16.08	NA	NA	NA

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
42.400	Jessop Steel	1.86	36.39	1.86	36.39	0	0
42.000		NA	NA	1.86	NA	NA	NA

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
42.40	Jessop Steel	25	25	36.39	36.39	3	3	0	0
42.00		NA	NA	NA	NA	NA	NA	NA	NA

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.400	0.086	20.341	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
23.069	0.602	38.315	0.141
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.57	0.667	2.48	0.719
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
7.886	1.275	Tsivoglou	6
Reach Travel Time (days)			
0.174			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.017	3.53	2.45	7.71
0.035	3.48	2.42	7.54
0.052	3.44	2.39	7.38
0.070	3.40	2.36	7.23
0.087	3.36	2.33	7.07
0.104	3.32	2.30	6.93
0.122	3.28	2.27	6.79
0.139	3.25	2.24	6.66
0.156	3.21	2.22	6.53
0.174	3.17	2.19	6.41

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
42.000	0.086	20.334	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
22.401	0.589	38.046	0.151
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
3.15	0.505	2.14	0.718
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.442	3.015	Tsivoglou	6
Reach Travel Time (days)			
0.404			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.040	3.08	2.08	6.39
0.081	3.02	2.02	6.36
0.121	2.96	1.97	6.34
0.162	2.90	1.91	6.33
0.202	2.84	1.85	6.33
0.243	2.78	1.80	6.33
0.283	2.72	1.75	6.35
0.324	2.67	1.70	6.37
0.364	2.61	1.65	6.40
0.404	2.56	1.60	6.43

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
20F	36777	CHARTIERS CREEK

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
42.400	Jessop Steel	PA0001902	0.000	CBOD5	25		
				NH3-N	36.39	72.78	
				Dissolved Oxygen			3