

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO 20240515 – IN0000281– D

DATE OF NOTICE: May 15, 2024

DATE RESPONSE DUE: June 14, 2024

The Office of Water Quality proposes the following DRAFT NPDES PERMIT:

MAJOR – Modification :

United States Steel Corporation – Gary Works, Permit No. IN0000281, LAKE COUNTY, One North Broadway, Gary, IN. This facility is an integrated steel mill. The permittee filed an adjudicatory appeal of United States Steel Corporation – Gary Works NPDES Permit No. IN0000281, issued on April 22, 2021. IDEM and United States Steel Corporation entered settlement negotiations to resolve the petition, and this permit modification is the result of the negotiations. Permit Manager: Nikki Gardner, 317/232-8707, ngardner@idem.in.gov. Posted online at <https://www.in.gov/idem/public-notices/>.

PROCEDURES TO FILE A RESPONSE

You are hereby notified of the availability of a 30-day public comment period regarding the referenced draft permit, in accordance with 327 IAC 5-3-9. The application and draft permit documents are available for inspection at IDEM, Office of Water Quality, Indiana Government Center North - Room 1255, 100 N. Senate Ave, Indianapolis, IN 46204 from 9:00 a.m. until 4:00 p.m., Monday thru Friday, (copies 10¢ per page). The Draft Permit is posted online on the above-referenced IDEM public notice web page. A courtesy copy has also been sent via email to the local County Health Department. Please tell others whom you think would be interested in this matter. For more information about public participation including your rights & responsibilities, please see <https://www.in.gov/idem/public-notices/>. You may want to consult our online Citizens' Guide to IDEM: <https://www.in.gov/idem/resources/citizens-guide-to-idem/>.

Comments: The proposed decision to issue a permit is tentative. Interested persons are invited to submit written comments on the draft permit. All comments must be delivered to IDEM or postmarked no later than the Response Due Date noted to be considered in the decision to issue a final permit. Deliver or mail all requests or comments to the attention of the Permit Manager at the above address.

To Request a Public Hearing: Any person may request a public hearing. A written request must be submitted to the above address on or before the Response Due Date. The written request shall include: the name and address of the person making the request, the interest of the person making the request, persons represented by the person making the request, the reason for the request and the issues proposed for consideration at the hearing. The Department will determine whether to hold a public hearing based upon the comments and the rationale for the request. Public Notice of such a hearing will be circulated in at least one newspaper in the geographical area of the discharge and to those persons submitting comments and/or on the mailing list at least 30 days prior to the hearing.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

May 15, 2024

VIA ELECTRONIC MAIL

Mr. Brandon Miller, Environmental Control
United States Steel Corporation
One North Broadway
Gary, IN 46402

Dear Mr. Miller:

Re: NPDES Permit No. IN0000281
Draft Permit Modification
U.S. Steel Gary Works
Gary, IN – Lake County

Your request for a permit modification has been reviewed and processed in accordance with rules adopted under 327 IAC 5. Enclosed is a copy of the draft permit modification.

Pursuant to IC 13-15-5-1, IDEM will publish the draft permit document online at <https://www.in.gov/idem/public-notices/>. Additional information on public participation can be found in the "Citizens' Guide to IDEM", available at <https://www.in.gov/idem/resources/citizens-guide-to-idem/>. A 30-day comment period is available to solicit input from interested parties, including the public.

Please review this draft permit modification and associated documents carefully to become familiar with the proposed terms and conditions. Comments concerning the draft permit modification should be submitted in accordance with the procedure outlined in the enclosed public notice form. We suggest that you meet with us to discuss major concerns or objections you may have with the draft permit modification.

Questions concerning this draft permit modification may be addressed to Nikki Gardner at 317/232-8707 or ngardner@idem.in.gov.

Sincerely,

Richard Hamblin, Chief
Industrial NPDES Permits Section
Office of Water Quality

Enclosures

cc: Chief, Permits Section, U.S. EPA, Region 5
Lake County Health Department
Eric Williams, U.S. Steel
Susanna Bingman, IDEM
Jason House, IDEM
Nick Ream, IDEM
Miya Spratt, IDEM

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Clean Water Act" or "CWA"), and IDEM's authority under IC13-15,

UNITED STATES STEEL CORPORATION – GARY WORKS

is authorized to discharge from the integrated steel manufacturing facility that is located at One North Broadway, Gary, Indiana, to receiving waters identified as the Grand Calumet River and Lake Michigan in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, IV, and V hereof.

The permit, as issued on April 22, 2021, is hereby amended, as contained herein. The amended provisions shall become effective _____. All terms and conditions of the permit not modified at this time remain in effect. Further, any existing condition or term affected by the amendments will remain in effect until the amended provisions become effective. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

This permit and the authorization to discharge, as amended, shall expire at midnight April 30, 2026. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and forms as are required by the Indiana Department of Environmental Management no later than 180 days prior to the date of expiration.

Issued on _____ for the Indiana Department of Environmental Management.

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

3. The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfall 015, located at Latitude 41° 36' 27.4", Longitude -87° 19' 19.6". The discharge is limited to **Recycling Plant (fka sinter plant)** non-contact cooling water, Pulverized Coal Injection (PCI) East non-contact cooling water, steam condensate, storm water runoff (drainage area #9), Internal Outfall 607 and Internal Outfall 501 treated wastewaters. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Grand Calumet River. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1][2][18]

Outfall 015

Table 1

Parameter	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Flow	Report	Report	MGD	-----	-----	----	Daily	24 Hour Total
O+G[4]	-----	-----	-----	Report	Report	mg/l	1 X Weekly	3 Grabs/24 Hrs.[19]
TSS	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr. Comp.
Benzo-a-pyrene	0.0017	0.0040	lbs/day	0.095	0.23	ug/l	2 X Weekly	24 Hr. Comp.
Phenols (4AAP)	Report	Report	lbs/day	Report	Report	ug/l	1 X Weekly	3 Grabs/24 Hrs.[19]
Ammonia, as N[13]								
Summer	21	40	lbs/day	1.2	2.5	mg/l	1 X Weekly	24 Hr. Comp.
Winter	23	44	lbs/day	1.3	2.5	mg/l	1 X Weekly	24 Hr. Comp.
Free Cyanide[5]								
Season 1[17]	0.15	0.32	lbs/day	8.8	18	ug/l	1 X Weekly	See Part I.N[19]
Season 2[17]	0.12	0.23	lbs/day	6.7	13	ug/l	1 X Weekly	See Part I.N[19]
Lead[6]	0.15	0.30	lbs/day	8.4	17	ug/l	1 X Weekly	24 Hr. Comp.
Zinc[6]	1.4	2.8	lbs/day	81	160	ug/l	1 X Weekly	24 Hr. Comp.
CBOD ₅	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24 Hr. Comp.
Temperature[7]	-----	-----	-----	-----	Report	°F	1 X Weekly	6 Grabs/24 Hrs.
TRC[12]	0.14	0.32[10]	lbs/day	8[8]	18[9]	ug/l	Daily[11]	Grab
Mercury[6][16]								
WQBELs	0.000023	0.000056	lbs/day	1.3	3.2	ng/l	Bi-Monthly[14]	Grab
Interim Discharge Limit	-----	-----	-----	14[15]	Report	ng/l	Bi-Monthly[14]	Grab
Selenium[6]	0.072	0.14	lbs/day	4.1	8.2	ug/l	1 X Weekly	24 Hr. Comp.
Whole Effluent Toxicity	See Part I.I of this Permit							

Table 2

Parameter	Quality or Concentration			Monitoring Requirements	
	Daily Minimum	Daily Maximum	Units	Measurement Frequency	Sample Type
pH [3]	6.0	9.0	s.u.	1 X Weekly	Grab

[1] See Part I.B. of the permit for the Minimum Narrative Limitations.

10.a. The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Internal Outfall 603, an administrative outfall, to Outfalls 027/028/030. The discharge is limited to treated wastewater from the Slab Spray cooling, QBOP Vacuum Degasser overflow, #1 BOP, Vacuum Degasser, QBOP, #2 Continuous Caster A/B Line, C Line, #1 Continuous Caster Line, and stormwater. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to comingling with other wastewaters. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1]
 Internal Outfall 603

<u>Parameter</u>	Quantity or Loading			Table 1 Quality or Concentration			Monitoring Requirements	
	Monthly	Daily	<u>Units</u>	Monthly	Daily	<u>Units</u>	Measurement	Sample
	<u>Average</u>	<u>Maximum</u>		<u>Average</u>	<u>Maximum</u>		<u>Frequency</u>	<u>Type</u>
Flow	Report	Report	MGD	-----	-----	----	Daily	Continuous
Lead[2]	Report	Report	lbs/day	Report	Report	ug/l	2 X Weekly[3]	24 Hr. Comp.
Zinc[2]	9.81	29.4	lbs/day	Report	Report	ug/l	2 X Weekly[3]	24 Hr. Comp.

- [1] Samples taken in compliance with the monitoring requirements above shall be taken at a point representative of the discharge but prior to entry into Outfalls 027/028/030. Separate samples and flow measurements shall be taken at the discharge of the No. 1 Continuous Caster Scale Pit, the filtered blowdown from the No. 2 Continuous Caster, and the discharge from the No. 1 and No. 1A BOP Thickeners. The mass loadings from each monitoring point shall be calculated and added together to determine the daily and monthly average mass discharges.
- [2] The permittee shall measure and report the identified metal as total recoverable metal.
- [3] Sampling at Internal Outfall 603 for lead and zinc shall occur on the same day and at approximately at the same time as the samples taken at Outfalls 027, 028, and 030.

10.b. The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Internal Outfall 603, an administrative outfall, and the 160"/210" Plate Mill, to Outfalls 027/028/030. Internal Outfall 603 discharge is limited to treated wastewater from the Slab Spray cooling, QBOP Vacuum Degasser overflow, #1 BOP, Vacuum Degasser, QBOP, #2 Continuous Caster A/B Line, C Line, #1 Continuous Caster Line, and stormwater. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to comingling with other wastewaters. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1]
 Internal Outfall 610

Table 1

<u>Parameter</u>	<u>Quantity or Loading</u>			<u>Quality or Concentration</u>			<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Units</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	Report	Report	MGD	----	----	----	Daily	Continuous
TSS	1,667	4,825	lbs/day	Report	Report	mg/l	5 X Weekly[2]	24 Hr. Comp.

- [1] Samples taken in compliance with the monitoring requirements above shall be taken at a point representative of the discharge but prior to entry into Outfalls 027/028/030. Separate samples and flow measurements shall be taken at the discharge of the No. 1 Continuous Caster Scale Pit, the filtered blowdown from the No. 2 Continuous Caster, the discharge from the No. 1 and No. 1A BOP Thickeners, and the discharge from the 160"/210" Plate Mill. The mass loadings from each monitoring point shall be calculated and added together to determine the daily and monthly average mass discharges.
- [2] Sampling for TSS shall occur on the same day and at approximately at the same time as the sample taken at Outfalls 027, 028, and 030.

11. The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee is authorized to discharge from Outfalls 027/028/030 (Outfall 600), located at Latitude 41° 36' 27.9" and Longitude -87° 20' 2.4" (Outfall 027), Latitude 41° 36' 34.6" and Longitude -87° 20' 26.9" (Outfall 028), and Latitude 41° 36' 36" and Longitude -87° 20' 46" (Outfall 030), respectively. The discharge is limited to treated wastewater from #2 Continuous Caster non-contact cooling water, miscellaneous non-contact cooling water, #1 BOP/QBOP Cooling Tower blowdown, steam condensates, 160"/210" Plate Mill, Internal Outfall 603 wastewaters, and storm water from areas east of Buchanan Street. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the Grand Calumet River. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1][2][3][16][18][20][21]
Outfalls 027/028/030 (Outfall 600)

Table 1

<u>Parameter</u>	<u>Quantity or Loading</u>			<u>Quality or Concentration</u>			<u>Monitoring Requirements</u>	
	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Units</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow[17]	Report	Report	MGD	-----	-----	----	Daily	Continuous
TSS	Report	Report	lbs/day	Report	Report	mg/l	5 X Weekly	24 Hr. Comp.
O+G[5]	1,274	2,807	lbs/day	Report	Report	mg/l	5 X Weekly	3 Grabs/24 Hrs.
Lead[6]	4.5	10	lbs/day	19	43	ug/l	2 X Weekly	24 Hr. Comp.
Zinc[6]	38	75	lbs/day	160	320	ug/l	1 X Weekly	24 Hr. Comp.
Temperature[7]	-----	-----	-----	-----	Report	°F	2 X Weekly	6 Grabs/24 Hrs.
TRC[12]	1.9	4.2[10]	lbs/day	8[8]	18[9]	ug/l	Daily[11]	Grab
Mercury[6]								
WQBELs[19]	0.00031	0.00075	lbs/day	1.3	3.2	ng/l	Bi-Monthly[13]	Grab
Interim Discharge Limit[15]	-----	-----	-----	[14]	Report	ng/l	Bi-Monthly[13]	Grab
Whole Effluent Toxicity	See Part I.I of this Permit							

Table 2

<u>Parameter</u>	<u>Quality or Concentration</u>			<u>Monitoring Requirements</u>	
	<u>Daily Minimum</u>	<u>Daily Maximum</u>	<u>Units</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
pH [4]	6.0	9.0	s.u.	1 X Weekly	Grab

[1] The permittee shall measure for all parameters on the same day and at the same time for Outfalls 027, 028, and 030 and report Outfalls 027, 028, and 030 separately and also report the combined total (as Outfall 600). Sampling for lead and zinc shall occur on the same day and at approximately at the same time as the sample taken at Internal Outfall 603. Sampling for TSS and O&G shall occur on the same day and at approximately at the same time as the sample taken at Internal Outfall 610.

[2] See Part I.B. of the permit for the Minimum Narrative Limitations.

- [3] In the event that a new water treatment additive is to be used that will contribute to this Outfall, or changes are to be made in the use of water treatment additives, including dosage, the permittee must apply for and receive approval from IDEM prior to such discharge. Discharges of any such additives must meet Indiana water quality standards. The permittee must apply for permission to use water treatment additives by completing and submitting State Form 50000 (Application for Approval to Use Water Treatment Additives) currently available at: <http://www.in.gov/idem/5157.htm>
- [4] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the monitoring report forms.
- [5] Additional monitoring and reporting requirements are contained in Part I.L Visible Oil Corrective Action Monitoring Program.
- [6] The permittee shall measure and report the identified metal as total recoverable metal.
- [7] See Part III.A for additional temperature requirements. Temperature monitoring at the following individual outfalls [015, 018, 019, 020, 027, 028, 030, and 034] shall be taken on the same day of the week. Where temperature is sampled at 6 grabs/day, the samples shall be equally spaced throughout the day. The highest temperature value measured shall be the value reported for that day.
- [8] The monthly average water quality-based effluent limit (WQBEL) for TRC is less than the limit of quantitation (LOQ) as specified in Part I.C.4 of this permit. Compliance with the calculated monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. When calculating the monthly average effluent level, daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.
- [9] The daily maximum WQBEL for TRC is less than the LOD as specified in Part I.C.4 of this permit. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOD. Effluent levels greater than or equal to the LOD but less than the LOQ are in compliance with the daily maximum WQBEL, except when confirmed by a sufficient number of analyses of multiple samples and use of appropriate statistical techniques.
- [10] Compliance with the daily maximum mass value will be demonstrated if the calculated mass value is less than 14.1 lbs/day.

- [11] Monitoring for TRC shall be 1 X Daily during zebra or quagga mussel intake chlorination and continue for three additional days after zebra or quagga mussel treatment has been completed. See Part I.M for Zebra and Quagga Mussel Control and Chlorination for additional requirements.
- [12] The permittee is required to develop and conduct a pollutant minimization program (PMP) for each pollutant with a WQBEL below the LOQ as specified in Part I.C.4 of this permit. See Part I.G of the permit for the Pollutant Minimization Program (PMP) requirements.
- [13] Effluent mercury monitoring shall be conducted 6 X annually, monitoring in the months of February, April, June, August, October and December of each year for the term of the permit.
- [14] See Part I.O and Part V for additional mercury requirements. The interim discharge limit is the annual average. Compliance with the interim discharge limit will be achieved when the annual average measured over the most recent (rolling) twelve-month period is less than the interim discharge limit.

Compliance with the interim discharge limit will demonstrate compliance with mercury discharge limitations of this permit for this outfall.

Outfall 028: The interim discharge limit is the Annual Average as 3.2 ng/l

Outfall 030: The interim discharge limit is the Annual Average as 3.0 ng/l

- [15] The permittee applied for, and received, a variance from the water quality criterion used to establish the referenced mercury WQBEL under 327 IAC 5-3.5 at Outfalls 028 and 030. For the term of this permit, the permittee is subject to the interim discharge limit developed in accordance with 327 IAC 5-3.5-8.

The permittee shall report both a daily maximum concentration and an annual average concentration for total mercury. The annual average value shall be calculated as the average of the measured effluent daily values from the most recent twelve-month period. Reporting of the annual average value for mercury is not required during the first year of the permit term.

Calculating and reporting of the annual average value for mercury is only required for the months when samples are taken for mercury.

- [16] The storm water non-numeric limits, storm water pollution prevention plan, and storm water sampling requirements can be found in Parts I.D, E, and F of this permit.

- [17] Flow monitoring devices must be installed at Outfalls 027, 028, and 030 within 6 months of the effective date of this permit modification. In the interim, the permittee may use engineering calculations to measure flow.
- [18] Outfall 027 is only permitted to discharge during emergency situations resulting in the GW-10 lift station not being able to pump the entirety of the flow to Outfalls 028 and 030. For any such occurrence, the permittee is required to include a report with its DMR and maintain records detailing the cause of discharge and the length of time discharge occurs.
- [19] Applicable to discharges from Outfall 027. The permittee has a 3-year schedule of compliance as outlined in Part I.P.2 in which to meet the final effluent limitations for mercury at Outfall 027.
- [20] With the exception of pH, all limits are applied individually at outfalls 027, 028, and 030 as well as on the combined outfall 600. pH limits are only applicable to outfalls 027, 028, and 030 individually.
- [21] For Outfall 027 discharges the measurement frequency for all parameters is daily.

- [3] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the monitoring report forms.
- [4] Additional monitoring and reporting requirements are contained in Part I.L Visible Oil Corrective Action Monitoring Program. If oil and grease is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated. The facility is required to investigate and eliminate any significant or measured concentration of oil and grease (quantities in excess of 5 mg/l). The intent of this requirement is to assure that oil and grease is not added to once-through cooling water in measurable quantities (5 mg/l).
- [5] The storm water non-numeric limits, storm water pollution prevention plan, and storm water sampling requirements can be found in Parts I.D, E, and F of this permit.
- [6] The permittee shall continuously monitor intake temperature at the No. 2 Pump Station.
- [7] The effluent limitation is 1.211 billion BTU/Hr (1.211 GBTU/Hr) as a maximum daily average. Monitoring shall include flow and intake and outlet temperatures as measured across the condensers on a continuous basis. The daily average BTU/Hr shall be calculated as follows: The BTU/Hr shall be determined once each hour and those values shall be averaged over a 24 hour period for each day. See Part III.A.2 for additional temperature requirements.
- [8] There shall be no discharge of blast furnace or **recycling plant (fka sinter plant)** process wastewater or any other process wastewater residuals through Outfall 035.
- [9] The monthly average water quality based effluent limit (WQBEL) for TRC is less than the limit of quantitation (LOQ) as specified in Part I.C.4 of this permit. Compliance with the calculated monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. When calculating the monthly average effluent level, daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.
- [10] The daily maximum WQBEL for TRC is less than the LOD as specified in Part I.C.4 of this permit. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOD. Effluent levels greater than or equal to the LOD but less than the LOQ are in compliance with the daily maximum WQBEL, except when confirmed by a sufficient number of analyses of multiple samples and use of appropriate statistical techniques.

23. The permittee is authorized to discharge from Outfalls BW-1, BW-2, BW-3, BW-4, and BW-5 in accordance with the terms and conditions of this permit. The discharge is limited to water intake screen backwash. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into the boat slip at Lake Michigan. In addition, this outfall regulates the cooling water intake structures located at the facility. The discharges and intakes shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS

Table 1 (Intake Screen Backwash) [1][2][4]

Parameter	Quantity or Loading		Units	Quality or Concentration		Units	Monitoring Requirements	
	Monthly Average Report	Daily Maximum Report		Monthly Average	Daily Maximum		Measurement Frequency	Sample Type
Flow	Report	Report	MGD	-----	-----	----	1 X Quarterly[3]	Estimate

Table 2 (Intakes)

Parameter	Monthly Average	Daily Maximum	Hourly Maximum	Units	Measurement Frequency
PS No. 2					
Intake Flow [5]	-----	Report	-----	MGD	Daily
PS No. 1 [10]					
Intake Flow [6]	-----	Report	Report	MGD	Daily
Interim [7]					
Velocity [9]	-----	-----	Report	Feet/second	Daily
Water Depth, Screens	-----	Report	-----	Feet	Daily
Open Area, Screens	-----	Report	-----	Square feet	Daily
Final [7]					
Velocity [9]	-----	-----	0.5	Feet/second	Daily
Water Depth, Screens	-----	Report	-----	Feet	Daily
Open Area, Screens	-----	Report	-----	Square feet	Daily
Lakeside Intake					
Intake Flow [6]	-----	Report	Report	MGD	Daily
Velocity [8][9]	-----	-----	0.5	Feet/second	Daily
Water Depth, Screens	-----	Report	-----	Feet	Daily
Open Area, Screens	-----	Report	-----	Square feet	Daily

- [1] Discharge of water intake screen backwash is authorized from the following Lake Michigan water intakes:

BW-1 – No. 1 service water pumping station (PS No.1)
BW-2 – No. 2 service water pumping station (PS No.2)
BW-3 – No. 3 service water pumping station (PS No.3)
BW-4 – No. 4 service water pumping station (PS No.4)
BW-5 – Lakeside service water pumping station (LS PS)

- [2] There shall be no discharge of process wastewaters from Outfalls BW-1, BW-2, BW-3, BW-4, and BW-5.

- [3] Samples shall be taken once at any time during each of the four annual quarters:

- (A) January-February-March;
- (B) April-May-June;
- (C) July-August-September; and
- (D) October-November-December.

For quarterly monitoring, in the first quarter for example, the permittee may conduct sampling within the month of January, February or March. The result from this reporting timeframe shall be reported on the March DMR, regardless of which of the months within the quarter the sample was taken.

- [4] See Part I.B. of the permit for the Minimum Narrative Limitations.

- [5] The permittee must measure or calculate the intake flow at a minimum frequency of daily. The data and methods used to determine the intake flow shall be included in the annual report required to be submitted under Part IV.B.12. If the permittee uses the calculation method to determine the intake flow, the input values and calculation for each day shall be included in the annual report.

- [6] The permittee must monitor the intake flow at these intakes using flow measurement devices, as follows.

- (A) the permittee must report the daily maximum intake flow and the hourly maximum intake flow for each day on the MMR with the monthly results summarized on the DMRs that are submitted every month. The hourly maximum flow is the maximum hourly average flow measured over the calendar day of any twenty-four period that reasonably represents the calendar day for the purpose of sampling. There will be 24 hourly average flows determined over the course of the day, the maximum of these 24 values is the hourly maximum flow.
- (B) As required under Part IV.B.8 (Lakeside Intake) and Part IV.B.5 (PS No. 1), the permittee must submit an annual report of the actual intake flows and include in the report the hourly maximum intake flow and the daily maximum intake flow for each day.
- (C) In the event of flow meter malfunction, the highest hourly flow measurement for

that month may be substituted for the missing data. When this occurs, the permittee must annotate the value on the MMR and DMR to state that there was a flow meter malfunction and the flow used is highest hourly flow measurement for that month.

- [7] At PS No. 1, as soon as practicable but no later than May 1, 2024, the permittee shall complete installation of a cooling water intake structure that has a maximum through-screen actual intake velocity of 0.5 feet per second as the impingement mortality BTA at this intake and shall comply with the following:
- a. At a minimum frequency of daily, the permittee must calculate the velocity at the screens at PS No. 1 using water flow (hourly maximum water flow during the day), water depth (measured water level at the intake), and the screen open area.
 - b. These daily calculations including the hourly maximum intake flow must be reported on the MMR with the monthly results summarized on the DMRs that are submitted every month and included in the annual report required under Part IV.B.5.
 - c. The Interim requirements are applicable at PS #1 until the earlier of the date the compliance schedule has been completed or May 1, 2024:
- [8] At the Lakeside Intake the permittee shall comply with the following:
- a. At a minimum frequency of daily, the permittee must calculate the velocity at the screens at the Lakeside Intake using water flow (hourly maximum water flow during the day), water depth (measured water level at the intake), and the screen open area.
 - b. These daily calculations including the hourly maximum intake flow must be reported on the MMR with the monthly results summarized on the DMRs that are submitted every month and included in the annual report required under Footnote [5], above.
- [9] Within 6 months of the effective date of the amended provisions of the permit modification, the permittee must develop and submit to IDEM a contingency plan to be implemented if Lake Michigan levels reach levels that would cause an exceedance of the velocity limit of 0.5 fps.
- [10] The permittee is required to properly operate and maintain all the screens at the Pump Station No. 1 Intake, including the fixed screens. At a minimum, the permittee must conduct annual inspections of the fixed screens and must clean a fixed screen when the blockage of that screen is 20% or greater. The permittee must submit an annual report on screen inspections to IDEM's OWQ Industrial NPDES Permits Section at OWQWWPER@idem.in.gov, by December 31st of each year.

In addition to the numeric effluent limitations specified at each individual outfall the following requirements shall apply:

The monthly average water quality-based effluent limit (WQBEL) for Total Residual Chlorine is less than the limit of quantitation (LOQ) as defined below. Compliance with the monthly average limit will be demonstrated if the monthly average effluent level is less than or equal to the monthly average WQBEL. Daily effluent values that are less than the LOQ, used to determine the monthly average effluent levels less than the LOQ, may be assigned a value of zero (0), unless, after considering the number of monitoring results that are greater than the limit of detection (LOD), and applying appropriate statistical techniques, a value other than zero (0) is warranted.

The daily maximum WQBEL for Total Residual Chlorine is less than the LOD as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOD. Effluent levels greater than or equal to the LOD but less than the LOQ are in compliance with the daily maximum WQBEL, except when confirmed by a sufficient number of analyses of multiple samples and use of appropriate statistical techniques.

For calculating the monthly average values, See Part III.E. of this permit.

At present, two methods are considered to be acceptable to IDEM, amperometric and DPD colorimetric methods, for chlorine concentrations at the level of 0.06 mg/l.

<u>Parameter</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
Chlorine	4500-CI-D,E	0.02 mg/l	0.06 mg/l
Chlorine	4500-CI-G	0.02 mg/l	0.06 mg/l

Case-Specific LOD/LOQ

The permittee may determine a case-specific LOD or LOQ using the analytical method specified above, or any other test method which is approved by the Commissioner prior to use. The LOD shall be derived by the procedure specified for method detection limits contained in 40 CFR Part 136, Appendix B, and the LOQ shall be set equal to 3.18 times the LOD. Other methods may be used if first approved by the Commissioner.

N. CYANIDE REQUIREMENTS

Sample preservation procedures and maximum allowable holding times for total cyanide, or available (free) are prescribed in Table II of 40 CFR Part 136. Note the footnotes specific to cyanide. Preservation and holding time information in Table II takes precedence over information in specific methods or elsewhere. **Therefore, cyanide is to be monitored by collecting a representative grab sample. "Representative Grab Sample" is defined as a sample type of three grab samples within 24 hours.**

P. SCHEDULES OF COMPLIANCE

1. The permittee shall achieve compliance with the 316(b)-impingement mortality BTA requirements established in Part III.A. of this permit for Pump Station No. 1 and Pump Station No. 2 in accordance with the following schedules:
 - a. The below schedule of compliance is for installation of the selected BTA for impingement at the **Pump Station No. 2 Intake**. The permittee shall install new modified traveling screens with fish friendly return and that meet the definition of the rule 125.92(s) at this intake no later than thirty-six (36) months after the effective date of this permit in accordance with the following schedule.
 - i. As soon as practicable but no later than twelve (12) months after the effective date of the permit submit to the Industrial NPDES Permits Section of Office of Water Quality (OWQ) for review a conceptual design and plan for the modified traveling screens including fish return.
 - ii. As soon as practicable, but no later than eighteen (18) months after the effective date of the permit, complete detailed design of the modified traveling screens, including the fish return systems.
 - iii. As soon as practicable but no later than twenty-four (24) months after the effective date of the permit, initiate construction of the modified traveling screens and fish return systems.
 - iv. As soon as practicable, but no later than thirty-six (36) months after the effective date of the permit, complete construction of the modified traveling screen and fish return systems.
 - v. Within thirty (30) days of completion of construction, the permittee shall file with the Industrial NPDES Permits Section of Office of Water Quality (OWQ) a notice of installation for the modified traveling screen and a design summary of any modifications.
 - vi. The permittee shall submit a written progress report to the Compliance Data Section of the OWQ three (3) months from the effective date of this permit and every six (6) months thereafter until the requirements in the compliance schedule outlined above have been achieved. The progress reports shall include relevant information related to steps the permittee has taken to meet the requirements in the compliance schedule and whether the permittee is meeting the dates in the compliance schedule.
 - b. The below schedule of compliance is for installation of the selected BTA for impingement at the **Pump Station No. 1 Intake**. The permittee shall install the necessary equipment and make the modifications necessary to comply with the impingement mortality BTA standard of operating at a maximum actual through screen velocity (TSV) of 0.5 fps pursuant to 40 CFR

125.94(c)(3) no later than May 1, 2024, in accordance with the following schedule:

- i. As soon as practicable but no later than April 30, 2023, install flow transmitters into intake tunnels and level transmitters in forebay.
 - ii. As soon as practicable but no later than September 15, 2023, remove existing screens, install new travelling screens and fixed screens, and remove or demolish existing spray header system.
 - iii. As soon as practicable, but no later than October 30, 2023, install new piping/spray header system, complete electrical upgrade, and install backslash housing, debris trough, and front housing.
 - iv. As soon as practicable, but no later than November 30, 2023, complete Systems/PLC work.
 - v. As soon as practicable, but no later than February 28, 2024, complete Final Safe Operation Inspection.
 - vi. Within thirty (30) days of completion of construction, the permittee shall file with the Industrial NPDES Permits Section of Office of Water Quality (OWQ) a notice of installation for the modified intake structure and a design summary of any modifications.
 - vii. The permittee shall submit a written progress report to the Compliance Data Section of the OWQ six (6) months from the issuance date of the permit modification and every six (6) months thereafter until the requirements in the compliance schedules outlined above have been achieved. The progress reports shall include relevant information related to steps the permittee has taken to meet the requirements in the compliance schedule and whether the permittee is meeting the dates in the compliance schedule.
2. The permittee shall achieve compliance with the effluent limitations specified for **mercury at Outfall 027** in accordance with the following schedule:
- a. The permittee shall submit a written progress report to the Compliance Data Section of the Office of Water Quality (OWQ) twelve (12) months from the effective date of this permit. The progress report shall include a description of the method(s) selected for meeting the newly imposed limits for mercury, a specific timeline specifying when each of the steps will be taken, as well as any other relevant information. The new effluent limits for mercury are deferred for the term of this compliance schedule unless the new effluent limits can be met at an earlier date. The permittee shall notify the Compliance Data Section of OWQ as soon as the newly imposed effluent limits for mercury can be met. Upon receipt of such notification by OWQ, the final limits for mercury will become effective, but no later than thirty-six (36) months from the effective date of this permit. Monitoring and reporting of the effluent for these parameters is required during the interim period.

- b. The permittee shall submit a subsequent progress report to the Compliance Data Section of OWQ no later than twenty-four (24) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final effluent limits and whether the permittee is meeting the timeline set out in the initial progress report.
 - c. The permittee shall submit a subsequent progress report to the Compliance Data Section of OWQ no later than thirty-six (36) months from the effective date of this permit. This report shall include detailed information on the steps the permittee has taken to achieve compliance with the final effluent limits and whether the permittee is meeting the timeline set out in the initial progress report.
 - d. Within thirty (30) days of completion of construction, the permittee shall file with the Industrial NPDES Permits Section of OWQ a notice of installation for the additional pollutant control equipment and a design summary of any modifications.
 - e. The permittee shall comply with the final effluent limits for mercury no later than thirty-six (36) months from the effective date of this permit.
3. If the permittee fails to comply with any deadline contained in the foregoing schedules, the permittee shall, within fourteen (14) days following the missed deadline, submit a written notice of noncompliance to the Compliance Data Section of the OWQ stating the cause of noncompliance, any remedial action taken or planned, and the probability of meeting the date fixed for compliance.

Q. REOPENING CLAUSES

This permit may be modified, or alternately, revoked and reissued, after public notice and opportunity for hearing:

1. to comply with any applicable effluent limitation or standard issued or approved under 301(b)(2)(C),(D) and (E), 304 (b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. controls any pollutant not limited in the permit.
2. to incorporate any of the reopening clause provisions cited at 327 IAC 5-2-16.
3. to include Whole Effluent Toxicity (WET) limitations or to include limitations for specific toxicants if the results of the WET testing and/or the Toxicity Reduction Evaluation (TRE) study indicate that such limitations are necessary.

PART III
Other Requirements

A. Thermal Effluent Requirements

1. The following temperature effluent limitations and requirements shall apply to discharges from Outfalls 015, 018, 019, 020, 027, 028, 030, and 034 to the Grand Calumet River:

a. The monitoring of the Temperature is to occur on a continuous basis at the following locations in the Grand Calumet River:

Approximately 100 feet downstream of the US Steel Outfall 020, which shall be designated as monitoring point 220; and

Approximately 100 feet downstream of the US Steel Outfall 030, which shall be designated as monitoring point 230.

Temperature measurements taken in the Grand Calumet River at the above locations shall be taken at mid-stream and at a depth of approximately one meter below the water's surface.

b. Temperature measurements at the above stated locations shall be recorded in one-hour intervals. The highest single recorded measurement for each day shall be reported on the state monthly monitoring report for each day. The highest single recorded daily measurement shall be reported on the federal discharge monitoring report as the maximum daily temperature of that month.

The permittee shall submit an annual summary of the individual data points for the instream temperature at the measuring points for Outfall 220 and 230. The annual summary shall be sent no later than January 31st of the succeeding year to the Industrial NPDES Permits Section of the Office of Water Quality, MC 65-42, 100 North Senate Avenue, Indianapolis, Indiana 46204-2251. The annual summary shall be in a database using Microsoft Excel software copied to a compact disk.

c. The temperature measured at monitoring points 220 and 230 shall not exceed the maximum limits in Temperature Table 1 below.

Part IV
 Cooling Water Intake Structures

A. Best Technology Available (BTA) Determination

In accordance with 40 CFR 401.14, the location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Clean Water Act (CWA) shall reflect the best technology available for minimizing adverse environmental impact.

The EPA promulgated a CWA section 316(b) regulation on August 15, 2014, which became effective on October 14, 2014. 79 Fed. Reg. 48300-439 (August 15, 2014). This regulation established application requirements and standards for cooling water intake structures. The regulation is applicable to point sources with a cumulative design intake flow (DIF) greater than 2 MGD where 25% or more of the water withdrawn (using the actual intake flow (AIF)) is used exclusively for cooling purposes. The regulation establishes best technology available (BTA) standards to reduce impingement and entrainment of aquatic organisms at existing power generation and manufacturing facilities.

Impingement is the process by which fish and other aquatic organisms are trapped and often killed or injured when they are pulled against the cooling water intake structures (CWIS's) outer structure or screens as water is withdrawn from a water body. Entrainment is the process by which fish larvae and eggs and other aquatic organisms in the intake flow enter and pass through a CWIS and into a cooling water system, including the condenser or heat exchanger, which often results in the injury or the death of the organisms (see definitions at 40 CFR § 125.92(h) and (n)).

The permittee has five intakes, and the design and actual intake flow of each of these intakes is as follows:

USS Gary Works – Design Intake Flow (MGD) and Actual Intake Flow (MGD)

Intake Name	Intake Description	Design Intake Flow (MGD)	Actual Intake Flow (MGD)
Pump Station No.1	Iron/Steel Making	424	188
Pump Station No. 2	Iron/Steel Making	372	214
Pump Station No. 3	Emergency Backup for Pump Station No. 4	60	0
Pump Station No.4	Raw Materials Recycling (fka sinter)	5	11
Lakeside Pump Station	Hot Roll/Finishing	266	55
	Totals:	1128	468

- AIF based on flows from calendar years 2015 through 2019
- DIF based on pump capacity
- The No. 4 Pump Station design intake flow or DIF is currently 5 MGD. The replacement of pumps to reduce the capacity at this intake occurred in June 2017. The AIF is defined as the “average volume of water withdrawn on an annual basis

by the cooling water intake structures over the past five years.” As such the No. 4 Pump Station AIF exceeds the current DIF.

The permittee has a design intake flow (DIF) of 1,128 MGD and approximately 86% (east side plant operations) and 65% (west side plant operations) of the intake water is used for cooling purposes. Therefore, since the facility has a DIF greater than 2 MGD, and because the percentage of flow used at the facility exclusively for cooling is greater than 25%, the facility is required to meet the BTA standards for impingement mortality and entrainment, including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under 40 CFR 125.94(g).

Based on the information available to IDEM, IDEM has determined that the following are the impingement mortality BTA for each of these intakes.

Impingement Best Technology Available (BTA) Compliance Technology		
Intake	Impingement BTA Compliance Technology	Federal Rule Citation
Pump Station No 1	Operate at Maximum Through Screen Actual Intake Velocity of 0.5 feet per second	40 CFR 125.94(c)(3)
Pump Station No 2	Modified Traveling Screens	40 CFR 125.94(c)(5)
Pump Station No 3	Emergency Backup – BTA Not Applicable	40 CFR 125.94(e)(3)(iv)
Pump Station No 4	Operate at Maximum Through Screen Actual Intake Velocity of 0.5 feet per second	40 CFR 125.94(c)(3)
Lakeside Pump Station	Operate at a Maximum Through Screen Actual Intake Velocity of 0.5 feet per second	40 CFR 125.94(c)(3)

After considering all the factors that must and may be considered by the federal rules, IDEM has determined that the existing facility (after installation of the above impingement BTA) meets the best technology available (BTA) for entrainment mortality both for the entire facility and each intake. This is primarily based on the following factors:

1. The number and species of organisms projected to be entrained by the facility and limited impact to the ecosystem;
2. The costs and technical difficulties installing a combined cycle recycle system or fine mesh screens;
3. The flow reduction/water reuse optimization efforts already implemented at the facility; and
4. The off-shore location of the Lakeside Pump Station intake.

Compliance schedules have been included in Part I.P. of the permit, establishing the interim conditions and deadlines for the permittee to achieve compliance with these new permit BTA requirements as allowed under 40 CFR § 125.98(c).

B. Permit Requirements

The permittee shall comply with the following cooling water intake structure permit requirements:

1. In accordance with 40 CFR 125.98(b)(1), nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.
2. The permittee must at all times properly operate and maintain the cooling water intake structures and associated intake equipment.
3. The permittee must inform IDEM of any proposed changes to the CWIS or proposed changes to operations at the facility that affect the information taken into account in the current BTA evaluation.
4. Any discharge of intake screen backwash must meet the Minimum Narrative Limitations contained in Part I.B of the permit. There must be no discharge of debris from intake screen washing which will settle to form objectionable deposits which are in amounts sufficient to be unsightly or deleterious, or which will produce colors or odors constituting a nuisance.
5. Pump Station No. 1. As soon as practicable but no later than May 1, 2024, the permittee must complete installation of an intake structure that has a maximum through-screen actual intake velocity of 0.5 feet per second as the impingement mortality BTA at this intake pursuant to the 316(b)-compliance schedule in Part I.P.2. and must comply with the following:
 - a. At a minimum frequency of daily, the permittee must calculate the velocity at the screens at PS No. 1 using water flow (hourly maximum water flow during the day), water depth (measured water level at the intake), and the screen open area.
 - b. These daily calculations including the hourly maximum intake flow must be reported on the MMR with the monthly results summarized on the DMRs that are submitted every month and included in the annual report required under Part IV.B.12.
 - c. As soon as practicable but no later than May 1, 2024, the permittee must correct any issues preventing accurate flow meter readings in the north tunnel (PS No. 1). A summary of findings and corrective actions taken must be submitted to IDEM upon completion.
 - d. The permittee is required to properly operate and maintain all the screens at the Pump Station No. 1 Intake, including the fixed screens. At a minimum, the permittee must conduct annual inspections of the fixed screens and must clean a fixed screen when the blockage of that screen is 20% or greater. The permittee must submit an annual report on screen inspections to IDEM's OWQ Industrial NPDES Permits Section at OWQWWPER@idem.in.gov, by December 31st of each year.

6. Pump Station No. 2. As soon as practicable but no later than twenty-four months after the effective date of the permit the permittee must submit to IDEM for review and approval a study plan including schedule for obtaining information required by the impingement technology optimization study required by 40 CFR 125.94(c)(5) and 40 CFR 122.21(r)(6)(i). After installation of the modified traveling screen at this intake has been completed, the permittee must conduct the approved impingement technology optimization study at this intake. The study plan must be able to demonstrate that the technology is or will be optimized to minimize impingement mortality of all non-fragile species.

The permittee must submit the preliminary results of the first year of their optimization study within 60 days of completion of the first year of sampling. The permittee must submit the final technology optimization study report, covering both year 1 and year 2 of sampling within 90 days of completing the second year of sampling. The permit may be modified to include verifiable and enforceable permit conditions that ensure the technology will perform as demonstrated.

7. Lakeside Intake and Pump Station #1. Within 6 months of the effective date of the amended provisions of the permit modification, the permittee must develop and submit to IDEM a contingency plan to be implemented if Lake Michigan levels approach levels that would cause an exceedance of the velocity limit of 0.5 fps.
8. Lakeside Intake. The permittee selected the impingement mortality option under 40 CFR 125.94(c)(3) [maximum through screen actual intake velocity of 0.5 feet per second] for this intake, therefore, the permittee must calculate the velocity at the screen at a minimum frequency of daily, using water flow (hourly maximum water flow during the day), water depth (measured water level at the intake), and the screen open area. These daily measurements must be reported on the MMR with the monthly results summarized on the DMRs that are submitted every month.
9. In accordance with 40 CFR 125.97(c), by January 31 of each year, the permittee must submit to the Industrial NPDES Permits Section IDEM-OWQ an annual certification statement for the preceding calendar year signed by the responsible corporate officer as defined in 40 CFR 122.22 (see 327 IAC 5-2-22) subject to the following:
 - a. If the information contained in the previous year's annual certification is still pertinent, you may simply state as such in a letter to IDEM and the letter, along with any applicable data submission requirements specified in this section shall constitute the annual certification.

- b. If you have substantially modified operation of any unit at your facility that impacts cooling water withdrawals or operation of your cooling water intake structures, you must provide a summary of those changes in the report. In addition, you must submit revisions to the information required at 40 CFR 122.21(r) in your next permit application.
10. Best technology available (BTA) determinations for entrainment mortality and impingement mortality at cooling water intake structures will be made in each permit reissuance, in accordance with 40 CFR 125.90-98. The permittee must submit all the information required by the applicable provisions of 40 CFR 122.21(r)(2) through (r)(13) with the next renewal application. Since the permittee has submitted the studies required by 40 CFR 122.21(r), the permittee may, in subsequent renewal applications pursuant to 40 CFR 125.95(c), request to reduce the information required if conditions at the facility and in the waterbody remain substantially unchanged since the previous application so long as the relevant previously submitted information remains representative of the current source water, intake structure, cooling water system, and operating conditions. Any habitat designated as critical or species listed as threatened or endangered after issuance of the current permit whose range of habitat or designated critical habitat includes waters where a facility intake is located constitutes potential for a substantial change that must be addressed by the owner/operator in subsequent permit applications, unless the facility received an exemption pursuant to 16 U.S.C. 1536(o) or a permit pursuant to 16 U.S.C. 1539(a) or there is no reasonable expectation of take. The permittee must submit a request for reduced cooling water intake structure and waterbody application information at least **two years and six months** prior to the expiration of its NPDES permit. The request must identify each element in 40 CFR 122.21(r) that it determines has not substantially changed since the previous permit application and the basis for the determination. IDEM has the discretion to accept or reject any part of the request.
11. The permittee must only operate Intake Pump Station No. 3 as an emergency backup. The permittee must immediately notify IDEM, Office of Water Quality, Industrial NPDES Permits Section at OWQWWPER@idem.in.gov if Pump Station No. 3 is or will be used for any other purpose. Operating information including dates of operation, hours of operation and reason for use of Pump Station No. 3 must be included in the annual report required in Item 12, below.
12. The permittee must submit an annual summary of the actual intake flows measured or calculated at a minimum frequency of daily. For all calculated intake flows, the permittee must provide the data and calculations used to calculate each calculated intake flow in this annual report.

13. The permittee must either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation as required by 40 CFR 125.96(e). The permittee must conduct such inspections at least weekly to ensure that any technologies operated to comply with § 125.94 are maintained and operated to function as designed including those installed to protect Federally-listed threatened or endangered species or designated critical habitat. Alternative procedures can be approved if this requirement is not feasible (e.g., an offshore intake, velocity cap, or during periods of inclement weather).
14. The permittee must submit and maintain all the information required by the applicable provisions of 40 CFR 125.97.
15. All required reports must be submitted to IDEM's OWQ Industrial NPDES Permits Section at OWQWWPER@idem.in.gov and the OWQ Compliance Data Section at wwReports@idem.in.gov
16. The permittee shall construct fish handling and return systems (FHRS) at the No. 2 Pump Station.



National Pollutant Discharge Elimination System
Fact Sheet for
United States Steel Corp.
Draft modification: April 2024
Final modification: TBD

Indiana Department of Environmental Management

100 North Senate Avenue
 Indianapolis, Indiana 46204
 (317) 232-8603
 Toll Free (800) 451-6027
www.idem.IN.gov

Permittee:	United States Steel Corporation – Gary Works One North Broadway Gary, IN 46402
Existing Permit Information:	Permit Number: IN0000281 Expiration Date: 4/30/2026
Facility Contact:	Brandon Miller, Environmental Control (219)888-3360 bsmiller@uss.com
Facility Location:	One North Broadway Gary, IN 46402 Lake County
Receiving Stream(s):	Grand Calumet River Lake Michigan
GLI/Non-GLI:	GLI
Proposed Permit Action:	Modify
Date Applications Received:	5/16/2023, 11/17/2023, 1/25/2024
Source Category	NPDES Major – Industrial
Permit Writer:	Nikki Gardner (317)232-8707 or ngardner@idem.in.gov

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1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM) received three requests from the United States Steel Corporation (U.S. Steel) on May 16, 2023, November 17, 2023, and January 25, 2024, to modify National Pollutant Discharge Elimination System (NPDES) Permit IN0000281. The current five-year permit was issued with an effective date of May 1, 2021, in accordance with 327 IAC 5-2-6(a).

U.S. Steel filed a Petition for Administrative Review and Request for Stay of Effectiveness of certain terms and conditions of the NPDES Permit with the Indiana Office of Environmental Adjudication on May 6, 2021. IDEM and U.S. Steel entered settlement negotiations to resolve the petition, and this permit modification is the result of the negotiations.

The Federal Water Pollution Control Act (more commonly known as the Clean Water Act), as amended, (Title 33 of the United States Code (U.S.C.) Section 1251 et seq.), requires an NPDES permit for the discharge of pollutants into surface waters. Furthermore, Indiana law requires a permit to control or limit the discharge of any contaminants into state waters or into a publicly owned treatment works. This proposed permit action by IDEM complies with and implements these federal and state requirements.

In accordance with Title 40 of the Code of Federal Regulations (CFR) Sections 124.8 and 124.56, as well as Title 327 of the Indiana Administrative Code (IAC) Article 5-3-8, a Fact Sheet is required for certain NPDES permits. This document fulfills the requirements established in these regulations. This Fact Sheet was prepared in order to document the factors considered in the development of NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, receiving water conditions, Indiana water quality standards-based wasteload allocations, and other information available to IDEM. Decisions to award variances to Water Quality Standards or promulgated effluent guidelines are justified in the Fact Sheet where necessary. This Fact Sheet also identifies the modified pages of the permit as issued on April 22, 2021.

2.0 FACILITY DESCRIPTION

2.1 General

U.S. Steel – Gary Works is classified under Standard Industrial Classification (SIC) Code 3312 – Steel Works, Blast Furnaces, and Rolling Mills. The facility is an integrated steel mill. Intermediate and final products include recycled raw materials, iron, raw steel, cast steel, plate, hot strip, cold rolled strip, and coated steels.

A map showing the location of the facility has been included as Figure 1. Detailed maps identifying the outfall locations are included as Figures 2 and 3. A line diagram noting Outfalls 020, 021, 023 (inactive), 026 (inactive), 027 (proposed), 028, 030, 032, and 033 is included as Figure 4. A line diagram noting Outfalls 603, 027 (proposed), 028, and 030 is included as Figure 5.

Figure 1: Facility Location



One North Broadway
Gary, IN – Lake County

Figure 2: Facility Outfall Map – West Side

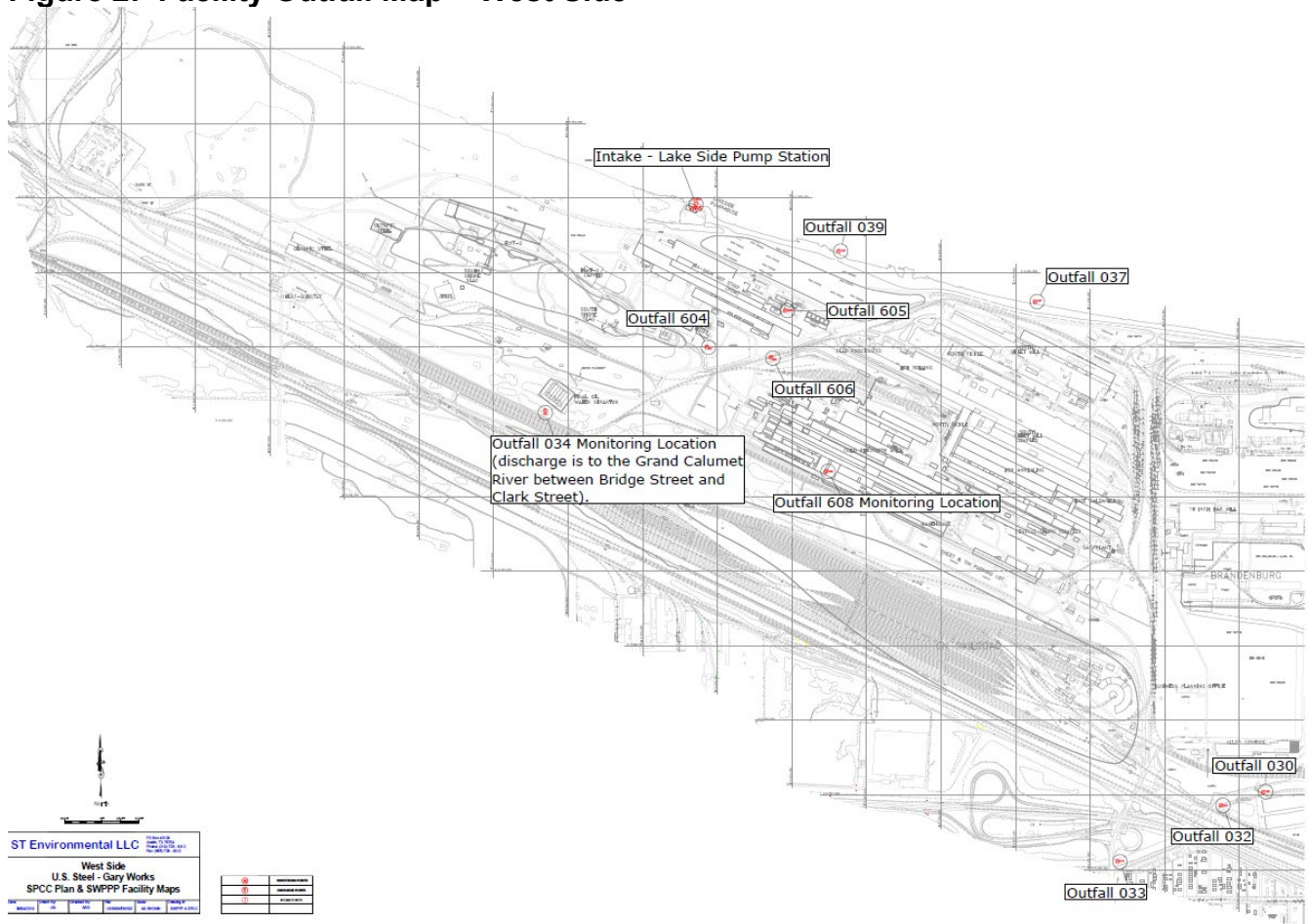


Figure 3: Facility Outfall Map – East Side

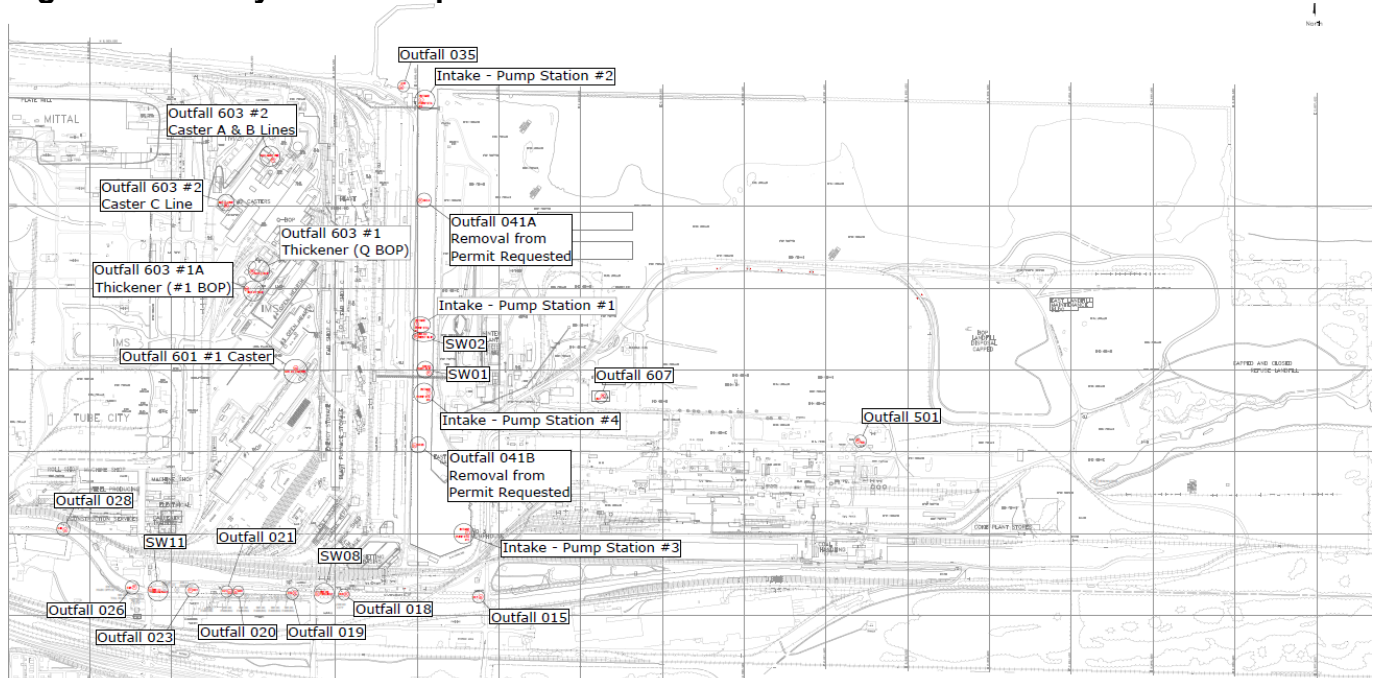


Figure 4: Current Line Discharge Diagram

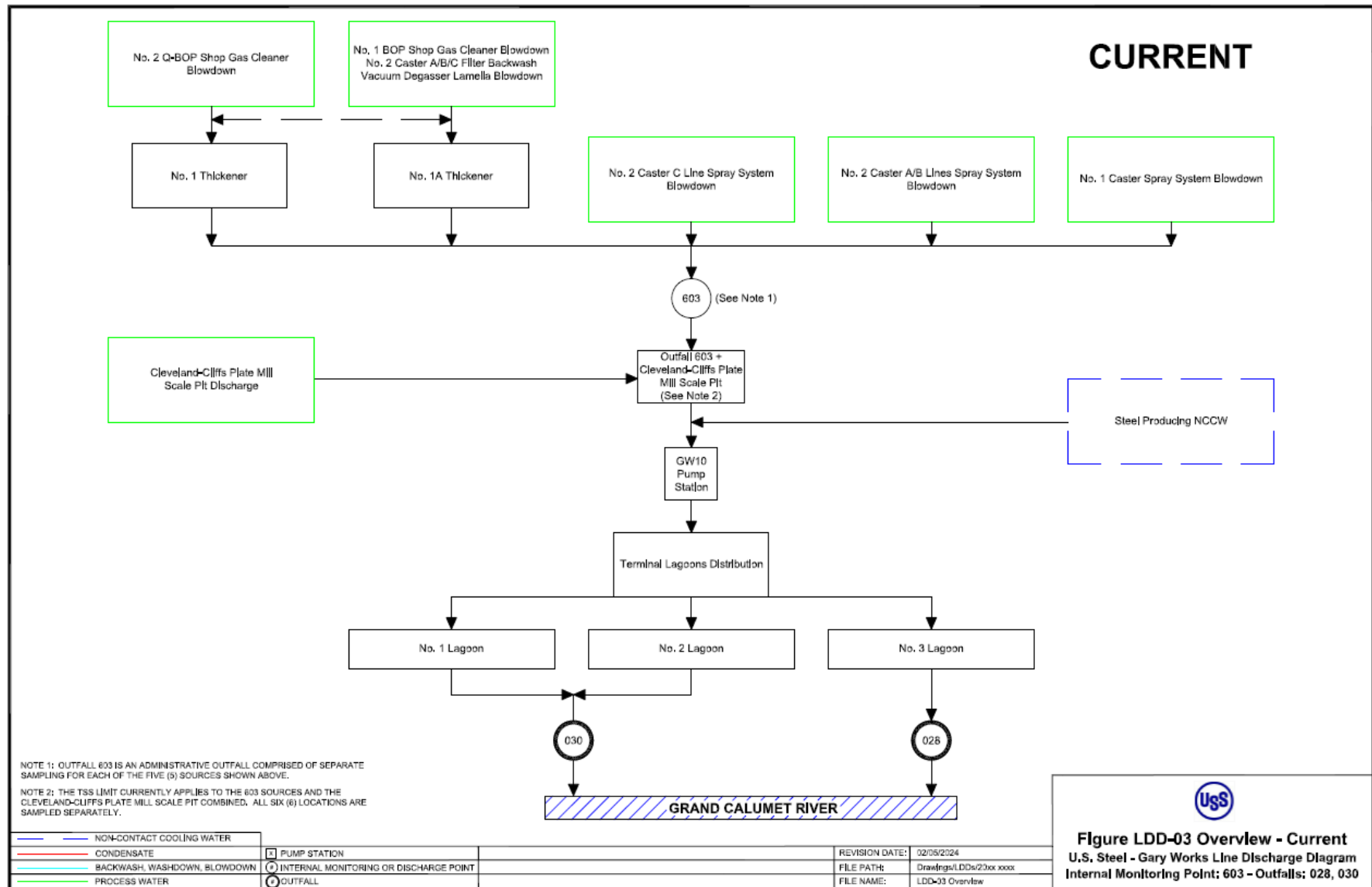
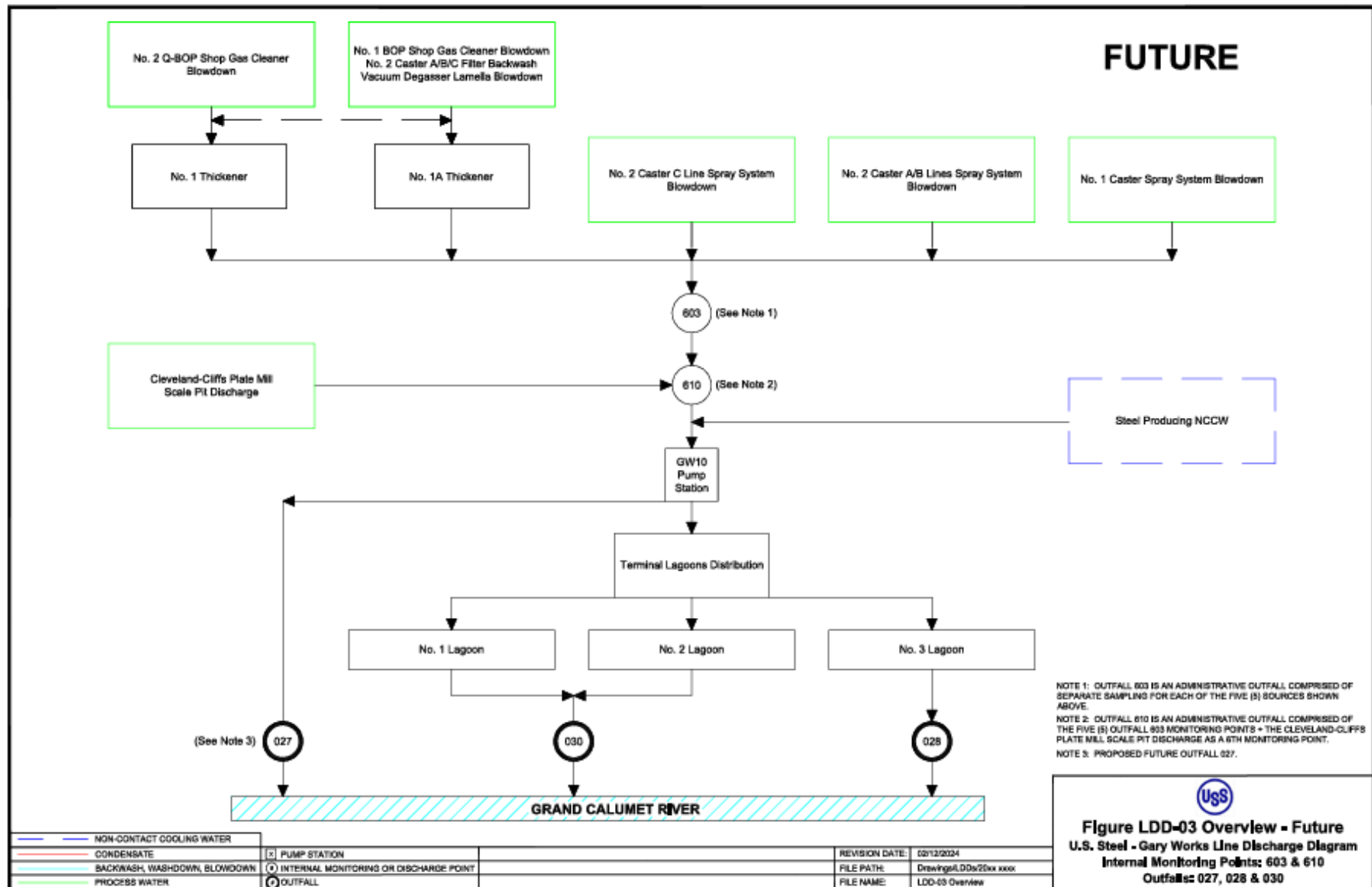


Figure 5: Future Line Discharge Diagram



2.2 Outfall Locations

New outfalls are in **bold** below.

Outfall #	Location	Receiving Stream or Final Outfall
Outfall 015	Latitude: 41° 36' 27.4"	Grand Calumet River
	Longitude: -87° 19' 19.6"	
Internal Outfall 607	Latitude: 41° 36' 55.1"	Outfall 015
	Longitude: -87° 19' 0.1"	
Internal Outfall 501	Latitude: 41° 36' 46.1"	Outfall 015
	Longitude: -87° 19' 19.8"	
Outfall 018	Latitude: 41° 36' 27.4"	Grand Calumet River
	Longitude: -87° 19' 42.2"	
Outfall 019	Latitude: 41° 36' 27.7"	Grand Calumet River
	Longitude: -87° 19' 51.2"	
Outfall 020	Latitude: 41° 36' 27.7"	Grand Calumet River
	Longitude: -87° 20' 0.2"	
Outfall 021	Latitude: 41° 36' 28.1"	Grand Calumet River
	Longitude: -87° 20' 1.7"	
Outfall 023 (Inactive)	Latitude: 41° 36' 27.4"	Grand Calumet River
	Longitude: -87° 20' 7.1"	
Outfall 026 (Inactive)	Latitude: 41° 36' 27.7"	Grand Calumet River
	Longitude: -87° 20' 15.7"	
New Outfall 027	Latitude: 41° 36' 27.9"	Grand Calumet River
	Longitude: -87° 20' 2.4"	
Outfall 028	Latitude: 41° 36' 34.6"	Grand Calumet River
	Longitude: -87° 20' 26.9"	
Outfall 030	Latitude: 41° 36' 36"	Grand Calumet River
	Longitude: -87° 20' 46"	
Internal Outfall 603	Administrative Outfall	Outfalls 027/028/030 (Outfall 600)
New Internal Outfall 610	Administrative Outfall	Outfalls 027/028/030 (Outfall 600)
Outfall 032	Latitude: 41° 36' 34.6"	Grand Calumet River
	Longitude: -87° 20' 51.4"	
Outfall 033	Latitude: 41° 36' 26"	Grand Calumet River
	Longitude: -87° 21' 11"	
Outfall 034	Latitude: 41° 36' 23"	Grand Calumet River
	Longitude: -87° 23' 03"	
Internal Outfall 604	Latitude: 41° 34.7' 35"	Outfall 034
	Longitude: -87° 22' 23.5"	
Internal Outfall 605	Latitude: 41° 37' 40.1"	Outfall 034
	Longitude: -87° 22' 10.6"	
Internal Outfall 606	Latitude: 41° 37' 29.3"	Outfall 034
	Longitude: -87° 22' 9.5"	
Internal Outfall 608	Latitude: 41° 37' 17.9"	Outfall 034
	Longitude: -87° 22' 1.99"	

Outfall #	Location	Receiving Stream or Final Outfall
Internal Outfall 609	Administrative Outfall	Outfall 034
Outfall 035	Latitude: 41° 37' 29.3"	Lake Michigan
	Longitude: -87° 19' 35.8"	
Outfall 037	Latitude: 41° 37' 39"	Lake Michigan
	Longitude: -87° 21' 25"	
Outfall 039	Latitude: 41° 37' 45.8"	Lake Michigan
	Longitude: -87° 21' 59.8"	
SW-01	Latitude: 41° 37' 2.6"	Lake Michigan
	Longitude: -87° 19' 27.8"	
SW-08	Latitude: 41° 36' 27.4"	Grand Calumet River
	Longitude: -87° 19' 47.6"	
SW-11	Latitude: 41° 36' 28.1"	Grand Calumet River
	Longitude: -87° 20' 13.6"	
SW-32	Latitude: 41° 36' 34.6"	Grand Calumet River
	Longitude: -87° 20' 51.4"	
SW-33	Latitude: 41° 36' 26.0"	Grand Calumet River
	Longitude: -87° 21' 11.0"	

3.0 PERMIT MODIFICATION

3.1 Modification Requests

1. Relocation of the TSS TBEL Compliance Point from final Outfalls 028/030 (600) to internal Outfall 603

In the current NPDES Permit, the compliance point for the TSS TBELs associated with Steelmaking, Vacuum Degassing, Continuous Casting, and Hot Forming is virtual Outfall 600 (the mathematical combination of Outfall 028 and Outfall 030). Permitted discharges include treated wastewater from #2 Continuous Caster non-contact cooling water, miscellaneous non-contact cooling water, #1 BOP/QBOP Cooling Tower blowdown, steam condensates, 160"/210" Plate Mill Scale Pit, Internal Outfall 603 wastewaters, and storm water from areas east of Buchanan Street.

In accordance with the terms of the Final Agreement, relocation of the compliance point for the TSS TBELs to the combined discharge of internal Outfall 603 and the 160"/210" Plate Mill Scale Pit is requested. Outfall 603 is comprised of treated wastewater from the Slab Spray cooling, QBOP Vacuum Degasser overflow, #1 BOP, Vacuum Degasser, QBOP, #2 Continuous Caster A/B Line, C Line, #1 Continuous Caster Line, and stormwater. Monitoring occurs at 5 different locations which are mathematically combined and reported as Outfall 603. The same approach (individual monitoring points that are mathematically combined for reporting) would be used for assessment of the TSS TBELs for Outfall 603 and the 160"/210" Plate Mill Scale Pit. No change the current numerical TSS TBEL values is requested.

Removal of the existing TSS limits and monitoring requirements for Outfalls 028/030 (Outfall 600) and the addition of the following new permit section is requested:

DISCHARGE LIMITATIONS [1]
Internal Outfall 603 and 160"/210" Plate Mill

Parameter	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Tu2&
Flow	Report	Report	MGD	-	-	-	Daily	Continuous
TSS	1,667	4,825	lbs/day	Report	Report	mg/L	5XWeekly	24 Hr. Comp

[1] Samples taken in compliance with the monitoring requirements above shall be taken at a point representative of the discharge but prior to entry into Outfalls 0281030. Separate samples and flow measurements shall be taken at the discharge of the No. 1 Continuous Caster Scale Pit, the filtered blowdown from the No. 2 Continuous Caster, the discharge from the No. 1 and No. 1A BOP Thickeners, and the discharge from the 160"/210" Plate Mill. The mass loadings from each monitoring point shall be calculated and added together to determine the daily and monthly average mass discharges.

2. Cyanide Analysis Requirements

Part I.N. of the current NPDES provides details related to cyanide sampling requirements. The language currently specifies analysis within 24 hours. Pursuant to the terms of the Final Agreement, removal of this language is requested. Requested revised Part I.N. language is shown below with changes in redline-strike out format:

Sample preservation procedures and maximum allowable holding times for total cyanide, or available (free) are prescribed in Table II of 40 CFR Part 136. Note the footnotes specific to cyanide. Preservation and holding time information in Table II takes precedence over information in specific methods or elsewhere. Therefore, cyanide is to be monitored by collecting a representative grab sample ~~and analyzing it within 24 hours.~~ "Representative Grab Sample" is defined as a sample type of three grab samples within 24 hours.

3. 316(b) Compliance Option for Pump Station No. 1

In the current NPDES Permit and associated Fact Sheet, the selected Clean Water Act Section 316(b) best technology available (BTA) standard to reduce impingement mortality at the Pump Station No. 1 cooling water intake structure is modified traveling screens with a fish return pursuant to 40 CFR 125.94(c)(5). The NPDES Permit also includes a 3-year schedule of compliance (SOC) to comply with this requirement.

The Pump Station No. 1's cooling water intake structure is currently described in the associated permit Fact Sheet as including two 10-foot diameter openings in the vessel slip west bank, trash bars spaced 6 inches apart, channel piping, 15 vertical traveling screens (12 in operation) with 0.250-inch or 0.125-inch square mesh, debris trays, and a

debris trough that discharges through retaining baskets to the intake bays in front of the traveling screens.

As indicated in the 12-month progress report submitted pursuant to the schedule of compliance (SOC) submitted April 29, 2022, detailed investigations, including diver inspection and professional survey of the Pump Station No. 1 intake tunnels and intake sump, provided a more accurate measurement of the intake water elevation and sump depth and a better visualization of the intake screen area.

Although at the time of the NPDES Permit renewal it was U. S. Steel's intent to comply with the 316(b) best technology available standard to reduce impingement mortality by installing and operating modified traveling screens with a fish return as described at 40 CFR 125.94(c)(5), U.S. Steel has re-evaluated potential compliance methods for meeting the impingement reduction standard based on the results of the work described above and proposed modifications to the intake screens. Utilizing the updated information about the Pump Station No. 1 along with anticipated upgrades and maintenance, U.S. Steel has determined that compliance with the impingement BTA standard of operating at a maximum actual through screen velocity (TSV) of 0.5 feet per second (fps) under 40 CFR 125.94(c)(3) is feasible and preferred.

For this approach, in addition to the field investigations and tunnel maintenance already described, several additional activities will be involved, including:

- The various sized meshes on the 15 existing TWS will all be replaced with 3/8-inch square mesh.
- Two new TWS will be installed.
- Two new fixed screens will be installed where solid bulkheads currently exist - two spare screens will be used for maintenance and cleaning.
- Existing screen wash spray header will be reused and modified to provide high-pressure spray for debris removal for the additional TWS.
- New flow meters and level measurement instruments will be installed.

Calculations updated with the more accurate information from the field investigations and the screen configurations after the future improvements indicate that the maximum actual TSV will be less than the BTA standard of 0.5 fps at the projected maximum flow of 172.8 MGD and Lake Michigan low water datum. The fixed screens are not required to meet the BTA standard except possibly during maintenance and cleaning.

The two new TWS will be installed, one at the South end of the existing TWS system and one between screens 12 and 13 in the existing screen lineup. The bulkheads that are currently installed at the South end of the forebay will be removed and replaced with two new fixed panel screens. These changes are expected to result in compliance with a maximum TSV of 0.5 fps even with Lake Michigan water levels below the low water datum. The total open submerged screen area after completion of these changes will be 543 square feet without including any additional flow through the fixed screens and a Lake Michigan water level 30 inches below low water datum, indicating a through screen velocity of 0.5 fps at the projected 172.8 MGD maximum flow.

The existing screen wash header is supplied by a 16-inch header fed from the service water system. The piping will be modified to include connections for the newly installed TWS for debris removal. Flowmeters will be installed within the Pump Station No. 1 intake tunnels. The new ultrasonic flow meters will be used to record and track the Actual Intake Flow (AIF) at Pump Station No. 1. Level measurement instrumentation will be installed at Pump Station No. 1 to monitor and record the forebay water levels. A new level transmitter will be installed at the North and South ends of the forebay to provide redundant level indication.

Table 1 below shows a comparison of input parameters that were used to calculate the through screen velocity at the time of permit renewal and the input parameters that the permittee plans to use for these calculations after completion of this project.

Input Parameter	At the Time of Permit Renewal	Future Conditions
Lake Michigan Level above Low Water Datum (LWD)	7.4 inches	Varies daily*
Lake Michigan Level Source	Observed Water Level at NOAA Station at Calumet Harbor, IL at 13:42 on 20 May 2010	Facility-specific water level meter to be installed.
Submerged Screen Depth at Lake Level	150 inches	Varies daily*
Submerged Screen Depth at LWD	142.6 inches	168.7 inches**
Opening Height	Ranged from 16.5 to 17.5 inches	Traveling screens 17.5 inches Fixed screens 176.52 inches
Scraper Height	Ranged from 3.75 to 5.25 inches	All 3.75 inches
Total Screen Section Height	Ranged from 21 to 22.5 inches	All 21.25 inches
Holes per Inch	3.20 or 5.33	2.29
No. of Traveling Screens	15	17
No. of Traveling Screens in Service	12	Up to 17
No. of Fixed Screens	0	2***
Mesh Hole Height & Length	Mix of 1/4-inch square and 1/8-inch square	All 3/8-inch square (torn screens will be replaced)
Flow	Monthly reported AIF divided by the number of days in the month for 2012-2019	Measured daily using flow meters to be installed in the intake tunnels
<p>* These values will vary daily. Lake Michigan levels will be measured on site will be used to calculate the submerged screen depth at the measured lake level.</p> <p>** This is based on November 19, 2021 measurements. The reported Observed Water Level at NOAA Station at Calumet Harbor, IL was 27.8 inches (above LWD). The corresponding same day measured submerged sump measured depth was 196.5 inches. This results in a submerged depth at LWD of 168.7 inches.</p> <p>*** Fixed screens will not routinely be part of the TSV calculations. The expectation is that they will be included in calculations only when a traveling screen is down for repair or maintenance. In that scenario, 80 percent of the available open area will utilized for the fixed screens calculations.</p>		

In the application for this modification, the permittee provided a general arrangement drawing and a piping and instrumentation diagram for this intake. The following list of equipment lists the changes and modifications that will be made at Pump Station No. 1 were provided by the permittee in its application:

Existing Equipment List (to be replaced)

Pump Station No. 1 Screen Size A

Height	24 ft
Width (Basket)	52.5 in
Type	Through Screen
Drive Motor	2 HP
Driver Voltage/Phase	480V/3PH
Quantity	12

Pump Station No. 1 Screen Size B

Height	24ft
Width (Basket)	71.5 in
Type	Through Screen
Drive Motor	2 HP
Driver Voltage/Phase	480V/3PH
Quantity	3

New Equipment List

Pump Station No. 1 Screen Size C

Height	24 ft
Width (Basket)	35 in
Type	Through Screen
Drive Motor	2 HP
Driver Voltage/Phase	480V/3PH
Quantity	1

Pump Station No. 1 Screen Size A

Height	24 ft
Width (Basket)	52.5 in
Type	Through Screen
Drive Motor	2 HP
Driver Voltage/Phase	480V/3PH
Quantity	1

Pump Station No. 1 Fixed Screen Size A

Height	14 ft 8 in
Width	54.5 in
Type	Fixed Screen
Drive Motor	N/A
Driver Voltage/Phase	N/A
Quantity	1 with 1 spare for maintenance

Pump Station No. 1 Fixed Screen Size B

Height 14 ft 8 in
 Width 71.75 in
 Type Fixed Screen
 Drive Motor N/A
 Driver Voltage/Phase N/A
 Quantity 1 with 1 spare for maintenance

As indicated in the 18-month and 21-month progress reports for the SOC, progress on the above- described approach continues with construction work already initiated.

US Steel is not proposing a change to the current compliance deadline for compliance with the 316(b) requirements, and proposes to follow the project schedule below:

U. S. Steel Gary Works 316(b) Impingement Mortality Requirement Project Schedule
 Modification of #1 Pump House to Achieve Compliance With < 0.5 ft/s Through Screen Velocity
 Summary of Major Milestones - Subject to Change

Description of Action Item	Actual or Estimated Completion Date	Status
Install flow transmitters into intake tunnels and level transmitters in forebay	4/30/2023	Completed
Receive new travelling and fixed screens from manufacturer	6/29/2023	Completed
Remove existing screens	9/4/2023	Demo/Removal of existing screens completed on 13 of 17 new travelling screens. Fixed screen demo work expected to be completed by 9/8/2023
Install new travelling screens and fixed screens	9/15/2023	Installation complete for 11 of 17 new travelling screens. Fixed screen installation expected to be completed by 9/15/2023
Remove/Demo existing spray header system	9/15/2023	~70% Complete
Install new piping/spray header system	10/13/2023	~50% Complete
Electrical upgrade complete (wiring to screens, new control boxes)	10/20/2023	Ongoing
Installation of Backsplash housing, debris trough, and front housing	10/20/2023	~20% Complete
Systems/PLC work complete	11/30/2023	Ongoing
Final Safe Operation Inspection	2/28/2024	NA
Commissioning/Troubleshooting	4/30/2024	NA
Full project completion and compliance with 0.5 ft/second through-screen velocity limit	5/1/2024	NA

4. Add GW-10 lift station as new final outfall (proposed Outfall 027)

The permittee requests a permit modification to add GW-10 lift station emergency overflow as new final outfall (proposed Outfall 027) to the Grand Calumet River that is assessed for compliance as part of Outfall 600.

Currently, wastewaters from GW-10 lift station are normally routed to the Terminal Lagoon Distribution Chamber where they combine with GW-11 lift station and GW-12 lift station flows before entering the Terminal Lagoons. From the Terminal Lagoons, discharge to the Grand Calumet River is achieved either through Outfall 028 or Outfall 030. The combined discharge of Outfall 028 and 030 is reported and assessed for

compliance purposes as Outfall 600. In emergency situations GW-10 lift station can overflow directly to the Grand Calumet River.

It is proposed that the permit be modified to include GW-10 lift station overflow as a new Outfall 027 that would be part of Outfall 600 along with Outfalls 028 and 030. Proposed Outfall 027 will only have discharge during emergency type situations should GW-10 lift station not be able to pump the entirety of the flow to Outfalls 028 and 030.

The water flowing through GW-10 lift station is comprised of waters from the following sources: Combined #2 Continuous Caster non-contact cooling water, miscellaneous non-contact cooling water, #1 BOP/QBOP Cooling Tower, blowdown, steam condensates, 160"/210" Plate Mill Scale Pit, Internal Outfall 603 wastewaters, and storm water from areas east of Buchanan Street. Internal Outfall 603 wastewaters are comprised of treated wastewater from the Slab Spray cooling, QBOP Vacuum Degasser overflow, #1 BOP, Vacuum Degasser, QBOP, #2 Continuous Caster A/B Line, C Line, #1 Continuous Caster Line, and (as needed) stormwater from areas east of Buchanan Street.

5. Sinter Plant

U. S. Steel is internally changing the name given to the location in the facility formerly known as the "Sinter Plant," as well as the process formerly called "Sinter," or "Sintering," to be known as the "Recycling Plant," and the process to be described as "recycling" of raw materials.

U. S. Steel requests to change any instance in the permit and fact sheet of "Sinter Plant" to "Recycling Plant," any instance or description of the process formerly known as "Sinter," or "Sintering" to be referred to as "recycling" of raw materials, and any instance of the product formerly known as "Sinter" to be changed to recycled raw materials.

3.2 IDEM's Proposed Modification

1. Relocation of the TSS TBEL Compliance Point from final Outfalls 028/030 (600) to internal Outfall 603

IDEM agrees to move the numeric TSS TBEL limits from final Outfalls 028/030 (Outfall 600) to a new administrative outfall, to be designated as internal Outfall 610. TSS monitoring requirements will be retained at Outfalls 028/030 (Outfall 600). Permit Parts I.A.10 and I.A.11 have been modified. Affected pages of the permit as issued on April 22, 2021, are 28 through 32 of 152.

2. Cyanide Analysis Requirements

Permit Part I.N. has been updated as requested. The modified page of the permit as issued on April 22, 2021, is 109 of 152.

3. 316(b) Compliance Option for Pump Station No. 1

At Pump Station No. 1 the permittee has proposed to change the impingement mortality BTA from modified traveling screens with a fish return under 40 CFR 125.94(c)(5) to operating at a maximum actual through screen velocity of 0.5 fps under 40 CFR 125.94(c)(3).

Under this alternative, the permittee must operate a cooling water intake structure that has a maximum through-screen intake velocity of 0.5 fps. The owner or operator of the facility must submit information to IDEM that demonstrates that the maximum intake velocity as water passes through the structural components of a screen measured perpendicular to the screen mesh does not exceed 0.5 fps. The maximum velocity must be achieved under all conditions, including during minimum ambient source water surface elevations (based on best professional judgment using hydrological data) and during periods of maximum head loss across the screens or other devices during normal operation of the intake structure. IDEM may authorize the owner or operator of the facility to exceed the 0.5 fps velocity at an intake for brief periods for the purpose of maintaining the cooling water intake system, such as backwashing the screen face. If the intake does not have a screen, the maximum intake velocity perpendicular to the opening of the intake must not exceed 0.5 fps during minimum ambient source water surface elevations. In addition, the permittee must monitor the velocity at the screen at a minimum frequency of daily. In lieu of velocity monitoring at the screen face, the permittee may calculate the through-screen velocity using water flow, water depth, and the screen open areas. The permit will specify the permittee's selected compliance method for this alternative (monitor velocity or calculate velocity).

The permittee provided calculations (below) showing calculated through-screen velocities using 120,000 GPM or 172.80 MGD, the expected actual maximum flow, at current lake level conditions and the minimum lake level conditions achieve 0.5 fps or less, relative to the low water datum.

		PUMP HOUSE #1 EXAMPLE CALCULATIONS REFERENCING LOW WATER DATUM PRESENT LAKE LEVEL AND MINIMUM COMPLIANCE LAKE LEVEL					PUMP HOUSE #1 CALCULATIONS			
NOT INCLUDING FIXED SCREEN AREA										
	NORTH LEVEL TRANSMITTER, FT	SOUTH LEVEL TRANSMITTER, FT	NORTH INLET FLOW METER, GPM	SOUTH INLET FLOW METER, GPM	COMBINED FLOW GPM	FLOW MGD	SUBMERGED SCREEN DEPTH INCHES	LAKE LEVEL RELATIVE TO LOW WATER DATUM IN INCHES	SUBMERGED SCREEN AREA, SQFT	CALCULATED TSV
PRESENT LAKE LEVEL	16.5	16.5	60,000	60,000	120,000	172.80	198.00	29.30	734.48	0.4
MINIMUM LAKE LEVEL	11	11	60,000	60,000	120,000	172.80	132.00	-36.70	489.65	0.5
<small>Note: Present lake level is 29.30 inches above the Low Water Datum (LWD). The minimum lake level at which point a flow of 172.8 MGD, or 120,000 GPM would equal 0.5 ft/s, without including installed fixed screen area, is 36.70 inches below the LWD. This represents a drop in lake level of 66" or 5.5 feet</small>										
WITH FIXED SCREEN AREA INCLUDED										
	NORTH LEVEL TRANSMITTER, FT	SOUTH LEVEL TRANSMITTER, FT	NORTH INLET FLOW METER, GPM	SOUTH INLET FLOW METER, GPM	COMBINED FLOW GPM	FLOW MGD	SUBMERGED SCREEN DEPTH INCHES	LAKE LEVEL RELATIVE TO LOW WATER DATUM IN INCHES	SUBMERGED SCREEN AREA, SQFT	CALCULATED TSV
PRESENT LAKE LEVEL	16.5	16.5	60,000	60,000	120,000	172.80	198.00	29.30	819.51	0.3
MINIMUM LAKE LEVEL	10.2	10.2	60,000	60,000	120,000	172.80	122.40	-46.30	490.37	0.5
<small>Note: Present lake level is 29.30 inches above the Low Water Datum (LWD). The minimum lake level at which point a flow of 172.8 MGD, or 120,000 GPM would equal 0.5 ft/s, including fixed screen area, is 46.30 inches below the LWD. This represents a drop in lake level of 75.6" or 6.3 feet</small>										

IDEM believes that based on current information, the Lake water level at the expected max flow of 172.8 MGD would have to drop 5.5 feet below current Lake levels, which would be approximately 3 feet below the reported low water datum for Lake Michigan, before the 0.5 fps actual through screen velocity could be exceeded.

The permittee installed flow meters in both intake tunnels at Pump Station #1 and has encountered “noise” in data provided by the flow meter in the North Tunnel. The facility is investigating the issue and told IDEM that while unsure of the cause, something is causing the flow rate to swing in such a fashion that is not possible based on operational water usage.

IDEM has determined that it is appropriate to change the impingement mortality BTA selection at Pump Station #1 to actual through-screen velocity. In addition to the actual through-screen velocity limit, the permittee will be required to:

- Conduct annual inspections of the fixed screens at the Pump Station #1 Intake to ensure that they are maintained and operated to function as designed,
- Clean a fixed screen when the blockage of that screen is 20% or greater,
- Submit an annual report on screen inspections,
- Develop a contingency plan to be implemented if Lake Michigan levels approach levels that would cause an exceedance, and
- Correct any issues preventing accurate flow meter readings in the north tunnel and provide a summary of findings and corrective actions.

Associated requirements have also been updated, including the Schedule of Compliance and Cooling Water Intake Structure Best Technology Available (BTA) Determination and Permit Requirements. Permit Parts I.A.23, I.P, IV.A, and IV.B. have been updated. Modified pages of the permit as issued on April 22, 2021, are 62 through 63a, 111, 112, and 141 through 145 of 152.

316(b) Compliance Option for Lakeside Pump Station

The renewed USS Gary Works permit, effective on May 1, 2021, contained a requirement for the permittee to notify IDEM of its impingement mortality BTA selection for the Lakeside Pump Station no later than six (6) months after the effective date of the permit. The impingement mortality BTA options were either 40 CFR 125.94(c)(3) (maximum actual through screen velocity of 0.5 feet per second) or 40 CFR 125.94(c)(5) (modified traveling screens). The permittee was also given a 36-month schedule of compliance for installation of the selected BTA for impingement at the Lakeside Pump Station.

On April 29, 2022, the permittee submitted a Schedule of Compliance Progress Report – 316(b) Impingement Mortality Requirements – Lakeside Pump Station, #1 Pump Station, and #2 Pump Station. The progress report included a Lakeside Pump Station Final Progress Report as well as a statement that “as of May 1, 2022, U.S. Steel is exiting the 316(b) impingement Mortality Schedule of Compliance at Lakeside Pump Station and will be complying with the through-screen velocity limits in the permit at this location.”

IDEM reviewed velocity data submitted in DMRs and MMRs from May 2021 through September 2023 and confirmed that all reported velocity data during the period of review were less than 0.5 fps.

Therefore, relevant portions of the permit have been updated to reflect the selected and implemented impingement mortality BTA option for the Lakeside Pump Station, including the Schedule of Compliance and Cooling Water Intake Structure Best Technology Available (BTA) Determination and Permit Requirements. Portions of the permit that are no longer applicable have been deleted. Permit Parts I.A.23, I.P, IV.A, and IV.B. have been updated. Modified pages of the permit as issued on April 22, 2021, are 62 through 63a, 111, 112, and 141 through 145 of 152.

4. IDEM has reviewed data and flow information submitted by the permittee, and agrees to modify the permit to add the GW-10 lift station as new final outfall (proposed Outfall 027) to the Grand Calumet River that is assessed for compliance as part of Outfall 600, based on the following:

- It is not a new discharge as the wastewaters are currently discharged through the Outfall 028 and Outfall 030 structures as part of administrative Outfall 600.
- The proposal will not result in an increase in flow to the receiving stream.
- The proposal will not result in a significant lowering of water quality of the receiving stream.
- No new or increased permit limits are required or proposed.
- Flow monitoring devices must be installed at the final outfalls comprising Outfall 600. Three outfalls will be totaled to determine compliance with flow-dependent limits.
- Outfall 027 must remain an emergency discharge outfall only. For all discharge events, the permittee will be required to include a report with its monthly Discharge Monitoring Report (DMR) and maintain records detailing the cause and duration of discharge.

The draft permit contains new effluent limits for mercury at Outfall 027. In accordance with 327 IAC 5-2-12.1 (see also 40 CFR 122.47(a)), a schedule of compliance is allowed in an NPDES permit when requested and justified by the permittee, but only when appropriate and when the schedule of compliance requires achievement of compliance “as soon as possible” and meets other specified conditions. Before a schedule of compliance can be included in a permit, the permittee must submit a request for the schedule to IDEM and demonstrate that they meet the requirements for such a schedule pursuant to 327 IAC 5-2-12.1. The permittee submitted a request for a schedule of compliance and included a Gantt chart with detailed information regarding steps to be taken to reach compliance with the new limits. A thirty-six (36) month schedule of compliance is proposed.

Permit Part I.A.11. has been updated. Modified pages of the permit as issued on April 22, 2021, are 28 through 32, 112, 113, and 132 of 152.

5. IDEM agrees to change any instance in the permit of "Sinter Plant" to "Recycling Plant," any instance or description of the process formerly known as "Sinter" or "Sintering" to "recycling" of raw materials, and any instance of the product formerly known as "Sinter" to be changed to recycled raw materials. However, because the recycling plant is a sintering plant as that term is defined in the ELGs, the term sinter plant is included in parenthesis to ensure understanding of applicable ELGs. The Fact Sheet as drafted to support the 2021 permit renewal will not be modified. Modified pages of the permit as issued on April 22, 2021, are 8, 54, and 140 of 152.

3.3 Antibacksliding

Indiana's prohibitions on backsliding under 327 IAC 5-2-10(a)(11) are applicable to BPJ case-by-case technology-based effluent limitations, when proposed to be increased based on subsequently promulgated effluent guidelines under Section 304(b) of the CWA, and limitations based on Indiana water quality standards or treatment standards (327 IAC 5-10). Prohibitions on other types of backsliding (e.g., backsliding from limitations derived from effluent guidelines, from existing case-by-case limitations to new case-by-case limitations, and from conditions such as monitoring requirements that are not effluent limitations) are covered under federal regulation at 40 CFR 122.44(l)(1).

Under 327 IAC 5-2-10(a)(11), unless an exception under 327 IAC 5-2-10(a)(11)(B) applies, a permit may not be renewed, reissued or modified to contain effluent limitations that are less stringent than the comparable effluent limitations in the previous permit. For effluent limitations based on Indiana water quality or treatment standards, less stringent effluent limitations may also be allowed if they are in compliance with Section 303(d)(4) of the CWA. Under 40 CFR 122.44(l)(1), a permit may not be renewed or reissued to contain less stringent interim effluent limitations, standards or conditions than 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 40 CFR 122.62.

None of the limits included in this permit are less stringent than the comparable effluent limitations in the previous permit, therefore, backsliding is not an issue in accordance with 327 IAC 5-2-10(a)(11) and 40 CFR 122.44(l)(1).

3.4 Antidegradation

Indiana's Antidegradation Standards and Implementation procedures are outlined in 327 IAC 2-1.3. The antidegradation standards established by 327 IAC 2-1.3-3 apply to all surface waters of the state. The permittee is prohibited from undertaking any deliberate action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless information is submitted to the commissioner demonstrating that the proposed new or increased discharge will not cause a significant lowering of water quality, or an antidegradation demonstration submitted and approved in accordance 327 IAC 2-1.3-5 and 2-1.3-6.

The NPDES permit does not propose to establish a new or increased loading of a regulated pollutant; therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 do not apply to the permitted discharge.

3.5 Spill Response and Reporting Requirement

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.(d), Part II.B.3.(c), and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedances that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedance to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

3.6 Permit Processing/Public Comment

Pursuant to IC 13-15-5-1, IDEM will publish the draft permit document online at <https://www.in.gov/idem/public-notices/>. Additional information on public participation can be found in the "Citizens' Guide to IDEM", available at <https://www.in.gov/idem/resources/citizens-guide-to-idem/>. A 30-day comment period is available to solicit input from interested parties, including the public.