December 14, 2021

VIA ELECTRONIC MAIL

Mr. Thomas Maicher, Vice President
Cleveland-Cliffs Burns Harbor LLC
250 West Highway 12
Burns Harbor, IN 46304

Dear Mr. Maicher:

Re: NPDES Permit No. IN0000175
Cleveland-Cliffs Burns Harbor LLC
Burns Harbor, IN – Porter County

Your application for a National Pollutant Discharge Elimination System (NPDES) permit for authorization to discharge into the waters of the State of Indiana has been processed in accordance with Section 402 and 405 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251, et seq.), and IC 13-15, IDEM's permitting authority. All discharges from this facility shall be consistent with the terms and conditions of this permit.

One condition of your permit requires periodic reporting of several effluent parameters. You are required to submit both federal discharge monitoring reports (DMRs) and state Monthly Monitoring Reports (MMRs) on a routine basis. The MMR form is available on the internet at the following web site: https://www.in.gov/idem/cleanwater/wastewater-compliance/wastewater-reporting-forms-notices-and-instructions/.

Once you are on this page, select the "IDEM Forms" page and locate the "Monthly Monitoring Report (MMR) for Industrial Discharge Permits-30530" under the Wastewater Facilities heading. We recommend selecting the "XLS" version because it will complete all of the calculations when you enter the data.

All NPDES permit holders are required to submit their monitoring data to IDEM using NetDMR. Please contact Rose McDaniel at (317) 233-2653 or Helen Demmings at (317) 232-8815 if you would like more information on NetDMR. Information is also available on our website at https://www.in.gov/idem/cleanwater/resources/netdmr/.

Another condition, which needs to be clearly understood, concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may subject the permittee to criminal or civil penalties. (See Part II A.2.) It is therefore urged that your office and treatment operator understand this part of the permit.

The draft NPDES permit for Cleveland-Cliffs Burns Harbor LLS was made available for public comment from August 2, 2021 through September 16, 2021 as part of Public Notice No. 2021-08-IN000175-RD/PH on IDEM's website at https://www.in.gov/idem/public-notices/public-notices-all-regions/. During this comment period, a public hearing was held on September 1, 2021. At the public hearing, three (3) individuals provided oral comments; Doug Cannon on behalf of the Town of Ogden Dunes Town Council, Susan Thomas on behalf of ABSR Environment Committee, and Thomas Weber as a concerned citizen. Also, during the comment period, additional written comments were received from: Cleveland-Cliffs Burns Harbor LLC; Doug Cannon on behalf of the Ogden Dunes Town Council; Barbara Lusco as a concerned citizen of Portage, Susan Thomas on behalf of ABSR Environment Committee, Ashley William on behalf of Just Transition Northwest Indiana, and Colin Deverell on behalf of National Parks Conservation Association et al. The comments submitted, and this Office's corresponding responses pertaining to the draft NPDES permit are contained in the Post Public Notice Addendum. The Post Public Notice Addendum is located at the end of the Fact Sheet.

It should also be noted that any appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed Public Notice. The appeal must be initiated by filing a petition for administrative review with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the emailing of an electronic copy of this letter or within eighteen (18) days of the mailing of this letter by filing at the following addresses:

Director
Office of Environmental Adjudication
Indiana Government Center North
Room N103
100 North Senate Avenue
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

If you have any questions concerning the permit, please contact Trisha Williams at 317/234-8210 or twilliam@idem.in.gov. More information on the appeal review process is available at the website for the Office of Environmental Adjudication at http://www.in.gov/oea.

Sincerely,

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

Enclosures

cc: Porter County Health Department
Robert Maciel, Cleveland-Cliffs Burns Harbor LLC
Morgan Swanson, Cleveland-Cliffs Burns Harbor LLC

Chief, Permits Section, U.S. EPA, Region 5
Nick Ream, IDEM
Jason House, IDEM
Brad Gavin, IDEM
IDEM Northwest Regional Office
Susan Mihalo, Ogden Dunes Environmental Advisory Board
Cary Mathias, Cleveland-Cliffs Burns Harbor LLC
Michael Long, Cleveland-Cliffs Burns Harbor LLC
Rob Beranek, Cleveland-Cliffs Burns Harbor LLC
Gary Amendola, Amendola Engineering
Doug Cannon, Town of Ogden Dunes Town Council
Susan Thomas, ABSR Environment Committee
Thomas Weber, concerned citizen
Barbara Lusco, concerned citizen
Ashley William, Just Transition Northwest Indiana
Colin Deverell, National Parks Conservation Association et al
Susan Mihalo, smihal763@comcast.net

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,

CLEVELAND-CLIFFS BURNS HARBOR LLC

is authorized to discharge from the integrated steel mill that is located at 250 West Highway 12, Burns Harbor, Indiana, to receiving waters identified as the East Branch of the Little Calumet River and Lake Michigan in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I, II, III, and IV hereof. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: January 1, 2022

Expiration Date: December 31, 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 December 14, 2021 for the Indiana Department of Environmental Management.

Jerry Dittmer, Chief
Permits Branch
Office of Water Quality

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. 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 001, located at Latitude 41º 36’ 45”, Longitude -87º 08’ 50”. The discharge is limited to treated wastewater from the Secondary Wastewater Treatment Plant (Internal Outfall 011), noncontact cooling water, stormwater, Lake Michigan water from the water cannon used for cooling the discharge, and treated sanitary wastewater from the Town of Burns Harbor’s wastewater treatment plant permitted under Operational Permit No. INJ060801. 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 East Branch of the Little Calumet River. Such discharge shall be limited and monitored by the permittee as specified below:

<u>DISCHARGE LIMITATIONS</u> [1][2][3][16]

Outfall 001

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Flow	Report	Report	MGD	-----	-----	-----	Continuous	24-Hour Total
Water Cannon Flow	Report	Report	MGD	-----	-----	-----	Continuous	24-Hour Total
TSS	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24-Hr. Comp.
O&G[15][18]	Report	Report	lbs/day	Report	Report	mg/l	2 X Weekly	Grab
Phenols(4AAP)	14	22	lbs/day	Report	Report	mg/l	1 X Weekly	Grab
Copper[4][12]	20	39	lbs/day	0.018	0.035	mg/l	2 X Monthly	24-Hr. Comp.
Silver[4][6][8][12]	0.054	0.11	lbs/day	0.048	0.097	ug/l	2 X Monthly	24-Hr. Comp.
Mercury[4][8][9][12]	0.0015	0.0036	lbs/day	1.3	3.2	ng/l	6 X Yearly	Grab
Zinc[4][12]	168	324	lbs/day	150	290	ug/l	2 X Monthly	24-Hr. Comp.
TRC[5][6][8][12][14]	11	22[7]	lbs/day	10	20	ug/l	Daily	Grab
Temperature	-----	----	BTU/hr	-----	[10]	°F	Continuous	Probe
Whole Effluent Toxicity (WET) [13]								
Acute	-----	-----	-----	----	1.0	TU_a	Quarterly[17]	24-Hr. Comp.
Chronic	-----	-----	-----	1.0	----	TU_c	Quarterly[17]	24-Hr. Comp.
Free Cyanide[8][12]	4.9	9.8	lbs/day	4.4	8.8	ug/l	Daily	Grab
Selenium [4][8]	Report	Report	lbs/day	Report	Report	ug/l	2 X Monthly	24-Hr. Comp.

Table 2
Quality or Concentration

	Monitoring Requirements				
	Daily			Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH [11]	6.0	9.0	s.u.	Continuous	Probe

Table 3

	Pounds per Day (lbs/day)		Milligrams per Liter (mg/l)			
	7-Day	Daily	7-Day	Daily	Measurement	Sample
Ammonia, as N[12]	Average	Maximum	Average	Maximum	Frequency	Type
January	720	915	0.68	0.86	Daily	24-Hr. Comp.
February	645	910	0.72	1.02	Daily	24-Hr. Comp.
March	940	1300	0.9	1.27	Daily	24-Hr. Comp.
April	730	1030	0.82	1.16	Daily	24-Hr. Comp.
May	680	970	0.74	1.05	Daily	24-Hr. Comp.
June	650	920	0.62	0.87	Daily	24-Hr. Comp.
July	375	540	0.36	0.51	Daily	24-Hr. Comp.
August	385	540	0.37	0.52	Daily	24-Hr. Comp.
September	550	775	0.82	1.16	Daily	24-Hr. Comp.
October	635	900	0.67	0.95	Daily	24-Hr. Comp.
November	530	680	0.47	0.6	Daily	24-Hr. Comp.
December	635	900	0.9	1.27	Daily	24-Hr. Comp.

[1] See Part I.B. of the permit for the minimum narrative limitations.

[2] 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

[3] The Stormwater Monitoring and Non Numeric Effluent Limits and the Stormwater Pollution Prevention Plan (SWPPP) requirements can be found in Part I.D. and I.E. of this permit.

[4] The permittee shall measure and report the identified metal as total recoverable metal.

[5] The monthly average water quality based effluent limit (WQBEL) for TRC is less than the limit of quantitation (LOQ) as specified 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.

[6] The daily maximum WQBEL for TRC is greater than or equal to the LOD but less than the LOQ as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.

[7] Compliance with the daily maximum mass value for TRC will be demonstrated if the calculated mass value is less than 67 lbs/day.

[8] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

Parameter	Test Method	LOD	LOQ
Mercury	1631E	0.2 ng/l	0.5 ng/l
Selenium	200.9, Rev. 2.2 (1994)	0.6 µg/l	1.9 µg/l
Selenium	200.8, Rev. 5.4 (1994)	0.56 µg/l	1.0 µg/l
Chlorine, Total residual	4500-Cl D-2000, E-2000 or G-2000	0.02 mg/l	0.06 mg/l
Silver	200.8 Rev. 5.4 (1994) Selection Ion Monitoring Mode	0.005 µg/l	0.016 µg/l
Cyanide, Available*	OIA-1677-09 (available)	0.5 µg/l	2.0 µg/l
Cyanide, Available*	Kelada-01 (available)	0.5 µg/l	1.6 µg/l
*Free cyanide shall be reported as free cyanide but measured using one of the EPA approved test methods above for available cyanide.			

Case-Specific LOD/LOQ

The permittee may determine and use a case-specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, 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.

[9] Mercury monitoring shall be conducted 6 X Yearly in the months of February, April, June, August, October, and December of each year for the term of the permit using EPA Sampling Method 1669 and EPA Test Method 1631, Revision E.

[10] The temperature of Outfall 001 shall be monitored on a continuous basis, and shall, at a minimum, be recorded in fifteen (15) minute intervals. The temperature limitations below are based on an approved 316(a) variance for Alternate Thermal Effluent Limits in accordance with 327 IAC 5-7. See Part III.A. and B. of this permit. The highest temperature sustained over any two-hour period within each day's 24-hour monitoring period shall not exceed the temperatures listed below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	60	60	65	71	81	86	86	86	85	80	75	65

[11] The pH of Outfall 001 shall be monitored on a continuous basis, and shall, at a minimum, be recorded in fifteen (15) minute intervals. These 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 during the day and month on the Monthly Monitoring Report form.

[12] When the water cannon is not in use, the compliance concentration and mass value is equal to the respective values in Table 1 above. During periods of water cannon use, the permittee shall calculate the daily concentration and mass of each pollutant at Outfall 001 as specified below:

$C_{001C} = (C_{001M} * Q_{001})/(Q_{001} - Q_{WC})$; and
$M_{001C} = C_{001M} * Q_{001} * 8.345$

where,

C_{001C} = Pollutant concentration at Outfall 001 to determine compliance with the NPDES permit concentration effluent limit.
M_{001C} = Pollutant mass at Outfall 001 to determine compliance with the NPDES permit mass effluent limit.
C_{001M} = Measured pollutant concentration at Outfall 001, (mg/L)
Q_{001} = Flow measured at Outfall 001, (MGD)
Q_{WC} = Total flow measured at water cannon, (MGD)

[13] Refer to the WET requirements in Part I.F. of this permit.

[14] See Part I.G. of the permit for the Pollutant Minimization Program (PMP) requirements for total residual chlorine.

[15] If oil and grease (O&G) 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 O&G (quantities in excess of 5 mg/l). The intent of this requirement is to assure that O&G is not added to once-through cooling water in measurable quantities (5 mg/l).

[16] Outfall 001 may discharge allowable non-stormwater discharges exposed to industrial activity as specified in 327 IAC 15-6-2(a)(4). Allowable non-stormwater discharges described under 327 IAC 15-6-2(a)(4) may be allowed provided they have not been identified by the permittee or commissioner as a significant contributor of pollutants to a water of the state. Allowable non-stormwater discharges must be documented in the Stormwater Pollution Prevention Plan.

[17] 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.

[18] Sampling at Outfall 001 must occur on the same day as Internal Outfall 011 for O & G.

2. 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 011 (effluent from the Secondary Wastewater Treatment Plant and terminal polishing lagoons), located at Latitude 41º 36' 59", Longitude -87º 8' 50". The discharge is limited to treated process wastewater, leachate from the Deerfield Landfill, stormwater, and treated sanitary effluent from the Town of Burns Harbor's wastewater treatment plant permitted under Operational Permit No. INJ060801. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge from the terminal polishing lagoons, but prior to mixing with any other wastewaters. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1]

Internal Outfall 011

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Flow [6]	Report	Report	MGD	-----	-----	-----	Continuous	24-Hour Total
TSS	7000	24530	lbs/day	Report	Report	mg/l	2 X Weekly	24-Hr. Comp.
O&G [7]	-----	5584	lbs/day	Report	Report	mg/l	2 X Weekly	Grab
Ammonia, as N	Report	Report	lbs/day	Report	Report	mg/l	Daily	24-Hr. Comp.
Phenols(4AAP)	Report	Report	lbs/day	Report	Report	mg/l	2 X Weekly	Grab
Total Cyanide	Report	21	lbs/day	Report	Report	mg/l	Daily	Grab
Zinc[2]	28.4	85.2	lbs/day	Report	Report	mg/l	2 X Weekly	24-Hr. Comp.
Lead[2]	19.8	40.0	lbs/day	Report	Report	mg/l	2 X Weekly	24-Hr. Comp.
TRC[3]	-----	4.18	lbs/day	Report	Report	ug/l	2 X Weekly	Grab
Naphthalene	-----	0.401	lbs/day	Report	Report	ug/l	[4]	Grab
Tetrachloroethylene	-----	0.600	lbs/day	Report	Report	ug/l	[4]	Grab
Selenium[2][5]	Report	Report	lbs/day	Report	Report	ug/l	2 X Weekly	24-Hr. Comp.

[1] The permittee shall not discharge spent hexavalent chromium solutions from the Hot Dip Galvanizing Line into the Burns Harbor wastewater collection and treatment systems. Such solutions shall be disposed of off-site.

[2] The permittee shall measure and report the identified metal in total recoverable form.

[3] The daily maximum mass limit for TRC is applicable when the blast furnace process water is chlorinated, or if chlorine dioxide, alkaline chlorination, or any other chlorine-based chemical is being used in the blast furnace wastewater treatment system. Compliance with the daily maximum mass limit will be demonstrated if the calculated mass value is less than 32 lbs/day. The permittee shall report the daily maximum and monthly average concentration for TRC based on a 2 x Weekly measurement frequency.

[4] A monitoring waiver per 40 CFR Part 122.44 has been granted for Naphthalene and Tetrachloroethylene for the term of this permit. IDEM shall be notified if any changes occur at this facility that would require IDEM to review the conditions required to grant this waiver.

[5] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

Parameter	Test Method	LOD	LOQ
Selenium	3113 B-2004 or 3114 B-2009	2 µg/l	6.4 µg/l
Selenium	200.8, Rev. 5.4 (1994), Selection Ion Monitoring Mode	0.56 µg/l	1.0 µg/l
Selenium	200.9, Rev. 2.2 (1994)	0.6 µg/l	1.9 µg/l

[6] The permittee has a maximum of 2-years to install a flow monitoring station at Outfall 011 as described in Part I.H. of this permit. Until such time, the flow shall be determined using measurements from the existing flow measuring device located at the effluent discharge point of the secondary wastewater treatment plant.

[7] Sampling at Internal Outfall 011 must occur on the same day as Outfall 001 for O & G.

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 Internal Outfall 111 (the discharge from the final thickener at the Reclamation Services Building), located at Latitude 41º 38' 3", Longitude -87º 8' 21". The discharge is limited to treated process wastewater from the sinter plant and blast furnace hydrocyclone overheads. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge from the final thickener at the Reclamation Services Building, but prior to mixing with any other wastewaters. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS

Internal Outfall 111

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow [3]	Report	Report	MGD	-------	-------	------	1 X Weekly	24-Hr. Total
2,3,7,8-TCDF [1][2]	Report	Report	lbs/day	Report	<ML	pg/l	1 X Weekly	24-Hour Comp.

[1] The limitation for 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF) is expressed as less than the minimum level (<ML). The term minimum level means the level at which the analytical system gives recognizable signals and an acceptable calibration point. For 2,3,7,8-TCDF, the minimum level is 10 pg/l per EPA Method 1613B for water and wastewater samples. The term pg/l means picograms per liter.

[2] The permittee shall conduct investigatory monitoring for the following parameters. The permittee shall use test method 1613B for this sampling unless alternate methods are approved by IDEM. This sampling shall include, at a minimum, monthly 24-hour composite samples of the untreated sinter plant main stack scrubber wastewater and 2 X monthly 24-hour composite samples of the Outfall 111 effluent. All samples shall be collected when the sinter plant is operating.

2,3,7,8-TCDD	OCDD	1,2,3,7,8,9-HxCDF
1,2,3,7,8-PeCDD	1,2,3,7,8-PeCDF	1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8-HxCDD	2,3,4,7,8-PeCDF	1,2,3,4,7,8,9-HpCDF
1,2,3,6,7,8-HxCDD	1,2,3,4,7,8-HxCDF	OCDF
1,2,3,7,8,9-HxCDD	1,2,3,6,7,8-HxCDF	2,3,7,8-TCDF
1,2,3,4,6,7,8-HpCDD	2,3,4,6,7,8-HxCDF	

Unless requested earlier by IDEM, the results of this investigatory monitoring must be submitted annually to IDEM and in addition to the results from this monitoring, the report must include the flow measured on the day each sample was taken. In addition, the results and flow measurements shall be included in a spreadsheet to be submitted with the report.

The report must be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

This investigatory sampling is being required to determine whether dioxins and furans are present in quantities that have the reasonable potential to exceed water quality-based effluent limits. At the end of a one-year sampling period, the permittee may request, in writing, a review of these requirements. Upon review by IDEM, the permit may be modified, after public notice and opportunity for hearing, to modify the monitoring requirements, change the monitoring frequency, include appropriate effluent limitations or include other appropriate requirements for dioxins and furans. In addition, at the end of this one-year the permittee may include a request for review of the monitoring frequency specified above for flow and 2,3,7,8-TCDF in its request.

[3] No later than six months after the effective date of the permit, the permittee shall report the 24-hour total flow for Outfall 111 measured from a calibrated Parshall flume. Prior to that time, the 24-hour total flow for Outfall 111 shall be reported as the sum of the 24-hour total flow for the sinter plant main stack scrubber measured at the RSB and an estimate of the 24-hour total flow for the RSB hydrocyclone overheads.

4. 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 002, located at Latitude 41º 38’ 07”, Longitude -87º 08’ 51”. The discharge is limited to noncontact cooling water and stormwater. 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 East Arm of Burns Harbor. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1][2][3][12]

Outfall 002

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
	Monthly	Daily		Monthly	Daily		Measurement	Sample
Parameter	Average	Maximum	Units	Average	Maximum	Units	Frequency	Type
Flow	Report	Report	MGD	-----	-----	-----	Continuous	24-Hour Total
TSS	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	24-Hr. Comp.
O&G[11]	Report	Report	lbs/day	Report	Report	mg/l	1 X Weekly	Grab
Ammonia, as N	Report	Report	lbs/day	Report	Report	mg/l	3 X Weekly	24-Hr. Comp.
Phenols(4AAP)	Report	Report	lbs/day	Report	Report	mg/l	3 X Weekly	Grab
Copper[4]	Report	Report	lbs/day	Report	Report	ug/l	3 X Weekly	24-Hr. Comp.
Zinc[4]	Report	Report	lbs/day	Report	Report	ug/l	3 X Weekly	24-Hr. Comp.
Fluoride	Report	Report	lbs/day	Report	Report	mg/l	3 X Weekly	24-Hr. Comp.
TRC[5][6][8][13]	24	48[7]	lbs/day	10	20	ug/l	1 X Daily	Grab
Temperature	-----	----	BTU/hr	-----	[9]	°F	Continuous	Probe
Total Cyanide[8]	Report	Report	lbs/day	Report	Report	ug/l	3 X Weekly	Grab

Table 2

	Quality or Concentration			Monitoring Requirements	
	Daily	Daily		Measurement	Sample
Parameter	Minimum	Maximum	Units	Frequency	Type
pH [10]	6.0	9.0	s.u.	Continuous	Probe

[1] See Part I.B. of the permit for the minimum narrative limitations.

[2] 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

[3] The Stormwater Monitoring and Non-Numeric Effluent Limits and the Stormwater Pollution Prevention Plan (SWPPP) requirements can be found in Part I.D. and I.E. of this permit.

[4] The permittee shall measure and report the identified metal as total recoverable metal.

[5] The monthly average water quality-based effluent limit (WQBEL) for TRC is less than the limit of quantitation (LOQ) as specified 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.

[6] The daily maximum WQBEL for TRC is greater than or equal to the LOD but less than the LOQ as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.

[7] Compliance with the daily maximum mass value for TRC will be demonstrated if the calculated mass value is less than 132 lbs/day.

[8] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

Parameter	Test Method	LOD	LOQ
Chlorine, Total residual	4500-Cl D-2000, E-2000 or G-2000	0.02 mg/l	0.06 mg/l
Cyanide, Total	335.4, Rev. 1.0 (1993) or 4500-CN^- E-1999	5 µg/l	16 µg/l
Cyanide, Total	Kelada-01	0.5 µg/l	1.6 µg/l

Case-Specific LOD/LOQ

The permittee may determine and use a case-specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, 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.

[9] The temperature of Outfall 002 shall be monitored on a continuous basis, and shall, at a minimum, be recorded in fifteen (15) minute intervals. The temperature limitations below are based on an approved 316(a) variance for Alternate Thermal Effluent Limits in accordance with 327 IAC 5-7. See Part III.A. and B. of this permit. The highest temperature sustained over any two hour period within each day's 24-hour monitoring period shall not exceed the temperatures listed below:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	55	57	63	69	77	82	88	90	88	81	72	63

[10] The pH of Outfall 002 shall be monitored on a continuous basis, and shall, at a minimum, be recorded in fifteen (15) minute intervals. These 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 during the day and month on the Monthly Monitoring Report form.

[11] If oil & grease (O & G) 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 O & G (quantities in excess of 5 mg/l). The intent of this requirement is to assure that O & G is not added to once-through cooling water in measurable quantities (5 mg/l).

[12] Outfall 002 may discharge allowable non-stormwater discharges exposed to industrial activity as specified in 327 IAC 15-6-2(a)(4). Allowable non-stormwater discharges described under 327 IAC 15-6-2(a)(4) may be allowed provided they have not been identified by the permittee or commissioner as a significant contributor of pollutants to a water of the state. Allowable non-stormwater discharges must be documented in the Stormwater Pollution Prevention Plan.

[13] See Part I.G. of the permit for the Pollutant Minimization Program (PMP) requirements for total residual chlorine.

5. 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 003, located at Latitude 41º 38’ 42”, Longitude -87º 07’ 38”. The discharge is limited to backwash from the Nos. 1 and 2 Lake Water Pump Stations traveling screens and strainers. Samples taken in compliance with the monitoring requirements below shall be taken at a point representative of the discharge but prior to entry into Lake Michigan. Such discharge shall be limited and monitored by the permittee as specified below:

DISCHARGE LIMITATIONS [1]

Outfall 003

Table 1

	Quantity or Loading			Quality or Concentration			Monitoring Requirements	
Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
TRC[2][3][4][6]	-----	-----	-----	10	20	ug/l	[5]	Grab
Effluent Flow	Report	Report	MGD	-----	-----	-----	Daily	24-Hr. Estimate
Intake Flow [9]								
No. 1 LWPS	Report	Report	MGD	-----	-----	-----	Daily	24-Hr. Total
No. 2 LWPS	Report	Report	MGD	-----	-----	-----	Daily	24-Hr. Total
Intake Velocity No. 1 LWPS [7]								
Interim [8]	-----	Report	fps	-----	-----	-----	Daily	[7]
Final [8]	-----	0.5	fps	-----	-----	-----	Daily	[7]
Intake Velocity No. 2 LWPS [7]								
Interim [8]	-----	Report	fps	-----	-----	-----	Daily	[7]
Final [8]	-----	0.5	fps	-----	-----	-----	Daily	[7]

[1] See Part I.B. of the permit for the minimum narrative limitations.

[2] The monthly average water quality-based effluent limit (WQBEL) for TRC is less than the limit of quantitation (LOQ) as specified 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.

[3] The daily maximum WQBEL for TRC is greater than or equal to the LOD but less than the LOQ as specified below. Compliance with the daily maximum limit will be demonstrated if the observed effluent concentrations are less than the LOQ.

[4] The following EPA approved test methods and associated LODs and LOQs are to be used in the analysis of the effluent samples. Alternative methods may be used if first approved by IDEM and EPA, if applicable.

Parameter	Test Method	LOD	LOQ
Chlorine, Total residual	4500-Cl D-2000, E-2000 or G-2000	0.02 mg/l	0.06 mg/l

Case-Specific LOD/LOQ

The permittee may determine and use a case-specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, 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.

[5] 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.

[6] See Part I.G. of the permit for the Pollutant Minimization Program (PMP) requirements for total residual chlorine.

[7] The permittee must monitor the velocity at the traveling screens in each of the two pump stations at a minimum frequency of daily. The through screen velocity monitoring shall be conducted at a point where intake velocities are the greatest. In lieu of velocity monitoring at the screen face of the traveling screens, the permittee may calculate the through-screen velocity separately at the No. 1 and No. 2 Lake Water Pumping Stations using water flow, water depth, and the screen open areas. The location and method used to determine the maximum velocities shall be included in the annual report required to be submitted under Part IV.B.6 of the Permit. If the permittee uses the calculation method to determine the velocities, the input values and calculation for each day shall be included in this annual report.

[8] A schedule of compliance, providing the permittee up to 3 years to comply with the through screen velocity limitations is provided in Part I.H. of the permit. The interim monitoring requirements for through screen velocity are applicable until the final effluent limitations for through screen velocity are in effect.

[9] Until the compliance schedule items from Part I.H.1.a and b related to through-screen intake velocity are completed, the permittee shall report estimates of the intake flow and through-screen velocity based on outfall discharge flows, estimates of plant evaporative losses and water levels at the No. 1 and No. 2 Lake Water Pumping Stations.

B. MINIMUM NARRATIVE LIMITATIONS

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

1. including waters within the mixing zone, to contain substances, materials, floating debris, oil, scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges that do any of the following:

    a. will settle to form putrescent or otherwise objectionable deposits;

    b. are in amounts sufficient to be unsightly or deleterious;

    c. produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;

    d. are in amounts sufficient to be acutely toxic to , or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;

    e. are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.

2. outside the mixing zone, to contain substances in concentrations that on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

C. MONITORING AND REPORTING

1. <u>Representative Sampling</u>

    Samples and measurements taken as required herein shall be representative of the volume and nature of the discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. <u>Monthly Reporting</u>

    The permittee shall submit federal and state discharge monitoring reports to the Indiana Department of Environmental Management (IDEM) containing results obtained during the previous month and shall be submitted no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the month in which the permit becomes effective.

These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Monitoring Report (MMR). All reports shall be submitted electronically by using the NetDMR application, upon registration, receipt of the NetDMR Subscriber Agreement, and IDEM approval of the proposed NetDMR Signatory. Access the NetDMR website (for initial registration and DMR/MMR submittal) via CDX at: https://cdx.epa.gov/. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit. See Part II.C.10 of this permit for Future Electronic Reporting Requirements.

a. For parameters with monthly average water quality based effluent limitations (WQBELs) below the LOQ, daily effluent values that are less than the limit of quantitation (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.

b. For all other parameters for which the monthly average WQBEL is equal to or greater than the LOQ, calculations that require averaging of measurements of daily values (both concentration and mass) shall use an arithmetic mean, except the monthly average for *E. coli* shall be calculated as a geometric mean. Daily effluent values that are less than the LOQ, that are used to determine the monthly average effluent level shall be accommodated in calculation of the average using statistical methods that have been approved by the Commissioner.

c. Effluent concentrations less than the LOD shall be reported on the Discharge Monitoring Report (DMR) forms as < (less than) the value of the LOD. For example, if a substance is not detected at a concentration of 0.1 µg/l, report the value as <0.1 µg/l.

d. Effluent concentrations greater than or equal to the LOD and less than the LOQ that are reported on a DMR shall be reported as the actual value and annotated on the DMR to indicate that the value is not quantifiable.

e. Mass discharge values which are calculated from concentrations reported as less than the value of the limit of detection shall be reported as less than the corresponding mass discharge value.

f. Mass discharge values that are calculated from effluent concentrations greater than the limit of detection shall be reported as the calculated value.

3. <u>Definitions</u>

a. "Monthly Average" means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month.

The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

b. "Daily Discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that reasonably represents the calendar day for the purposes of sampling.

c. "Daily Maximum" means the maximum allowable daily discharge for any calendar day.

d. A "24-hour composite sample" means a sample consisting of at least 3 individual flow-proportioned samples of wastewater, taken by the grab sample method or by an automatic sampler, which are taken at approximately equally spaced time intervals for the duration of the discharge within a 24-hour period and which are combined prior to analysis. A flow-proportioned composite sample may be obtained by:

(1) recording the discharge flow rate at the time each individual sample is taken,

(2) adding together the discharge flow rates recorded from each individuals sampling time to formulate the "total flow" value,

(3) the discharge flow rate of each individual sampling time is divided by the total flow value to determine its percentage of the total flow value,

(4) then multiply the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

e. "Concentration" means the weight of any given material present in a unit volume of liquid. Unless otherwise indicated in this permit, concentration values shall be expressed in milligrams per liter (mg/l).

f. The “Regional Administrator” is defined as the Region 5 Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

g. The “Commissioner” is defined as the Commissioner of the Indiana Department of Environmental Management, which is located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204.

h. “Limit of Detection” or “LOD” means the minimum concentration of a substance that can be measured and reported with ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix.

i. “Limit of Quantitation” or “LOQ” means a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also sometimes called limit quantification or quantification level.

j. “Method Detection Level” or “MDL” means the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by procedure set forth in 40 CFR 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

k. “Grab Sample” means a sample which is taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without considerations of time.

4. Test Procedures

The analytical and sampling methods used shall conform to the version of 40 CFR 136 incorporated by reference in 327 IAC 5. Different but equivalent methods are allowable if they receive the prior written approval of the Commissioner and the U.S. Environmental Protection Agency. When more than one test procedure is approved for the purposes of the NPDES program under 40 CFR 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 CFR 122.21(e)(3) and 122.44(i)(1)(iv).

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall maintain records of all monitoring information and monitoring activities, including:

a. The date, exact place and time of sampling or measurement;

b. The person(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The person(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such measurements and analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of this monitoring shall be included in the calculation and reporting of the values required in the monthly Discharge Monitoring Report (DMR) and Monthly Monitoring Report (MMR). Such increased frequency shall also be indicated. Other monitoring data not specifically required in this permit (such as internal process or internal waste stream data) which is collected by or for the permittee need not be submitted unless requested by the Commissioner.

7. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three years shall be extended:

a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or

b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

D. STORMWATER MONITORING AND NON-NUMERIC EFFLUENT LIMITS

The permittee shall implement the non-numeric permit conditions in this Section of the permit for the entire site as it relates to stormwater associated with industrial activity regardless which outfall the stormwater is discharged from.

1. <u>Control Measures and Effluent Limits</u>

In the technology-based limits included in Part D.2-4., the term “minimize” means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practice.

2. <u>Control Measures</u>

Select, design, install, and implement control measures (including best management practices) to address the selection and design considerations in Part D.3 to meet the non-numeric effluent limits in Part D.4. The selection, design, installation, and implementation of these control measures must be in accordance with good engineering practices and manufacturer’s specifications. Any deviation from the manufacturer’s specifications shall be documented. If the control measures are not achieving their intended effect in minimizing pollutant discharges, the control measures must be modified as expeditiously as practicable. Regulated stormwater discharges from the facility include stormwater run-on that commingles with stormwater discharges associated with industrial activity at the facility.

3. <u>Control Measure Selection and Design Considerations</u>

When selecting and designing control measures consider the following:

a. preventing stormwater from coming into contact with polluting materials is generally more effective, and cost-effective, than trying to remove pollutants from stormwater;

b. use of control measures in combination is more effective than use of control measures in isolation for minimizing pollutants in stormwater discharge;

c. assessing the type and quantity of pollutants, including their potential to impact receiving water quality, is critical to designing effective control measures that will achieve the limits in this permit;

d. minimizing impervious areas at your facility and infiltrating runoff onsite (including bioretention cells, green roofs, and pervious pavement, among other approaches), can reduce runoff and improve groundwater recharge and stream base flows in local streams, although care must be taken to avoid ground water contamination;

e. flow can be attenuated by use of open vegetated swales and natural depressions;

f. conservation and/or restoration of riparian buffers will help protect streams from stormwater runoff and improve water quality; and

g. use of treatment interceptors (e.g. swirl separators and sand filters) may be appropriate in some instances to minimize the discharge of pollutants.

4. Technology-Based Effluent Limits (BPT/BAT/BCT)

Non-Numeric Effluent Limits:

a. Minimize Exposure

Minimize the exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. To the extent technologically available and economically practicable and achievable, either locate industrial materials and activities inside or protect them with storm resistant coverings in order to minimize exposure to rain, snow, snowmelt, and runoff (although significant enlargement of impervious surface area is not recommended). In minimizing exposure, pay particular attention to the following areas:

Loading and unloading areas: locate in roofed or covered areas where feasible; use grading, berming, or curbing around the loading area to divert run-on; locate the loading and unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems.

Material storage areas: locate indoors, or in roofed or covered areas where feasible; install berms/dikes around these areas; use dry cleanup methods.

Note: Industrial materials do not need to be enclosed or covered if stormwater runoff from affected areas will not be discharged to receiving waters.

b. Good Housekeeping

Keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals, keeping materials orderly and labeled, and stowing materials in appropriate containers.

As part of the developed good housekeeping program, include a cleaning and maintenance program for all impervious areas of the facility where particulate matter, dust, or debris may accumulate, especially areas where material loading and unloading, storage, handling, and processing occur; and where practicable, the paving of areas where vehicle traffic or material storage occur but where vegetative or other stabilization methods are not practicable (institute a sweeping program in these areas too). For unstabilized areas where sweeping is not practicable, consider using stormwater management devices such as sediment traps, vegetative buffer strips, filter fabric fence, sediment filtering boom, gravel outlet protection, or other equivalent measures that effectively trap or remove sediment.

c. Maintenance

Maintain all control measures which are used to achieve the effluent limits required by this permit in effective operating condition. Nonstructural control measures must also be diligently maintained (e.g., spill response supplies available, personnel appropriately trained). If control measures need to be replaced or repaired, make the necessary repairs or modifications as expeditiously as practicable.

d. Spill Prevention and Response Procedures

You must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, you must implement:

(1) Procedures for plainly labeling containers (e.g., "Used Oil", "Spent Solvents", "Fertilizers and Pesticides", etc.) that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur;

(2) Preventive measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling;

(3) Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available. If possible, one of these individuals should be a member of your stormwater pollution prevention team;

(4) Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies. State or local requirements may necessitate reporting spills or discharges to local emergency response, public health, or drinking water supply agencies. Contact information must be in locations that are readily accessible and available;

(5) Procedures for documenting where potential spills and leaks could occur that could contribute pollutants to stormwater discharges, and the corresponding outfalls that would be affected by such spills and leaks; and

(6) A procedure for documenting all significant spills and leaks of oil or toxic or hazardous pollutants that actually occurred at exposed areas, or that drained to a stormwater conveyance.

e. Erosion and Sediment Controls

Through the use of structural and/or non-structural control measures stabilize, and contain runoff from, exposed areas to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Among other actions to meet this limit, place flow velocity dissipation devices at discharge locations and within outfall channels where necessary to reduce erosion and/or settle out pollutants. In selecting, designing, installing, and implementing appropriate control measures, you are encouraged to check out information from both the State and EPA websites. The following two websites are given as information sources:

http://www.in.gov/idem/stormwater/2363.htm
and
https://www.epa.gov/npdes/stormwater-discharges-industrial-activities

f. Management of Runoff

Divert, infiltrate, reuse, contain or otherwise reduce stormwater runoff, to minimize pollutants in the discharge.

g. Salt Storage Piles or Piles Containing Salt

Enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. You must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged.

h. Waste, Garbage, and Floatable Debris

Ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.

i. Employee Training

Train all employees who work in areas where industrial material or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team. Training must cover the specific control measures used to achieve the effluent limits in this part, and monitoring, inspection, planning, reporting, and documentation requirements in other parts of this permit.

j. Non-Stormwater Discharges

You must determine if any non-stormwater discharges not authorized by an NPDES permit exist. Any non-stormwater discharges discovered must either be eliminated or modified into this permit. The following non-stormwater discharges are authorized and must be documented in the Stormwater Pollution Prevention Plan:

Discharges from fire-fighting activities;
Fire Hydrant flushings;
Potable water, including water line flushings;
Uncontaminated condensate from air conditioners, coolers, and other compressors and from the outside storage of refrigerated gases or liquids;
Irrigation drainage;
Landscape watering provided all pesticides, herbicides, and fertilizer have been applied in accordance with the approved labeling;

Pavement wash water where no detergents are used and no spills or leaks of toxic or hazardous material have occurred (unless all spilled material has been removed);
Routine external building washdown that does not use detergents;
Uncontaminated ground water or spring water;
Foundation or footing drains where flows are not contaminated with process materials;
Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of the facility, but not intentional discharges from cooling towers (e.g., "piped cooling tower blowdown or drains);
Vehicle wash- waters where uncontaminated water without detergents or solvents is utilized; and
Runoff from the use of dust suppressants approved for use by IDEM.

k. Dust Generation and Vehicle Tracking of Industrial Materials

You must minimize generation of dust and off-site tracking of raw, final, or waste materials.

l. Fugitive Dust Emission.

Minimize fugitive dust emissions from coal handling areas. To minimize the tracking of coal dust offsite, consider procedures such as installing specially designed tires or washing vehicles in a designated area before they leave the site and controlling the wash water.

m. Delivery Vehicles

Minimize contamination of stormwater runoff from delivery vehicles arriving at the plant site. Consider procedures to inspect delivery vehicles arriving at the plant site and ensure overall integrity of the body or container and procedures to deal with leakage or spillage from vehicles or containers.

n. Miscellaneous Loading and Unloading Areas

Minimize contamination of precipitation or surface runoff from loading and unloading areas. Consider covering the loading area; grading, berming, or curbing around the loading area to divert run-on; locating the loading and unloading equipment and vehicles so that leaks are contained in existing containment and flow diversion systems; or equivalent procedures.

o. Liquid Storage Tanks

Minimize contamination of surface runoff from above-ground liquid storage tanks. Consider protective guards around tanks, containment curbs, spill and overflow protection, dry cleanup methods, or equivalent measures.

p. Spill Reduction Measures

Minimize the potential for an oil or chemical spill, or reference the appropriate part of your SPCC plan. Visually inspect as part of your routine facility inspection the structural integrity of all above-ground tanks, pipelines, pumps, and related equipment that may be exposed to stormwater, and make any necessary repairs immediately.

q. Oil-Bearing Equipment in Switchyards

Minimize contamination of surface runoff from oil-bearing equipment in switchyard areas. Consider using level grades and gravel surfaces to retard flows and limit the spread of spills, or collecting runoff in perimeter ditches.

5. Annual Review

At least once every twelve (12) months, you must review the selection, design, installation, and implementation of your control measures to determine if modifications are necessary to meet the effluent limitations in this permit. You must document the results of your review in a report that shall be retained within the SWPPP. You must also submit the report to the Industrial NPDES Permit Section, as well as the Compliance Branch, on an annual basis. The report may be submitted by email to the Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and to the Compliance Branch at wwReports@idem.in.gov. The email subject line should include the NPDES Permit # and the type of report being submitted (Annual Stormwater Report). The permittee's first annual review report will be due twelve (12) months from the effective date of the permit. All subsequent annual review reports will be due no later than the anniversary of the effective date of the permit.

6. Corrective Actions – Conditions Requiring Review

a. If any of the following conditions occur, you must review and revise the selection, design, installation, and implementation of your control measures to ensure that the condition is eliminated and will not be repeated:

(1) an unauthorized release or discharge (e.g., spill, leak, or discharge of non-stormwater not authorized by this NPDES permit) occurs at this facility;

(2) it is determined that your control measures are not stringent enough for the discharge to meet applicable water quality standards;

(3) it is determined in your routine facility inspection, an inspection by EPA or IDEM, comprehensive site evaluation, or the Annual Review required in Part D.5 that modifications to the control measures are necessary to meet the effluent limits in this permit or that your control measures are not being properly operated and maintained; or

(4) Upon written notice by the Commissioner that the control measures prove to be ineffective in controlling pollutants in stormwater discharges exposed to industrial activity.

b. If construction or a change in design, operation, or maintenance at your facility significantly changes the nature of pollutants discharged in stormwater from your facility, or significantly increases the quantity of pollutants discharged, you must review and revise the selection, design, installation, and implementation of your control measures to determine if modifications are necessary to meet the effluent limits in this permit:

7. Corrective Action Deadlines

You must document your discovery of any of the conditions listed in Part I.D.6 within thirty (30) days of making such discovery. Subsequently, within one-hundred and twenty (120) days of such discovery, you must document any corrective action(s) to be taken to eliminate or further investigate the deficiency or if no corrective action is needed, the basis for that determination. Specific documentation required within 30 and 120 days is detailed below. If you determine that changes to your control measures are necessary following your review, any modifications to your control measures must be made before the next storm event if possible, or as soon as practicable following that storm event. These time intervals are not grace periods, but schedules considered reasonable for the documenting of your findings and for making repairs and improvements. They are included in this permit to ensure that the conditions prompting the need for these repairs and improvements are not allowed to persist indefinitely.

8. Corrective Action Report

a. Within 30 days of a discovery of any condition listed in Part I.D.6, you must document the following information:

(1) Brief description of the condition triggering corrective action;

(2) Date condition identified; and

(3) How deficiency identified.

b. Within 120 days of discovery of any condition listed in Part I.D.6, you must document the following information:

(1) Summary of corrective action taken or to be taken (or, for triggering events identified in Part I.D.6.b.(1), where you determine that corrective action is not necessary, the basis for this determination)

(2) Notice of whether SWPPP modifications are required as a result of this discovery or corrective action;

(3) Date corrective action initiated; and

(4) Date corrective action completed or expected to be completed.

9. Inspections

The inspections in this part must be conducted at this facility when the facility is operating. Any corrective action required as a result of an inspection or evaluation conducted under Part I.D.9. must be performed consistent with Part I.D.6 of this permit.

a. Quarterly Inspections

At a minimum, quarterly inspections of the stormwater management measures and stormwater run-off conveyances. The routine inspections must be performed by qualified personnel with at least one member of your stormwater pollution prevention team. Inspections must be documented and either contained in, or have the on-site record keeping location referenced in, the SWPPP.

As part of the routine inspections, address all potential sources of pollutants, including (if applicable) air pollution control equipment (e.g., baghouses, electrostatic precipitator, scrubbers, and cyclones), for any signs of degradation (e.g., leaks, corrosion, or improper operation) that could limit their efficiency and lead to excessive emissions.

As part of your inspection, inspect the following areas monthly: coal handling areas, loading or unloading areas, switchyards, fueling areas, bulk storage areas, ash handling areas, areas adjacent to disposal ponds and landfills, maintenance areas, liquid storage tanks, and long term and short-term material storage areas.

Consider monitoring air flow at inlets and outlets (or use equivalent measures) to check for leaks (e.g., particulate deposition) or blockage in ducts. Also inspect all process and material handling equipment (e.g., conveyors, cranes, and vehicles) for leaks, drips, or the potential loss of material; and material storage areas (e.g., piles, bins, or hoppers for storing coke, coal, scrap, or slag, as well as chemicals stored in tanks and drums) for signs of material loss due to wind or stormwater runoff.

Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with Part I.E.2.b of this permit and pollution prevention measures and controls identified in the plan in accordance with Part I.D.4. of this permit shall be revised as appropriate within the timeframes contained in Part I.D.7 of this permit.

b. <u>Annual Routine Facility Inspection</u>

At least once during the calendar year, a routine facility inspection must be conducted while a discharge is occurring. You must document the findings of each routine facility inspection performed and maintain this documentation with your SWPPP or have the on-site record keeping location referenced in the SWPPP. At a minimum, your documentation must include:

(1) The inspection date and time;

(2) The name(s) and signature(s) of the inspectors;

(3) Weather information and a description of any discharges occurring at the time of the inspection;

(4) Any previously unidentified discharges of pollutants from the site;

(5) Any control measures needing maintenance or repairs;

(6) Any failed control measures that need replacement;

(7) Any incidents of noncompliance observed; and

(8) Any additional control measures needed to comply with the permit requirements.

c. Annual Comprehensive Site Compliance Evaluation

Qualified personnel and at least one member of your Pollution Prevention Team shall conduct a comprehensive site compliance evaluation, at least once per year, to confirm the accuracy of the description of potential pollution sources contained in the plan, determine the effectiveness of the plan, and assess compliance with the permit. Such evaluations shall provide:

(1) Areas contributing to a stormwater discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural stormwater management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.

(2) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the stormwater pollution prevention plan, and actions taken in accordance with the above paragraph must be documented and either contained in, or have on-site record keeping location referenced in, the SWPPP at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the stormwater pollution prevention plan and this permit. The report shall be signed in accordance with the signatory requirements of Part II.C.6 of this permit.

(3) Where compliance evaluation schedules overlap the inspections required under this part, the compliance evaluation may be conducted in place of one such inspection.

E. STORMWATER POLLUTION PREVENTION PLAN

1. Development of Plan

Within 12 months from the effective date of this permit, the permittee is required to revise and update the current Stormwater Pollution Prevention Plan (SWPPP) for the permitted facility. The plan shall at a minimum include the following:

a. Identify potential sources of pollution, which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity from the facility. Stormwater associated with industrial activity (defined in 40 CFR 122.26(b)(14)) includes, but is not limited to, the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing or materials storage areas at an industrial plant;

b. Describe practices and measure to be used in reducing the potential for pollutants to be exposed to stormwater; and

c. Assure compliance with the terms and conditions of this permit.

ii. Contents

The plan shall include, at a minimum, the following items:

a. Pollution Prevention Team -The plan shall list, by position title, the member or members of the facility organization as members of a Stormwater Pollution Prevention Team who are responsible for developing the stormwater pollution prevention plan (SWPPP) and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each stormwater pollution prevention team member. Each member of the stormwater pollution prevention team must have ready access to either an electronic or paper copy of applicable portions of this permit and your SWPPP.

b. Description of Potential Pollutant Sources – The plan shall provide a description of areas at the site exposed to industrial activity and have a reasonable potential for stormwater to be exposed to pollutants. The plan shall identify all activities and significant materials (defined in 40 CFR 122.26(b)), which may potentially be significant pollutant sources. As a minimum, the plan shall contain the following:

(1) A soils map indicating the types of soils found on the facility property and showing the boundaries of the facility property.

(2) A graphical representation, such as an aerial photograph or site layout maps, drawn to an appropriate scale, which contains a legend and compass coordinates, indicating, at a minimum, the following:

(A) All on-site stormwater drainage and discharge conveyances, which may include pipes, ditches, swales, and erosion channels, related to a stormwater discharge.

(B) Known adjacent property drainage and discharge conveyances, if directly associated with run-off from the facility.

(C) All on-site and known adjacent property water bodies, including wetlands and springs.

(D) An outline of the drainage area for each outfall.

(E) An outline of the facility property, indicating directional flows, via arrows, of surface drainage patterns.

(F) An outline of impervious surfaces, which includes pavement and buildings, and an estimate of the impervious and pervious surface square footage for each drainage area placed in a map legend.

(G) On-site injection wells, as applicable.

(H) On-site wells used as potable water sources, as applicable.

(I) All existing major structural control measures to reduce pollutants in stormwater run-off.

(J) All existing and historical underground or aboveground storage tank locations, as applicable.

(K) All permanently designated plowed or dumped snow storage locations.

(L) All loading and unloading areas for solid and liquid bulk materials.

(M) All existing and historical outdoor storage areas for raw materials, intermediary products, final products, and waste materials. Include materials handled at the site that potentially may be exposed to precipitation or runoff, areas where deposition of particulate matter from process air emissions or losses during material-handling activities.

(N) All existing or historical outdoor storage areas for fuels, processing equipment, and other containerized materials, for example, in drums and totes.

(O) Outdoor processing areas.

(P) Dust or particulate generating process areas.

(Q) Outdoor assigned waste storage or disposal areas.

(R) Pesticide or herbicide application areas.

(S) Vehicular access roads.

(T) Identify any storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; liquid storage tanks and drums; processing areas including pollution control equipment (e.g., baghouses); and storage areas of raw material such as coal, coke, scrap, sand, fluxes, refractories, or metal in any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal and coke handling operation, etc., and could result in a discharge of pollutants.

(U) The mapping of historical locations is only required if the historical locations have a reasonable potential for stormwater exposure to historical pollutants.

(3) An area site map that indicates:

(A) The topographic relief or similar elevations to determine surface drainage patterns;

(B) The facility boundaries;

(C) All receiving waters;

(D) All known drinking water wells; and

Includes at a minimum, the features in clauses (A), (C), and (D) within a one-fourth (1/4) mile radius beyond the property boundaries of the facility. This map must be to scale and include a legend and compass coordinates.

(4) A narrative description of areas that generate stormwater discharges exposed to industrial activity including descriptions for any existing or historical areas listed in subdivision 2.b.(2)(J) through (T) of this Part, and any other areas thought to generate stormwater discharges exposed to industrial activity. The narrative descriptions for each identified area must include the following:

(A) Type and typical quantity of materials present in the area.

(B) Methods of storage, including presence of any secondary containment measures.

(C) Any remedial actions undertaken in the area to eliminate pollutant sources or exposure of stormwater to those sources. If a corrective action plan was developed, the type of remedial action and plan date shall be referenced.

(D) Any significant release or spill history dating back a period of three (3) years from the effective date of this permit, in the identified area, for materials spilled outside of secondary containment structures and impervious surfaces in excess of their reportable quantity, including the following:

i. The date and type of material released or spilled.

ii. The estimated volume released or spilled.

iii. A description of the remedial actions undertaken, including disposal or treatment.

Depending on the adequacy or completeness of the remedial actions, the spill history shall be used to determine additional pollutant sources that may be exposed to stormwater. In subsequent permit terms, the history shall date back for a period of five (5) years from the date of the permit renewal application.

(E) Where the chemicals or materials have the potential to be exposed to stormwater discharges, the descriptions for each identified area must include a risk identification analysis of chemicals or materials stored or used within the area. The analysis must include the following:

i. Toxicity data of chemicals or materials used within the area, referencing appropriate material safety data sheet information locations.

ii. The frequency and typical quantity of listed chemicals or materials to be stored within the area.

iii. Potential ways in which stormwater discharges may be exposed to listed chemicals and materials.

iv. The likelihood of the listed chemicals and materials to come into contact with water.

(5) A narrative description of existing and planned management practices and measures to improve the quality of stormwater run-off entering a water of the state. Descriptions must be created for existing or historical areas listed in subdivision 2.b.(2)(J) through (T) and any other areas thought to generate stormwater discharges exposed to industrial activity. The description must include the following:

(A) Any existing or planned structural and nonstructural control practices and measures.

(B) Any treatment the stormwater receives prior to leaving the facility property or entering a water of the state.

(C) The ultimate disposal of any solid or fluid wastes collected in structural control measures other than by discharge.

(D) Describe areas that due to topography, activities, or other factors have a high potential for significant soil erosion.

(E) Document the location of any storage piles containing salt used for deicing.

(F) Information or other documentation required under Part I.E.2(d) of this permit.

(6) The results of stormwater monitoring. The monitoring data must include completed field data sheets, chain-of-custody forms, and laboratory results. If the monitoring data are not placed into the facility's SWPPP, the on-site location for storage of the information must be reference in the SWPPP.

(7) Drainage Area Site Map. Document in your SWPPP the locations of any of the following activities or sources that may be exposed to precipitation or surface runoff: storage tanks, scrap yards, and general refuse areas; short- and long-term storage of general materials (including but not limited to supplies, construction materials, paint equipment, oils, fuels, used and unused solvents, cleaning materials, paint, water treatment chemicals, fertilizer, and pesticides); landfills and construction sites; and stock pile areas (e.g., coal or limestone piles).

(8) Documentation of Good Housekeeping Measures. You must document in your SWPPP the good housekeeping measures implemented to meet the effluent limits in Part I.D.4 of this NPDES permit.

c. Non-Stormwater Discharges – You must document that you have evaluated for the presence of non-stormwater discharges not authorized by an NPDES permit. Any non-stormwater discharges have either been eliminated or incorporated into this permit. Documentation of non-stormwater discharges shall include:

(1) A written non-stormwater assessment, including the following:

(A) A certification letter stating that stormwater discharges entering a water of the state have been evaluated for the presence of illicit discharges and non-stormwater contributions.

(B) Detergent or solvent-based washing of equipment or vehicles that would allow washwater additives to enter any stormwater only drainage system shall not be allowed at this facility unless appropriately permitted under this NPDES permit.

(C) All interior maintenance area floor drains with the potential for maintenance fluids or other materials to enter stormwater only storm sewers must be either sealed, connected to a sanitary sewer with prior authorization, or appropriately permitted under this NPDES permit. The sealing, sanitary sewer connecting, or permitting of drains under this item must be documented in the written non-stormwater assessment program.

(D) The certification shall include a description of the method used, the date of any testing, and the on-site drainage points that were directly observed during the test.

d. General Requirements – The SWPPP must meet the following general requirements:

(1) The plan shall be certified by a qualified professional. The term qualified professional means an individual who is trained and experienced in water treatment techniques and related fields as may be demonstrated by state registration, professional certification, or completion of course work that enable the individual to make sound, professional judgments regarding stormwater control/treatment and monitoring, pollutant fate and transport, and drainage planning.

(2) The plan shall be retained at the facility and be available for review by a representative of the Commissioner upon request. IDEM may provide access to portions of your SWPPP to the public.

(3) The plan must be revised and updated as required. Revised and updated versions of the plan must be implemented on or before three hundred sixty-five (365) days from the effective date of this permit. The Commissioner may grant an extension of this time frame based on a request by the person showing reasonable cause.

(4) If the permittee has other written plans, required under applicable federal or state law, such as operation and maintenance, spill prevention control and countermeasures (SPCC), or risk contingency plans, which fulfill certain requirements of an SWPPP, these plans may be referenced, at the permittee's discretion, in the appropriate sections of the SWPPP to meet those section requirements.

(5) The permittee may combine the requirements of the SWPPP with another written plan if:

(A) The plan is retained at the facility and available for review;

(B) All the requirements of the SWPPP are contained within the plan; and

(C) A separate, labeled section is utilized in the plan for the SWPPP requirements.

F. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

To adequately assess the effects of the effluent on aquatic life, the permittee is required by this section of the permit to conduct chronic whole effluent toxicity (WET) testing. Part I.F.1. of this permit describes the testing procedures and Part I.F.2. describes the toxicity reduction evaluation (TRE) which is only required if the effluent demonstrates toxicity in two (2) consecutive toxicity tests as described in Part I.F.1.f.

1. <u>Whole Effluent Toxicity (WET) Tests</u>

The permittee must conduct the series of aquatic toxicity tests specified in Part I.F.1.d. to monitor the acute and chronic toxicity of the effluent discharged from Outfall 001.

If toxicity is demonstrated in two (2) consecutive toxicity tests, as described in Part I.F.1.f., with any test species during the term of the permit, the permittee is required to conduct a TRE under Part I.F.2.

a. Toxicity Test Procedures and Data Analysis

(1) All test organisms, test procedures and quality assurance criteria used must be in accordance with the <u>Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms,</u> Fourth Edition, Section 11, Fathead Minnow (*Pimephales promelas*) Larval Survival and Growth Test Method 1000.0, and Section 13, Daphnid (*Ceriodaphnia dubia*) Survival and Reproduction Test Method 1002.0, EPA 821-R-02-013, October 2002 (hereinafter "Chronic Toxicity Test Method"), or most recent update that conforms to the version of 40 CFR 136 incorporated by reference in 327 IAC 5. References to specific portions of the <u>Chronic Toxicity Test Method</u> contained in this Part I.F. are provided for informational purposes. If the <u>Chronic Toxicity Test Method</u> is updated, the corresponding provisions of that updated method would be applicable.

(2) Any circumstances not covered by the above methods, or that require deviation from the specified methods must first be approved by the IDEM Permits Branch.

(3) The determination of acute and chronic endpoints of toxicity (LC_{50}, NOEC and IC_{25} values) must be made in accordance with the procedures in Section 9, "Chronic Toxicity Test Endpoints and Data Analysis" and the Data Analysis procedures as outlined in Section 11 for fathead minnow (Test Method 1000.0; see flowcharts in Figures 5, 6 and 9) and Section 13 for *Ceriodaphnia dubia* (Test Method 1002.0; see flowcharts in Figures 4 and 6) of the Chronic Toxicity Test Method. The IC_{25} value together with 95% confidence intervals calculated by the Linear Interpolation and Bootstrap Methods in Appendix M of the Chronic Toxicity Test Method must be determined in addition to the NOEC value.

b. Types of Whole Effluent Toxicity Tests

(1) Tests may include a 3-brood (7-day) definitive static-renewal daphnid (*Ceriodaphnia dubia*) survival and reproduction toxicity test and a 7-day definitive static-renewal fathead minnow (*Pimephales promelas*) larval survival and growth toxicity test.

(2) All tests must be conducted using 24-hour composite samples of final effluent. Three effluent samples are to be collected on alternate days (e.g., collected on days one, three and five). The first effluent sample will be used for test initiation and for test solution renewal on day 2. The second effluent sample will be used for test solution renewal on days 3 and 4. The third effluent sample will be used for test solution renewal on days 5, 6 and 7. If shipping problems are encountered with renewal samples after a test has been initiated, the most recently used sample may continue to be used for test renewal, if first approved by the IDEM Permits Branch, but for no longer than 72 hours after first use.

(3) The whole effluent dilution series for the definitive test must include a control and at least five effluent concentrations with a minimum dilution factor of 0.5. The effluent concentrations selected must include and, if practicable, bracket the effluent concentrations associated with the determinations of acute and chronic toxicity provided in Part I.F.1.f. Guidance on selecting effluent test concentrations is included in Section 8.10 of the Chronic Toxicity Test Method. The use of an alternate procedure for selecting test concentrations must first be approved by the IDEM Permits Branch.

(4) If, in any control, more than 10% of the test organisms die in the first 48 hours with a daphnid species or the first 96 hours with fathead minnow, or more than 20% of the test organisms die in 7 days, that test is considered invalid and the toxicity test must be repeated. In addition, if in the *Ceriodaphnia dubia* survival and reproduction test, the average number of young produced per surviving female in the control group is less than 15, or if 60% of surviving control females have less than three broods; and in the fathead minnow (*Pimephales promelas*) survival and growth test, if the mean dry weight of surviving fish in the control group is less than 0.25 mg, that test is considered invalid and must also be repeated. All other test conditions and test acceptability criteria for the fathead minnow (*Pimephales promelas*) and *Ceriodaphnia dubia* chronic toxicity tests must be in accordance with the test requirements in Section 11 (Test Method 1000.0), Table 1 and Section 13 (Test Method 1002.0), Table 3, respectively, of the Chronic Toxicity Test Method.

c. Effluent Sample Collection and Chemical Analysis

(1) Whole effluent samples taken for the purposes of toxicity testing must be 24-hour composite samples collected at a point that is representative of the final effluent, but prior to discharge. Effluent sampling for the toxicity testing may be coordinated with other permit sampling requirements as appropriate to avoid duplication. First use of the whole effluent toxicity testing samples must not exceed 36 hours after termination of the 24-hour composite sample collection and must not be used for longer than 72 hours after first use. For discharges of less than 24 hours in duration, composite samples must be collected for the duration of the discharge within a 24-hour period (see "24-hour composite sample" definition in Part I.C.3. of this permit).

(2) Chemical analysis must accompany each effluent sample taken for toxicity testing, including each sample taken for the repeat testing as outlined in Part I.F.1.f.(3). The chemical analysis detailed in Part I.A.1. must be conducted for the effluent sample in accordance with Part I.C.4. of this permit.

d. Toxicity Testing Species, Frequency and Duration

Chronic toxicity testing for *Ceriodaphnia dubia* must be conducted once quarterly, as calculated from the effective date of the permit, for the duration of the permit. Under the previous permit, this facility conducted whole effluent toxicity testing using the most sensitive species and initiated and completed a TRE. Based on the results of the TRE and previous toxicity testing conducted by the permittee, the number of species tested may continue to include only the one most sensitive to the toxicity in the effluent.

If a TRE is initiated during the term of the permit, after receiving notification under Part I.F.1.e., the Compliance Data Section may suspend the toxicity testing requirements above for the term of the TRE compliance schedule described in Part I.F.2. After successful completion of the TRE, the toxicity tests established under Part I.F.2.c.(4) must be conducted once quarterly, as calculated from the first day of the first month following successful completion of the post-TRE toxicity tests (see Part I.F.2.c.(4)), for the remainder of the permit term.

e. Reporting

(1) Notifications of the failure of two (2) consecutive toxicity tests and the intent to begin the implementation of a toxicity reduction evaluation (TRE) under Part I.F.1.f.(4) must be submitted in writing to the Compliance Data Section of IDEM's Office of Water Quality.

(2) Results of all toxicity tests, including invalid tests, must be reported to IDEM according to the general format and content recommended in the Chronic Toxicity Test Method, Section 10, "Report Preparation and Test Review". However, only the results of valid toxicity tests are to be reported on the discharge monitoring report (DMR). The results of the toxicity tests and laboratory report are due by the earlier of 60 days after completion of the test or the 28th day of the month following the end of the period established in Part I.F.1.d.

(3) The full whole effluent toxicity (WET) test laboratory report must be submitted to IDEM electronically as an attachment to an e-mail to the Compliance Data Section at wwreports@idem.IN.gov. The results must also be submitted via NetDMR.

(4) For quality control and ongoing laboratory performance, the laboratory report must include results from appropriate standard reference toxicant tests. This will consist of acute (LC_{50} values), if available, and chronic (NOEC, LOEC and IC_{25} values) endpoints of toxicity obtained from reference toxicant tests conducted within 30 days of the most current effluent toxicity tests and from similarly obtained historical reference toxicant data with mean values and appropriate ranges for each species tested for at least three months to one year. Toxicity test laboratory reports must also include copies of chain-of-custody records and laboratory raw data sheets.

(5) Statistical procedures used to analyze and interpret toxicity data (e.g., Fisher's Exact Test and Steel's Many-one Rank Test for 7-day survival of test organisms; tests of normality (e.g., Shapiro-Wilk's Test) and homogeneity of variance (e.g., Bartlett's Test); appropriate parametric (e.g., Dunnett's Test) and non-parametric (e.g., Steel's Many-one Rank Test) significance tests and point estimates (IC_{25}) of effluent toxicity, etc.; together with graphical presentation of survival, growth and reproduction of test organisms), including critical values, levels of significance and 95% confidence intervals, must be described and included as part of the toxicity test laboratory report.

(6) For valid toxicity tests, the whole effluent toxicity (WET) test laboratory report must include a summary table of the results for each species tested as shown in the table presented below. This table will provide toxicity test results, reported in acute toxic units (TU_a) and chronic toxic units (TU_c), for evaluation under Part I.F.1.f. and reporting on the discharge monitoring report (DMR).

Test Organism [1]	Test Type	Endpoint [2]	Units	Result	Compliance Limit	Pass/ Fail [6]	Reporting
Ceriodaphnia dubia	3-brood (7-day) Definitive Static-Renewal Survival and Reproduction	48-hr. LC_{50}	%	Report			Laboratory Report
			TU_a	Report			
		NOEC Survival	%	Report			
			TU_c	Report			
		NOEC Reproduction	%	Report			
			TU_c	Report			
		IC_{25} Reproduction	%	Report			
			TU_c	Report			
		Toxicity (acute) [3]	TU_a	Report [5]	1.0	Report	Laboratory Report **and NetDMR** (Parameter Code 61425)
		Toxicity (chronic) [4]	TU_c	Report [5]	1.0	Report	Laboratory Report **and NetDMR** (Parameter Code 61426)
Pimephales promelas	7-day Definitive Static-Renewal Larval Survival and Growth	96-hr. LC_{50}	%	Report			Laboratory Report
			TU_a	Report			
		NOEC Survival	%	Report			
			TU_c	Report			
		NOEC Growth	%	Report			
			TU_c	Report			
		IC_{25} Growth	%	Report			
			TU_c	Report			
		Toxicity (acute) [3]	TU_a	Report [5]	1.0	Report	Laboratory Report **and NetDMR** (Parameter Code 61427)
		Toxicity (chronic) [4]	TU_c	Report [5]	1.0	Report	Laboratory Report **and NetDMR** (Parameter Code 61428)

[1] For the whole effluent toxicity (WET) test laboratory report, eliminate from the table any species that was not tested.
[2] A separate acute test is not required. The endpoint of acute toxicity must be extrapolated from the chronic toxicity test.
[3] The toxicity (acute) endpoint for *Ceriodaphnia dubia* is the 48-hr. LC_{50} result reported in acute toxic units (TU_a). The toxicity (acute) endpoint for *Pimephales promelas* is the 96-hr. LC_{50} result reported in acute toxic units (TU_a).

[4] The toxicity (chronic) endpoint for *Ceriodaphnia dubia* is the higher of the NOEC Survival, NOEC Reproduction and IC_{25} Reproduction values reported in chronic toxic units (TU_c). The toxicity (chronic) endpoint for *Pimephales promelas* is the higher of the NOEC Survival, NOEC Growth and IC_{25} Growth values reported in chronic toxic units (TU_c).
[5] Report the values for acute and chronic endpoints of toxicity determined in [3] and [4] for the corresponding species. These values are the ones that need to be reported on the discharge monitoring report (DMR).
[6] If the toxicity result (in TUs) is less than or equal to the compliance limit, report “Pass”. If the toxicity result (in TUs) exceeds the compliance limit, report “Fail”.

f. Demonstration of Toxicity

(1) Toxicity (acute) will be demonstrated if the effluent is observed to have exceeded 1.0 TU_a (acute toxic units) for *Ceriodaphnia dubia* in 48 hours or in 96 hours for *Pimephales promelas*. For this purpose, a separate acute toxicity test is not required. The results for the acute toxicity demonstration must be extrapolated from the chronic toxicity test. For the purpose of selecting test concentrations under Part I.F.1.b.(3), the effluent concentration associated with acute toxicity is 100%.

(2) Toxicity (chronic) will be demonstrated if the effluent is observed to have exceeded 1.0 TU_c (chronic toxic units) for *Ceriodaphnia dubia* or *Pimephales promelas* from the chronic toxicity test. For the purpose of selecting test concentrations under Part I.F.1.b.(3), the effluent concentration associated with chronic toxicity is 100%.

(3) If toxicity (acute) or toxicity (chronic) is demonstrated in any of the chronic toxicity tests specified above, a repeat chronic toxicity test using the procedures in Part I.F.1. of this permit and the same test species must be initiated within two (2) weeks of test failure. During the sampling for any repeat tests, the permittee must also collect and preserve sufficient effluent samples for use in any toxicity identification evaluation (TIE) and/or toxicity reduction evaluation (TRE), if necessary.

(4) If any two (2) consecutive chronic toxicity tests, including any and all repeat tests, demonstrate acute or chronic toxicity, the permittee must notify the Compliance Data Section under Part I.F.1.e. within 30 days of the date of termination of the second test, and begin the implementation of a toxicity reduction evaluation (TRE) as described in Part I.F.2. After receiving notification from the permittee, the Compliance Data Section may suspend the whole effluent toxicity testing requirements in Part I.F.1. for the term of the TRE compliance schedule.

(5) The requirements of Part I.F.1.f.(3) and f.(4) are not applicable to a chronic toxicity test conducted during the term of a TRE compliance schedule.

g. Definitions

(1) “Acute toxic unit” or “TU_a” is defined as $100/LC_{50}$ where the LC_{50} is expressed as a percent effluent in the test medium of an acute whole effluent toxicity (WET) test that is statistically or graphically estimated to be lethal to fifty percent (50%) of the test organisms.

(2) “Chronic toxic unit” or “TU_c” is defined as 100/NOEC or $100/IC_{25}$, where the NOEC or IC_{25} are expressed as a percent effluent in the test medium.

(3) “Inhibition concentration 25” or “IC_{25}” means the toxicant (effluent) concentration that would cause a twenty-five percent (25%) reduction in a nonquantal biological measurement for the test population. For example, the IC_{25} is the concentration of toxicant (effluent) that would cause a twenty-five percent (25%) reduction in mean young per female or in growth for the test population.

(4) “No observed effect concentration” or “NOEC” is the highest concentration of toxicant (effluent) to which organisms are exposed in a full life cycle or partial life cycle (short term) test, that causes no observable adverse effects on the test organisms, that is, the highest concentration of toxicant (effluent) in which the values for the observed responses are not statistically significantly different from the controls.

2. Toxicity Reduction Evaluation (TRE) Schedule of Compliance

The development and implementation of a TRE is only required if toxicity is demonstrated in two (2) consecutive tests as described in Part I.F.1.f.(4). The post-TRE toxicity testing requirements in Part I.F.2.c. must also be completed as part of the TRE compliance schedule.

Milestone Dates: See a. through e. below for more detail on the TRE milestone dates.

Requirement	Deadline
Development and Submittal of a TRE Plan	Within 90 days of the date of two (2) consecutive failed toxicity tests.
Initiate a TRE Study	Within 30 days of TRE Plan submittal.
Submit TRE Progress Reports	Every 90 days beginning six (6) months from the date of two (2) consecutive failed toxicity tests.
Post-TRE Toxicity Testing Requirements	Immediately upon completion of the TRE, conduct three (3) consecutive months of toxicity tests with both test species; if no acute or chronic toxicity is shown with any test species, reduce toxicity tests to once quarterly for the remainder of the permit term. If post-TRE toxicity testing demonstrates toxicity, continue the TRE study.
Submit Final TRE Report	Within 90 days of successfully completing the TRE (including the post-TRE toxicity testing requirements), not to exceed three (3) years from the date that toxicity is initially demonstrated in two (2) consecutive toxicity tests.

a. Development of TRE Plan

Within 90 days of the date of two (2) consecutive failed toxicity tests (i.e. the date of termination of the second test), the permittee must submit plans for an effluent TRE to the Compliance Data Section. The TRE plan must include appropriate measures to characterize the causative toxicants and reduce toxicity in the effluent discharge to levels that demonstrate no toxicity with any test species as described in Part I.F.1.f. Guidance on conducting effluent toxicity reduction evaluations is available from EPA and from the EPA publications listed below:

(1) Methods for Aquatic Toxicity Identification Evaluations:

Phase I Toxicity Characterization Procedures, Second Edition (EPA/600/6-91/003), February 1991.

Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/080), September 1993.

Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity (EPA/600/R-92/081), September 1993.

(2) Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I (EPA/600/6-91/005F), May 1992.

(3) Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs) (EPA/600/2-88/070), April 1989.

(4) Clarifications Regarding Toxicity Reduction and Identification Evaluations in the National Pollutant Discharge Elimination System Program, U.S. EPA, March 27, 2001.

b. Conduct the TRE

Within 30 days after submittal of the TRE plan to the Compliance Data Section, the permittee must initiate the TRE consistent with the TRE plan.

c. Post-TRE Toxicity Testing Requirements

(1) After completing the TRE, the permittee must conduct monthly post-TRE toxicity tests with the two (2) test species *Ceriodaphnia dubia* and fathead minnow (*Pimephales promelas*) for a period of three (3) consecutive months.

(2) If the three (3) monthly tests demonstrate no toxicity with any test species as described in Part I.F.1.f., the TRE will be considered successful. Otherwise, the TRE study must be continued.

(3) The post-TRE toxicity tests must be conducted in accordance with the procedures in Part I.F.1. The results of these tests must be submitted as part of the final TRE Report required under Part I.F.2.d.

(4) After successful completion of the TRE, the permittee must resume the chronic toxicity tests required in Part I.F.1. The permittee may reduce the number of species tested to only include the species demonstrated to be most sensitive to the toxicity in the effluent. The established starting date for the frequency in Part I.F.1.d. is the first day of the first month following successful completion of the post-TRE toxicity tests.

d. Reporting

(1) Progress reports must be submitted every 90 days to the Compliance Data Section beginning six (6) months from the date of two (2) consecutive failed toxicity tests. Each TRE progress report must include a listing of proposed activities for the next quarter and a schedule to reduce toxicity in the effluent discharge to acceptable levels through control of the toxicant source or treatment of whole effluent.

(2) Within 90 days of successfully completing the TRE, including the three (3) consecutive monthly tests required as part of the post-TRE toxicity testing requirements in Part I.F.2.c., the permittee must submit to the Compliance Data Section a final TRE Report that includes the following:

(A) A discussion of the TRE results;

(B) The starting date established under Part I.F.2.c.(4) for the continuation of the toxicity testing required in Part I.F.1.; and

(C) If applicable, the intent to reduce the number of species tested to the one most sensitive to the toxicity in the effluent under Part I.F.2.c.(4).

e. Compliance Date

The permittee must complete items a., b., c. and d. from Part I.F.2. and reduce toxicity in the effluent discharge to acceptable levels as soon as possible, but <u>no later than three (3) years from the date that toxicity is initially demonstrated in two (2) consecutive toxicity tests (i.e. the date of termination of the second test) as described in Part I.F.1.f.(4).</u>

G. POLLUTANT MINIMIZATION PROGRAM

The permittee is required to develop and conduct a pollutant minimization program (PMP) for each pollutant with a WQBEL below the LOQ. This permit contains WQBELs below the LOQ for TRC.

During the previous permit term, the permittee demonstrated that the discharge of TRC, that has a WQBEL below the LOQ, is reasonably expected to be in compliance with the WQBEL at the point of discharge into the receiving water. Therefore, an updated pollutant minimization program is not required.

a. The goal of the pollutant minimization program shall be to maintain the effluent at or below the WQBEL. The pollutant minimization program shall include, but is not limited to, the following:

(1) Submit a control strategy designed to proceed toward the goal within ninety (90) days of the effective date of this permit.

(2) Implementation of appropriate cost-effective control measures, consistent with the control strategy within one hundred and eighty (180) days of the effective date of this permit.

(3) Monitor as necessary to record the progress toward the goal. Potential sources of the pollutant shall be monitored on a semi-annual basis. Quarterly monitoring of the influent of the wastewater treatment system is also required. The permittee may request a reduction in this monitoring requirement after four quarters of monitoring data.

(4) Submit an annual status to the Commissioner at the address listed in Part I.C.3.g. to the attention of the Office of Water Quality, Compliance Data Section, by January 31 of each year that includes the following information:

(i) All minimization program monitoring results for the previous year.

(ii) A list of potential sources of the pollutant.

(iii) A summary of all actions taken to reduce or eliminate the identified sources of the pollutant.

(5) A pollutant minimization program may include the submittal of pollution prevention strategies that use changes in production process technology, materials, processes, operations, or procedures to reduce or eliminate the source of the pollutant.

b. No pollutant minimization program is required if the permittee demonstrates that the discharge of a pollutant with a WQBEL below the LOQ is reasonably expected to be in compliance with the WQBEL at the point of discharge into the receiving water. This demonstration may include, but is not limited to, the following:

(1) Treatment information, including information derived from modeling the destruction of removal of the pollutant in the treatment process.

(2) Mass balance information.

(3) Fish tissue studies or other biological studies.

c. In determining appropriate cost-effective control measures to be implemented in a pollution minimization program, the following factors may be considered:

(1) Significance of sources.

(2) Economic and technical feasibility.

(3) Treatability.

H. SCHEDULES OF COMPLIANCE

1. The permittee shall achieve compliance with the 316(b) impingement mortality BTA requirements established in Part I.A.5. and Part IV. of this Permit for the No. 1 Lake Water Pumping Station (No. 1 LWPS) and the No. 2 Lake Water Pumping Station (No. 2 LWPS) in accordance with the following schedule:

a. As soon as practicable, but no later than twelve (12) months after the effective date of the permit, complete installation of:
   i. flow monitoring systems at the No. 1 and No. 2 LWPS for determining reasonably accurate daily intake flow, or if flow meters cannot be installed due to hydraulic or other issues, provide for provide for alternative means to estimate reasonably accurate intake screen and intake strainer backwash flows at each pumping station; and
   ii. water level monitoring systems at the Lake side of the intake screens at each pumping station.

b. As soon as practicable, but no later than twelve (12) months after the effective date of the permit, the permittee shall develop and submit to IDEM calculation protocols for determining daily through-screen intake velocity at each pumping station considering either daily measured intake flows at each pumping station and daily water levels, or monitored discharge flows from Outfalls 001, 002, and 003, estimates of evaporative water losses across the Burns Harbor Plant and daily water levels at the intakes.

c. As soon as practicable, but no later than twenty-four (24) months after the permit effective date the permittee shall select, notify and receive IDEM's approval of that selection and complete engineering detail plans of one and/or all of the following technologies or other IDEM approved technologies directed at achieving the BTA impingement mortality standard at both No. 1 and No. 2 LWPS:
   - Installation of a fifth traveling screen at the No. 2 LWPS.

- Installation of replacement traveling screen sections with openings sufficiently large to achieve the BTA impingement mortality standard at each pumping station.
- Flow balancing at No. 1 and No. 2 LWPS and/or restrictions on maximum AIF to achieve the BTA impingement mortality standard.

d. As soon as practicable, but no later than thirty-six (36) months after the permit effective date, the permittee shall achieve the 40 CFR §122.94(c)(3) BTA for impingement mortality at each pumping station.

e. Within thirty (30) days of completion of any construction, the permittee shall file with the Industrial NPDES Permits Section of Office of Water Quality (OWQ) a notice of installation for the installation of the IDEM approved technology to comply with BTA for impingement mortality and a summary of any modifications.

f. 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.

2. The permittee shall achieve compliance with the installation of a flow monitoring station at Outfall 011 in accordance with the following schedule:

a. As soon as practicable, but no later than three (3) months from the effective date of this permit, the permittee shall complete the engineering for Outfall 011 flow monitoring stations at the existing check dam and at an alternative location in Outfall 011 discharge channel.

b. As soon as practicable, but no later than twelve (12) months after the effective date of the permit, the permittee shall complete installation of flow monitoring station at the check dam and complete calibration studies. Based on the results of the calibration studies, the permittee shall determine whether this flow monitoring station is acceptable. If acceptable, the installation will be complete, and the flow monitoring station will be used for Outfall 011 NPDES compliance reporting.

c. If the flow monitoring station at the check dam is determined to not be acceptable, as soon as practicable, but no later than twenty-one (21) months after the effective date of the permit, the permittee shall complete installation of flow monitoring station at alternate location.

d. As soon as practicable, but no later than twenty-four (24) months after the effective date of the permit, the permittee shall calibrate this alternate flow monitoring station and use it for NPDES compliance reporting.

e. 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 flow measurement equipment and a design summary of any modifications.

f. 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 nine (9) 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.

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 with final permit requirements.

I. 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. for any of the causes listed under 327 IAC 5-2-16.

3. 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.

4. to include a case-specific Limit of Detection (LOD) and/or Limit of Quantitation (LOQ). The permittee must demonstrate that such action is warranted in accordance with the procedures specified under Appendix B, 40 CFR Part 136, using the most sensitive analytical methods approved by EPA under 40 CFR Part 136, or approved by the Commissioner.

5. this permit may be modified or revoked and reissued after public notice and opportunity for hearing to revise or remove the requirements of the pollutant minimization program, if supported by information generated as a result of the program.

6 to specify the use of a different analytical method if a more sensitive analytical method has been specified in or approved under 40 CFR 136 or approved by the Commissioner to monitor for the presence and amount in the effluent of the pollutant for which the WQBEL is established. The permit shall specify, in accordance with 327 IAC 5-2-11.6(h)(2)(B), the LOD and LOQ that can be achieved by use of the specified analytical method.

7. to comply with any applicable standards, regulations and requirements issued or approved under section 316(b) of the Clean Water Act.

8. to incorporate requirements for additional thermal studies, include IDEM approved alternative thermal effluent limitations (ATELs) supported by an updated 316(a) demonstration, and/or revise the permit as needed to incorporate thermal discharge mitigation alternatives at Outfall 001.

9. to incorporate the permit conditions resulting from an approval for alternate effluent limits based on a 301(g) variance applied for by the permittee in accordance with 327 IAC 5-3-4. The permittee may apply for alternate effluent limits based on a 301(g) variance at any time during the effective term of this permit.

10. to change the monitoring requirements at Outfall 111 for flow, 2,3,7,8-TCDF, or the investigatory monitoring for dioxins and furans, or to include appropriate effluent limitations or other appropriate requirements for dioxins and furans at an internal outfall, external outfall, or instream if warranted based on the sampling being conducted at Outfall 111.

11. to include revisions based upon facility-specific studies. The permittee shall submit work plans to conduct such facility-specific studies before initiation of the studies. Work plans must be approved by IDEM and the results of all such studies must be approved by IDEM.

12. to allow the permit to be modified based on the monitoring results or to specify the use of a different analytical method for total residual chlorine at Outfall 001, 002, or Outfall 003.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

   The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

   It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

   In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Reapply

   If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit an application for renewal of this permit in accordance with 327 IAC 5-2-8(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. Pursuant to 327 IAC 5-3-2(a)(2), the application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if all of the following occur:

   a. permission is requested in writing before such deadline;

   b. IDEM grants permission to submit the application after the deadline; and

   c. the application is received no later than the permit expiration date.

4. Permit Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date;

b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner;

c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility; and

d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

5. Permit Actions

a. In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

    1. Violation of any terms or conditions of this permit;

    2. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or

3. A change in any condition that requires either a temporary or a permanent reduction or elimination of any discharge controlled by the permit, e.g., plant closure, termination of discharge by connection to a POTW, a change in state law that requires the reduction or elimination of the discharge, or information indicating that the permitted discharge poses a substantial threat to human health or welfare.

b. Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of pollutants discharged; or
2. the commissioner may request to evaluate whether such cause exists.

c. In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

6. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or invasion of other private rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

7. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

8. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

9. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

10. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Environmental Rules Board is liable for a civil penalty not to exceed twenty-five thousand dollars ($25,000) per day of any violation.

Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation performed under IC 13-14-2-2 commits a class C infraction.

Pursuant to IC 13-30-10-1.5(e), a person who willfully or negligently violates any NPDES permit condition or filing requirement, or any applicable standards or limitations of IC 13-18-3-2.4, IC 13-18-4-5, IC 13-18-12, IC 13-18-14, IC 13-18-15, or IC 13-18-16, commits a Class A misdemeanor.

Pursuant to IC 13-30-10-1.5(i), an offense under IC 13-30-10-1.5(e) is a Level 4 felony if the person knowingly commits the offense and knows that the commission of the offense places another person in imminent danger of death or serious bodily injury. The offense becomes a Level 3 felony if it results in serious bodily injury to any person, and a Level 2 felony if it results in death to any person.

Pursuant to IC 13-30-10-1.5(g), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-8 commits a Class B misdemeanor.

Pursuant to IC 13-30-10-1.5(h), a person who willfully or recklessly violates any applicable standards or limitations of IC 13-18-9, IC 13-18-10, or IC 13-18-10.5 commits a Class C misdemeanor.

Pursuant to IC 13-30-10-1, a person who knowingly or intentionally makes any false material statement, representation, or certification in any NPDES form, notice, or report commits a Class B misdemeanor.

11. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(10), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10-1, provides that any person who knowingly or intentionally (a) destroys, alters, conceals, or falsely certifies a record, (b) tampers with, falsifies, or renders inaccurate or inoperative a recording or monitoring device or method, including the data gathered from the device or method, or (c) makes a false material statement or representation in any label, manifest, record, report, or other document; all required to be maintained under the terms of a permit issued by the department commits a Class B misdemeanor.

12. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

13. Wastewater treatment plant and certified operators

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), “responsible charge operator” means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

14. Construction Permit

In accordance with IC 13-14-8-11.6, a discharger is not required to obtain a state permit for the modification or construction of a water pollution treatment or control facility if the discharger has an effective NPDES permit.

If the discharger modifies their existing water pollution treatment or control facility or constructs a new water pollution treatment or control facility for the treatment or control of any new influent pollutant or increased levels of any existing pollutant, then, within thirty (30) days after commencement of operation, the discharger shall file with the Department of Environment Management a notice of installation for the additional pollutant control equipment and a design summary of any modifications.

The notice and design summary shall be sent to the Office of Water Quality, Industrial NPDES Permits Section, 100 North Senate Avenue, Indianapolis, IN 46204-2251.

15. Inspection and Entry

In accordance with 327 IAC 5-2-8(8), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;

c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and

d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

16. New or Increased Discharge of Pollutants into an OSRW

This permit prohibits the permittee from undertaking any action that would result in the following:

a. A new or increased discharge of a bioaccumulative chemical of concern (BCC), other than mercury.

b. A new or increased discharge of mercury or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

(1) Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the permittee to do the following:

(i) Submit an antidegradation demonstration in accordance with 327 IAC 2-1.3-5; and
(ii) Implement or fund a water quality improvement project in the watershed of the OSRW that results in an overall improvement in water quality in the OSRW in accordance with 327 IAC 2-1.3-7.

(2) An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6 and the permittee implements or funds a water quality improvement project in the watershed of the OSRW that results in an overall improvement in water quality in the OSRW in accordance with 327 IAC 2-1.3-7.

B. MANAGEMENT REQUIREMENTS

1. Proper Operation and Maintenance

The permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of this permit in accordance with 327 IAC 5-2-8(9).

Neither 327 IAC 5-2-8(9), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(12), the following are requirements for bypass:

a. The following definitions:

(1) "Bypass" means the intentional diversion of a waste stream from any portion of a treatment facility.

(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. The permittee may allow a bypass to occur that does not cause a violation of the effluent limitations contained in this permit, but only if it is also for essential maintenance to assure efficient operation. These bypasses are not subject to Part II.B.2.c. and d.

c. The permittee must provide the Commissioner with the following notice:

(1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.

(2) As required by 327 IAC 5-2-8(11)(C), the permittee shall orally report an unanticipated bypass that exceeds any effluent limitations in the permit within twenty-four (24) hours from the time the permittee becomes aware of such noncompliance. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; and if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance. If a complete report is submitted by e-mail within 24 hours of the noncompliance, then that e-mail report will satisfy both the oral and written reporting requirement. E-mails should be sent to wwreports@idem.in.gov.

d. The following provisions are applicable to bypasses:

(1) Except as provided by Part II.B.2.b., bypass is prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless the following occur:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage.

(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance.

(C) The permittee submitted notices as required under Part II.B.2.c.

(2) The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.d.(1). The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.

e. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the “Spill Response and Reporting Requirements” in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

3. <u>Upset Conditions</u>

Pursuant to 327 IAC 5-2-8(13):

a. “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this section, are met.

c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:

(1) An upset occurred and the permittee has identified the specific cause(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee complied with any remedial measures required under Part II.A.2; and

(4) The permittee submitted notice of the upset as required in the "Twenty-Four Hour Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. <u>Removed Substances</u>

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal. The discharge of pollutants in treated wastewater is allowed in compliance with the applicable effluent limitations in Part I. of this permit.

C. REPORTING REQUIREMENTS

1. <u>Planned Changes in Facility or Discharge</u>

Pursuant to 327 IAC 5-2-8(11)(F), the permittee shall give notice to the Commissioner as soon as possible of any planned physical alterations or additions to the permitted facility. In this context, permitted facility refers to a point source discharge, not a wastewater treatment facility. Notice is required only when either of the following applies:

a. The alteration or addition may meet one of the criteria for determining whether the facility is a new source as defined in 327 IAC 5-1.5.

b. The alteration or addition could significantly change the nature of, or increase the quantity of, pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in Part I.A. nor to notification requirements in Part II.C.9. of this permit.

Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(10) and 327 IAC 5-2-13 through 15, monitoring results shall be reported at the intervals and in the form specified in "Discharge Monitoring Reports", Part I.C.2.

3. Twenty-Four Hour Reporting Requirements

Pursuant to 327 IAC 5-2-8(11)(C), the permittee shall orally report to the Commissioner information on the following types of noncompliance within 24 hours from the time permittee becomes aware of such noncompliance. If the noncompliance meets the requirements of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made within those prescribed time frames. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge that is in noncompliance are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

b. Any noncompliance which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the noncomplying circumstances;

c. Any upset (as defined in Part II.B.3 above) that causes an exceedance of any effluent limitation in the permit; or

d. Violation of a maximum daily discharge limitation for any of the following toxic pollutants: lead, zinc, free cyanide, ammonia (as N), total cyanide, mercury, naphthalene, tetrachloroethylene, 2,3,7,8-tetrachlorodibenzofuran, phenols, copper, and silver.

The permittee can make the oral reports by calling (317)232-8670 during regular business hours and asking for the Compliance Data Section or by calling (317) 233-7745 ((888)233-7745 toll free in Indiana) during non-business hours. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce and eliminate the noncompliance and prevent its recurrence.

The Commissioner may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. Alternatively the permittee may submit a "Bypass/Overflow Report" (State Form 48373) or a "Noncompliance 24-Hour Notification Report" (State Form 52415), whichever is appropriate, to IDEM at (317) 232-8637 or wwreports@idem.in.gov. If a complete e-mail submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then the email report will satisfy both the oral and written reporting requirements.

4. Other Compliance/Noncompliance Reporting

Pursuant to 327 IAC 5-2-8(11)(D), the permittee shall report any instance of noncompliance not reported under the "Twenty-Four Hour Reporting Requirements" in Part II.C.3, or any compliance schedules at the time the pertinent Discharge Monitoring Report is submitted. The report shall contain the information specified in Part II.C.3;

The permittee shall also give advance notice to the Commissioner of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements; and

All reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

5. Other Information

Pursuant to 327 IAC 5-2-8(11)(E), where the permittee becomes aware of a failure to submit any relevant facts or submitted incorrect information in a permit application or in any report, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(15):

a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:

   (1) For a corporation: by a responsible corporate officer. A "responsible corporate officer" means either of the following:

a. A president, secretary, treasurer, any vice president of the corporation in charge of a principal business function, or any other person who performs similar policymaking or decision making functions for the corporation; or

b. The manager of one (1) or more manufacturing, production, or operating facilities provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty to make major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a Federal, State, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.

(4) Under the proposed Federal E-Reporting Rule, a method will be developed for submittal of all affected reports and documents using electronic signatures that is compliant with the Cross-Media Electronic Reporting Regulation (CROMERR). Enrollment and use of NetDMR currently provides for CROMERR-compliant report submittal.

b. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described above.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or a position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and

(3) The authorization is submitted to the Commissioner.

c. Electronic Signatures. If documents described in this section are submitted electronically by or on behalf of the NPDES-regulated facility, any person providing the electronic signature for such documents shall meet all relevant requirements of this section, and shall ensure that all of the relevant requirements of 40 CFR part 3 (including, in all cases, subpart D to part 3) (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

d. Certification. Any person signing a document identified under Part II.C.6. shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. <u>Availability of Reports</u>

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. <u>Penalties for Falsification of Reports</u>

IC 13-30 and 327 IAC 5-2-8(15) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance, shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. <u>Changes in Discharge of Toxic Substances</u>

Pursuant to 327 IAC 5-2-9, the permittee shall notify the Commissioner as soon as it knows or has reason to know:

a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant that is not limited in the permit if that discharge will exceed the highest of the following notification levels.

(1) One hundred micrograms per liter (100 μg/l);

(2) Two hundred micrograms per liter (200 μg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 μg/l) for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

(4) A notification level established by the Commissioner on a case-by-case basis, either at the Commissioner's own initiative or upon a petition by the permittee. This notification level may exceed the level specified in subdivisions (1), (2), or (3) but may not exceed the level which can be achieved by the technology-based treatment requirements applicable to the permittee under the CWA (see 327 IAC 5-5-2).

b. That it has begun or expects to begin to use or manufacture, as an intermediate or final product or byproduct, any toxic pollutant that was not reported in the permit application under 40 CFR 122.21(g)(9). However, this subsection b. does not apply to the permittee's use or manufacture of a toxic pollutant solely under research or laboratory conditions.

10. <u>Future Electronic Reporting Requirements</u>

IDEM is currently developing the technology and infrastructure necessary to allow compliance with the EPA Phase 2 e-reporting requirements per 40 CFR 127.16 and to allow electronic reporting of applications, notices, plans, reports, and other information not covered by the federal e-reporting regulations.

IDEM will notify the permittee when IDEM's e-reporting system is ready for use for one or more applications, notices, plans, reports, or other information. This IDEM notice will identify the specific applications, notices, plans, reports, or other information that are to be submitted electronically and the permittee will be required to use the IDEM electronic reporting system to submit the identified application(s), notice(s), plan(s), report(s), or other information.

See Part I.C.2. of this permit for the current electronic reporting requirements for the submittal of monthly monitoring reports such as the Discharge Monitoring Report (DMR) and the Monthly Monitoring Report (MMR).

PART III
Other Requirements

A. Thermal Effluent Requirements

The regulations applicable to dischargers requesting alternative thermal effluent limitations (ATEL) as allowed by section 316(a) of the Clean Water Act (CWA) are found in 40 CFR 125 subpart H and 327 IAC 5-7. 40 CFR 125 subpart H and 327 IAC 5-7 describe the factors, criteria, and standards for the establishment of alternative thermal effluent limitations under section 316(a) of the Act in permits issued under section 402(a) of the Act.

This permit contains ATELs for the discharges from Outfalls 001 and 002. In addition, on July 16, 1990, IDEM authorized via a letter to the permittee the addition of up to 35,000 gallons per minute of Lake Michigan water to Outfall 001 to assure compliance with the thermal limits at Outfall 001.

Outfall 001:

The highest temperature sustained over any two hour period within each day's 24 hour monitoring period shall not exceed the temperature listed below:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	60	60	65	71	81	86	86	86	85	80	75	65

Outfall 002:

The highest temperature sustained over any two-hour period within each day's 24-hour monitoring period shall not exceed the temperature listed below:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	55	57	63	69	77	82	88	90	88	81	72	63

B. Additional Thermal Requirements

1. General Requirements

All proposed 316(a) demonstration study plans (and the completed demonstration) must conform to 327 IAC 5-7 and Subpart H of 40 CFR 125 and to the IDEM draft *Guidance for Conducting a Demonstration as a Requirement of a 316(a) Alternative Thermal Effluent Limitation Request*, March 2015. In addition, EPA has issued a draft CWA 316(a) guidance entitled "*Interagency 316(a) Technical Guidance Manual And Guide for Thermal Effects Sections of Nuclear Facilities Environmental Impact Statements*," 1977. Both of these guidance documents provide valuable information on conducting 316(a) demonstrations.

IDEM will review the proposed study plans, and may, based on its review, request additional information from the discharger to make the demonstration study plan complete. IDEM will also provide the discharger with the accepted RIS. When the study plan is complete and satisfies the requirements of the regulations and guidance, IDEM will inform the discharger in writing that the demonstration study plan is complete so that the discharger may begin the study.

Except as specified below, the permittee must initiate the demonstration studies for Outfalls 001 and 002 within two (2) years of receiving notification from IDEM that the demonstration study plans are complete.

The final 316(a) demonstration and application must be signed and certified by a responsible official in compliance with 327 IAC 5-2-22(a) and (d). The demonstration and application for ATELs will be reviewed by IDEM for completeness. A complete demonstration must include the following:

a. A quantitative description and rationale for the proposed ATELs.
b. The absence of prior appreciable harm assessment and RIS assessment supporting the proposed ATELs.
c. All of the thermal and biological data collected during the demonstration and/or used to support the demonstration, provided in a format amenable for electronic data interfacing into the Office of Water Quality's External Data Framework of the Assessment Information Management System (AIMS). Summarized data and data compilations alone will NOT be accepted.
d. Executive summary of study findings.
e. Request for thermal mixing zone. The thermal mixing zone request must specify the temperatures within and at the edge of the mixing zone and the proposed sizes of the mixing zones as applicable.
f. Any other information deemed necessary and developed by the discharger for the demonstration.
g. A delineation/model of the thermal plume under representative flow conditions based on in-lake temperature monitoring data, and with the proposed point of compliance for the proposed thermal limits.
h. Any additional studies conducted since the last demonstration was completed and an analysis of any changes from the previous assessments and conclusions.

2. Outfall 001

Because of the adverse impact of the thermal discharge at Outfall 001 on salmonid species, the permittee must submit the following mitigation alternative information to IDEM pursuant to the following schedule:

a. Within two (2) months of the effective date of the permit, the permittee must submit to IDEM for review and approval a framework for scoping of Outfall 001 thermal mitigation alternatives.

b. Within twelve (12) months of the effective date of the permit, the permittee must submit to IDEM for review and approval a preliminary scoping report of identified feasible thermal mitigation alternatives including assessments of anticipated changes in Outfall 001 and Outfall 002 discharge flows, discharge temperatures, mass pollutant discharges and anticipated changes in East Branch of the Little Calumet River hydrology and temperatures downstream of Outfall 001.

c. Within forty-two months (42) of the effective date of the permit, the permittee must submit to IDEM for review and approval complete engineering assessments for feasible Outfall 001 thermal mitigation measures.

d. Within forty-eight (48) months of the effective date of the permit, the permittee must submit to IDEM for review and approval the proposed thermal mitigation measure and proposed implementation timelines for Outfall 001 and the East Branch of the Little Calumet River.

IDEM will, at a minimum, seek input on these thermal mitigation documents from the Indiana Department of Natural Resources and the National Park Service.

In addition, the permittee is required to conduct a 316(a) demonstration for Outfall 001. This will include both thermal, biological, and water quality studies conducted in close coordination with IDNR and IDEM. The permittee will conduct comprehensive baseline thermal, biological and water quality studies of the East Branch Little Calumet River, Salt Creek and Trail Creek. The biological studies will include habitat assessments, macroinvertebrate assessments and characterization of the stream fisheries for both warmwater fish and salmonids. The thermal component of the study will include temperature monitoring at the intake, the Outfall and at various pertinent locations within the streams.

Prior to the initiation of any such studies, the permittee will be required to submit the following: a proposed 316(a) demonstration study plan within two (2) months of the effective date of the permit to IDEM for review and approval; and within fifteen (15) months of the effective date of the permit, submit to IDEM for review and approval a final 316(a) demonstration study plan.

IDEM will, at a minimum, seek input on these study plan documents from the Indiana Department of Natural Resources and the National Park Service.

The permittee must initiate the approved 316(a) study within eighteen (18) months of the effective date of the permit and must complete the 316(a) study within thirty-six (36) months of the effective date of the permit.

Within forty-two (42) months of the effective date of the permit, the permittee must submit to IDEM an updated 316(a) demonstration, including the results from the studies and requested 316(a) variance limits if the permittee believes such variance limits to be needed.

If the permittee's thermal mitigation plan includes return of the Outfall 001 effluent to the facility water system with subsequent discharge through Outfall 002, and this is the mitigation alternative that is implemented, the permittee must conduct an additional 316(a) demonstration study after the relocation has been completed. Study plans shall be submitted to IDEM for review and approval prior to commencement of such studies.

3. Outfall 002

Due to the lack of comprehensive studies conducted for Outfall 002, the permittee must conduct a 316(a) study at Outfall 002 and in Burns Harbor. In addition to thermal studies, the permittee must consider and evaluate the feasibility of including biological studies as a component of this demonstration.

Prior to the initiation of any such studies, the permittee will be required to submit the following: a proposed 316(a) demonstration study plan within two (2) months of the effective date of the permit to IDEM for review and approval; and within fifteen (15) months of the effective date of the permit, submit to IDEM for review and approval a final 316(a) demonstration study plan.

The permittee must initiate the approved 316(a) study within eighteen (18) months of the effective date of the permit and must complete the 316(a) study within thirty-six (36) months of the effective date of the permit.

Within forty-two (42) months of the effective date of the permit, the permittee must submit to IDEM an updated 316(a) demonstration, including the results from the studies and requested 316(a) variance limits if the permittee believes such variance limits to be needed.

If the permittee's thermal mitigation plan includes return of the Outfall 011 effluent to the facility water system with subsequent discharge through Outfall 002, and this is the mitigation alternative that is implemented, the permittee must conduct an additional 316(a) demonstration study at Outfall 002 after the relocation has been completed. Study plans shall be submitted to IDEM for review and approval prior to commencement of such studies.

C. Polychlorinated Biphenyl

There shall be no discharge of polychlorinated biphenyl (PCB) compounds attributable to facility operations such as those historically used in transformer fluids. In order to determine compliance with the PCB discharge prohibition, the permittee shall provide the following PCB data with the next NPDES permit renewal application for at least one sample taken from each final outfall. The corresponding facility water intakes shall be monitored at the same time as the final outfalls.

Parameter	Test Method	LOD	LOQ
Total PCBs*	608	0.1 ug/l	0.3 ug/l

*Total PCBs is the sum of the following aroclors: PCB-1016, PCB-1221, PCB-1232, PCB-1242, PCB-1248, PCB-1254, and PCB-1260

Part IV
Cooling Water Intake Structures

A. Best Technology Available (BTA) Determination

Section 316(b) of the Clean Water Act requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact.

In addition, under 327 IAC 2-1.5-8(c)(4)(D)(vi), water intakes shall be designed and located to minimize entrainment and damage to desirable organisms. Requirements may vary depending upon local conditions, but, in general, intakes shall:

(1) have minimum water velocity; and

(2) not be located in spawning or nursery areas of important fishes. Water velocity at screens and other exclusion devices shall also be at a minimum.

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 existing 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. All existing facilities subject to these regulations must submit the information required by 40 CFR 122.21(r)(2)–(r)(8) and facilities with an actual intake flow of greater than 125 MGD must also submit the information required by 40 CFR 122.21(r)(9)-(r)(13). The regulation establishes best technology available standards to reduce impingement and entrainment of aquatic organisms at existing power generation and manufacturing facilities.

Based on available information, IDEM has made a best technology available (BTA) impingement and entrainment determination.

IDEM concurs with the permittee's selection of BTA impingement alternative 40 CFR 125.94(c)(3); operate a CWIS that has a maximum actual through-screen intake velocity of 0.5 fps at both intake cribs and at the traveling screens in each of the two pump stations. A 3-year schedule to fully comply with this impingement BTA alternative is included in the renewal permit.

After considering all the factors that must and may be considered by the federal rules (see discussion in Fact Sheet), IDEM finds that the existing facility 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 closed cycle cooling or fine mesh screens;

3. The flow reduction/water reuse optimization efforts already implemented at the facility; and

4. The off-shore location and design of the two intake cribs.

This determination will be reassessed at the next permit reissuance to ensure that the CWISs continue to meet the requirements of Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326).

B. Permit Requirements

The permittee must comply with following cooling water intake structure 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 structure 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 (Outfall 003) 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. At a minimum frequency of daily, the permittee must monitor the velocity at the traveling screens in each of the two pump stations. Through-screen velocity monitoring shall be conducted at a point where intake velocities are the greatest. In lieu of velocity monitoring at the screen face of the traveling screens, the permittee may calculate the through-screen velocity separately at the No. 1 and No. 2 Lake Water Pumping Stations using water flow, water depth, and the screen open areas. These daily measurements, including the intake flow must be reported at Outfall 003 on the MMR with the monthly results summarized on the DMRs that are submitted every month.

6. The permittee must submit an annual summary of the actual intake flows measured or calculated at each intake 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. In addition, if the permittee uses the calculation method to determine the velocities required under Part IV.B.5., above, the input values and calculations for each day shall be included in this annual report.

7. 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 40 CFR 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).

8. In accordance with 40 CFR 125.97(c), by January 31 of each year, the permittee must submit to the Industrial NPDES Permit 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.

9. 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 the request for reduced cooling water intake structure and waterbody application information at least **two years and six months** prior to the expiration of the NPDES permit. The request must identify each element in this subsection 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.

10. The permittee shall submit and maintain all the information required by the applicable provisions of 40 CFR 125.97.

11. All required reports must be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

National Pollutant Discharge Elimination System

Fact Sheet for
Cleveland-Cliffs Burns Harbor LLC (formerly ArcelorMittal Burns Harbor LLC)
Draft: July 2021
Final: December 2021

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:	Cleveland-Cliffs Burns Harbor LLC 250 West Highway 12 Burns Harbor, IN 46304
Existing Permit Information:	Permit Number: IN0000175 Expiration Date: June 30, 2021
Facility Contact:	Morgan Swanson, Environmental Engineer (219) 787-2646, Morgan.Swanson@arcelormittal.com
Facility Location:	250 West Highway 12 Burns Harbor, IN 46304 Porter County
Receiving Stream(s):	East Branch of the Little Calumet River, Burns Waterway Harbor, and Lake Michigan
GLI/Non-GLI:	GLI
Proposed Permit Action:	Renew
Date Application Received:	December 28, 2020
Source Category	NPDES Major – Industrial
Permit Writer:	Trisha Williams (317) 234-8210, twilliam@idem.in.gov

Table of Contents

1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM) received a National Pollutant Discharge Elimination System (NPDES) Permit application from ArcelorMittal Burns Harbor LLC on December 28, 2020. ArcelorMittal Burns Harbor LLC changed its legal name to Cleveland-Cliffs Burns Harbor LLC on December 23, 2020. This name change was effective in Indiana on January 15, 2021, as certified by the Indiana Secretary of State on January 19, 2021. This name change was incorporated into the current NPDES permit through a letter issued by IDEM dated March 3, 2021.

In accordance with 327 IAC 5-2-6(a), the current five-year permit was issued with an effective date of July 1, 2016. A five year permit is proposed in accordance with 327 IAC 5-2-6(a).

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.

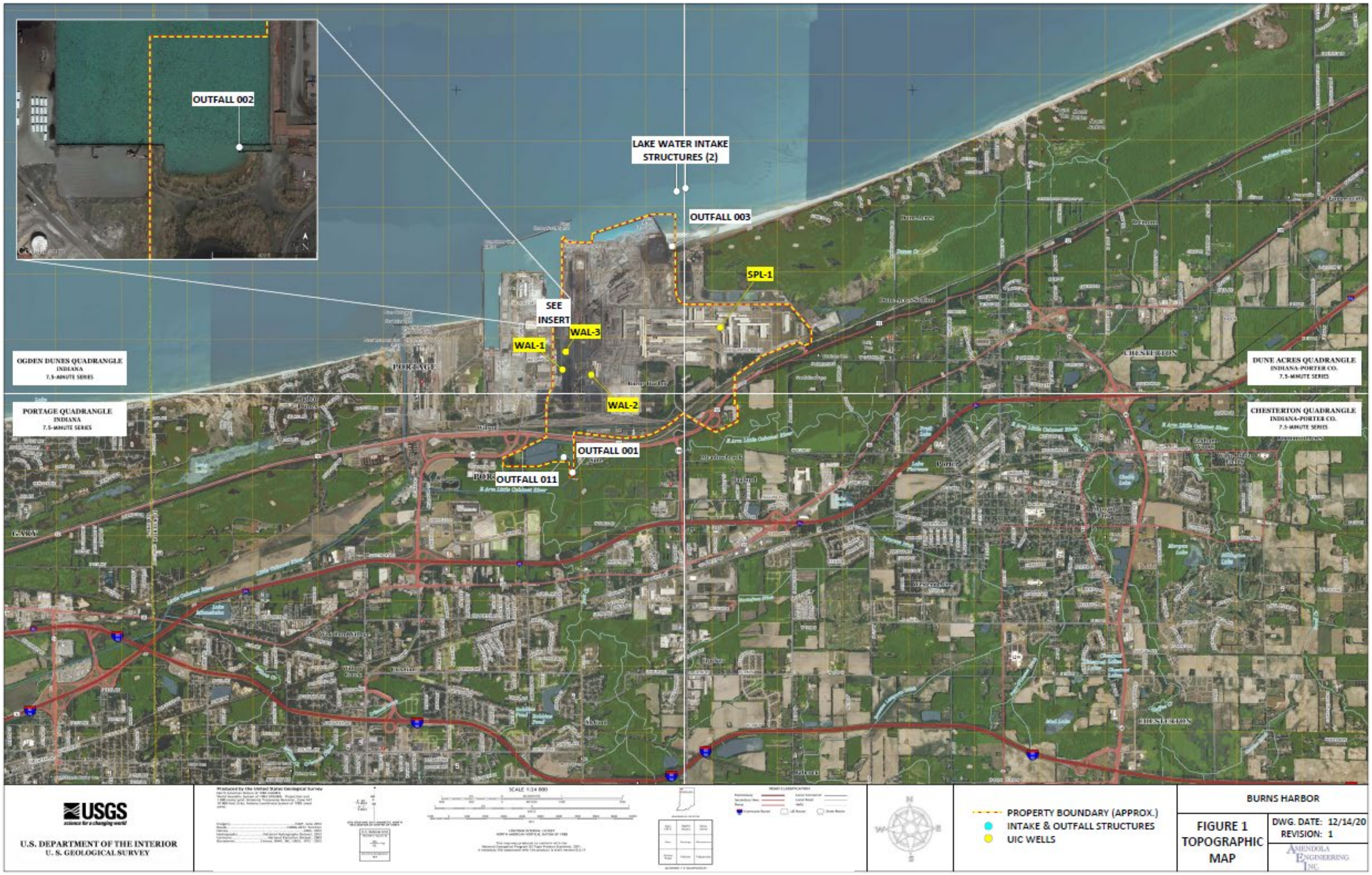
2.0 FACILITY DESCRIPTION

2.1 General

Cleveland-Cliffs Burns Harbor LLC is classified under Standard Industrial Classification (SIC) Code 3312 – Integrated Steel Mill. The facility manufactures intermediate and final products consisting of coke and coke making byproducts, sinter, molten iron, raw steel, steel slabs, hot rolled strip, plate, cold rolled strip and hot dip galvanized strip. It is one of the largest fully integrated steel mills in North America, with the capacity to produce more than 5 million tons of raw steel per year.

A map showing the location of the facility has been included as Figure 1.

Figure 1: Facility Location



250 West Highway 12
Burns Harbor, IN - Porter County

2.2 Outfall Locations

Outfall 001	Latitude: 41º 36' 45" Longitude: -87º 08' 50"
Outfall 002	Latitude: 41º 38' 07" Longitude: -87º 08' 51"
Outfall 003	Latitude: 41º 38' 42" Longitude: -87º 07' 38"
Internal Outfall 011	Latitude: 41º 36' 59" Longitude: -87º 8' 50"
Internal Outfall 111	Latitude: 41º 38' 3" Longitude: -87º 8' 21"

2.3 Wastewater Treatment

A description of the discharge for each outfall is provided below followed by a general description of wastewater treatment for that respective wastestream. A flow diagram has been included as Figure 2, below.

Outfall 001

The discharge from Outfall 001 is comprised of treated wastewater from the Secondary Wastewater Treatment Plant and Polishing Lagoons (Internal Outfall 011), noncontact cooling water, stormwater, and Lake Michigan water added by the water cannon. The permit authorizes Lake Michigan water to be added to the discharge canal (also referred to as the Burns Harbor NCCW Channel and Samuelson Ditch) via water cannon during warm weather months for additional temperature control. The water cannon (added Lake Michigan water) discharges to the Burns Harbor NCCW Channel approximately 4,300 feet upstream of the discharge from Outfall 011 into this discharge canal; therefore, the flow does not contribute to the Outfall 011 discharge but does contribute to the Outfall 001 discharge and aids in achieving the final limitations for temperature at Outfall 001. The discharge from Outfall 001 has an average discharge of approximately 118 MGD. The design flow (highest monthly average) is 134 MGD.

Internal Outfall 011

The discharge from Internal Outfall 011 consists of treated wastewater from the Secondary Wastewater Treatment Plant (SWTP) and treated effluent from the Town of Burns Harbor sanitary wastewater treatment plant (NPDES Permit No. INJ060801), which are both treated in two terminal polishing lagoons prior to discharge through Outfall 011. The SWTP treats the following process wastewaters:

- Sintering
- Iron Making (Blast Furnaces C and D)

- Steel Making (Basic Oxygen Furnaces Nos. 1, 2, and 3)
- Vacuum Degassing
- Continuous Casting (Casters Nos. 1 and 2)
- Hot Forming (110” Plate Mill, 160” Plate Mill, and 80” Hot Strip Mill)
- Acid Pickling (Nos. 1 and 2 Picklers, Continuous Heat Treat Line)
- Cold Rolling (Tandem Mill and Temper Mill)
- Alkaline Cleaning (Continuous Heat Treat Line and Hot Dip Coating Line)
- Galvanizing (Hot Dip Coating)
- Power station water treatment residuals (e.g., R.O. reject)
- Landfill leachate from the Deerfield Storage Facility

The blast furnaces, basic oxygen furnaces (BOFs), and continuous casters are equipped with dedicated, high rate wastewater treatment and recycle systems. The blowdown wastewater from these systems is directed to the Secondary Wastewater Treatment Plant for additional treatment. The sinter plant and vacuum degasser are also equipped with a process water recycle systems.

The blast furnace recycle system (BFRS) consists of two thickeners (i.e., one for each blast furnace), and the blast furnace closed water pump station (BFCWPS). The BFCWPS includes a cooling tower and hot well and cold well pumps for recirculating treated process water for reuse at the blast furnaces for gas cleaning and slag cooling. Lake Michigan service water can be added to the BFCWPS hot well or cold well to maintain hydraulic balance within the BFRS. Blowdown from the BFRS is discharged to the dirty industrial wastewater (DIW) sewer system for further treatment at the Secondary Wastewater Treatment Plant (SWTP). In its December 2020 renewal application, the permittee stated that the BFRS blowdown is treated as necessary for cyanide prior to discharge to the DIW sewer in a dedicated cyanide oxidation treatment system located at the BFCWPS. Over the last few months (late spring-early summer 2021), the permittee has made some changes in the treatment provided for this blowdown wastestream and plans to make additional changes to this treatment system over the next few years. The permittee has installed a chlorine dioxide treatment system that is used to treat cyanide, as needed. In addition to the chlorine dioxide treatment system for cyanide, the permittee has installed and started operating a temporary treatment system to treat ammonia-N that will be operated during the summer months to ensure compliance with the ammonia-N limits that apply during July and August. This temporary treatment system consists of water softening to remove carbonate and non-carbonate hardness; clarification and solids dewatering; ammonia-N air stripping over cooling towers; and, breakpoint chlorination for ammonia-N polishing treatment. Water softening is required to prevent fouling and scaling of downstream treatment equipment. Dewatered solids will be disposed of in the on-site Burns Harbor Deerfield Landfill. This temporary treatment system is a full-scale pilot demonstration of BAT treatment for blast furnace process water (See Section 2.4, below).

C & D Blast Furnace thickener underflows are directed to the Reclamation Services Building (RSB) for processing in hydrocyclones and dewatering. The hydrocyclone overheads are co-treated with sinter plant main stack scrubber water. The permittee has installed additional treatment for the hydrocyclones overheads consisting of a mixing tank, centrifuges for solids separation and dewatering and a pumping tank. This treated blast furnace thickener underflow wastestream can discharge back to the blast furnace recycle system for reuse instead of being discharged with the sinter plant wastestream as previously occurred. The permittee had been discharging this wastestream back to the blast furnace recycle system for reuse beginning in the summer 2021; however, in a Noncompliance 24-Hour Notification Report dated 10/12/2021, the permittee notified IDEM that the permittee had reversed this on 9/24/21 and was discharging this wastestream with the sinter plant wastestream through Outfall 111.

The basic oxygen furnace (BOF) recycle system consists of two thickeners that treat the gas cleaning process waters prior to recycling back to the gas cleaning system. A blowdown from this system is directed to the DIW sewer system for further treatment at the SWTP.

The two continuous casters are equipped with scale pits for the removal of suspended solids and oil. Each continuous caster is equipped with high-rate recycle process water treatment systems. The hot forming mills (110” Plate Mill, 160” Plate Mill, and 80” Hot Strip Mill) are also equipped with scale pits and oil skimming equipment. A portion of the scale pit effluent is recycled for flume flushing at each mill with the balance discharged to the DIW sewer system for further treatment at the SWTP.

The sinter plant has a recirculating wet air pollution control scrubber on the sinter plant main stack. The blowdown from this system is directed to the Reclamation Services Building (RSB) for treatment. After pH adjustment and addition of flocculation/coagulation polymers, the wastewaters are directed to the final RSB thickener for primary clarification. The overflow from the final RSB thickener (Internal Outfall 111) discharges to the DIW sewer system for further treatment at the SWTP.

Wastewaters generated from the hot dip galvanizing line are filtered prior to discharge to the DIW to remove particulate zinc. Waste pickling acids are either used on site to neutralize wastewaters, sold for off-site recycling, or disposed of by deep well injection. Pickling rinse waters and fume scrubber blowdown are combined with the pretreated wastewaters from the cold rolling operations and directed, via the DIW sewer system, to the SWTP for further treatment.

Groundwater collected from the ore dock area is recovered and used as partial make-up water in the main stack gas cleaning systems of the Sinter Plant.

Treatment at the SWTP includes pH adjustment, oil separation, flocculation/coagulation and clarification. The SWTP effluent is routed through two polishing lagoons prior to discharge through internal Outfall 011 and final Outfall 001 and then to the East Branch of the Little Calumet River. The polishing lagoons can be equipped with aerators for temperature control. Lake Michigan service water can be added to the Outfall 001 Storm Ditch upstream of Outfall 011 during warm weather months for additional Outfall 001 temperature control. The Lake Michigan service water is added with a “water cannon” that can discharge service water to the Outfall 001 Storm Ditch near the SWTP.

Sludges generated at the SWTP are dewatered and disposed on-site in the Deerfield Storage Facility, a permitted Type I restricted waste solid waste landfill. Leachate generated at this facility is directed to the SWTP for treatment.

Although Outfall 011 is the effluent from the two polishing lagoons, flow monitoring for Outfall 011 is not currently located on this effluent wastestream. Instead, as provided for in the current and prior Burns Harbor NPDES Permits, flow monitoring for Outfall 011 is currently located on the discharge from the secondary waste treatment plant (SWTP), which is the influent to the two polishing lagoons. Using the flow monitoring data from this wastestream, internal Outfall 011 has an average discharge of approximately 63.5. MGD. The permittee has initiated a project to install a flow monitoring station at Outfall 011 downstream of the polishing lagoons.

<u>Internal Outfall 111</u>
Outfall 111 is an internal location for monitoring of the effluent from the Reclamation Services Building (RSB), specifically the final RSB thickener overflow, where a technology-based effluent limit for 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF) applicable to the sinter plant wastestream is applied. The RSB receives thickener underflows from blast furnaces C & D and blowdown from the recirculating wet air pollution control scrubber on the sinter plant main stack for treatment. The blast furnace thickener underflow wastestream can discharge back to the blast furnace recycle system for reuse instead of being discharged with the sinter plant wastestream as previously occurred. The permittee had been discharging this wastestream back to the blast furnace recycle system for reuse beginning in the summer 2021; however, in a Noncompliance 24-Hour Notification Report dated 10/12/2021, the permittee notified IDEM that the permittee had reversed this on 9/24/21 and was discharging this wastestream with the sinter plant wastestream. The overflow from the final RSB thickener (Internal Outfall 111) discharges to the DIW sewer system for further treatment at the secondary wastewater treatment plant (SWTP). Thickener underflows from the basic oxygen furnaces gas cleaning water treatment and recycle system are also processed and dewatered at the RSB, with the separated water discharged directly to the DIW sewer.

<u>Outfall 002</u>
The discharge from Outfall 002 consists of once-thru noncontact cooling water and stormwater from the coke plant, sinter plant, blast furnaces, steelmaking area, Power Station, the Shops Complex, and other plant areas. The current permit also authorized the discharge of treated process wastewater from the lagoon re-circulating pump station, building dewatering, groundwater, and miscellaneous non-process waters at this outfall. These additional wastestreams were not included in the permittee’s original renewal application and are not expected to discharge through Outfall 002; therefore, they have not been included in this renewed permit. On June 29, 2021, the permittee did submit a supplement to its NPDES renewal application which included revised versions of Attachment 1 and Figure 2 of its renewal application. These revised documents included the discharge from the Outfall 011 recirculating pump station to the plant service water system and storm sewer system and ultimately to Outfall 002. Based on information provided by the permittee, the Burns Harbor plant was constructed with infrastructure for return of treated process water from Outfall 011 to the plant water system and subsequent discharge to the east Arm of Burns Harbor through Outfall 002. The current and prior permits for the facility authorized such discharges. IDEM informed the permittee that when this potential process water discharge through Outfall 002 was originally permitted, IDEM should have first evaluated the impact to compliance with both TBELs at Outfalls 011 and

001 and water quality criteria at Outfall 002. Unfortunately, that was not done. In addition, the potential need for TBELs at Outfall 002 for ammonia as N and phenols should have been evaluated. Further, IDEM informed the permittee that to appropriately consider this discharge scenario now, IDEM would be required to evaluate antidegradation, evaluate the need for new water quality-based effluent limitations, and determine how technology-based effluent limitations would be affected.

It is IDEM's understanding that this process water discharge has not occurred for two or more permit cycles. IDEM believes that an authorization of a process water discharge through Outfall 002 is better addressed through a permit modification instead of in this renewal. Should the permittee wish to commence such discharge, a request to modify the NPDES permit will be required. If such a request is submitted, IDEM will evaluate the request and consider, at a minimum, the factors that are noted above. The discharge of process water through Outfall 002 is not authorized in this renewal permit.

In the aftermath of the August 2019 incident and fish kill, the permittee began investigating potential sources of process wastewater contributions to Outfall 002. The permittee did discover and eliminate some process wastewater contributions to this outfall and is still in the process of conducting this investigation. As of June 15, 2021, the permittee has submitted sixteen interim status reports detailing the results of its Outfall 002 Expanded Sampling Program that was initiated because of the ongoing compliance and enforcement activities. IDEM used data from these reports in the preparation of this permit.

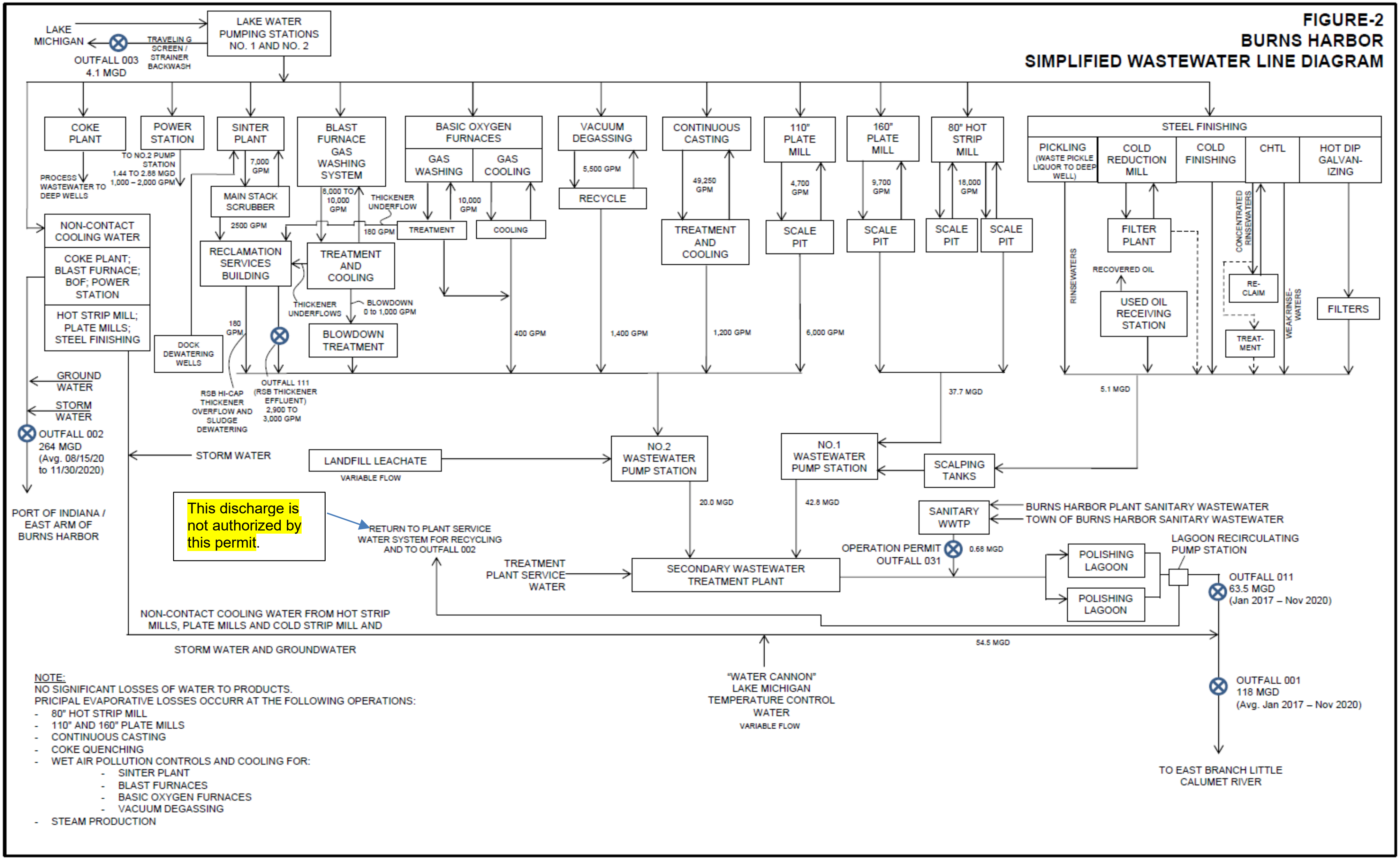
The discharge from Outfall 002 has an average discharge of approximately 264 MGD. The design flow (highest monthly average) is 287 MGD.

Outfall 003

The discharge from Outfall 003 consists of backwash from the No. 1 and 2 Lake Water Pump Stations traveling screens and strainers. Lake Michigan water is used as backwash water. The discharge from Outfall 003 has an estimated average discharge of 4.1 MGD.

The total flow of the facility has an average discharge of approximately 386.1 MGD. A Water Balance Diagram has been included as Figure 2. There are flows and wastestreams included on this Figure 2 that are not authorized by this permit.

Figure 2: Water Balance Diagram



The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22-5. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7.

IDEM has given the permittee a Class D industrial wastewater treatment plant classification.

2.4 Changes in Operation

The permittee submitted multiple different versions of the following information to IDEM over the course of this permit renewal summarizing their plans with respect to their current 301(g) variance for ammonia, as N and total phenols and the reduction of thermal loading to the East Branch of the Little Calumet River.

Cleveland-Cliffs Inc. acquired the steelmaking assets of ArcelorMittal USA on December 9, 2020, including the Burns Harbor Plant, renamed as Cleveland-Cliffs Burns Harbor LLC.

A comprehensive review of Burns Harbor process water management is underway with both short-term and long-term objectives to reduce impacts to the Lake Michigan watershed, including the East Branch of the Little Calumet River (EBLCR). Below are key elements of the voluntary commitments Cleveland-Cliffs Burns Harbor is making during this permit term.

- Meet best available technology (BAT) effluent limits for the Burns Harbor C and D blast furnaces and voluntarily discontinue the Section 301(g) variances for ammonia-N and total phenols that apply at Outfall 001. This will be achieved through installation of new process water treatment systems and/or process changes that would substantially reduce the need for blast furnace process water blowdown flow. This would substantially reduce pollutant loadings from Outfall 001 that discharges to the EBLCR.

- Evaluate water management techniques that will reduce thermal loading to the EBLCR. These changes will need to be approved by IDEM and will need to balance competing interests for flow in the EBLCR and thermal load to the EBLCR and the East Arm of Burns Harbor.

- Provide for substantial regulatory agency and stakeholder involvement throughout the process.

The Burns Harbor Plant has constructed with a pumping station located near the effluent of the Outfall 011 Polishing Lagoons for return of treated process water from the SWTP and Polishing Lagoons to the Plant service water system. The returned process water would ultimately be discharged to the East Arm of Burns Harbor through Outfall 002. The Outfall 011 pumping station was not used during the term of the 2016 Burns Harbor NPDES permit.

Should the permittee plan to use the Outfall 011 pumping station, a request to modify this NPDES permit will be required.

Engineering and implementation of the changes necessary to discontinue the 301(g) variance at Outfall 001 have already begun in 2021.

BAT Demonstration Project and NPDES Permit Compliance Enhancement

- 2021 Project. A full-scale pilot treatment system has been installed for the blast furnace treatment and recycle system (BFRS) blowdown to inform the design of a potential future treatment system. This includes consolidation of blast furnace process water in the BFRS, cyanide oxidation as needed with chlorine dioxide, water softening and solids removal, ammonia-N air stripping and breakpoint chlorination. The pilot treatment system will be operated seasonally when Outfall 001 ammonia-N limits are the most stringent.

Elimination of Section 301(g) Variances for Ammonia-N and Attainment of BAT

- 2021 to 2025 Project. In 1988 IDEM and EPA Region 5 granted Burns Harbor Section 301(g) variances from Best Available Technology (BAT) effluent limits for ammonia-N and total phenols. The variances apply at Outfall 001 and have remained in effect since then. To execute its voluntary commitment to reduce mass pollutant discharges to the Lake Michigan watershed, Cleveland-Cliffs plans to either install a permanent BFRS blowdown treatment system, and/or implement process changes to substantially reduce blowdown flow to achieve BAT effluent limits applicable to the C & D Blast Furnaces.

- A permanent BFRS BAT treatment system would include the same elements as the full-scale pilot treatment system noted above and is expected to remove more than 95% of the ammonia-N from blast furnace process water. The permanent BAT treatment system and/or process changes would be implemented in stages to achieve BAT-level discharges of ammonia-N:

    - 30 months. Consolidation of blast furnace process water in the BFRS.
    - 42 months. BAT treatment: Cyanide oxidation with chlorine dioxide as needed; water softening and solids removal; sludge dewatering; ammonia-N stripping; breakpoint chlorination for polishing treatment for ammonia-N.

- Alternatively, or in concert, Cleveland-Cliffs would implement process changes to substantially reduce BFRS blowdown flow equivalent to achieving BAT.

Outfall 001 Thermal Discharge Mitigation

Cleveland-Cliffs is committed to evaluating how best to reduce thermal discharges to the East Branch of the Little Calumet River from Outfall 001.

- 2022 Project. In close coordination with IDNR and IDEM, the Burns Harbor thermal discharge initiative will begin with comprehensive baseline biological studies of the EBLCR, Salt Creek and Trail Creek. The biological studies will include habitat assessments, macroinvertebrate assessments and characterization of the stream fisheries for both warm water fish and salmonids.

- Cleveland-Cliffs is evaluating Outfall 001 thermal discharge mitigation alternatives and will provide a plan to IDEM and IDNR for review and approval.

2.5 Facility Stormwater

The facility consists of a total of approximately 276 acres of impervious surface (buildings and roads) and 3,724 acres of pervious surface. Stormwater is directed to Outfall 001 and 002. The contribution of stormwater to Outfall 002 is from the coke plant, sinter plant, blast furnaces, steelmaking area, Power Station, the Shops Complex, and other areas. Outfall 001 discharges stormwater drainage from the rest of the plant.

Please refer to Section 5.6 of this Fact Sheet for stormwater pollution prevention plan (SWPPP) requirements.

3.0 PERMIT HISTORY

3.1 Compliance History

The purpose of this section is to summarize any violations and enforcement actions associated with the permit.

The facility was referred for formal enforcement action in regards to a catastrophic failure at the facility in August of 2019 resulting in a large fish kill. This catastrophic failure event and subsequent inspections conducted at the facility by IDEM and U.S. EPA revealed various NPDES permit violations. IDEM and U.S. EPA are pursuing a joint enforcement action and are currently in ongoing settlement negotiations with the facility to resolve these and other violations. Please reference the following IDEM and EPA websites for more information on the violations:

https://www.in.gov/idem/cleanwater/resources/arcelormittal-fish-kill/
https://www.epa.gov/in/arcelormittal-burns-harbor-llc-portage-indiana

A review of this facility's discharge monitoring data was conducted for compliance verification. This review indicates the following permit limitation violations between October 2015 and December 2020:

Outfall 001
Temperature (7/2017, 8/2017, 2/2018, 7/2018, 8/2018)
Ammonia as N (2/2016, 8/2016, 8/2017, 2/2018, 5/2018, 7/2019, 8/2019, 6/2020, 7/2020)
Free Cyanide (8/2019)
Total Phenols (9/2017)
Whole Effluent Toxicity (7/2020)

Internal Outfall 011
Oil and Grease (3/2018)
Total Cyanide (8/2019)

Internal Outfall 111
2,3,7,8-Tetrachlorodibenzofuran (4/2018, 7/2018, 11/2020)

Spills
A reportable spill (Incident #85285) occurred on February 6, 2019. Waste ammonia liquor was released due to a power outage at the coke plant.

4.0 LOCATION OF DISCHARGE/RECEIVING WATER USE DESIGNATION

The receiving stream for Outfall 001 is the East Branch of the Little Calumet River. The $Q_{7,10}$ low flow value of the East Branch of the Little Calumet River upstream of Outfall 001 is 21 cfs.

The East Branch of the Little Calumet River is designated for full body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community in 327 IAC 2-1.5-5(a)(1) and (a)(2). In addition, the East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (also known as the Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery.

Further, the East Branch of the Little Calumet River enters the Indiana Dunes National Park (formerly the Indiana Dunes National Lakeshore) at S.R. 20 (upstream of Outfall 001) and leaves the Indiana Dunes National Park about 0.5 miles upstream of its confluence with Portage-Burns Waterway (about 1.0 miles downstream of Outfall 001). All waters incorporated in the Indiana Dunes National Park are classified in 327 IAC 2-1.5-19(b)(3) as an outstanding state resource water.

The receiving water for Outfall 002 is the east harbor arm of Port of Indiana – Burns Harbor. The discharge from Outfall 002 is considered to discharge to the Indiana portion of the open waters of Lake Michigan. The receiving water for Outfall 003 is Lake Michigan. Lake Michigan is designated for full body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community in accordance with 327 IAC 2-1.5-5(a)(1) and (a)(2). In addition, Lake Michigan is designated in 327 IAC 2-1.5-5(a)(3)(G) as salmonid waters and shall be capable of supporting a salmonid fishery. Lake Michigan is also designated as a public water supply per 327 IAC 2-1.5-5(a)(4) and an industrial water supply per 327 IAC 2-1.5-5(a)(5).

Further, Lake Michigan is classified in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water.

The permittee discharges to waterbodies that have been identified as waters of the state within the Great Lakes system. Therefore, it is subject to NPDES requirements specific to Great Lakes system dischargers under 327 IAC 2-1.5 and 327 IAC 5-2-11.4 through 11.6. These rules contain water quality standards applicable to dischargers within the Great Lakes system and the procedures to calculate and incorporate water quality-based effluent limitations.

4.1 Total Maximum Daily Loads (TMDLs)

Section 303(d) of the Clean Water Act requires states to identify waters, through their Section 305(b) water quality assessments, that do not or are not expected to meet applicable water quality standards with federal technology based standards alone. States are also required to develop a priority ranking for these waters taking into account the severity of the pollution and the designated uses of the waters. Once this listing and ranking of impaired waters is completed, the states are required to develop Total Maximum Daily Loads (TMDLs) for these waters in order to achieve compliance with the water quality standards. Indiana's 2018 303(d) List of Impaired Waters was developed in accordance with Indiana's Water Quality Assessment and 303(d) Listing Methodology for Waterbody Impairments and Total Maximum Daily Load Development for the 2018 Cycle.

The East Branch of the Little Calumet River downstream of Outfall 001 (Assessment Unit INC0143_09), HUC (40400010403)) is on the 2018 303(d) list for impairments for Impaired Biotic Communities, and PCBs in Fish Tissue. A TMDL for the East Branch of the Little Calumet River has been developed for *E. coli.* This TMDL does not place limits for *E. coli* on the permittee’s outfalls to the East Branch of the Little Calumet River (Outfalls 001 and 011).

The Lake Michigan shoreline in this area (Assessment Unit INC0163G_G1093), HUC (40400010603)) is on the 2018 303(d) list for impairments for PCBs in Fish Tissue, and Mercury in Fish Tissue. A TMDL for the Lake Michigan shoreline has been developed and approved for *E. coli* on September 1, 2004. This TMDL does not place limits for *E. coli* on any of the permittee’s outfalls to Lake Michigan.

5.0 PERMIT LIMITATIONS

Under 327 IAC 5-2-10 (see also 40 CFR 122.44), NPDES permit limits are based on either TBELs (including TBELs developed on a case-by-case basis using BPJ, where applicable) or WQBELs, whichever is most stringent. The decision to limit or monitor the parameters contained in this permit is based on information contained in the permittee's NPDES application, and other available information relating to the facility and the receiving waterbody. In addition, when renewing a permit, the existing permit limits and the antibacksliding requirements under 327 IAC 5-2-10(a)(11) and 40 CFR 122.44(l) must be considered.

5.1 Technology-Based Effluent Limits (TBEL)

TBELs require every individual member of a discharge class or category to operate their water pollution control technologies according to industry-wide standards and accepted engineering practices. TBELs are developed by applying the National Effluent Limitation Guidelines (ELGs) established by EPA for specific industrial categories. Technology-based treatment requirements established pursuant to sections 301(b) and 306 of the CWA represent the minimum level of control that must be imposed in an NPDES permit (327 IAC 5-5-2(a)).

In the absence of ELGs, TBELs can also be established on a case-by-case basis using best professional judgment (BPJ) in accordance with 327 IAC 5-2-10 and 327 IAC 5-5 (which implement 40 CFR 122.44, 125.3, and Section 402(a)(1) of the Clean Water Act (CWA)).

For each of the basic steelmaking, hot forming, and steel finishing operations, the NPDES production rates developed by the permittee were used in combination with the BPT, BAT, BCT effluent limitations and guidelines from 40 CFR 420 (Iron and Steel Manufacturing Point Source Category) to calculate the allowable technology-based effluent limitations of the regulated pollutants.

For most pollutants regulated by 40 CFR Part 420, EPA established mass-based ELGs expressed in terms of allowable pollutant discharge per unit of production or some other measure of production (i.e., production normalized).

Most of the applicable ELGs, TBELs are applied at Internal Outfall 011. The BAT limit for 2,3,7,8-TCDF is applied at Outfall 111. The 301(g) TBEL mass variance limits for ammonia-N and total phenols are applied at Outfall 001. Appendix A of this Fact Sheet identifies the applicable TBELs and how they were calculated. Section 5.3 of this Fact Sheet identifies how the TBELs are applied to Outfall 011. Table 1 below provides a description of applicable subparts, processes, and maximum monthly average production as included in the permit application. In general, in both Appendix A and in the below table, production data from September 2015 to August 2020 were used to determine the maximum monthly average production.

Table 1: Applicable ELG Subparts and Production Levels

Subpart	Description	Subsection	Maximum Monthly Average Production (tons/day)	
			Subtotal	Total
Subpart B – Sintering Subcategory (40 CFR § 420.20)	Sintering operations conducted by the heating of iron bearing wastes together with fine iron ore, limestone, and coke fines in an ignition furnace to produce an agglomerate for charging to the blast furnace.	Sintering operation with wet air pollution control systems	8,884	8,884
Subpart C – Ironmaking Subcategory (40 CFR § 420.30)	Ironmaking operations in which iron ore is reduced to molten iron in a blast furnace.	Iron blast furnaces C and D	14,305	14,305
Subpart D – Steelmaking Subcategory (40 CFR § 420.40)	Steelmaking operations conducted in basic oxygen and electric arc furnaces.	Basic oxygen furnace (BOF) Vessel #1 and 2; Open Combustion	11,904	18,276
		BOF Vessel #3; Suppressed Combustion	6,372	
Subpart E – Vacuum Degassing Subcategory (40 CFR § 420.50)	Vacuum degassing operations conducted by applying a vacuum to molten steel.	Vacuum degassing	17,958	17,958
Subpart F – Continuous Casting Subcategory (40 CFR § 420.60)	The continuous casting of molten steel into intermediate or semi-finished steel products through water cooled molds.	Continuous casters No. 1 and No. 2	18,323	18,323
Subpart G – Hot Forming Subcategory (40 CFR § 420.70)	Hot forming operations conducted in primary, section, flat, and pipe and tube mills.	Hot strip mill 80”; Hot strip and sheet mills, carbon and specialty.	14,000	18,291
		Plate mills 110”, 160”; Carbon plate mills	4,291	
Subpart I – Acid Pickling Subcategory (40 CFR § 420.90)	Sulfuric acid, hydrochloric acid, or combination acid pickling operations.	Nos. 1, 2; HCl acid pickling, Strip, sheet and plate	9,851	10,908
		Continuous heat treat line (CHTL); HCl acid pickling, Strip, sheet and plate	1,057	
		HCl acid pickling; Fume Scrubbers	3 Scrubbers	
Subpart J – Cold Forming Subcategory (40 CFR § 420.100)	Cold rolling and cold working pipe and tube operations in which unheated steel is passed through rolls or otherwise processed to reduce its thickness, to produce a smooth surface, or to develop controlled mechanical properties in the steel.	Cold Rolling, Tandem Mill; Recirculation-multiple stands	7,717	10,910
		Cold Rolling, Temper Mill; Direct Application, single stand	3,193	
Subpart K – Alkaline Cleaning Subcategory (40 CFR § 420.110)	Operations in which steel and steel products are immersed in alkaline cleaning baths to remove mineral and animal fats or oils from the steel, and those rinsing operations which follow such immersion.	Hot Dip Galvanizing (HDGL); Continuous alkaline cleaning	1,929	2,986
		Continuous Heat Treat Line (CHTL); Continuous alkaline cleaning	1,057	
Subpart L – Hot Coating Subcategory (40 CFR § 420.120)	Operations in which steel is coated with zinc, terne metal, or other metals by the hot dip process, and those rinsing operations associated with that process.	Hot Dip Galvanizing (HDGL); Strip, sheet, and miscellaneous products scrubbers.	1,929	1,929
		Fume Scrubber	1 Scrubber	

Coke-making operations are regulated by 40 CFR 420 – Subpart A. However, because the permittee disposes its process wastewater from coke-making via deep well injection, these process wastewaters are not regulated in this permit. The permittee is not authorized to discharge coke-making process wastewaters to surface waters of the State.

5.2 Water Quality-Based Effluent Limits

WQBELs are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology. The WQBELs for this facility are based on water quality criteria in 327 IAC 2-1.5-8 or developed under the procedures described in 327 IAC 2-1.5-11 through 16 and implementation procedures in 327 IAC 5. Limitations are required for any parameter which has the reasonable potential to exceed a water quality criterion as determined using the procedures under 327 IAC 5-2-11.5.

Under 327 IAC 5-2-11.5(a), IDEM is required to establish WQBELs "If the commissioner determines that a pollutant or pollutant parameter (either conventional, nonconventional, a toxic substance, or whole effluent toxicity (WET)) is or may be discharged into the Great Lakes system at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable narrative criterion or numeric water quality criterion or value under 327 IAC 2-1.5." Chlorine is added to the intake water for zebra and quagga mussel control at concentrations exceeding water quality criteria. Therefore, chlorine may be discharged at a level that will cause an excursion above a numeric water quality criterion for total residual chlorine under 327 IAC 2-1.5 and WQBELs for total residual chlorine are required at Outfalls 001 and 002 which receive noncontact cooling water and at Outfall 003 which consists of intake screen backwash water.

A reasonable potential analysis for Outfall 001 was done in 2009 for pollutants of concern other than total residual chlorine in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b). This analysis was done for multiple parameters at Outfall 001 including the following: ammonia-N, total cyanide, lead, zinc, naphthalene, tetrachloroethylene, antimony, arsenic, barium, beryllium, cadmium, hexavalent chromium, total chromium, cobalt, copper, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, benzene, benzo(a)pyrene, boron, chloride, free cyanide, fluoride and sulfate. The results of this analysis showed that there was a reasonable potential to exceed a water quality criterion for copper, mercury, silver and zinc. Therefore, WQBELs were included at Outfall 001 for these parameters in the 2011 permit renewal. This analysis is documented in Waste Load Allocation (WLA) report (WLA000546) which is included as Appendix B.

A reasonable potential analysis for Outfall 002 was done in 2009 for pollutants of concern other than total residual chlorine in accordance with the provision for discharges of once-through noncontact cooling water in 327 IAC 5-2-11.5(g). As part of this analysis, the reasonable potential statistical procedure under 327 IAC 5-2-11.5(b) was done for ammonia-N, chloride, sulfate and dissolved iron which were monitored at Outfall 002 to detect any possible contamination of the noncontact cooling water with process wastewater.

The results of this analysis are documented in WLA000546 and showed that there was not a reasonable potential to exceed a water quality criterion for any of these parameters. The 2011 permit renewal changed the parameter list to be monitored at Outfall 002 by removing chloride and sulfate and adding lead, zinc, and fluoride.

For the 2016 permit renewal, Outfall 001 and Outfall 002 effluent data collected under the existing permit and for the permit renewal application were reviewed to update the reasonable potential analyses conducted in 2009. For Outfall 001, a reasonable potential analysis under 327 IAC 5-2-11.5(b) was conducted for free cyanide and a reasonable potential analysis under 40 CFR Part 132 was conducted for whole effluent toxicity (WET). The results of these analyses showed that there was a reasonable potential to exceed a water quality criterion for free cyanide and the numeric interpretation of the narrative criterion for chronic WET. Therefore, WQBELs were included at Outfall 001 for these parameters in the 2016 permit renewal. These analyses are documented in Waste Load Allocation (WLA) report (WLA002161) which is included as Appendix C of this Fact Sheet. For Outfall 002, the data review indicated that a reasonable potential analysis using the statistical procedures under 5-2-1.5(b) was not needed.

In addition to the above reasonable potential analyses, for each pollutant receiving TBELs at an internal outfall, and for which water quality criteria or values exist or can be developed, concentration and corresponding mass-based WQBELs are calculated at the final outfall. This was done for the following parameters at Outfall 001 in 2009: ammonia-N, lead, zinc, naphthalene, and tetrachloroethylene. The mass-based WQBELs at the final outfall were compared to the mass-based TBELs at the internal outfall. Since the facility is authorized to discharge up to the mass-based TBELs at the internal outfall, if the mass-based TBELs at the internal outfall exceed the mass-based WQBELs at the final outfall, the pollutant may be discharged at a level that will cause an excursion above a numeric water quality criterion or value under 327 IAC 2-1.5 and WQBELs are required at the final outfall. This was the case for lead at Outfall 001. Therefore, WQBELs were required for lead at Outfall 001 regardless of the results of the reasonable potential statistical procedure. However, the facility requested the more stringent WQBELs for lead be applied at Internal Outfall 011 in the 2011 permit renewal. A similar analysis for the 2016 permit renewal resulted in the continuation of daily maximum WQBEL based limits for lead at Internal Outfall 011.

For the current permit renewal, Outfall 001 and Outfall 002 effluent data collected under the existing permit and for the permit renewal application were reviewed to update the prior reasonable potential analyses. For Outfall 001 and Outfall 002, the data review indicated that a reasonable potential analysis using the statistical procedures under 327 IAC 5-2-11.5(b) was not needed. The existing WQBELs for pollutants of concern were considered sufficient to protect the beneficial uses of the receiving waters.

Unless otherwise specified below, the water quality-based mass limits at Outfall 001 and 002 were determined using the highest monthly average flow for each outfall, which is 134 MGD for Outfall 001 and 287 MGD for Outfall 002.

5.3 Effluent Limitations and Monitoring Requirements by Outfall

Under 327 IAC 5-2-10(a) (see also 40 CFR 122.44), NPDES permit requirements are technology-based effluent limitations and standards (including technology-based effluent limitations (TBELs) based on federal effluent limitations guidelines or developed on a case-by-case basis using best professional judgment (BPJ), where applicable), water quality standards-based, or based on other more stringent requirements. The decision to limit or monitor the parameters contained in this permit is based on information contained in the permittee's NPDES application and other available information relating to the facility and the receiving waterbody as well as the applicable federal effluent limitations guidelines. In addition, when renewing a permit, the existing permit limits, the antibacksliding requirements under 327 IAC 5-2-10(a)(11) and 40 CFR 122.44(l), and the antidegradation requirements under 327 IAC 2-1.3 must be considered.

5.3.1 External Outfalls (001 and 002)

Minimum Narrative Limitations

The narrative water quality criteria contained under 327 IAC 2-1.5-8(b)(1) and (2) have been included in this permit to ensure that these minimum water quality conditions are met.

Flow

The permittee's flow is to be monitored in accordance with 327 IAC 5-2-13(a)(2).

5.3.2 Outfall 001

The discharge from Outfall 001 is comprised of treated wastewater from the Secondary Wastewater Treatment Plant (Internal Outfall 011), noncontact cooling water, stormwater, and Lake Michigan water added by the water cannon.

pH

Limitations for pH in the proposed permit are based on the water quality criteria established in 327 IAC 2-1.5-8(c)(2).

The current permit contains an exception to the pH limits which allows excursions to the pH limits for up to 7 hours and 26 minutes in any calendar month. 40 CFR 401.17 allows such an exception for pH limits based on effluent limitations guidelines; however, this exception is not allowed for pH limits based on Indiana's water quality criteria. Therefore, IDEM has proposed to eliminate this exception in this permit.

Water Cannon Flow

The facility utilizes a water cannon, on an as needed basis, to assist the permittee in complying with its water quality-based effluent limitations for temperature at Outfall 001. The water cannon pumps raw Lake Michigan water and is sprayed over and into the discharge canal about 4,300 feet upstream of the location that Outfall 011 is discharged into the discharge canal. The use of the water cannon in this manner has been previously approved and is authorized in this renewal permit. However, the permittee is not allowed to use of water cannon flow to comply with any of the other limitations at Outfall 001. To implement this requirement, on days when the water cannon is used, the facility must report the water cannon flow, and calculate new concentration and mass-based discharge levels by using the following calculation:

$C_{001C} = (C_{001M} * Q_{001})/(Q_{001} - Q_{WC})$; and
$M_{001C} = C_{001M} * Q_{001} * 8.345$

where,

C_{001C} = Pollutant concentration at Outfall 001 to determine compliance with the NPDES permit concentration effluent limit.
M_{001C} = Pollutant mass at Outfall 001 to determine compliance with the NPDES permit mass effluent limit.
C_{001M} = Measured pollutant concentration at Outfall 001, (mg/L)
Q_{001} = Flow measured at Outfall 001, (MGD)
Q_{WC} = Total flow measured at water cannon, (MGD)

When the water cannon is not in use, the above equations are not used. Instead, the measured discharge concentrations (and their corresponding mass values) are compared to the concentration and mass-based effluent limitations as identified in the Discharge Limitation Table for Outfall 001 for each pollutant.

Total Suspended Solids (TSS) and Oil & Grease (O & G)

Reporting requirements for TSS and O & G are required at Outfall 001. Limitations for these parameters are included at Internal Outfall 011. A considerable portion of the wastewater discharged through Outfall 001 consists of noncontact cooling waters, steam condensates, and stormwater and is not expected to contribute significant amounts of TSS and O & G. Therefore, reporting requirements are included to monitor compliance with narrative water quality criteria in 327 IAC 2-1.5-8(b)(1)(C) which prohibits oil or other substances in amounts sufficient to produce color, visible sheen, odor, or from having putrescent, or otherwise objectionable deposits, unsightly or deleterious deposits, color or other conditions in such a degree as to create a nuisance and this is also being applied as a technology-based BPJ requirement. If O & G is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated (quantities in excess of 5 mg/l).

This permit proposes to increase sampling frequencies for O & G from 1 X Weekly to 2 X Weekly due to recent compliance issues. Sampling for O & G must be done on the same day for Outfall 001 and Internal Outfall 011.

Phenols (4AAP)

Concentration reporting requirements for phenols are retained from the previous permit. The facility has been granted a 301(g) variance from the calculated BAT TBELs for phenols. Loading limits have been retained from the previous permit and are 22 lbs/day daily maximum and 14 lbs/day monthly average. Please refer to Section 6.5 of this Fact Sheet for additional information.

The permittee has informed IDEM that they plan to install a BAT treatment system for its blast furnace wastewater and that when they have done so, they plan to request that the permit be modified to impose BAT limits for total phenols at a new internal outfall and eliminate the 301(g) variance-limits for total phenols at this outfall. Alternatively, or in concert with the installation of the BAT treatment system, the permittee would implement process changes to substantially reduce BFRS blowdown flow. These process changes would be associated with new blast furnace slag processing operations and would achieve the BAT effluent limits.

Copper, Silver, Zinc, and Mercury

The above identified parameters have previously been identified as having a reasonable potential to exceed Indiana water quality standards. Therefore, the previous permit established WQBELs for these parameters and included them at Outfall 001. The limitations were established in a Wasteload Allocation (WLA) report dated May 18, 2009. The WLA is included as Appendix B of this Fact Sheet. This 2009 wasteload allocation was used in this permit for concentration water quality-based effluent limitations.

In the current permit, a flow of 135 MGD was used to calculate the mass water quality-based effluent limitations. Based on current flow data, the flow being used to calculate the mass-based water quality-based effluent limitations in this proposed permit is 134 MGD which was the highest monthly flow in the last 2 years. The applicable WQBELs are as follows:

Current limits based on average daily discharge volume of 135 MGD:

Parameter	Monthly Average	Daily Maximum
Copper	0.018 mg/l (20 lbs/day)	0.035 mg/l (39 lbs/day)
Silver	0.048 ug/l (0.054 lbs/day)	0.097 ug/l (0.11 lbs/day)
Zinc	150 ug/l (169 lbs/day)	290 ug/l (326 lbs/day)
Mercury	1.3 ng/l (0.0015 lbs/day)	3.2 ng/l (0.0037 lbs/day)

Proposed limits based on average daily discharge volume of 134 MGD:

Parameter	Monthly Average	Daily Maximum
Copper	0.018 mg/l (20 lbs/day)	0.035 mg/l (39 lbs/day)
Silver	0.048 ug/l (0.054 lbs/day)	0.097 ug/l (0.11 lbs/day)
Zinc	150 ug/l (168 lbs/day)	290 ug/l (324 lbs/day)
Mercury	1.3 ng/l (0.0015 lbs/day)	3.2 ng/l (0.0036 lbs/day)

The analytical method proposed in the permit for silver; EPA Method 200.8, Selective Ion Monitoring Mode, has a limit of detection and quantitation below the water quality-based effluent limits in the permit for silver. IDEM is requiring the permittee to use this method to measure compliance with the silver WQBELs in the permit.

Mercury analytical and sampling methodology included in the permit provide for limits of detection and quantification at levels below the water quality criterion, and IDEM is requiring the permittee to utilize these methodologies. The NPDES permit requires that mercury sampling be conducted bi-monthly in the months of February, April, June, August, October, and December of each year for the term of the permit.

Total Residual Chlorine

Total residual chlorine has previously been identified as having a reasonable potential to exceed Indiana water quality standards. Therefore, the previous permit established WQBELs for these parameters and included them at Outfall 001. The limitations were established in a Wasteload Allocation (WLA) report dated May 18, 2009. The WLA is included as Appendix B of this Fact Sheet. This 2009 wasteload allocation was used in this permit for the concentration water quality-based effluent limitations.

In the current permit, a flow of 135 MGD was used to calculate the mass water quality-based effluent limitations. Based on current flow data, the flow being used to calculate the mass-based water quality-based effluent limitations in this proposed permit is 134 MGD which was the highest monthly flow in the last 2 years. The applicable WQBELs are as follows:

Current limits based on average daily discharge volume of 135 MGD:

Parameter	Monthly Average	Daily Maximum
Total residual chlorine (TRC)	10 ug/l (11 lbs/day)	20 ug/l (23 lbs/day)

Proposed limits based on average daily discharge volume of 134 MGD:

Parameter	Monthly Average	Daily Maximum
Total residual chlorine (TRC)	10 ug/l (11 lbs/day)	20 ug/l (22 lbs/day)

For total residual chlorine, the current permit requires weekly sampling, which increases to daily sampling when chlorine is being used to treat the intake for mussels. The permittee has been increasing its use of chlorine-based products throughout the facility; therefore, this permit proposes to increase the sampling frequency to daily all of the time.

Both the concentration and mass-based water quality-based effluents for total residual chlorine are less than the limit of quantitation (LOQ) for the parameter. Therefore, the provisions under 327 IAC 5-2-11.6(h) are applicable.

As required by 327 IAC 5-2-11.6(h)(2)(A), the permit requires the use of the most sensitive analytical method approved under 40 CFR 136 and specifies the LOD and LOQ that can be achieved using that method.

As provided in 327 IAC 5-2-11.6(h)(3), compliance with the WQBELs shall be determined as follows:

- The daily maximum concentration WQBEL is greater than or equal to the LOD of 20 µg/l and less than the LOQ of 60 ug/l; therefore, effluent levels less than the LOQ are in compliance with the daily maximum concentration WQBEL.
- Compliance with the daily maximum mass limit will be demonstrated if the calculated mass value is less than 67 lbs/day.
- Since the monthly average WQBEL is less than the LOQ of 60 µg/l, a monthly average effluent level less than or equal to the respective monthly average WQBEL is in compliance with the monthly average WQBEL. Daily effluent values that are less than the LOQ, used to determine the monthly or weekly 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 LOD, and applying appropriate statistical techniques, a value other than zero (0) is warranted.

As required by 327 IAC 5-2-11.6(h)(6), the permit contains a reopener clause allowing he permit to be modified based on the monitoring results or to specify the use of a different analytical method.

As required by 327 IAC 5-2-11.6(h)(7), the permit contains a requirement that the permittee develop and conduct a pollutant minimization program for total residual chlorine.

Temperature

The temperature limitations proposed at Outfall 001 are based on a previously-approved 316(a) variance and are the same as those contained in the current permit. This proposed permit requires the permittee to collect additional information and conduct studies for a reevaluation of its existing 316(a) variance. Please refer to Section 6.3 of this Fact Sheet for additional information with respect to these temperature requirements.

Free Cyanide

The WQBELs for free cyanide are unchanged from the previous permit, except the mass based WQBELs were reduced from 5.0 and 9.9 lbs/day as a monthly average and daily maximum, respectively, to 4.9 and 9.8 lbs/day as a monthly average and daily maximum, respectively. The limitations, established in a WLA report dated December 21, 2015, for free cyanide are 8.8 ug/l (9.8 lbs/day) daily maximum and 4.4 ug/l (4.9 lbs/day) monthly average. Based on current flow data, the flow being used to calculate the mass-based water quality-based effluent limitations in this proposed permit is 134 MGD. The WLA is included as Appendix C of this Fact Sheet. This permit proposes to increase sampling frequencies from 2 X Monthly to Daily due to compliance issues.

Ammonia, as N

The facility has been granted a 301(g) variance from the calculated BAT TBELs for Ammonia, as N. The limits have been retained from the previous permit. This permit proposes to increase sampling frequencies from 3 X Weekly to Daily due to compliance issues. Please refer to Section 6.5 of this Fact Sheet for additional information on the 301(g) variance.

The permittee has informed IDEM that they plan to install a BAT treatment system for its blast furnace wastewater and that when they have done so, they plan to request that the permit be modified to impose BAT limits for ammonia-N at a new internal outfall and eliminate the 301(g) variance-limits for ammonia-N at this outfall. Alternatively, or in concert with the installation of the BAT treatment system, the permittee would implement process changes to substantially reduce BFRS blowdown flow. These process changes would be associated with new blast furnace slag processing operations and would achieve the BAT effluent limits.

Selenium

Monitoring requirements are proposed for selenium based on a review of the data submitted in Form 2C of the renewal application. These data will allow for an accurate RPE evaluation of the parameter during the next permit renewal. Indiana is in the process of revising its aquatic water quality criterion for selenium. If this rulemaking is finalized, the aquatic life criterion for selenium may be reduced. The analytical methods for selenium proposed in the permit have a limit of detection and quantitation at levels below both the current and proposed new water quality criterion, and IDEM is requiring the permittee to use these methods to determine whether the discharge has a reasonable potential to cause to contribute to an exceedance of the water quality criterion for selenium in the receiving stream.

Whole Effluent Toxicity (WET)

Indiana's regulations for the Great Lakes system include narrative criteria with numeric interpretations for acute (2-1.5-8(b)(1)(E)(ii)) and chronic (2-1.5-8(b)(2)(A)(iv)) WET and a procedure for conducting reasonable potential for WET (5-2-11.5(c)(1)). The U.S. EPA did not approve the reasonable potential procedure for WET so Indiana is now required under 40 CFR Part 132.6(c) to use the reasonable potential procedure in Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132. IDEM used this procedure in conducting the reasonable potential analysis for WET.

WET limits of 1.0 TU_a and 1.0 TU_c were included in the current permit at Outfall 001 based on a reasonable potential analysis for WET documented in a WLA report dated December 21, 2015. The WLA is included as Appendix C of this Fact Sheet. The permit required the permittee to conduct quarterly chronic WET tests using *Ceriodaphnia dubia*. Toxicity reduction evaluation (TRE) triggers of 1.0 TU_a and 1.0 TU_c were also included in the current permit. Exceedance of a TRE trigger in two consecutive WET tests requires the permittee to initiate a TRE.

The permittee entered into a TRE under the current (2016) permit due to WET test failures at this outfall in May and June 2020 with *Ceriodaphnia dubia*. Since the second test was terminated (failed) on June 8, 2020, this was the date of determination of toxicity. Under the current (2016) permit, the permittee was required to complete a TRE by June 8, 2023. The permittee has completed its TRE, including the required monthly monitoring using two species and submitted its final TRE report to IDEM. This report was dated September 20, 2021 and was received by IDEM on September 27, 2021.

The following statements were included in this September 20, 2021 report:

> … there does not appear to be a definitive explanation for the original exceedances in May and June of 2020. We note that during the third week of August, 2021 [2020] we performed WET testing on a sample of intake water from Lake Michigan and observed significant chronic toxicity (TUc = 4.54). … During this period, the weather was unusually hot, lake temperatures were considerably higher than normal for that date, and the lake water appeared to have high concentrations of a photosynthetic algae.
>
> Further analysis of intake water conducted by our contractor EnviroScience, Inc. in September 2020 revealed that the algal community contained several taxa of harmful algal bloom (HAB) species, but in very low densities, and no algal toxins were detected via the ELISA method. The intake water also showed no acute or chronic toxicity. The results of these analyses were contained in an attachment to our April 9th correspondence.

> Despite the absence of toxicity in the September samples, we believe that the toxicity in the final effluent in May and June of 220 [2020] and toxicity in an August intake sample may have been a result of cyanobacterial blooms occurring throughout the summer. We note that no unusual conditions or significant events occurred within in our production facilities or wastewater treatment processes between May and August, 2020.
>
> In accordance with post-TRE Biomonitoring Requirements outlined in Part 1.F.2.e. of the Permit, Cleveland Cliffs Burns Harbor conducted WET tests using both species for three consecutive months (May, June, and July, 2021). These tests revealed that the final effluent from Outfall 001 showed no chronic or acute toxicity. …
>
> In the future and for samples collected between May 1st and October 1st, Burns Harbor intends to collect intake samples concurrent with 001 samples and analyze them for whole effluent toxicity, algal community composition, and the presence of common algal toxins.

IDEM agrees that the permittee has completed its TRE as required. IDEM does not believe the information provided is sufficient to conclude that algal toxins were the cause of the toxicity; however, the proposal by the permittee to monitor for algal community composition and the presence of common algal toxins will provide additional information on this issue if future whole effluent toxicity tests fail.

Since the permittee violated its WET limits, the discharge clearly has a reasonable potential to exceed WET limits. Therefore, IDEM proposes to retain the WQBELs for WET in this permit at the same monitoring frequency.

Inclusion of whole effluent toxicity requirements in a permit does not negate the requirement to submit a water treatment additive (WTA) application and/or worksheet for replacement or new additives/chemicals proposed for use at the site.

5.3.3 Internal Outfall 011

The discharge from Internal Outfall 011 consists of treated wastewater from the Secondary Wastewater Treatment Plant (SWTP) and treated effluent from the Town of Burns Harbor sanitary wastewater treatment plant (NPDES Permit No. INJ060801), which are both treated in two terminal polishing lagoons prior to discharge through Outfall 011.

Flow

The permittee's flow is to be monitored in accordance with 327 IAC 5-2-13(a)(2). The current permit requires the flow reported at this outfall to be calculated using measurements from the existing flow measuring devices located at the effluent secondary wastewater treatment plant and the lagoon re-circulating pump station. However, based on inspections conducted at the facility, the permittee is currently only using the flow meter located after the secondary wastewater treatment plant, which is before the flow goes to the polishing lagoons as the flow measurement device for

Outfall 011. There has been no flow from the Outfall 011 lagoon re-circulating pump station to the plant service water system during the term of the current NPDES permit. Sampling for the pollutants monitored and limited occurs at Outfall 011, the effluent from the two polishing lagoons. The flow measured at this outfall is used to flow-proportion samples used for 24-hour composite samples to determine compliance with concentration limits and to calculate the mass of pollutants discharged to determine compliance with the mass limits imposed at this outfall.

As IDEM noted in its report for an August 12, 2020 IDEM Reconnaissance Inspection; "Self-Monitor was rated as unsatisfactory. The flow meter for Outfall 011 is located at the effluent of the secondary wastewater treatment plant, which is located prior to the lagoons. The sample location for Outfall 011, however, is located after the lagoons. The flow meter and the sampling location are too far apart to enable representative flow proportioned sampling of the Outfall 011 discharge, in violation of the NPDES permit, Part I.C.1, which requires samples and measurements taken as required to be representative of the volume and nature of the discharge."

Further, as EPA noted in its report for an August 12, 2020 EPA Compliance Evaluation Inspection; the permittee "will be looking into options to co-locate the sampling and flow meter and felt that the opportunity to make changes would be during the next permit issuance."

Therefore, IDEM is proposing to eliminate the provision in the current permit which allows the permittee to calculate the flow at this outfall using measurements from the existing flow measuring devices located at the effluent secondary wastewater treatment plant and the lagoon re-circulating pump station. Instead, the permittee will be required to measure the flow at Outfall 011, the effluent from the two polishing lagoons. A schedule of compliance has been included in the permit providing the permittee up to two years to install a flow monitoring station at Outfall 011.

The new flow monitoring station for Outfall 011 will be installed in the discharge channel downstream of the Outfall 011 Polishing. There is an existing concrete check dam that can be used as a primary flow monitoring device. It will be outfitted with a laser velocity monitoring device and instrumentation to measure and record 24-hour total flow. Because the check dam is not perpendicular to the direction of flow, the flow monitoring system will need to be calibrated to the primary and secondary flow monitoring devices so that reasonably accurate Outfall 011 flow measurements can be obtained and reported for NPDES compliance monitoring purposes. The calibrations will be done with a series of dye tracer studies over the range of anticipated Outfall 011 flows. If this proves not to be successful, a new primary flow monitoring device comprising a new concrete structure perpendicular to the direction of flow in the Outfall 011 discharge channel will be installed. It would be configured with a standard sharp-crested rectangular weir with end contractions and secondary flow recording systems.

Total Suspended Solids (TSS), Oil & Grease (O & G), Zinc, Lead, and Total Cyanide

The technology-based effluent limits calculated using the updated production information provided in the renewal application are less stringent than those contained in the previous permit. Therefore, the limits from the previous permit have been retained in the renewal permit in accordance with the antibacksliding provisions of 40 CFR 122.44(l)(1). See also Section 5.4 of this Fact Sheet.

For oil and grease, the monthly average limit equates to a concentration below the LOD and LOQ. Therefore, the permittee has requested no monthly average limit (daily maximum limit only) consistent with the effective permit.

This permit proposes to increase sampling frequencies for total cyanide from 1 X Weekly to Daily due to compliance issues.

This permit also proposes to increase sampling frequencies for O & G from 1 X Weekly to 2 X Weekly due to recent compliance issues. Sampling for O & G must be done on the same day for Outfall 001 and Internal Outfall 011.

Ammonia, as N and Phenols (4AAP)

Reporting requirements for the above identified parameters are included at Internal Outfall 011. The permittee had requested and received a 301(g) variance of the BAT limits for ammonia, as N and total phenols and these 301(g) limits have been imposed at Outfall 001, instead of this outfall.

Please refer to Section 6.5 of this Fact Sheet for additional information on the 301(g) variance. If the permittee did not have a 301(g) variance for these two parameters, BAT limits for these two parameters would be imposed at Outfall 011. Monitoring for total phenols and ammonia, as N is required at this outfall to monitor the ammonia, as N and total phenols contributions from the process operations at the facility. This permit proposes to increase the sampling frequency for ammonia, as N from 2 X Weekly to Daily due to compliance issues.

Total Residual Chlorine (TRC)

The ELG established a BAT technology-based effluent for TRC applicable to iron blast furnaces under 40 CFR 420.33(a). This ELG-based limit is only applicable when chlorination of ironmaking wastewaters is practiced. In the current permit, the daily maximum mass limit for TRC is 4.32 lbs/day. At the typical flow rates at Outfall 011, the concentration level used to calculate compliance with this mass limit would be less than the limit of detection and limit of quantitation for TRC. Typically, when a technology-based limit is less that the detection or quantitation level in a situation such as this, the limit should be moved to an upstream internal outfall prior to the point the wastestream is diluted with other wastestreams. However, instead, IDEM did establish a compliance level for this TRC mass limit of 36 lbs/day.

Since this limit is only applicable to the blast furnace wastestream, this limit would most appropriately be applied to the effluent from the blast furnace. In this permit; however, IDEM proposes to retain this ELG-based limit at this outfall. In this proposed permit, the daily maximum ELG-based mass limit is 4.18 lbs/day based on current production rates. This limit is only applicable when the blast furnace process water is chlorinated, or if chlorine dioxide, alkaline chlorination, or any other chlorine-based chemical is being used in the blast furnace wastewater treatment system. Since the concentration level used to calculate compliance with this mass limit would be less than the limit of detection and limit of quantitation for TRC, the permit also establishes a compliance level for TRC of 32 lbs/day (LOQ X Average Flow X Conversion Factor; or 0.06 X 63.5 X 8.3454).

The current permit requires 2 X weekly monitoring for total residual chlorine. This proposed permit retains this monitoring frequency.

The permittee has proposed to install a BAT treatment system for blast furnace wastewater (or alternatively or in concert with the installation of this treatment system would implement process changes to substantially reduce BFRS blowdown flow) and has informed IDEM that when this new treatment system is installed, they will request a permit modification to create a new internal outfall for the treated blast furnace wastewater and to request the application of BAT limits for the blast furnace wastewater at this new outfall. If this does occur, these ELG limits for TRC may be applied at this new internal outfall.

Naphthalene and Tetrachloroethylene

The facility has previously been granted a monitoring waiver for Naphthalene and Tetrachloroethylene. The facility requested this waiver last permit renewal. The 2011 permit renewal required the facility to measure naphthalene and tetrachloroethylene for a period of one (1) year so that IDEM could determine whether or not either pollutant was discharged in measurable amounts, including any seasonal variation. A review of that data was performed and found no measurable amount was discharged. The monitoring waiver was granted in a modified Permit dated October 25, 2012. Based on analytical data for this outfall submitted with this permit renewal, IDEM grants a continuation of that monitoring waiver.

Selenium

Monitoring requirements are proposed for Selenium based on a review of the data submitted for Form 2C of the renewal application. This data will allow for accurate RPE evaluations of the parameter during the next permit renewal.

5.3.4 Internal Outfall 111

Outfall 111 is an internal location for monitoring of the effluent from the reclamation services building (RSB), specifically the final RSB thickener overflow, where a technology-based effluent limit for 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF) applicable to the sinter plant wastestream is applied.

Flow

Flow monitoring is proposed to be added at this outfall so that the loading of 2,3,7,8-TCDF and any other dioxins and furans identified at this outfall can be determined. A 1 X weekly monitoring frequency is proposed.

2,3,7,8-Tetrachlorodibenzofuran (2,3,7,8-TCDF)

Under 40 CFR 420.23(a), the effluent limitations guidelines (ELG) established a BAT technology-based effluent for 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF) for sintering operations with wet air pollution control systems of <ML, as a daily maximum. In these regulations, the term minimum level or ML means the level at which the analytical system gives recognizable signals and an acceptable calibration point. For 2,3,7,8-tetrachlorodibenzofuran, the minimum level is 10 pg/L per EPA Method 1613B for water and wastewater samples. The term pg/L means picograms per liter. Ten (10) picograms per liter is 0.00001 or 1×10^{-5} µg/l.

Dioxins and dioxin-like compounds, such as some chlorinated furans, can be very harmful to the environment even when present in the environment at very low levels. Indiana has established water quality criteria for only one of these compounds, 2,3,7,8-tetrachlordibenzo-p-dioxin (2,3,7,8-TCDD or dioxin). These criteria range from 3.1×10^{-9} to 6.7×10^{-8} µg/l.

However, Indiana rules under 327 IAC 5-2-11.4(a)(4) establish a process that allows the use of the human health criteria for dioxin to calculate a water quality-based effluent limit that accounts for all of the dioxin and dioxin-like compounds that are present in a discharge using a toxicity equivalence concentration (TEC) for dioxin. To calculate a TEC for dioxin, a toxicity equivalency factor (TEF) and bioaccumulation equivalency factor (BEF) have been assigned to each member of the dioxin and dioxin-like compounds category. The TEF is the ratio of the toxicity and the BEF is the ratio of the bioaccumulation of one of the compounds in this category to the toxicity of the most toxic and bioaccumulative compound in the category, which is assigned a TEF and BEF of 1: 2,3,7,8-tetrachlorodibenzo-p-dioxin (commonly referred to as dioxin).

During the current permit term (July 2016-January 2021), the permittee has detected the presence of 2,3,7,8-TCDF in 17 samples (9 of these detections were in 2017) and exceeded its limit in 3 samples. Due to these detections and exceedances, IDEM is proposing to increase the sampling frequency for 2,3,7,8-TCDF from monthly to weekly, add a flow monitoring requirement at the outfall.

In addition, the permit requires the permittee to initiate an investigatory monitoring program for chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans listed under 327 IAC 5-2-11.4(a)(4) in the untreated sinter plant main stack scrubber wastewater and in the Outfall 111 effluent. This information should allow IDEM to evaluate the need for water quality-based effluent limits for dioxin and dioxin-like compounds at this facility.

The proposed permit allows the permittee to request a review of these new requirements after they have conducted one year of monitoring. Any changes to these requirements would be made through a permit modification after public notice and opportunity for a hearing.

The current permit contains language authorizing a bypass at Outfall 111 in certain circumstances. This outfall-specific bypass language is not proposed to be included in this permit.

5.3.5 Outfall 002

The discharge from Outfall 002 consists of once-thru noncontact cooling water and stormwater from the coke plant, sinter plant, blast furnaces, steelmaking area, Power Station, the shops Complex, and other areas.

In the aftermath of the August 2019 incident and fish kill, IDEM required the permittee to implement an expanded sampling program at Outfall 002. As a result of information obtained in this expanded monitoring program, the permittee began investigating potential sources of process wastewater contaminant contributions to this outfall. The permittee did discover and eliminate some process wastewater contaminant contributions to this outfall and is still in the process of conducting this investigation. On April 20, 2021, the permittee submitted a report with an assessment of the Outfall 002 expanded sampling program for selected pollutants (Attachment 10 of the permittee's renewal application). In this report, the permittee indicated that monitoring for certain pollutants at Outfall 002 could provide useful indication of potential carry over of process water to the Outfall 002 sewer system.

These pollutants were ammonia, as N, total cyanide, total phenols, which are pollutants characteristic of coke plant and blast furnace process waters, and copper and zinc which are indicator pollutants for possible metals contamination. In this report, the permittee also requested the elimination of monitoring for other parameters, including dissolved iron and lead.

pH

Limitations for pH in the proposed permit are based on the water quality criteria established in 327 IAC 2-1.5-8(c)(2). The current permit contains an exception to the pH limits which allows excursions to the pH limits for up to 7 hours and 26 minutes in any calendar month. 40 CFR 401.17 allows such an exception for pH limits based on effluent limitations guidelines; however, this exception is not allowed for pH limits based on Indiana's water quality criteria. Therefore, IDEM has proposed to eliminate this exception in this permit.

Total Suspended Solids (TSS) and Oil & Grease (O & G)

The current permit required 1 X weekly sampling for TSS and O & G at this outfall. This permit retains those requirements. The wastestreams that are discharged via Outfall 002 consist of noncontact cooling waters and stormwater and are not expected to contribute significant amounts of TSS and O & G. Therefore, reporting requirements are included to monitor compliance with narrative water quality criteria in 327 IAC 2-1.5-8(b)(1)(C) which prohibits oil or other substances in amounts sufficient to produce color, visible sheen, odor, or from having putrescent, or otherwise objectionable deposits, unsightly or deleterious deposits, color or other conditions in such a degree as to create a nuisance and this is also being applied as a technology-based BPJ requirement. If O & G is measured in the effluent in significant quantities, the source of such discharge is to be investigated and eliminated (quantities in excess of 5 mg/l).

Ammonia, as N, Total Cyanide, Total Phenols (Phenols (4AAP))

The current permit required monitoring for ammonia, as N and phenols (4AAP) at this outfall when treated process wastewater from the lagoon recirculating pump station was directed to Outfall 002. Although authorization for the discharge of process water at this outfall is proposed to be eliminated in this permit, this permit proposes 3 X weekly sampling for ammonia, as N and phenols (4AAP) at this outfall. In addition, 3 X weekly sampling for total cyanide is also proposed at this outfall. As indicated by the permittee in its April 20, 2021 report, these three pollutants are pollutants characteristic of coke plant and blast furnace process waters and could serve as an indicator of carry-over of process water into the Outfall 002 sewer.

Copper and Zinc

The current permit required monitoring for zinc at this outfall when treated process wastewater from the lagoon recirculating pump station was directed to Outfall 002. Although authorization for the discharge of process water at this outfall is proposed to be eliminated in this permit, this permit proposes 3 X Weekly sampling for zinc at this outfall. In addition, 3 X Weekly sampling for copper is also proposed at this outfall. As indicated by the permittee in its April 20, 2021 report, these would serve as indicator pollutants for possible metals contamination if carry-over of process water into the Outfall 002 sewer occurs.

Fluoride

The current permit required monitoring for fluoride at this outfall when treated process wastewater from the lagoon recirculating pump station was directed to Outfall 002. Although authorization for the discharge of process water at this outfall is proposed to be eliminated in this permit, this permit proposes 3 X Weekly sampling for fluoride at this outfall.

The permittee requested the elimination of monitoring requirements for this parameter; however, IDEM believes that fluoride could serve as a useful indicator if, in the future, carry-over of process water containing fluoride into the Outfall 002 sewer occurs. During its investigations at Outfall 002, the permittee did find that fluoride contamination was reaching the Outfall 002 sewer system. It does not appear that this source of contamination has been entirely eliminated. In addition, the data from their expanded sampling shows that the intake and 002 concentrations are at reportable levels and at essentially the same concentrations.

The internal Outfall 011 fluoride data can exceed 1 mg/l with the final Outfall 001 data in the 0.5 to 1 mg/l range. IDEM's downstream fixed station on Burns Ditch (BD-1) has shown consistent levels in the 0.3 to 0.7 mg/l range over the years due to the levels discharged at Outfall 001. The permittee has not identified any current significant sources of fluoride to Outfall 002, so any increased levels would have to be from process wastewater.

Dissolved Iron and Lead

The current permit required monitoring for dissolved iron and lead at this outfall when treated process wastewater from the lagoon recirculating pump station was directed to Outfall 002. The permittee requested that monitoring for these parameters be eliminated at this outfall. Based on IDEM's evaluation of the available data at Outfall 002, these two parameters would not be as useful indicators of process water carry over into the Outfall 002 sewer as the above-noted parameters. Therefore, monitoring for these parameters is not proposed in the permit.

Total Residual Chlorine (TRC)

The current permit includes water quality-based effluent limitations for total residual chlorine of 10 ug/l (24 lbs/day) as a monthly average and 20 ug/l (48 lbs/day) as a daily maximum. Daily monitoring for TRC is required at this outfall. The current (2016) permit is unclear with respect to the applicable monitoring frequency for TRC at this outfall. The permit required daily monitoring for TRC but also separately specified that monitoring should also be daily when TRC is used to treat the intake for mussels. As stated above, this proposed permit requires daily monitoring for TRC at this outfall.

Both the concentration and mass-based water quality-based effluents for total residual chlorine are less than the limit of quantitation (LOQ) for the parameter. Therefore, the provisions under 327 IAC 5-2-11.6(h) are applicable.

As required by 327 IAC 5-2-11.6(h)(2)(A), the permit requires the use of the most sensitive analytical method approved under 40 CFR 136 and specifies the LOD and LOQ that can be achieved using that method.

As provided in 327 IAC 5-2-11.6(h)(3), compliance with the WQBELs shall be determined as follows:

- The daily maximum concentration WQBEL is greater than or equal to the LOD of 20 µg/l and less than the LOQ of 60 ug/l; therefore, effluent levels less than the LOQ are in compliance with the daily maximum concentration WQBEL.
- Compliance with the daily maximum mass limit will be demonstrated if the calculated mass value is less than 132 lbs/day.
- Since the monthly average WQBEL is less than the LOQ of 60 µg/l, a monthly average effluent level less than or equal to the respective monthly average WQBEL is in compliance with the monthly average WQBEL. Daily effluent values that are less than the LOQ, used to determine the monthly or weekly 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 LOD, and applying appropriate statistical techniques, a value other than zero (0) is warranted.

As required by 327 IAC 5-2-11.6(h)(6), the permit contains a reopener clause allowing he permit to be modified based on the monitoring results or to specify the use of a different analytical method.

As required by 327 IAC 5-2-11.6(h)(7), the permit contains a requirement that the permittee develop and conduct a pollutant minimization program for total residual chlorine.

Temperature

The temperature limitations proposed at Outfall 002 are based on a previously-approved 316(a) variance and are the same as those contained in the current permit. This proposed permit requires the permittee to collect additional information and conduct studies for a reevaluation of its existing 316(a) variance. Please refer to Section 6.3 of this Fact Sheet for additional information with respect to these temperature requirements.

5.3.6 Outfall 003

The discharge from Outfall 003 consists of backwash from the No. 1 and 2 Lake Water Pump Stations traveling screens and strainers. Lake Michigan water is used as backwash water.

Minimum Narrative Limitations

The narrative water quality criteria contained under 327 IAC 2-1.5-8(b)(1) and (2) have been included in this permit as limits to ensure that these minimum water quality conditions are met.

Effluent Flow

The permittee requested the addition of effluent flow monitoring at this outfall. Therefore, the proposed permit requires reporting of the daily estimates of the flow discharged through this outfall.

Total Residual Chlorine (TRC)

The current permit includes water quality-based effluent limitations for total residual chlorine of 10 ug/l as a monthly average and 20 ug/l as a daily maximum. Daily monitoring is required when intake chlorination is conducted for mussel removal. Mass WQBELs were not included at this outfall since the permittee does not monitor the flow at this outfall. These limits and monitoring requirements are unchanged in the proposed permit.

The water quality-based effluents for total residual chlorine are less than the limit of quantitation (LOQ) for the parameter. Therefore, the provisions under 327 IAC 5-2-11.6(h) are applicable.

As required by 327 IAC 5-2-11.6(h)(2)(A), the permit requires the use of the most sensitive analytical method approved under 40 CFR 136 and specifies the LOD and LOQ that can be achieved using that method.

As provided in 327 IAC 5-2-11.6(h)(3), compliance with the WQBELs shall be determined as follows:

- The daily maximum WQBEL is greater than or equal to the LOD of 20 µg/l and less than the LOQ of 60 ug/l; therefore, effluent levels less than the LOQ are in compliance with the daily maximum concentration WQBEL.
- Since the monthly average WQBEL is less than the LOQ of 60 µg/l, a monthly average effluent level less than or equal to the respective monthly average WQBEL is in compliance with the monthly average WQBEL. Daily effluent values that are less than the LOQ, used to determine the monthly or weekly 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 LOD, and applying appropriate statistical techniques, a value other than zero (0) is warranted.

As required by 327 IAC 5-2-11.6(h)(6), the permit contains a reopener clause allowing the permit to be modified based on the monitoring results or to specify the use of a different analytical method.

As required by 327 IAC 5-2-11.6(h)(7), the permit contains a requirement that the permittee develop and conduct a pollutant minimization plan for total residual chlorine.

Intake Requirements

The proposed permit includes compliance monitoring and limits at this outfall to implement the 316(b)-cooling water intake stricture requirements. This includes intake flow monitoring at the No. 1 and No. 2 Lake Water Pumping Stations and establishes velocity limits of 0.5 feet per second (fps) at both pumping stations. See Section 6.4 of this Fact Sheet for additional information on these 316(b) requirements.

5.4 Antibacksliding

The Burns Harbor renewal NPDES permit includes effluent limitations based on water quality standards, existing effluent limitations guidelines, case-by-case TBELs, Section 301(g) variances for ammonia (as N) and total phenols and alternate thermal effluent limitations (ATELs) granted under Section 316(a) of the CWA.

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 limitations 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 5-2-10(a)(11), unless an exception under 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.

Under 40 CFR 122.62(a)(1), a cause for modification exists when there are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit. Per 327 IAC 5-2-16(d)(1), production changes would constitute as "[m]aterial and substantial alterations or additions to the discharger's operation which were not covered in the effective permit."

The federal ELGs for 40 CFR 420 have not changed since the previous permit. The calculation of TBELs under existing effluent limitations guidelines using the production rates reported in the NPDES renewal application is presented in Appendix A of this Fact Sheet. The calculation provides an increase in applicable TBELs for TSS, Oil & Grease, Lead, Zinc, Total Cyanide, Naphthalene, and Tetrachloroethylene over those calculated for the 2016 permit renewal. While provision is made under the regulations for increased TBELs, the permittee has not requested an increase in any effluent limitations. In addition, IDEM has not made a determination on whether these increases would be considered substantial for purposes of antibacksliding. None of the effluent limitations are proposed to be relaxed, therefore, backsliding is not an issue in this permit renewal.

5.5 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.

5.6 Stormwater

Under 327 IAC 5-4-6(d), if an individual permit is required under 327 IAC 5-4-6(a) for discharges consisting entirely of stormwater, or if an individual permit is required under 327 IAC 5-2-2 that includes discharge of commingled stormwater associated with industrial activity, IDEM may consider the following in determining the requirements to be contained in the permit:

> (1) The provisions in the following: (A) 327 IAC 15-5, 327 IAC 15-6, and 327 IAC 15-13, as appropriate to the type of stormwater discharge, (B) NPDES Pesticide General Permit for Point Source Discharges to Waters of the State from the Application of Pesticides, Permit Number ING870000, effective October 31, 2016, available at: http://www.in.gov/idem/cleanwater/2480.htm#pesticide or from the IDEM Office of Water Quality, Permits Branch, 100 North Senate Avenue, Indianapolis, IN 46204-2251, and (C) 327 IAC 5-2 [Basic NPDES Requirements], 327 IAC 5-5 [NPDES Criteria and Standards for Technology-based Treatment Requirements], and 327 IAC 5-9 [Best Management Practices; Establishment].
> (2) "Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits", EPA 833-D-96-001, September 1, 1996, available from U.S. EPA,
> National Service Center for Environmental Publications at https://www.epa.gov/nscep or from IDEM.
> (3) The nature of the discharges and activities occurring at the site or facility.
> (4) Other information relevant to the potential impact on water quality.

In accordance with 327 IAC 15-2-2(a), the commissioner may regulate stormwater discharges associated with industrial activity, as defined in 40 CFR 122.26(b)(14), consistent with the EPA 2008 NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity, as modified, effective May 27, 2009, under an NPDES general permit. Therefore, using Best Professional Judgment to develop case-by-case technology-based limits as authorized by 327 IAC 5-2-10, 327 IAC 5-5, and 327 IAC 5-9 (see also 40 CFR 122.44, 125.3, and Section 402(a)(1) of the Clean Water Act (CWA)), IDEM has developed stormwater requirements for individual permits that are consistent with the EPA 2008 NPDES Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity. The 2008 Multi-Sector General Permit and Fact Sheet is available from: https://www.epa.gov/npdes/previous-versions-epas-msgp-documents.

According to 40 CFR 122.26(b)(14) and 327 IAC 15-6-2 facilities classified under Standard Industrial Classification (SIC) Code 3312, are considered to be engaging in "industrial activity" for purposes of 40 CFR 122.26(b). Therefore, the permittee is required to have all stormwater discharges associated with industrial activity permitted. Treatment for stormwater discharges associated with industrial activities is required to meet, at a minimum, best available technology economically achievable/best conventional pollutant control technology (BAT/BCT) requirements. EPA has determined that non-numeric technology-based effluent limits have been determined to be equal to the best practicable technology (BPT) or BAT/BCT for stormwater associated with industrial activity.

Stormwater associated with industrial activity must also be assessed to ensure compliance with all water quality standards. Effective implementation of the non-numeric technology-based requirements should, in most cases, control discharges as necessary to meet applicable water quality standards. Violation of any of these effluent limitations constitutes a violation of the permit.

Additionally, IDEM has determined that with the appropriate implementation of the required control measures and Best Management Practices (BMPs) found in Part I.D. of the permit, the discharge of stormwater associated with industrial activity from this facility will meet applicable water quality standards and will not cause a significant lowering of water quality. Therefore, the stormwater discharge is in compliance with the antidegradation standards found in 327 IAC 2-1.3-3, and pursuant to 327 IAC 2-1.3-4(a)(5), an antidegradation demonstration is not required.

The technology-based effluent limits (TBELs) require the permittee to minimize exposure of raw, final, or waste materials to rain, snow, snowmelt, and runoff. In doing so, the permittee is required, to the extent technologically available and economically achievable, to either locate industrial materials and activities inside or to protect them with storm resistant coverings. In addition, the permittee is required to: (1) use good housekeeping practices to keep exposed areas clean, (2) regularly inspect, test, maintain and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharges, (3) minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur, (4) stabilize exposed area and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants, (5) divert, infiltrate, reuse, contain or otherwise reduce stormwater runoff, to minimize pollutants in the permitted facility discharges, (6) enclose or cover storage piles of salt or piles containing salt used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces, (7) train all employees who work in areas where industrial materials or activities are exposed to stormwater, or who are responsible for implementing activities necessary to meet the conditions of this permit (e.g., inspectors, maintenance personnel), including all members of your Pollution Prevention Team, (8) ensure that waste, garbage and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged, and (9) minimize generation of dust and off-site tracking of raw, final or waste materials.

To meet the non-numeric effluent limitations in Part I.D.4, the permit requires the facility to select control measures (including BMPs) to address the selection and design considerations in Part I.D.3.

The permittee must control its discharge as necessary to meet applicable water quality standards. It is expected that compliance with the non-numeric technology-based requirements should ensure compliance with applicable water quality standards. However, if at any time the permittee, or IDEM, determines that the discharge causes or contributes to an exceedance of applicable water quality standards, the permittee must take corrective actions, and conduct follow-up monitoring and IDEM may impose additional water quality-based limitations.

“Terms and Conditions” to Provide Information in a Stormwater Pollution Prevention Plan (SWPPP)

Distinct from the effluent limitation provisions in the permit, the permit requires the discharger to prepare a SWPPP for the permitted facility. The SWPPP is intended to document the selection, design, installation, and implementation (including inspection, maintenance, monitoring, and corrective action) of control measures being used to comply with the effluent limits set forth in Part I.D. of the permit. In general, the SWPPP must be kept up-to-date, and modified when necessary, to reflect any changes in control measures that were found to be necessary to meet the effluent limitations in the permit.

The requirement to prepare a SWPPP is not an effluent limitation. Rather, it documents what practices the discharger is implementing to meet the effluent limitations in Part I.D. of the permit. The SWPPP is not an effluent limitation because it does not restrict quantities, rates, and concentrations of constituents which are discharged. Instead, the requirement to develop a SWPPP is a permit “term or condition” authorized under sections 402(a)(2) and 308 of the Act. Section 402(a)(2) states, “[t]he Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of paragraph (1) of this subsection, including conditions on data and information collection, reporting, and such other requirements as he deems appropriate.” The SWPPP requirements set forth in this permit are terms or conditions under the CWA because the discharger is documenting information on how it intends to comply with the effluent limitations (and inspection and evaluation requirements) contained elsewhere in the permit. Thus, the requirement to develop a SWPPP and keep it up-to-date is no different than other information collection conditions, as authorized by 327 IAC 5-1-3 (see also CWA section 402(a)(2)). It should be noted that EPA has developed a guidance document, “Developing your Storm Water Pollution Prevention Plan – A guide for Industrial Operators (EPA 833-B09-002), February 2009, to assist facilities in developing a SWPPP. The guidance contains worksheets, checklists, and model forms that should assist a facility in developing a SWPPP.

Public availability of documents

Part I.E.2.d(2) of the permit requires that the permittee retain a copy of the current SWPPP at the facility and make it immediately available, at the time of an onsite inspection or upon request, to IDEM. When submitting the SWPPP to IDEM, if any information in the SWPPP is considered to be confidential, that information shall be submitted in accordance with 327 IAC 12.1. Interested persons can request a copy of the SWPPP through IDEM. Any information that is confidential pursuant to Indiana law will not be released to the public.

5.7 Water Treatment Additives

In the event that changes are to be made in the use of water treatment additives that could significantly change the nature of, or increase the discharge concentration of any of the additives contributing to an outfall governed under the permit, the permittee must apply for and obtain 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) available at: http://www.in.gov/idem/5157.htm and submitting any needed supplemental information. In the review and approval process, IDEM determines, based on the information submitted with the application, whether the use of any new or changed water treatment additives/chemicals or dosage rates could potentially cause the discharge from any permitted outfall to cause chronic or acute toxicity in the receiving water.

The authority for this requirement can be found under one or more of the following: 327 IAC 5-2-8(11)(B), which generally requires advance notice of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements; 327 IAC 5-2-8(11)(F)(ii), which generally requires notice as soon as possible of any planned physical alterations or additions to the permitted facility if the alteration or addition could significantly change the nature of, or increase the quantity of, pollutants discharged; and 327 IAC 5-2-9(2) which generally requires notice as soon as the discharger knows or has reason to know that the discharger has begun or expects to begin to use or manufacture, as an intermediate or final product or byproduct, any toxic pollutant that was not reported in the permit application.

The following is a list of water treatment additives currently approved for use at the facility:

Outfall 001 Average Flow rate: 118 mgd

							Calculated Outfall 001 Concentration	
Additive Name	**Purpose (e.g., dispersant)**	**Feed / dosage rate (gal/day or lb/day)**	**System Where Used**	**Duration of use (hrs/day; days/year)**	**Additive Concentration In System**	**System blowdown flow rate if known (gpm)**	**Concentration mg/L**	**Basis**
Steel Producing / Caster #1								
3D Trasar 3DT120	Scale Inhinitor	15 gpd	#1 Caster Spray	continuous	2-5 ppm active	700 gpm typical max total from Caster # 1	0.043	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT120	Scale Inhinitor	7 gpd	#1 Caster Machine	continuous	2-5 ppm active	700 gpm typical max total from Caster # 1		
3D Trasar 3DT179	Corrosion Inhibitor	12 gpd	#1 Caster Spray	continuous	1-2 ppm active	700 gpm typical max total from Caster # 1	0.017	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT179	Corrosion Inhibitor	7 gpd	#1 Caster Machine	continuous	1-2 ppm active	700 gpm typical max total from Caster # 1		
3D Trasar 3DT185	Corrosion Inhibitor	2.5 gpd	#1 Caster Spray	continuous	1-4 ppm active	700 gpm typical max total from Caster # 1	0.034	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT185	Corrosion Inhibitor	1.5 gpd	#1 Caster Machine	continuous	1-4 ppm active	700 gpm typical max total from Caster # 1		
Bleach	Microbiological Control	50-100 gpd	#1 Caster Spray	continuous	Free chlorine residual 0.1 -0.5 ppm	700 gpm typical max total from Caster # 1	TRC limit in place at Outfall 001	NA
Bleach	Microbiological Control	25 gpd	#1 Caster Machine	continuous	Free chlorine residual 0.1 -0.5 ppm	700 gpm typical max total from Caster # 1		
Cat-Floc 8103 Plus	Filter Aide/ Coagulant	10 gpd	#1 Caster Spray	continuous	3-5 ppm	NA	Not expected at Outfall 001; coagulant removed through SWWTP	NA
Control Brom (CB-70)	Microbiological Control	3 gpd	#1 Caster Spray	continuous	Free chlorine residual 0.1 -0.5 ppm	NA	TRC limit in place at Outfall 001	NA
Nalco 7308	Oil Dispersant	<0.5 gpd	#1 Caster Spray	during hydraulic leaks	NA	NA	Not expected at Outfall 001; oil removed through Caster water sytems and SWWTP	NA
Nalco 7320	Microbiological Control	Not Used	#1 Caster Mold	Not Used	Not Used	Not Used	NA not in use	NA
Nalco 7320	Microbiological Control	Not Used	#1 Caster Bearing	Not Used	Not Used	Not Used	NA not in use	NA
Nalco 7330	Microbiological Control	Not Used	#1 Caster Mold	Not Used	Not Used	Not Used	NA not in use	NA
Nalco 7330	Microbiological Control	Not Used	#1 Caster Bearing	Not Used	Not Used	Not Used	NA not in use	NA
Nalco 8338	Corrosion/Scale Inhibitor	28 gpd	#1 Caster Mold	continuous	80-200 ppm	Varies (typically <10 GPM)	0.049	Blowdown flow x system concentration / 001 flow
Nalco 8338	Corrosion/Scale Inhibitor	11 gpd	#1 Caster Bearing	continuous	80-200 ppm	Varies (typically <10 GPM)		
Nalco 8735 (sodium, potassium)	Alkalinty Control	18 gpd	#1 Caster Spray	continuous		NA	pH Limits at Outfall 001	NA
Nalco DC-14	Cleaner	<0.1 gpd	#1 Caster Spray	used to clean Trasar probes			Not expected at Outfall 001	NA
Nalco Stabrex (ST-70)	Microbiological Control	5 gpd	#1 Caster Spray	during hydraulic leaks	Varies	700 gpm typical max total from Caster # 1 (including maching water system blowdown)	TRC limit in place at Outfall 001	NA
Nalco Stabrex (ST-70)	Microbiological Control	3.5 gpd	#1 Caster Mold	continuous	Free chlorine residual 0.1 -0.3 ppm	Varies (typically <10 GPM)	TRC limit in place at Outfall 001	NA
Nalco Stabrex (ST-70)	Microbiological Control	1.8 gpd	#1 Caster Bearing	continuous	Free chlorine residual 0.1 -0.3 ppm	Varies (typically <10 GPM)	TRC limit in place at Outfall 001	NA
Nalco TRAC 113	Corrosion/Scale Inhibitor	5.5 gpd	#1 Caster Mold	continuous	10-30 ppm	Varies (typically <10 GPM)	0.004	NA
Steel Producing / #2 Caster								
3D Trasar 3DT120	Scale Inhibitor	20 gpd	#2 Caster Spray	continuous	2-5 ppm active	500 gpm typical max total from No. 2 Caster	0.031	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT120	Scale Inhinitor	9 gpd	#2 Caster Mold Evap	continuous	2-5 ppm active	500 gpm typical max total from No. 2 Caster		
3D Trasar 3DT179	Corrosion Inhibitor	14 gpd	#2 Caster Spray	continuous	1-2 ppm active	500 gpm typical max total from No. 2 Caster	0.012	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT179	Corrosion Inhibitor	4 gpd	#2 Caster Mold Evap	continuous	1-2 ppm active	500 gpm typical max total from No. 2 Caster		

Outfall 001 Average Flow rate: 118 mgd

Additive Name	Purpose (e.g., dispersant)	Feed / dosage rate (gal/day or lb/day)	System Where Used	Duration of use (hrs/day; days/year)	Additive Concentration in System	System blowdown flow rate if known (gpm)	Calculated Outfall 001 Concentration Concentration mg/L	Basis
3D Trasar 3DT185	Corrosion Inhibitor	3 gpd	#2 Caster Spray	continuous	1-4 ppm active	500 gpm typical max total from No. 2 Caster	0.012	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT185	Corrosion Inhibitor	2 gpd	#2 Caster Mold Evap	continuous	1-4 ppm active	500 gpm typical max total from No. 2 Caster		
Bleach	Microbiological Control	75 gpd	#2 Caster Spray	continuous	Free chlorine residual 0.1 -0.5 ppm	500 gpm typical max total from No. 2 Caster	TRC limit in place at Outfall 001	NA
Bleach	Microbiological Control	8 gpd	#2 Caster Mold Evap	continuous	Free chlorine residual 0.1 -0.5 ppm	500 gpm typical max total from No. 2 Caster		
Cat-Floc 8103 Plus	Filter Aide/ Coagulant	8.5 gpd	#2 Caster Spray	continuous	2-8 ppm	500 gpm typical max total from No. 2 Caster	Not expected at Outfall 001; coagulant removed through SWWTP	NA
Control Brom (CB-70)	Microbiological Control	7 gpd	#2 Caster Spray	continuous	Free chlorine residual 0.1 -0.5 ppm	500 gpm typical max total from No. 2 Caster	TRC limit in place at Outfall 001	NA
Nalco 7320	Microbiological Control	Not Used	#2 Caster Mold	Not Used	Not Used	Not Used	NA	NA
Nalco 7320	Microbiological Control	Not Used	Emergency Tower	Not Used	Not Used	Not Used	NA	NA
Nalco 7330	Microbiological Control	Not Used	#2 Caster Mold	Not Used	Not Used	Not Used	NA	NA
Nalco 7330	Microbiological Control	Not Used	Emergency Tower	Not Used	Not Used	Not Used	NA	NA
Nalco 8338	Corrosion/Scale Inhibitor	6 gpd	#2 Caster Mold	continuous	80-200 ppm	Varies (typically <10 GPM)	0.024	Blowdown flow x system concentration / 001 flow
Nalco 8735 (sodium / potassium)	Alkalinty Control	35 gpd	#2 Caster Spray	continuous	NA	NA	pH limits in place at 001	NA
Nalco OC-14	Cleaner	<0.1 gpd	#2 Caster Spray	used to clean Trasar probes	non-detect	NA	Not expected at Outfall 001	NA
Nalco Stabrex (ST-70)	Microbiological Control	1.7 gpd	#2 Caster Mold	continuous	Free chlorine residual 0.1 -0.3 ppm	NA	TRC limit in place at Outfall 001	NA
Nalco Stabrex (ST-70)	Microbiological Control	0.4 gpd	Emergency Tower	continuous	Free chlorine residual 0.5-1.0 ppm	Does not blowdown to DIW		
BOF								
Nalclear 7763 (Nalco 7763)	Cationic Flocculant	12-17 gpd	BOF Gas Cleaning	continuous	NA	Blowdown to RSB	Not expected at Outfall 001; coagulant removed through treatment	NA
Nalco 1392	Scale Inhibitor	8-14 gpd	BOF Gas Cleaning	continuous	3 ppm	Blowdown to RSB	0.015	Blowdown flow x system concentration / 001 flow
Nalco 7385	Scale Inhibitor	15-25 gpd	BOF Gas Cleaning	continuous	1-4 ppm	Blowdown to RSB	0.020	Blowdown flow x system concentration / 001 flow
Nalco 8338	Corrosion Inhibitor	10 gpd	BOF Gas Cleaning	only during hood make-up	80-200 ppm	Varies	0.001	Usage (lb/day) / Outfall 001 flow
Y001 (CO2)	Scale Inhibitor		BOF Gas Cleaning				NA (CO2)	
Nalco 1720	Oxygen Scavenger (Injected and stored in RO plant)	5 - 10 gpd	BOF Gas Cleaning	only while blowing a heat	20 ppm	Varies	0.085	Usage (lb/day) / Outfall 001 flow
Nalco 8735 (50% Sodium Hydroxide)	Alkalinity Source (Injected and stored in RO plant)	25 -30 gpd	BOF Gas Cleaning	only while blowing a heat	120 ppm	Varies	NA (pH limits at Outfall 001)	NA
NexGuard 22300	Scale Inhibitor	4 gpd	BOF Gas Cleaning	only while blowing a heat		Varies	0.034	Usage (lb/day) / Outfall 001 flow
Vacuum Degasser								
Nalco 1392	Scale Inhibitor	5 gpd	Vacuum Degasser	continuous	2-6 ppm	1400 gpm to DIW	0.103	Blowdown flow x system concentration / 001 flow

Outfall 001 Average Flow rate: 118 mgd

Additive Name	Purpose (e.g., dispersant)	Feed / dosage rate (gal/day or lb/day)	System Where Used	Duration of use (hrs/day; days/year)	Additive Concentration in System	System blowdown flow rate if known (gpm)	Calculated Outfall 001 Concentration	
							Concentration mg/L	Basis
Coke Plant: no additives discharges to surface water (deep well disposal with process water)								
SWTP								
Nalclear 7763 (Nalco 7763)	Anionic Flocculant	15 - 25 gpd	incomingflume to clarifiers	Continuous	0.25 ppm	varies	Not expected at Outfall 001; product expected to be removed through Secondary WWTP.	NA
Ultrion 8157	Coagulant	62 - 92 gpd	WW1 and WW2	Continuous	1 - 4 ppm	varies		
Core Shell 71301	Cationic Flocculant	35 - 60 gpd	Centrifuge	When Centrifuge Runs (8hrs/day)				
Core Shell 71325	Anionic Flocculant	35 - 60 gpd	Centrifuge	When Centrifuge Runs (8hrs/day)				
Nalco 7341	Biocide		WW2	180 days/yr	0.15 TRO		TRC limit at Outfall 001	NA
CHTL								
3D Trasar 3DT288 (*Not currently used, but is backup product for 3DT128)	Corrosion and deposit inhibitor	4 gpd for both Quench and Cooling Tower	CHTL Quench and Cooling Tower	Continuous when CHTL is running; Off when CHTL is down	Quench: 25 - 30 ppm; Cooling Tower: 20 - 25 ppm	200 gpm total	0.073	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT128	Corrosion and deposit inhibitor	4.8 gpd for both Quench and Cooling Tower	CHTL Quench and Cooling Tower	Continuous when CHTL is running; Off when CHTL is down	Quench: 25 - 30 ppm; Cooling Tower: 20 - 25 ppm	200 gpm total	0.073	Blowdown flow x system concentration / 001 flow
Nalco 7346 Tab	Bromine tabs for microbio control in cooling tower	3 - 5 lb per day	CHTL Cooling Tower	Continuous	0.35 ppm	200 gpm total	expected to be consumed	NA
HDCL								
Nalco 41	Corrosion inhibitor for closed loop cooling systems (filming amine)	0.2 gal per month (0.6 gal per month total (3 closed loop systems))	HDCL Closed Loop Cooling	As neeeded	0.4 - 0.8 ppm	Minimal BD, only what is lost to leaks and intermittent BD as needed.	0.0000034	Conservative estimate of 50 gpd system loss x system concentration / 001 flow
Nalco 7320	DBNPA biocide for RO product tank	0.3 gpd	RO Product Tank	1 hour/day	24 - 100 ppm (depending on amount of water produced)	Minimal BD, only what is lost to leaks and intermittent BD as needed.	0.0004237	Conservative estimate of 50 gpd system loss x system concentration / 001 flow
3D Trasar 3DT288 (*Not currently used, but is backup product for 3DT128)	Corrosion and deposit inhibitor	5.5 - 7.5 gpd	HDCL Cooling Tower	Continuous	20 - 25 ppm	500 gpm total	0.153	Blowdown flow x system concentration / 001 flow
3D Trasar 3DT128	Corrosion and deposit inhibitor	6 - 8 gpd	HDCL Cooling Tower	Continuous	20 - 25 ppm	500 gpm total	0.153	Blowdown flow x system concentration / 001 flow
Nalco 7346 Tab	Bromine tabs for microbio control in cooling tower	5 - 7 lb per day	HDCL Cooling Tower	Continuous	0.35 ppm	500 gpm total	0.002	Blowdown flow x system concentration / 001 flow (expected to be consumed)
Nalco 8338	Corrosion Inhibitor in x-ray gauge chill	2.5 mL/week	HDCL X-Ray Gauge Chillers	As neeeded	400 - 600 ppm	Minimal BD, only what is lost to leaks and intermittent BD as needed.	0.0005	Conservative estimate of 10 gpd system loss x system concentration / 001 flow
Sinter Plant								
Nalco 1392	scale inhibitor	0.5 to 2 gpd	Ducon Scrubber	Continuous	0.5 - 2 ppm	2500 gpm	0.061	Blowdown flow x system concentration / 001 flow
pHREEdom 5200M	scale inhibitor	3 to 6 gpd	Mist Eliminator	Continuous	22 - 26 as 5200M	2500 gpm	0.793	Blowdown flow x system concentration / 001 flow

Outfall 001 Average Flow rate: 118 mgd

Additive Name	Purpose (e.g., dispersant)	Feed / dosage rate (gal/day or lb/day)	System Where Used	Duration of use (hrs/day; days/year)	Additive Concentration in System	System blowdown flow rate if known (gpm)	Calculated Outfall 001 Concentration Concentration mg/L	Basis
Main Office								
Nalco 8338	Corrosion inhibitor for building boilers and chiller	Chiller (Only runs in summer): 0.25 gal; Boiler 1 (Only runs in winter): 0.125 gal; Boiler 2: 0.0625 gal	Main Office Chiller (summer only), Boiler 1 (winter only), Boiler 2 (all year)	Fed 1x a week to each unit (2 units running at all times depending on season)	Chiller: 300 - 500 ppm; Boilers 1 & 2: 400 - 600 ppm	NA	0.002	Usage (lb/day) / Outfall 001 flow
3D Trasar 3DT288 (*Not currently used, but is backup product for 3DT128)	Corrosion and deposit inhibitor	0.5 gal per week	Main Office Cooling Tower (Only runs in summer)	Fed 1x a week to tower	15 - 17 ppm	NA	0.005	Usage (lb/day) / Outfall 001 flow
Nalco 7320	DBNPA biocide	0.125 gallons per week	All systems	Fed 1x a week		NA	0.001	Usage (lb/day) / Outfall 001 flow
3D Trasar 3DT128	Corrosion and deposit inhibitor	0.5 gal per week	Main Office Cooling Tower (Only runs in summer)	Fed 1x a week to tower	10 - 12 ppm	NA	0.005	Usage (lb/day) / Outfall 001 flow
Power Station								
Tri-Act 1805	Amine to prevent condensate corrosion (Injected and stored at RO Plant)	10 gpd	Boilers/steam/condensate	Continuous	4 - 5 ppm	150 - 300 gpm	0.018	Blowdown flow x system concentration / 001 flow
NexGuard 22300	Polymer for scale control in boilers (Injected and stored in RO Plant)	12 gpd	Boilers	Continuous	10 - 12 ppm in bulk RO (2 - 4 ppm in boiler feedwater)	150 - 300 gpm	0.044	Blowdown flow x system concentration / 001 flow
Nalco 750	Antifoam to prevent carryover from steam drum to turbines	3.6 gpd	Boilers	As needed based on boiler blowdown alkalinity and saturated steam sodium concentration	2.5 ppm in boiler feedwater, 10 - 20 ppm in boiler blowdown	150 - 300 gpm	0.073	Blowdown flow x system concentration / 001 flow
Nalco 2581 (25% Caustic)	Alkalinity source for boilers (Injected and stored in RO building)	25 gpd	Boilers	Continuous	15 - 18 ppm	150 - 300 gpm	pH limit at Outfall 001	Blowdown flow x system concentration / 001 flow
Elimin-ox	Oxygen scavenger	Not currently in use	Boilers	Continuous & layup	Unknown at this time, as not currently in u	150 - 300 gpm	NA	NA
Nalco 1720	Oxygen scavenger	2 - 4 gpd	Boilers	Continuous	1 - 3 ppm	150 - 300 gpm	0.011	Blowdown flow x system concentration / 001 flow
RO Plant								
12.5% Sodium Hypochlorite (Bleach)	High pH for organic removal in UF system	35 - 40 gpd total	Ultra Filtration	Continuous + batch for UF Clean in place (every 30 service days, 4 hours per CIP) and bleach maintenance wash (every 48 service hours, 2 hours per BMW)	Continuous: 1 - 3 ppm; Clean in Place: 1000 ppm; Chlorine Maintenance Wash: 500 ppm	1,000 - 2,000 gpm	TRC limit in place at Outfall 001	NA
Nalco 7408 (38% Sodium Bisulfite)	Dechlorination ahead of RO membranes	8 - 10 gpd	Ultra Filtration	Continuous	5 - 8 ppm	1,000 - 2,000 gpm	0.117	RO feed water concentration concentration 4x in RO reject. RO reject concentration x RO reject flow / 001 flow

Outfall 001 Average Flow rate: 118 mgd

Additive Name	Purpose (e.g., dispersant)	Feed / dosage rate (gal/day or lb/day)	System Where Used	Duration of use (hrs/day; days/year)	Additive Concentration in System	System blowdown flow rate if known (gpm)	Calculated Outfall 001 Concentration Concentration mg/L	Basis
PermaTreat PC191T	Antiscalant for RO membranes	10 - 12 gpd	Reverse Osmosis	Continuous	4 - 5 ppm	1,000 - 2,000 gpm	0.073	RO feed water concentration concentration 4x in RO reject. RO reject concentration x RO reject flow / 001 flow
Permaclean PC-97	High pH for organic removal in RO membranes	110 gallons per Clean in Place (1 RO train per treatment)	Reverse Osmosis	1 x a quarter for all first pass RO units (6 units/quarter) (10 hours/treatment)	8,000 - 15,000 ppm	1,000 - 2,000 gpm	1.1	Usage (lb/day) / Outfall 001 flow. Infrequent usage.
Permaclean PC-87	Low pH for scale removal in RO membranes	110 gallons per Clean in Place (1 RO train per treatment)	Reverse Osmosis	1 x a quarter for all first pass RO units (6 units/quarter) (10 hours/treatment)	40,000 ppm	1,000 - 2,000 gpm	1.0	Usage (lb/day) / Outfall 001 flow. Infrequent usage.
Permaclean PC-77	Low pH for scale removal in RO membranes	110 gallons per Clean in Place (1 RO train per treatment)	Reverse Osmosis	1 x a quarter for all first pass RO units (6 units/quarter) (10 hours/treatment)	40,000 ppm	1,000 - 2,000 gpm	1.1	Usage (lb/day) / Outfall 001 flow. Infrequent usage.
Permaclean PC-11	DBNPA biocide for biocontrol in RO membranes	14 - 20 gallons per treatment (6 RO trains/treatment)	Reverse Osmosis	1 x a week for all 6 RO trains	50 ppm	1,000 - 2,000 gpm	0.21	Usage (lb/day) / Outfall 001 flow. Infrequent usage.
50% Citric Acid	Low pH for scale removal in UF system	20 gallons per Clean in Place (1 UF unit per treatment)	Ultra Filtration	Every 30 service days (4 hours per CIP)	10,000 ppm	1,000 - 2,000 gpm	pH limits in place at Outfall 001	NA
93% Sulfuic Acid	Low pH for scale removal in UF system	0.4 gal per Clean in Place (1 UF unit per treatment) & 0.4 gal per Acid Maintenance Wash	Ultra Filtration	Every 30 service days (Clean in Place) (4 hours per CIP) & Every 48 service hours (Acid Maintenance Wash) (2 hours per AMW)	600 ppm (same for both CIP and AMW)	1,000 - 2,000 gpm	pH limits in place at Outfall 001	NA
Nalco 73002	Made down ClO2 (3000 ppm)	Not currently in use	Ultra Filtration	Continuous (not currently fed, but would be continuous)	Max 1 ppm	1,000 - 2,000 gpm	TRC limits in place at Outfall 002	NA
BF (Recycle System)								
Core Shell 71305	cationic flocculant	3 to 5 gpd	Influent To Thickener	Continuous	0.5 PPM	NA	Not expected at Outfall 001; product expected to be removed through treatment	NA
Nalco 1392	scale inhibitor	15 - 25 gpd	Entrance to cooling towers	Continuous	0.5 PPM to 2 PPM	1000 gpm max expected	0.024	Blowdown flow x system concentration / 001 flow
Y386 (Magnesium Hydroxide)	pH adjustment	40 - 250 gpd	Entrance to cooling towers	2 hrs/day	7.5 to 8 pH	NA	pH limits in place at Outfall 001	NA
Nalco 8326	H2S Neutralizing agent		Entrance line to slag quench	Continuous	10 to 20 ppm	1000 gpm max expected	0.244	Blowdown flow x system concentration / 001 flow
Nalco 73002	Made down ClO2 (3000 ppm)	Max 8 lb/h	CN Destruct System				TRC limits in place at Outfall 001	NA
Chlorine Dioxide - trial basis	CN Destruct	2 lbs/hr - 18lbs/hr	CN Destruct System			150 - 1000 GPM	TRC limits in place at Outfall 001	NA
RSB								
Nalclear 7763	cationic flocculant	35 - 80	Hi Cap and Final Thickener	Continuous	2 - 5 ppm	180 - 220 for BOF; 2300 - 2800 for sinter	Not expected at Outfall 001; product expected to be removed through treatment	NA

Outfall 001 Average Flow rate: 118 mgd

Additive Name	Purpose (e.g., dispersant)	Feed / dosage rate (gal/day or lb/day)	System Where Used	Duration of use (hrs/day; days/year)	Additive Concentration in System	System blowdown flow rate if known (gpm)	Calculated Outfall 001 Concentration Concentration mg/L	Basis
Nalcolyte 8100	coagulant	7 to 13	Final Thickener	Continuous	3 - 5 ppm	2300 - 2800	Not expected at Outfall 001; product expected to be removed through treatment	NA
Y386 (Magnesium Hydroxide)	pH adjustment/sludge stabilization		Mix tank				pH limits in place at Outfall 001	NA
Magnesium Oxide	pH adjustment/sludge stabilization	700 lbs - 2700 lbs	Final Thickener	Continuous	pH 8.1 to 8.3	2300 - 2800	pH limits in place at Outfall 001	NA
Plant								
Univar sodium bisulfide	dehalogenation at outfalls	405	Outfalls	180 day/yr	1 - 1.5	1.0 to 1.5	NA	NA
Bleach at Lakewater Pump Stations	biocide	500 - 750	Pumping Station	180 day/yr	0.15 - 0.25 TRO	Dechlorinated	TRC limits in place at Outfall 001	NA
Waste Water Pumping Station No. 2								
Nalco 73002 - Under consideration	Made down ClO2 (3000 ppm)	Max 8 lb/h	NA	as needed	NA	NA	TRC limits in place at Outfall 001	NA

Following is a list of water treatment additives that have been approved after the renewal application was submitted to IDEM:

Product Name	Location	Approval Date
Ultrion 8157	SSTP	2/17/2021
K 275 FLX	SSTP	3/25/2021
K 279 FLX	SSTP	3/25/2021
K 146 FLX	SSTP	3/25/2021
K 136 FLX	SSTP	3/25/2021
Sodium Hydroxide	BFCWPS - temp ammonia	6/1/2021
Sulfuric Acid	BFCWPS - temp ammonia	6/1/2021
Sodium Hypochlorite	BFCWPS - temp ammonia	6/1/2021
Soda Ash	BFCWPS - temp ammonia	6/1/2021
Core Shell 71301	BFCWPS - temp ammonia	6/1/2021
OWS 7009B	SSTP	6/8/2021

6.0 PERMIT DRAFT DISCUSSION

6.1 Discharge Limitations, Monitoring Conditions and Rationale

The proposed final effluent limitations are based on the more stringent of the Indiana water quality-based effluent limitations (WQBELs), technology-based effluent limitations (TBELs), or approved total maximum daily loads (TMDLs) and NPDES regulations as appropriate for each regulated outfall. Section 5.3 of this document explains the rationale for the effluent limitations at each Outfall.

As specified at 327 IAC 5-2-13(d)(1), test procedures identified in 40 CFR 136, including analytical and sampling methods, shall be used for pollutants or pollutant parameters listed in that part unless an alternate test procedure has been approved under 40 CFR 136.5. The State of Indiana has currently incorporated by reference the July 1, 2016 version of 40 CFR 136 under 327 IAC 5-2-1.5 and 327 IAC 1-1-2; therefore, this is the version of 40 CFR 136 currently applicable in NPDES permits.

With the following exceptions, the monitoring frequencies and sample types have not changed:

Outfall 001 – Increased sampling frequencies for Free Cyanide, TRC, O & G, and Ammonia. Added reporting requirements for Selenium.

Outfall 011 – Increased sampling frequencies for O & G, Ammonia, and Total Cyanide. Added reporting requirements for Selenium.

Outfall 111 – Increased sampling frequencies for 2,3,7,8-TCDF. Added reporting requirements for Flow, Furans, and Dioxins.

Outfall 002 – Increased sampling frequencies for Ammonia, Phenols, Fluoride, and TRC. Added reporting requirements for Total Cyanide and Copper. Removed monitoring requirements for dissolved Iron and Lead.

Outfall 003 – Added reporting requirements for effluent flow, intake flow, and intake velocity at the No. 1 LWPS and No. 2 LWPS.

Outfall 001:

Parameter	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	Continuous	24-Hr. Total
Water Cannon Flow	Report	Report	MGD	Continuous	24-Hr. Total
TSS	Report (Report)	Report (Report)	mg/l (lbs/day)	1 X Weekly	24-Hr. Composite
O & G	Report (Report)	Report (Report)	mg/l (lbs/day)	2 X Weekly	Grab
Phenols (4AAP)	Report (14)	Report (22)	mg/l (lbs/day)	1 X Weekly	Grab
Copper	0.018 (20)	0.035 (39)	mg/l (lbs/day)	2 X Monthly	24-Hr. Composite
Silver	0.048 (0.054)	0.097 (0.11)	ug/l (lbs/day)	2 X Monthly	24-Hr. Composite
Mercury	1.3 (0.0015)	3.2 (0.0036)	ng/l (lbs/day)	6 X Yearly	Grab
Zinc	150 (168)	290 (324)	ug/l (lbs/day)	2 X Monthly	24-Hr. Composite
TRC	10 (11)	20 (22)	ug/l (lbs/day)	Daily	Grab
Temperature	-----	316(a) variance [1]	°F	Continuous	Probe
Free Cyanide	4.4 (4.9)	8.8 (9.8)	ug/l (lbs/day)	Daily	Grab
WET	1.0	1.0	TU	Quarterly	24-Hr. Composite
Ammonia, as N	[2]	[2]	mg/l (lbs/day)	Daily	24-Hr. Composite
Selenium	Report (Report)	Report (Report)	ug/l (lbs/day)	2 X Monthly	24-Hr. Composite

Parameter	Daily Minimum	Daily Maximum	Units	Minimum Frequency	Sample Type
pH	6.0	9.0	Std Units	Continuous	Probe

[1] Temperature limitations vary monthly and are alternate thermal effluent limits based on an approved 316(a) variance. The highest temperature sustained over any two hour period within each day's 24 hour monitoring period shall not exceed the temperatures listed below (the permittee can use flow augmentation to achieve compliance)

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	60	60	65	71	81	86	86	86	85	80	75	65

[2] Ammonia (as N) limitations vary monthly and are based on an approved 301(g) variance. The limitations are:

Ammonia, as N	**Weekly Average**	**Daily Maximum**	**Units**
January	0.68 (720)	0.86 (915)	mg/l (lbs/day)
February	0.72 (645)	1.02 (910)	mg/l (lbs/day)
March	0.9 (940)	1.27 (1,300)	mg/l (lbs/day)
April	0.82 (730)	1.16 (1,030)	mg/l (lbs/day)
May	0.74 (680)	1.05 (970)	mg/l (lbs/day)
June	0.62 (650)	0.87 (920)	mg/l (lbs/day)
July	0.36 (375)	0.51 (540)	mg/l (lbs/day)
August	0.37 (385)	0.52 (540)	mg/l (lbs/day)
September	0.82 (550)	1.16 (775)	mg/l (lbs/day)
October	0.67 (635)	0.95 (900)	mg/l (lbs/day)
November	0.47 (530)	0.6 (680)	mg/l (lbs/day)
December	0.9 (635)	1.27 (900)	mg/l (lbs/day)

Internal Outfall 011:

Parameter	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	Continuous	24-Hr. Total
TSS	Report (7,000)	Report (24,530)	mg/l (lbs/day)	2 X Weekly	24-Hr. Composite
O & G	-----	Report (5,584)	mg/l (lbs/day)	2 X Weekly	Grab
Ammonia, as N	Report (Report)	Report (Report)	mg/l (lbs/day)	Daily	24-Hr. Composite
Phenols (4AAP)	Report (Report)	Report (Report)	mg/l (lbs/day)	2 X Weekly	Grab
Total Cyanide	Report (Report)	Report (21)	mg/l (lbs/day)	Daily	Grab
Zinc	Report (28.4)	Report (85.2)	mg/l (lbs/day)	2 X Weekly	24-Hr. Composite
Lead	Report (19.8)	Report (40.0)	mg/l (lbs/day)	2 X Weekly	24-Hr. Composite
TRC	-----	Report (4.18)	ug/l (lbs/day)	2 X Weekly	Grab
Naphthalene	-----	Report (0.401)	ug/l (lbs/day)	Monitoring Waiver	Grab
Tetrachloroethylene	-----	Report (0.600)	ug/l (lbs/day)	Monitoring Waiver	Grab
Selenium	Report (Report)	Report (Report)	ug/l (lbs/day)	2 X Weekly	24-Hr. Composite

Internal Outfall 111:

Parameter	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	1 X Weekly	24-Hr. Total
2,3,7,8-TCDF	Report (Report)	<ML (Report)	pg/l (lbs/day)	1 X Weekly	24-Hr. Composite

Outfall 002:

Parameter	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
Flow	Report	Report	MGD	Continuous	24-Hr. Total
TSS	Report (Report)	Report (Report)	mg/l (lbs/day)	1 X Weekly	24-Hr. Composite
O & G	Report (Report)	Report (Report)	mg/l (lbs/day)	1 X Weekly	Grab
Ammonia, as N	Report (Report)	Report (Report)	mg/l (lbs/day)	3 X Weekly	24-Hr. Composite
Phenols (4AAP)	Report (Report)	Report (Report)	mg/l (lbs/day)	3 X Weekly	Grab
Zinc	Report (Report)	Report (Report)	ug/l (lbs/day)	3 X Weekly	24-Hr. Composite
Fluoride	Report (Report)	Report (Report)	mg/l (lbs/day)	3 X Weekly	24-Hr. Composite
TRC	10 (24)	20 (48)	ug/l (lbs/day)	1 X Daily	Grab
Temperature	-----	316(a) variance [1]	°F	Continuous	Probe
Total Cyanide	Report (Report)	Report (Report)	ug/l (lbs/day)	3 X Weekly	Grab
Copper	Report (Report)	Report (Report)	ug/l (lbs/day)	3 X Weekly	24-Hr. Composite

Parameter	Daily Minimum	Daily Maximum	Units	Minimum Frequency	Sample Type
pH	6.0	9.0	Std Units	Continuous	Probe

[1] Temperature limitations vary monthly and are alternate thermal effluent limits based on an approved 316(a) variance. The limits are:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	55	57	63	69	77	82	88	90	88	81	72	63

Outfall 003:

Parameter	Monthly Average	Daily Maximum	Units	Minimum Frequency	Sample Type
TRC	10	20	ug/l	Daily during mussel control	Grab
Effluent Flow	Report	Report	MGD	Daily	24-Hr. Total
Intake Flow No. 1 LWPS No. 2 LWPS	 Report Report	 Report Report	 MGD MGD	 Daily Daily	 24-Hr. Total 24-Hr. Total
Intake Velocity No. 1 LWPS Interim Final	 ---- ----	 Report 0.5	 ---- ----	 Daily Daily	 [1] [1]
Intake Velocity No. 2 LWPS Interim Final	 ---- ----	 Report 0.5	 ---- ----	 Daily Daily	 [1] [1]

[1] The permittee must monitor the velocity at the traveling screens in each of the two pump stations at a minimum frequency of daily. The through screen velocity monitoring shall be conducted at a point where intake velocities are the greatest. In lieu of velocity monitoring at the screen face of the traveling screens, the permittee may calculate the through-screen velocity separately at the No. 1 and No. 2 Lake Water Pumping Stations using water flow, water depth, and the screen open areas. The location and method used to determine the maximum velocities shall be included in the annual report required to be submitted under Part IV.B.6 of the Permit. If the permittee uses the calculation method to determine the velocities, the input values and calculation for each day shall be included in this annual report.

6.2 Schedule of Compliance

A schedule of compliance has been included in the permit providing the permittee up to three years to comply with the 316(b) cooling water intake structure impingement mortality best technology available (BTA) requirements included in the permit. Please refer to Section 6.4.8.B. of this Fact Sheet for more information.

A schedule of compliance has been included in the permit providing the permittee up to two years to install a flow monitoring station at Outfall 011.

6.3 Clean Water Act (CWA) Section 316(a) Alternative Thermal Effluent Limitations

A. Applicability, Purpose and Scope

Section 316(a) of the Clean Water Act provides that if a facility can demonstrate to the satisfaction of the State that any effluent limitation proposed for the control of the thermal component of any discharge will require effluent limitations more stringent than necessary to assure the projection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made, the State may impose an effluent limitation with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants) that will assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on that body of water.

Federal regulations implementing section 316(a) of the CWA are codified at 40 CFR Part 125, subpart H; while Indiana has established rules implementing section 316(a) of the CWA at 327 IAC 5-7. These rules and regulations identify the criteria and processes for determining whether an alternate effluent limitation (i.e. a thermal variance from the otherwise applicable limits) may be included in a permit, and, if so, what that limit should be. This means that before a thermal variance can be granted, 327 IAC 5-7-3 and 4 (see also 40 CFR 125.72 and 125.73) require the permittee to demonstrate that the otherwise applicable thermal discharge effluent limit is more stringent than necessary to assure the protection and propagation of the waterbody's balanced indigenous community of shellfish, fish and wildlife.

These federal regulations and Indiana's rules define, in part, balanced, indigenous population (or balanced, indigenous community) as a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination by pollution tolerant species. Such a community may include historically non-native species introduced in connection with a program of wildlife management and species whose presence or abundance results from substantial, irreversible environmental modifications. (See 327 IAC 5-7-2 and 40 CFR 125.71(c))

The burden of proof is on the permittee to demonstrate that it is eligible to receive an alternative thermal effluent limit under 316(a). In support of any proposed alternative thermal limit, the discharger must demonstrate that the alternative limit will assure protection of the waterbody's balanced indigenous population, considering the impacts of its thermal discharge together with all other significant impacts on the species affected. (see 327 IAC 5-7-4(a) and 40 CFR 125.73(a))

When applying for an alternative thermal limit, an applicant must submit the supporting information and demonstrations identified and described in 327 IAC 5-7-3 and 4 (see also 40 CFR 125.72 and 73). Among other things, the applicant must identify and describe (1) the requested alternative effluent limitation, (2) methodology used to support the limitation, (3) the organisms comprising the balanced indigenous community along with supporting data and information, and (4) the types of data, studies, experiments and other information the applicant intends to use to demonstrate that the alternative thermal limit assures the protection and propagation of the balanced indigenous community. 327 IAC 5-7-3(a) and (b) (see also 40 CFR 125.72(a) and (b)).

IDEM has developed a draft 316(a) guidance document, Guidance for Conducting a Demonstration as a Requirement of a 316(a) Alternative Thermal Effluent Limitation Request, March 2015; available at: https://www.in.gov/idem/cleanwater/2365.htm. The permittee should use this guidance preparing 316(a) demonstration study plans and conducting 316(a) demonstrations.

Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the IDEM that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will ensure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

Existing dischargers may base their demonstration upon the absence of prior appreciable harm in lieu of predictive studies in accordance with 327 IAC 5-7-4(c)(1). Any such demonstrations shall show: (i) That no appreciable harm has resulted from the normal component of the discharge (taking into account the interaction of such thermal component with other pollutants and the additive effect of other thermal sources to a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge has been made; or (ii) That despite the occurrence of such previous harm, the desired alternative effluent limitations (or appropriate modifications thereof) will nevertheless ensure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. In determining whether or not prior appreciable harm has occurred, the IDEM shall consider the length of time in which the applicant has been discharging and the nature of the discharge.

A 316(a) variance is a permit condition which expires along with the permit. A permittee may request renewal of its 316(a) variance prior to the expiration of the permit. Therefore, when the permittee submits its next NPDES permit renewal application, if the permittee still wants the 316(a) variance, it must also request renewal of its 316(a) variance.

In accordance with the IDEM draft 316(a) guidance document, Guidance for Conducting a Demonstration as a Requirement of a 316(a) Alternative Thermal Effluent Limitation Request, March 2015; existing dischargers are required to conduct a new Type I Demonstration if they have not completed a Type I Demonstration within the past 10 years.

B. Historical Summary of Alternative Thermal Effluent Limitations

1. Outfall 001

(a) Based on a 1975 316(a) study, the permittee requested the following alternate thermal effluent limitations at Outfall 001:

- During the months of March and April (i.e. Spring migration of Coho smelt and Steelhead fry), discharge temperature shall not exceed 65° and 70°F, respectively.
- During the month of May (i.e. Spring migration of Chinook smolt), discharge temperature shall not exceed 75°F.
- During the remaining months of the year, the discharge shall not exceed the temperatures indicated in the following table:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	60	60	65	70	75	80	85	85	85	80	75	65

(b) Based on an August 1976 permit amendment, the following alternate thermal effluent limitations were included in the permit:

The highest two-hour average temperatures within each 24-hour monitoring period shall not exceed the temperatures listed below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	60	60	65	70	75	80	85	85	85	80	75	65
ºC	15.55	15.55	18.33	21.11	23.88	26.66	29.44	29.44	29.44	26.66	23.88	18.33

(c) In the permittee's September 13, 1988 NPDES permit, the following alternate thermal effluent limitations were established:

The highest temperature sustained over any two-hour period within each day's 24-hour monitoring period shall not exceed the temperatures listed below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	60	60	65	71	81	83	86	86	85	80	75	65
ºC	15.55	15.55	18.33	21.67	27.22	28.33	30.00	30.00	29.44	26.66	23.88	18.33

The permit stated that based on creel census data collected by IDNR and a Thermal Avoidance Study performed during 1984 by the permittee's consultant, the Commissioner and the IDNR have determined that the thermal component of the permittee's Outfall 001 discharge deters significant percentages of salmonid fish (principally, steelhead trout) from completing their desired return migration to the Little Calumet River upstream of the Outfall 001 discharge point and induces a preferential selection of Salt Creek as the migration terminus. Further, the permit required the permittee to conduct an engineering study to determine the potential effectiveness and estimated costs of possible corrective measures that might be taken to mitigate the "thermal avoidance" problem.

The Fact Sheet stated that the thermal effluent limitations at Outfall 001 were increased in the months of April through August to reflect actual operating conditions. The Fact Sheet did not explain why the limits were changed from a two-hour average to the highest temperature sustained over a two-hour period (which would be the minimum temperature measured during that two-hour period).

(d) In a letter from IDEM to the permittee dated July 16, 1990, IDEM stated that it had reviewed a May 10, 1990 report titled "Thermal Mitigation Study of Plant Cooling Water Discharge to Outfall 001" which had been submitted by the permittee. In this letter, IDEM stated that it had no objection to the addition of up to 35,000 GPM [50 MGD] of Lake Michigan water to the lagoons to help assure compliance with thermal effluent limitations. This flow augmentation would only be used on days when the effluent temperature at Outfall 001 was approaching the permittee's thermal limitations. Further this letter stated as follows:

> "It is unclear at this time what effect the implementation of these two practices (the other being operation of the two lagoons in parallel) will have on the thermal mitigation requirements of your NPDES permit. Since it is clear that no final determination on this issue will be made prior to the 1990 summer Skamania steelhead migration, it will be necessary to conduct thermal avoidance studies during the migration to document the effects. Under a best case scenario, the implementation of these two low cost actions could satisfy the NPDES requirements. We are not overly optimistic that this will be the case, and expect some further action will be necessary. However, we do see the two actions to be very positive and productive measures."

The permittee did install a water cannon allowing it to discharge Lake Michigan water into Samuelson Ditch (also referred to as the Burn Harbor NCCW Channel or the Outfall 001 Storm Ditch) upstream of the Outfall 011 discharge location.

(e) The permittee's next permit renewal, which was issued on February 7, 2011, contained the following alternate thermal effluent limitations:

The highest temperature sustained over any two-hour period within each day's 24-hour monitoring period shall not exceed the temperatures listed below (the permittee can use flow augmentation to achieve compliance):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	60	60	65	71	81	86	86	86	85	80	75	65

The increase from 83ºF to 86ºF for June is not explained in the Fact Sheet. Instead, the Fact Sheet states that the thermal limits from the existing permit were being continued and included a thermal limits table with a limit of 83ºF for June. The post-public notice addendum does not mention a temperature increase for this month (it does mention that the permittee requested an increase to 90ºF for the summer months of July, August and September which IDEM denied).

The Fact Sheet described how the water cannon was used and stated that "[s]ince the implementation of the addition of Lake Michigan water to meet the thermal effluent limits at Outfall 001, there has not been any indication that the thermal component of the discharge from Outfall 001 is causing any adverse impacts on the aquatic life in the Little Calumet River downstream of Outfall 001." The Fact Sheet also contained a paragraph from IDNR that includes a statement that "IDNR has not seen any adverse effects from the thermal discharges from Outfall 001."

(f) The permittee's next permit renewal, which was issued on May 27, 2016, included the same temperature limitations in the permit. The Fact Sheet noted that the permittee was in the process of collecting thermal plume data and other information to submit a new 316(a) variance request.

(g) The permittee submitted a Thermal Demonstration and Request for Modified 316(a) Variance Alternate Temperature Effluent Limits dated December 31, 2018. As part of this modification request, the permittee requested an increase in the temperature limitations from 86 to 90ºF for the months of June, July and August, and from 85 to 90ºF for the month of September.

This modification request was subsequently withdrawn in August 2019.

In a letter from IDEM to the permittee dated December 18, 2019, IDEM made the permittee aware of Indiana Department of Natural Resources (IDNR) concerns with respect to the thermal impact of the discharge to the salmonid fishery and included a letter from IDNR to IDEM dated October 4, 2019, discussing these concerns.

In its letter, IDNR noted, in pertinent part, that:

> The East Branch of the Little Calumet River (EBLCR) and its tributary, Salt Creek, are important resources in Indiana DNR's program to provide a diverse salmonid fishery for region anglers. This tributary, along with Trail Creek, provide rare opportunities for anglers to easily access a unique and diverse fishery. Indiana DNR stocks winter-run steel head, summer-run steel head, Chinook salmon, and coho salmon in the EBLCR. Winter-run steel head return as adults to the stream between November and April, summer-run steelhead between June-September, and chinook and coho salmon from September-November.
>
> Contemporary Indiana DNR creel data shows long-term thermal avoidance of EBLCR during summer months, with very little angler effort or catch during the June, July, and August, despite significant investment in stocking summer-run steelhead in this tributary. In comparison, Trail Creek, which rarely exceeds 73 degrees even during summer, receives excellent summer-run steelhead returns and angling pressure and catch during the same time periods, and Salt Creek has catch rates much higher than EBLCR.
>
> Despite similar stocking of salmonids, creel data show that Trail Creek receives between 2 and 4 times the fishing effort as the Little Calumet system during Spring, Fall, and Winter, when there are not significant thermal limitations to salmonid migration. However, during summertime, Trail Creek receives fishing effort more than an order of magnitude higher -between 13 and 14 times the fishing effort compared to the Little Calumet system. Similarly, on the Little Calumet system, spring, fall, and winter fishing effort is much higher during non-summer months, with between 1.5 and 4 times as much effort compared to summer. Whereas on Trail Creek, spring and winter fishing effort are less than half of summer effort, and fall fishing is only 1.25 times summer effort.

IDNR concluded by stating IDNR's position with respect to the permittee's requested temperature increase at Outfall 001, as the following:

- Current temperature regime downstream of Outfall 001 is already causing harm to the salmonid fishery, particularly during summer
- Current temperatures are exceeding thermal habitat requirements for salmonids and acting as a thermal barrier to upstream adult migration into the EBLCR, especially during June-August in most years, but also potentially into September in some hot years
- Opposed to temperature increases as status quo is already harmful to salmonid fishery and temperature increases would exacerbate current situation

In addition, the December 2019 letter from IDEM to the permittee stated that if the permittee wanted to reapply for a 316(a) variance and alternative thermal effluent limitations for Outfall 001 in its next permit renewal, the permittee was to submit updated application information consistent with the information required under 327 IAC 5-7-3(a) and (b) for an initial 316(a) variance.

(h) In its renewal application, although the permittee did request a continuance of its 316(a) variance and alternate thermal effluent limitations, the permittee did not provide any of the information required by 327 IAC 5-7-3(a) and (b).

Since the submittal of its renewal application, the permittee has submitted the following statement:

> Cleveland-Cliffs is committed to evaluating how best to reduce thermal discharges to the East Branch of the Little Calumet River from Outfall 001.
>
> - 2022 Project. In close coordination with IDNR and IDEM, the Burns Harbor thermal discharge initiative will be initiated with comprehensive baseline biological studies of the ELBCR, Salt Creek and Trail Creek. The biological studies will include habitat assessments, macroinvertebrate assessments and characterization of the stream fisheries for both warm water fish and salmonids.
> - Cleveland-Cliffs is evaluating Outfall 001 thermal discharge mitigation alternatives and will provide a plan to IDEM and IDNR for review and approval.

One of the alternatives the permittee is considering for reducing the thermal impact to the East Branch of the Little Calumet River is to route some or all of the flow currently discharging through Outfall 011 into the noncontact cooling water distribution system for Outfall 002. If this alternative was implemented, some of the thermal load currently discharged through Outfall 001 to the East Branch of the Little Calumet River would instead discharge through Outfall 002 into the East Arm of Burns Harbor.

The permittee has submitted an outline summarizing thermal and biological studies that could be conducted to establish a seasonal baseline thermal and biological conditions in the EBLCR upstream and downstream of the permittee’s Outfall 001 and in Salt Creek and Trail Creek. The baseline studies would be conducted prior to Burns Harbor Outfall 001 pollutant and thermal loading changes. Additional studies would be conducted after the thermal load was redirected from Outfall 001 to Outfall 002.

2. Outfall 002

(a) Based on a 1975 316(a) study, the permittee did not request specific alternate thermal effluent limitations for Outfall 002; instead, the following recommendations were made:

- Other than for the thermal component, the data base shows that the quality of this discharge is excellent and is essentially the same as the quality of the intake water from our submerged intake structure in Lake Michigan.
- Because Outfall 002 (1) is located on the inland side of the ship canal with approximately 5000 ft. from the outfall to the mouth of the harbor, (2) has a location which, due to the geometry of the canal and harbor, allows for negligible dilution (an inadequate mixing zone), and (3) has a contained receiving water (by design of the breakwaters) which does not allow the degree of dispersion expected in a normal mixing zone, we believe that a proper location to demonstrate the intendment of the Act should be the periphery of a 1000 ft. radius mixing zone having the form of a semi-circle with the center and area as shown on an attached map [the map was attached to the study and is not included with this Fact Sheet].
- The data base available for this discharge (which consists of noncontact cooling water) is sufficient to show that the effluents have a low impact on the receiving waters of Lake Michigan, with an expected discharge temperature no greater than 85ºF and the temperature at the mouth of the harbor expected to be several degrees cooler.
- Because the intake water (before the Plant uses this water for noncontact cooling) often exceeds the monthly maximum temperatures designated by the Permit for 002 discharge, alternate thermal limitations must be established.
- Based on our evaluation of the available data base, we recommend that the following study be approved by the Administrator as sufficient for a demonstration to set alternate thermal limitations.
    - Develop a set of isotherms over an annual cycle to include the areas of interest, i.e. the harbor, the proposed mixing zone and suitable representative adjacent areas of Lake Michigan.
    - The study to begin within 3 months after approval by the Administrator and continue for a 24-month period, with a final report to be submitted within 3 months thereafter. This final report will present our suggested alternate thermal limitations for Outfall 002.

(b) Based on the content of an August 1976 permit amendment, the following alternate thermal effluent limitations were included in the permit:

The highest two-hour average temperatures within each 24-hour monitoring period shall not exceed the temperatures listed below:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	55	57	63	69	77	82	88	90	88	81	72	63
ºC	12.77	13.88	17.22	20.55	25.00	27.77	31.11	32.22	31.11	27.22	22.22	17.22

(c) In the permittee's September 13, 1988 NPDES permit, the same temperature limitations were included in the permit, except that they were changed from the "highest two-hour average temperatures within each 24-hour monitoring period" to the "highest temperatures sustained over any two-hour period with each day's 24-hour monitoring period." The Fact Sheet did not explain why this change was made.

The Fact Sheet states that these limits are based on the January 1975 application for alternate thermal limitations; however, the January 1975 application did not propose thermal limits for this outfall. Instead, the January 1975 application proposed an additional study. The source of these limits, which were also included in the August 1976 permit amendment, is not known.

(d) The permittee's next permit renewal, which was issued on February 7, 2011, included the same temperature limitations in the permit, except that the degree Celsius temperatures were omitted.

(e) The permittee's next permit renewal, which was issued on May 27, 2016, included the same temperature limitations in the permit. The Fact Sheet noted that the permittee was in the process of collecting thermal plume data and other information to submit a new 316(a) variance request.

(f) The permittee submitted a Thermal Demonstration and Request for Modified 316(a) Variance Alternate Temperature Effluent Limits dated December 31, 2018.

As part of this modification request, the permittee requested that an alternate location be established in Burns Harbor for assessing compliance with the 3º temperature rise requirement in Lake Michigan for Outfall 002.

In discussion with the permittee regarding this modification request, IDEM informed the permittee that this modification was not needed. The permit did not require compliance with the 3º temperature rise requirement in Lake Michigan for Outfall 002; instead, the alternate thermal effluent limitations imposed at Outfall 002 were in place of other water quality criteria for Lake Michigan, including the requirement to comply with the 3º temperature rise requirement that is normally applicable in Lake Michigan.

This modification request was subsequently withdrawn in August 2019.

C. Summary of Recent 316(a) Demonstration

The most recent 316(a) demonstration was submitted by the permittee in a document dated January 8, 2019 which provided thermal study data for both Outfall 001 and Outfall 002 and requested a permit modification and revised alternate thermal effluent limitations at Outfall 001 and 002.

On August 27, 2019 the permittee withdrew this modification request.

1. Outfall 001

In its January 8, 2019 modification request; the permittee requested an increase in the temperature limitations from 86 to 90ºF for the months of June, July and August, and from 85 to 90ºF for the month of September at Outfall 001.

As a result of the submittal of this request for modification of its thermal limits, IDEM consulted with the Indiana Department of Natural Resources (IDNR) to obtain their input with respect to the requested increases at Outfall 001.

A summary of IDNR's comments and concerns with respect to the thermal impact of Outfall 001 are included in Section 6.3.C.1.(g), above. Based on IDNR's concerns with respect to the thermal impact of Outfall 001, IDEM notified the permittee of IDNR's concern in a letter dated December 18, 2019 and informed the permittee that IDEM would be considering a reduction in the current alternate thermal effluent limits at Outfall 001 during the 2021 permit renewal and further requested that the permittee submit updated application information with its next permit renewal consistent with the information required for an initial 316(a) variance under 327 IAC 5-7-3(a) and (b).

Under 327 IAC 5-7-3(c), any application for a renewal of a 316(a) variance need include only such information described in subsection (a) and (b) as the Commissioner requests not later than one year prior to the date on which the renewal application is due. The permittee's renewal application was due by January 1, 2021, and IDEM sent its letter specifying the information needed for the renewal of the permittee's 316(a) on December 18, 2019; therefore, IDEM's request was dated more than one year before the permittee's renewal application was due.

Under 327 IAC 5-7-3(a), the permittee was required to submit the following information in its renewal application if it wanted to renew its 316(a) variance at Outfall 001:

(1) A description of the alternative effluent limitations requested.
(2) A general description of the method by which the discharger proposes to demonstrate that the otherwise applicable thermal discharge effluent limitations are more stringent than necessary.
(3) A general description of the type of data, studies, experiments, and other information which the discharger intends to submit for the demonstration.

(4) Such data and information as may be available to assist the commissioner in selecting the appropriate representative important species.

Under 327 IAC 5-7-3(b), after submitting the above information with its renewal application, the permittee was required to consult with IDEM to discuss the above-submitted information and within 90 days of submitting the above information, the permittee was required to submit for the Commissioner's approval a detailed plan of study which the discharger would undertake to support its demonstration under Section 316(a) of the Clean Water Act. The discharger was required to identify the nature and extent of the following type of information to be included in the plan of study:

(1) Biological.
(2) Hydrographical and meteorological data.
(3) Physical monitoring data.
(4) Engineering or diffusion models.
(5) Laboratory studies.
(6) Representative important species.
(7) Other relevant information.

In selecting representative important species, special consideration shall be given to species mentioned in applicable water quality standards. After the discharger submits its detailed plan of study, the Commissioner shall either approve the plan or specify any necessary revisions to the plan. The discharger shall provide any additional information or studies which the Commissioner subsequently determines necessary to support the demonstration, including such studies or inspections as may be necessary to select representative important species. The discharger may provide any additional information or studies which the discharger feels are appropriate to support the demonstration.

The permittee did not submit the required information for the 316(a) variance at Outfall 001. Instead, in a letter dated January 19, 2021, which was submitted as a supplement of the permittee's renewal application submitted in December 2019, the permittee submitted the following statement:

Alternate Section 316(a) temperature effluent limits at Outfall 001 and Outfall 002 have been in effect for several Bums Harbor NPDES permit cycles. Burns Harbor wants to maintain the alternate temperature effluent limits in the renewal NPDES permit. We understand that IDEM and the Indiana Department of Natural Resources (IDNR) have concern about passage of salmonids in the East Branch of the Little Calumet River (EBLCR) past the Burns Harbor Outfall 001 discharge. This will be a challenging issue for the renewal NPDES permit. We intend to engage IDEM and IDNR on this issue and will initiate discussions upon review of available agency information that we will soon request from IDEM and IDNR.

However, since submittal of this letter, the permittee has notified IDEM that it does intend on addressing the thermal issues at Outfall 001 and is exploring alternatives to reduce the temperatures at Outfall 001 so that the salmonid fishery will no longer be adversely affected by the discharge (see Section 6.3.B.1.(h)., above.) Although the proposed permit is not changing the alternate thermal effluent limitations; the permit does require the permittee to investigate alternatives to reduce the temperature of the discharge at Outfall 001 to acceptable levels. In addition, the permit will require the permittee to conduct additional thermal and biological studies in the EBLCR.

Outfall 001-Macroinvertebrate and Fish Community Summary from IDEM Data

IDEM collected biological community samples from the East Branch of the Little Calumet River (EBLCR), in 2012 and 2015. During the 2012 study, fish and macroinvertebrate samples were collected from multiple locations on the EBLCR, both upstream and downstream of the permittee's facility. Macroinvertebrates were collected using a multi-habitat sampling method and a multi-metric macroinvertebrate Index of Biological Integrity (mIBI).

Of the 14 locations on the EBLCR, only two sites had a "passing" macroinvertebrate community, a site located in the EBLCR headwaters and a site located at the confluence of the EBLCR and Burns Ditch, downstream of the permittee's facility. As the majority of macroinvertebrate mIBI scores were failing both upstream and downstream of the facility, it was determined that poor or marginal habitat was probably the predominant factor in explaining the quality of the macroinvertebrate communities in the EBLCR.

Fish samples were collected at similar locations during the 2012 study using standardized electrofishing methodologies and a multi-metric fish IBI. In 2015, fish collections were targeted at two locations downstream of the permittee's facility. Contradictory to the macroinvertebrate samples, the sites upstream and downstream of the facility had a "passing" fish community IBI score, although considered only fair. The site located farther downstream, near the confluence with the West Branch of the Little Calumet River (WBLCR) had a failing IBI score. While habitat scores for fish were similar at all sites addressed in this section, the habitat changes from natural cover in the upper portions near the permittee's facility, to artificial cover, such as boat docks, as you move closer to the confluence with the WBLCR. These habitat changes, in addition to the Salt Creek contributions could be negatively impacting the fish community at these sites farther downstream.

2. Outfall 002

As part of the permittee's January 8, 2019 modification request, the permittee requested that an alternate location be established in Burns Harbor for assessing compliance with the 3º temperature rise requirement in Lake Michigan for Outfall 002.

In discussion with the permittee regarding this modification request, IDEM informed the permittee that this modification was not needed. The permit does not require compliance with the 3º temperature rise requirement in Lake Michigan for Outfall 002; instead, the alternate thermal effluent limitations imposed at Outfall 002 were in place of other water quality criteria for Lake Michigan, including the requirement to comply with the 3º temperature rise requirement that is normally applicable in Lake Michigan.

To IDEM's knowledge, there have not been any recorded biological surveys in Burns Harbor and the current status of fish communities located within the vicinity of Outfall 002 is unknown.

D. <u>Thermal Limitations which would be Applicable in the Absence of a 316(a) Variance</u>

1. Outfall 001

In the absence of a 316(a) thermal variance, the following temperature criteria from 327 IAC 2-1.5-8(c)(4)(A)-(C) and 327 IAC 2-1.5-8(d)(2) apply for a discharge from Outfall 001 to the East Branch of the Little Calumet River:

A. Temperature criteria for warmwater fish (327 IAC 2-1.5-8(c)(4)(A)-(C))

Outside of the mixing zone:
(1) There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.
(2) The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.
(3) Water temperatures shall not exceed the maximum limits in the following table during more than one percent (1%) of the hours in the twelve (12) month period ending with any month. At no time shall the water temperature at such locations exceed the maximum limits in the following table by more than three (3) degrees Fahrenheit (one and seven-tenths (1.7) degrees Celsius):

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	50	50	60	70	80	90	90	90	90	78	70	57
ºC	10	10	15.6	21.1	26.7	32.2	32.2	32.2	32.2	25.5	21.1	14.0

B. Temperature criteria for cold water fish (327 IAC 2-1.5-8(d)(2))

Outside of the mixing zone:
The maximum temperature rise above natural shall not exceed two (2) degrees Fahrenheit (one and one-tenth (1.1) degrees Celsius) at any time or place and, unless due to natural causes, the temperature shall not exceed the following:
(1) Seventy (70) degrees Fahrenheit (twenty-one and one-tenth (21.1) degrees Celsius) at any time.
(2) Sixty-five (65) degrees Fahrenheit (eighteen and three-tenths (18.3) degrees Celsius) during spawning or imprinting periods.

In 2001 a biologist at the Indiana Department of Natural Resources (IDNR) Lake Michigan Fisheries Office at Michigan City in LaPorte County was consulted about the time periods for spawning and imprinting in designated salmonid waters. IDEM received a letter from DNR dated March 7, 2001 and, based on that letter, IDEM has defined the spawning and imprinting period as September through May. Therefore, the 70°F criterion is applied from June 1 through August 31 and the 65°F criterion is applied from September 1 through May 31. The letter indicated that spawning and imprinting can occur at any place in the watershed so the criteria are applied throughout the watershed. The IDNR confirmed IDEM's definition of the spawning period in a February 23, 2009 email from Brian Breidert of IDNR to John Elliott of IDEM.

C. Combined warmwater and cold water and temperature requirements

When the warmwater and cold water thermal requirements are combined, it results in the following thermal requirements which would be applicable at Outfall 001 if the permittee did not have a 316(a) variance:

Outside of the mixing zone:
(1) There shall be no abnormal temperature changes that may adversely affect aquatic life unless caused by natural conditions.
(2) The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.
(3) The maximum temperature rise above natural shall not exceed two (2) degrees Fahrenheit (one and one-tenth (1.1) degrees Celsius) at any time or place.
(4) Water temperatures shall not exceed the maximum limits in the following table during more than one percent (1%) of the hours in the twelve (12) month period ending with any month. At no time shall the water temperature at such locations exceed the maximum limits in the following table by more than three (3) degrees Fahrenheit (one and seven-tenths (1.7) degrees Celsius):

	Jan	Feb	Mar	Dec
ºF	50	50	60	57
ºC	10	10	15.6	14.0

(5) Unless due to natural causes, the temperature shall not exceed the following:

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
ºF	65	65	70	70	70	65	65	65
ºC	18.3	18.3	21.1	21.1	21.1	18.3	18.3	18.3

2. Outfall 002

In the absence of a 316(a) thermal variance, the following temperature criteria from 327 IAC 2-1.5-8(c)(4)(D) apply for a discharge from Outfall 002 to Lake Michigan:

(i) In all receiving waters, the points of measurement normally shall be in the first meter below the surface at such depths necessary to avoid thin layer surface warming due to extreme ambient air temperatures, but, where required to determine the true distribution of heated wastes and natural variations in water temperatures, measurements shall be at a greater depth and at several depths as a thermal profile.

(ii) There shall be no abnormal temperature changes so as to be injurious to fish, wildlife, or other aquatic life, or the growth or propagation thereof. In addition, plume interaction with the bottom shall:

(AA) be minimized; and

(BB) not injuriously affect fish, shellfish, and wildlife spawning or nursery areas.

(iii) The normal daily and seasonal temperature fluctuations that existed before the addition of heat shall be maintained.

(iv) At any time and at a maximum distance of a one thousand (1,000) foot arc inscribed from a fixed point adjacent to the discharge or as agreed upon by the commissioner and federal regulatory agencies, the following shall apply:

(AA) The receiving water temperature shall not be more than three (3) degrees Fahrenheit (one and seven-tenths (1.7) degrees Celsius) above the existing natural water temperature.

(BB) Thermal discharges to Lake Michigan shall comply with the following maximum temperature requirements:

(aa) Thermal discharges to Lake Michigan shall not raise the maximum temperature in the receiving water above those listed in the following table, except to the extent the permittee adequately demonstrates that the exceedance is caused by the water temperature of the intake water:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ºF	45	45	45	55	60	70	80	80	80	65	60	50
ºC	7	7	7	13	16	21	27	27	27	18	16	10

(bb) If the permittee demonstrates that the intake water temperature is within three (3) degrees Fahrenheit below an applicable maximum temperature under subitem (aa), Table 8-6, then not more than a three (3) degree Fahrenheit exceedance of the maximum water temperature shall be permitted.

(v) The facilities described as follows that discharge into the open waters of Lake Michigan shall be limited to the amount essential for blowdown in the operation of a closed cycle cooling facility:

(AA) All facilities that have new waste heat discharges exceeding a daily average of five-tenths (0.5) billion British thermal units per hour. As used in this item, "new waste heat discharge" means a discharge that had not begun operations as of February 11, 1972.

(BB) All facilities with existing waste heat discharges that increase the quantity of waste heat discharged by more than a daily average of five-tenths (0.5) billion British thermal units per hour.

(vi) Water intakes shall be designed and located to minimize entrainment and damage to desirable organisms. Requirements may vary depending upon local conditions, but, in general, intakes shall:

(AA) have minimum water velocity; and

(BB) not be located in spawning or nursery areas of important fishes. Water velocity at screens and other exclusion devices shall also be at a minimum.

(vii) Discharges other than those now in existence shall be such that the thermal plumes do not overlap or intersect.

(viii) Facilities discharging more than a daily average of five-tenths (0.5) billion British thermal units of waste heat shall:

(AA) continuously record intake and discharge temperature and flow; and

(BB) make those records available to the public or regulatory agencies upon request.

E. <u>Proposed Thermal Limitations</u>

The existing alternate thermal effluent limitations (ATELs) are proposed to be included in this permit and are as follows:

1. Outfall 001

The highest temperature sustained over any two hour period within each day's 24 hour monitoring period shall not exceed the temperature listed below:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	60	60	65	71	81	86	86	86	85	80	75	65

The permit allows the permittee to use flow augmentation through the use of its water cannon to achieve compliance with these temperature limits at Outfall 001.

2. Outfall 002

The highest temperature sustained over any two-hour period within each day's 24-hour monitoring period shall not exceed the temperature listed below:

Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	55	57	63	69	77	82	88	90	88	81	72	63

F. Future Demonstration Requirements

1. General Requirements

All proposed 316(a) demonstration study plans (and the completed demonstration) must conform to 327 IAC 5-7 and Subpart H of 40 CFR 125 and to the IDEM draft *Guidance for Conducting a Demonstration as a Requirement of a 316(a) Alternative Thermal Effluent Limitation Request*, March 2015. In addition, EPA has issued a draft CWA 316(a) guidance entitled "*Interagency 316(a) Technical Guidance Manual And Guide for Thermal Effects Sections of Nuclear Facilities Environmental Impact Statements*," 1977. Both of these guidance documents provide valuable information on conducting 316(a) demonstrations.

IDEM will review the proposed study plans, and may, based on its review, request additional information from the discharger to make the demonstration study plan complete. IDEM will also provide the discharger with the accepted RIS. When the study plan is complete and satisfies the requirements of the regulations and guidance, IDEM will inform the discharger in writing that the demonstration study plan is complete so that the discharger may begin the study.

Except as specified below, the permittee must initiate the demonstration studies for Outfalls 001 and 002 within two (2) years of receiving notification from IDEM that the demonstration study plans are complete.

The final 316(a) demonstration and application must be signed and certified by a responsible official in compliance with 327 IAC 5-2-22(a) and (d). The demonstration and application for ATEL will be reviewed by IDEM for completeness. A complete demonstration must include the following:

a. A quantitative description and rationale for the proposed ATEL.

b. The absence of prior appreciable harm assessment and RIS assessment supporting the proposed ATEL.

c. All of the thermal and biological data collected during the demonstration and/or used to support the demonstration, provided in a format amenable for electronic data interfacing into the Office of Water Quality's External Data Framework of the Assessment Information Management System (AIMS). Summarized data and data compilations alone will NOT be accepted.

d. Executive summary of study findings.

e. Request for Thermal Mixing Zone. The thermal mixing zone request must specify the temperatures within and at the edge of the mixing zone and the proposed sizes of the mixing zones as applicable.

f. Any other information deemed necessary and developed by the discharger for the demonstration.

g. A delineation/model of the thermal plume under representative flow conditions based on in-lake temperature monitoring data, and with the proposed point of compliance for the proposed thermal limits.

h. Any additional studies conducted since the last demonstration was completed and an analysis of any changes from the previous assessments and conclusions.

2. Outfall 001

Because of the adverse impact of the thermal discharge at Outfall 001 on salmonid species, the permittee must submit the following mitigation alternative information to IDEM pursuant to the following schedule:

a. Within two (2) months of the effective date of the permit, the permittee must submit to IDEM for review and approval a framework for scoping of Outfall 001 thermal mitigation alternatives.

b. Within twelve (12) months of the effective date of the permit, the permittee must submit to IDEM for review and approval a preliminary scoping report of identified feasible thermal mitigation alternatives including assessments of anticipated changes in Outfall 001 and Outfall 002 discharge flows, discharge temperatures, mass pollutant discharges and anticipated changes in East Branch of the Little Calumet River hydrology and temperatures downstream of Outfall 001.

c. Within forty-two months (42) of the effective date of the permit, the permittee must submit to IDEM for review and approval complete engineering assessments for feasible Outfall 001 thermal mitigation measures.

d. Within forty-eight (48) months of the effective date of the permit, the permittee must submit to IDEM for review and approval the proposed thermal mitigation measure and proposed implementation timelines for Outfall 001 and the East Branch of the Little Calumet River.

IDEM will, at a minimum, seek input on these thermal mitigation documents from the Indiana Department of Natural Resources and the National Park Service.

In addition, the permittee is required to conduct a 316(a) demonstration for Outfall 001. This will include both thermal, biological, and water quality studies conducted in close coordination with IDNR and IDEM. The permittee will conduct comprehensive baseline thermal, biological and water quality studies of the East Branch Little Calumet River, Salt Creek and Trail Creek. The biological studies will include habitat assessments, macroinvertebrate assessments and characterization of the stream fisheries for both warmwater fish and salmonids. The thermal component of the study will include temperature monitoring at the intake, the Outfall and at various pertinent locations within the streams.

Prior to the initiation of any such studies, the permittee will be required to submit the following: a proposed 316(a) demonstration study plan within two (2) months of the effective date of the permit to IDEM for review and approval; and within fifteen (15) months of the effective date of the permit, submit to IDEM for review and approval a final 316(a) demonstration study plan.

IDEM will, at a minimum, seek input on these study plan documents from the Indiana Department of Natural Resources and the National Park Service.

The permittee must initiate the approved 316(a) study within eighteen (18) months of the effective date of the permit and must complete the 316(a) study within thirty-six (36) months of the effective date of the permit.

Within forty-two (42) months of the effective date of the permit, the permittee must submit to IDEM an updated 316(a) demonstration, including the results from the studies and requested 316(a) variance limits if the permittee believes such variance limits to be needed.

If the permittee's thermal mitigation plan includes return of the Outfall 011 effluent to the facility water system with subsequent discharge through Outfall 002, and this is the mitigation alternative that is implemented, the permittee must conduct an additional 316(a) demonstration study after the relocation has been completed. Study plans shall be submitted to IDEM for review and approval prior to commencement of such studies.

3. Outfall 002

Due to the lack of comprehensive studies conducted for Outfall 002, the proposed permit requires the permittee to conduct 316(a) studies at Outfall 002 and in Burns Harbor. In addition to thermal discharge and plume studies, the permittee shall consider and evaluate the feasibility of including biological studies as a component of this demonstration.

Prior to the initiation of any such studies, the permittee will be required to submit the following: a proposed 316(a) demonstration study plan within two (2) months of the effective date of the permit to IDEM for review and approval; and within fifteen (15) months of the effective date of the permit, submit to IDEM for review and approval a final 316(a) demonstration study plan.

The permittee must initiate the approved 316(a) study within eighteen (18) months of the effective date of the permit and must complete the 316(a) study within thirty-six (36) months of the effective date of the permit.

Within forty-two (42) months of the effective date of the permit, the permittee must submit to IDEM an updated 316(a) demonstration, including the results from the studies and requested 316(a) variance limits if the permittee believes such variance limits to be needed.

If the permittee's thermal mitigation plan includes return of the Outfall 001 effluent to the facility water system with subsequent discharge through Outfall 002, and this is the mitigation alternative that is implemented, the permittee must conduct an additional 316(a) demonstration study at Outfall 002 after the relocation has been completed. Study plans shall be submitted to IDEM for review and approval prior to commencement of such studies.

6.4 Clean Water Act Section 316(b) Cooling Water Intake Structure(s) (CWIS)

6.4.1 Introduction

Section 316(b) of the Clean Water Act requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available (BTA) for minimizing adverse environmental impact.

In addition, under 327 IAC 2-1.5-8(c)(4)(D)(vi), water intakes shall be designed and located to minimize entrainment and damage to desirable organisms. Requirements may vary depending upon local conditions, but, in general, intakes shall:

(1) have minimum water velocity; and
(2) not be located in spawning or nursery areas of important fishes. Water velocity at screens and other exclusion devices shall also be at a minimum.

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 existing 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. All existing facilities subject to these regulations must submit the information required by 40 CFR 122.21(r)(2)–(r)(8) and facilities with an actual intake flow of greater than 125 MGD must also submit the information required by 40 CFR 122.21(r)(9)-(r)(13). The regulation establishes best technology available 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 waterbody. Entrainment is the process by which fish larvae and eggs and other aquatic organisms in the intake flow enter and pass through a cooling water intake structure (CWIS) and into a cooling water system, including a 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 Burns Harbor facility withdraws water from Lake Michigan from two separate intake structures each located approximately 2600 feet offshore in Lake Michigan directly north of the facility. Water withdrawn from Laker Michigan is distributed throughout the facility from two separate Lake Water Pumping Stations. See Section 6.4.2 below for a more detailed description of the CWIS including location map of the offshore intakes and pump stations.

The DIF is the maximum flow that the facility is capable of withdrawing and is calculated at 748.8 MGD for the Burns Harbor facility. This includes flow from both the No. 1 Lake Water Pumping Station (No. 1 LWPS) and No. 2 Lake Water Pumping Station (No. 2 LWPS).

The AIF, as defined under 40 CFR 125.92(a), is the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past five years. Measured water flow data for both No. 1 LWPS and No. 2 LWPS are not available. Consequently, mean annual average intake flows was estimated by the permittee from daily Burns Harbor discharge flows for the period January 2016 to December 2020 and estimated evaporative losses across the Burns Harbor Plant. The AIF for the facility over this period is calculated at 332.9 MGD as shown in the Table below.

Actual Intake Flow	
Year	Annual Average Flow (MGD)
2016	337.8
2017	324.3
2018	326.5
2019	329.2
2020	346.5
Average:	332.9

The permittee reports that approximately 98% of intake water is used for contact and noncontact cooling water.

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 and entrainment mortality, including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under 40 CFR 125.94(g).

As an existing facility with a DIF greater than 2 MGD and because the AIF is greater than 125 MGD, the permittee was required to submit the application information required by 40 CFR 122.21(r)(2) through (r)(13). The permittee submitted part of its 316(b) application with its permit renewal application on December 28, 2020 (Attachment 7 of the NPDES renewal application). On February 25, 2021, the permittee submitted additional 316(b) application information, which included an updated introduction and summary, an updated version of the information required under 40 CFR 122.21(r)(10) to include social costs, and the 40 CFR 122.21(r)(11) and (12) portions of the application. On June 9, 2021, the permittee submitted a final and complete 316(b) application, which replaced the partial application information submitted with the application on December 28, 2021, supplemental information provided on February 24, 2021, and materials subsequently submitted in response to requests from IDEM. This final 316(b) application also included the peer review report required by 40 CFR 122.21(r)(13).

The regulation also established requirements that build on existing CWA requirements to coordinate with the U.S. Fish and Wildlife Service prior to issuing NPDES permits. Pursuant to 40 CFR 125.98(h), upon receipt of an NPDES permit 316(b) application for an existing facility subject to the rule, the Director (IDEM) must forward a copy of the permit application to the appropriate Field Office of the U.S. Fish and Wildlife Service for a 60-day review. A copy of this permit application was sent to the Bloomington Field Office of the U.S. Fish and Wildlife Service on January 4, 2021. Mr. Dan Sparks of that office responded on March 24, 2021, in pertinent part, as follows:

> "…. I concur that there are no federal endangered species issues with this facility and only a minor impact to important state resources (those impacts to yellow perch)"

The complete, final 316(b) application was sent to the Bloomington Field Office of the U.S. Fish and Wildlife Service on June 10, 2021. Mr. Dan Sparks of that office responded on June 14, 2021, in pertinent part, as follows:

> "…[T]here are no federal listed threatened or endangered species impacted by this 316(b) permit action."

Much of the factual and narrative information presented below was taken, sometimes directly, from the permittee's 316(b) application.

6.4.2 Facility and Cooling Water Intake Structure (CWIS) Description

A. Detailed Description

The Burns Harbor CWIS comprises two intake cribs located in Lake Michigan approximately 2,600 feet offshore (East Pumping Station No. 1 Crib, West Pump Station No. 2 Crib); two nine-foot diameter pipelines that feed Lake water to two on-shore pumping stations; and, the two on-shore intake pumping stations: No. 1 Lake Water Pumping Station (No. 1 LWPS) and No. 2 Lake Water Pumping Station (No. 2 LWPS). No. 1 LWPS can withdraw water only from the east intake crib, whereas No. 2 LWPS can withdraw Lake water from both intake cribs. No. 1 LWPS is configured to withdraw water from a separate near shore Lake Michigan intake associated with the now closed neighboring NIPSCO Bailly Generating Station. That intake water source is no longer available. The two pump stations are located approximately 3,800 feet south of the intake cribs, near the Lake Michigan shoreline.

The intake cribs are located on the bottom of the Lake so that water is withdrawn from the hypolimnion layer through coarse screens at the top of each intake crib. As stated in Section122.21(r)(2), water depth at the cribs is approximately 38 feet at mean Lake levels.

The latitude and longitude of the intake cribs and No. 1 LWPS and No. 2 LWPS are provided below:

Location	Latitude	Longitude
East Intake Crib	41 deg 39 min 14.79 sec	-87 deg 07 min 28.91 sec
West Intake Crib	41 deg 39 min 13.46 sec	-87 deg 07 min 36.42 sec
No. 1 LWPS	41 deg 38 min 36.47 sec	-87 deg 07 min 36.60 sec
No. 2 LWPS	41 deg 38 min 36.37 sec	-87 deg 07 min 39.27 sec

Each intake crib is octagonal in shape with a 'diameter' of approximately 59 feet. The top of each intake crib is equipped with coarse intake screens, with 0.75" horizontal bars located 4" apart, and 0.75" vertical bars located 2.5 feet apart. The center section of each intake crib is an octagonal air-tight flotation chamber such that the open area of the crib (equipped with bar screens) extends from the sides of the crib approximately 20.5 feet 'inward' toward the center floatation chamber.

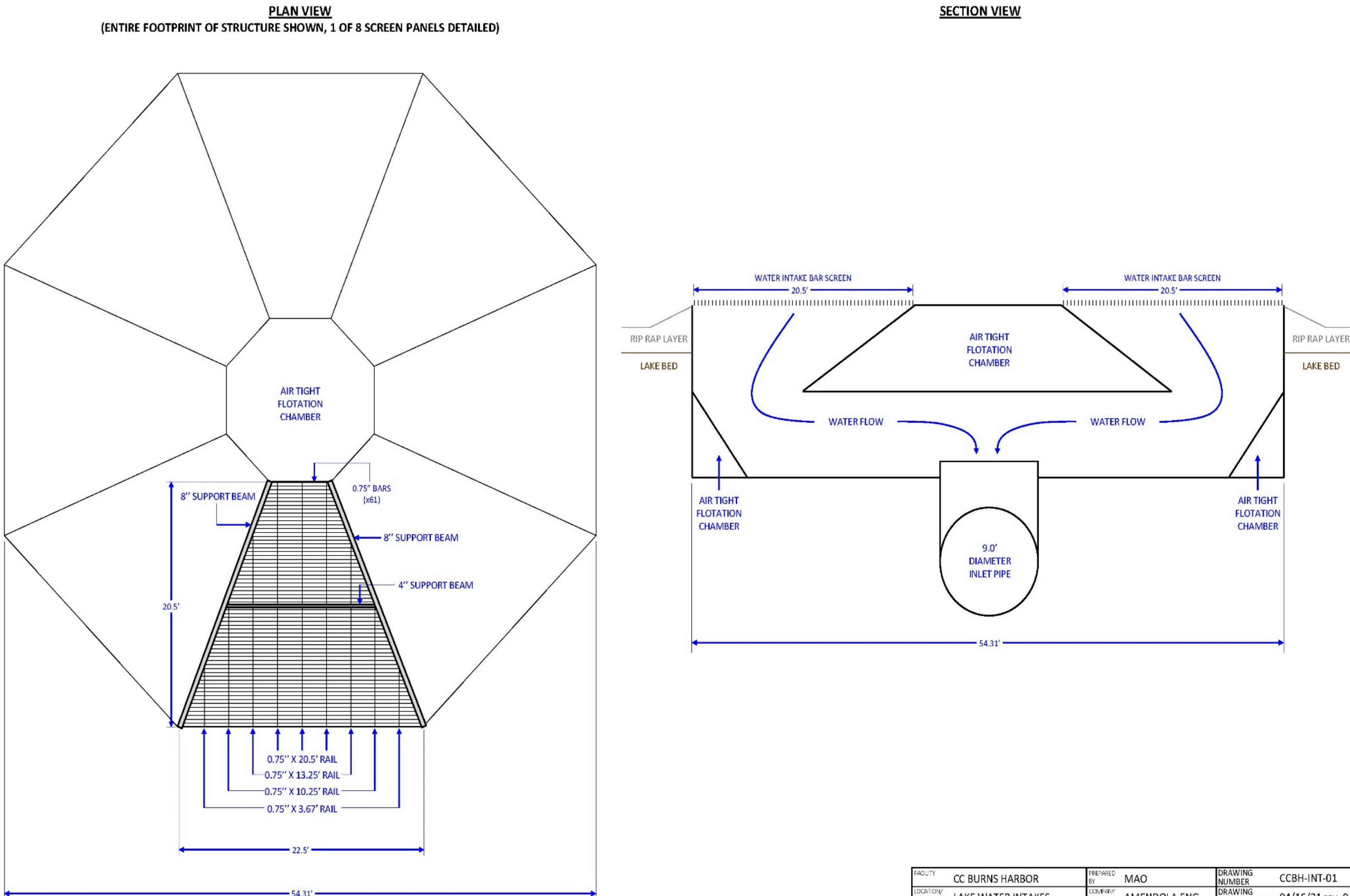
A simplified schematic drawing of the intake crib structures, Figure R3-2 from the 316(b) application, is shown below.

Each intake crib is connected to No. 2 LWPS via separate 9’0” conduits (intake pipes) located below the Lake bed. Water is withdrawn from the 9’0” eastern crib conduit by No. 1 LWPS via a 7’0” intake pipe.

Current practice is to shut flow from the west intake crib when Lake water temperatures fall to 32.9°F to retard formation of “frazil ice” on the intake structure. This is accomplished by closing a stop gate on the 9’0” diameter intake conduit located at the No. 2 LWPS. The facility may operate in this mode for a period of approximately 15 to 45 days each winter season.

An aerial photo from the permittee’s 316(b) application showing the location of the intake cribs and pumps stations is included below as Figure R2-1 (the below figure has been resized so it is not to scale).

FIGURE R3-2



FACILITY	CC BURNS HARBOR	PREPARED BY	MAO	DRAWING NUMBER	CCBH-INT-01
LOCATION/ EQUIPMENT	LAKE WATER INTAKES	COMPANY	AMENDOLA ENG.	DRAWING DATE/REVISION	04/16/21 rev. 0
DRAWING TITLE	SIMPLIFIED WATER INTAKE STRUCTURE SCHEMATICS	FILE NAME	CCBH-INT-01	CLIFFS CLEVELAND-CLIFFS INC.	
		DWG SCALE	NTS		

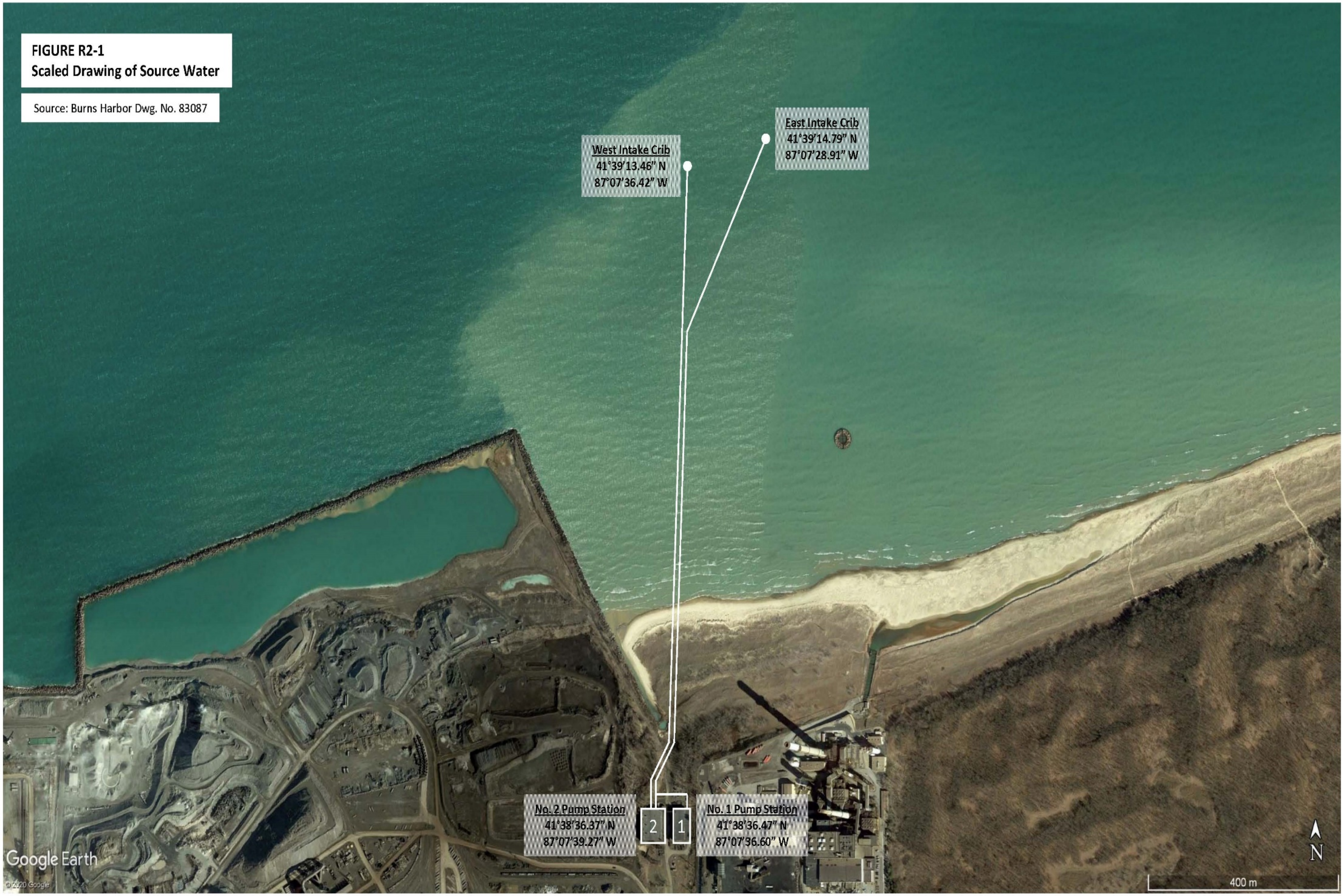
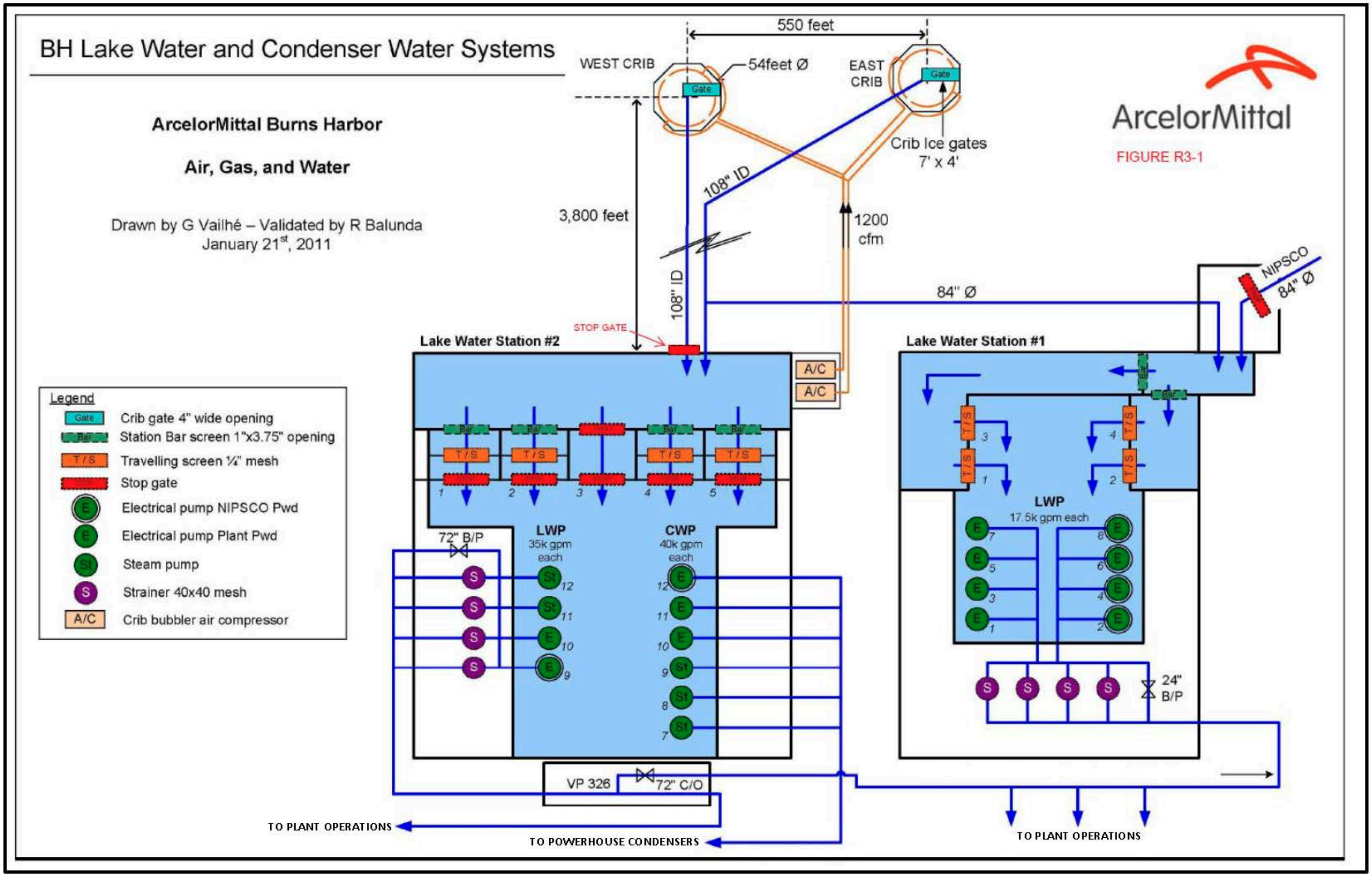


FIGURE R2-1
Scaled Drawing of Source Water
Source: Burns Harbor Dwg. No. 83087
West Intake Crib
41°39'13.46" N
87°07'36.42" W
East Intake Crib
41°39'14.79" N
87°07'28.91" W
No. 2 Pump Station
41°38'36.37" N
87°07'39.27" W
2
1
No. 1 Pump Station
41°38'36.47" N
87°07'36.60" W
Google Earth
N
400 m

Figure R3-1 from the permittee's application is included below and provides a representation of No. 1 and No. 2 Pump Stations.

FIGURE R3-1



No. 1 Lake Water Pump Station (LWPS)

No. 1 LWPS is equipped with two bar racks followed by four traveling screens and eight electric pumps rated at 17,500 gpm each (total design capacity 140,000 gpm or 201.6 MGD).

The traveling screens are each 10 feet wide and are equipped with downward "backwash" sprays where debris is collected in baskets integral to the traveling screen assembly. Material collected within the baskets is deposited into a trough near the top of the traveling screen and discharged to Lake Michigan via Burns Harbor Outfall 003. Water depth at the traveling screens is approximately 19.5 feet at a mean Lake water level of 578.84 feet above sea level (FASL) and approximately 16.7 feet at a minimum Lake water level of 576.02 FASL.

No. 1 LWPS is operated 24 hours per day/365 days per year. Discharge from the intake pumps is strained prior to distribution to the Burns Harbor facility. Between three and six of the eight pumps are typically operated, depending upon plant needs. The permittee reports that there were no obvious seasonal trends in pump station operation from 2018 to 2020.

No. 2 Lake Water Pump Station (LWPS)

No. 2 LWPS is equipped with four bar racks followed by four traveling screens and ten pumps as noted below:

- Two electric pumps rated at 35,000 gpm
- Three electric pumps rated at 40,000 gpm
- Two stream driven pumps rated at 35,000 gpm
- Three steam-driven pumps rated at 40,000 gpm

The total design pumping capacity is 380,000 gpm or 547.2 MGD.

The No. 2 LWPS traveling screens are each 14 feet wide and, and as at No. 1 LWPS, the traveling screens are equipped with downward "backwash" sprays where debris is collected in baskets integral to the traveling screens. Material collected within the baskets is deposited into a trough near the top of the traveling screen and discharged via Burns Harbor Outfall 003. Water depth at the traveling screens is approximately 38 feet at a mean Lake water level of 578.84 feet above sea level (FASL) and approximately 35 feet at a minimum Lake water level of 576.02 FASL.

No. 2 LWPS is operated 24 hours per day/365 days per year. The discharge from the four 35,000 gpm intake pumps is strained prior to distribution to the Burns Harbor facility. The discharge from these pumps can be combined with the discharge from the No. 1 LWPS pumps to provide service water to any operation at the facility. The six 40,000 gpm pumps are referred to as "condenser water pumps". These pumps provide cooling water to the condensers at the facility's Power Station.

Two or three of the four No. 2 LWPS service water pumps (35,000 gpm each) are typically operated depending upon plant needs. The permittee reports that there were no obvious seasonal trends in pump station operation from 2018 to 2020.

Between two and four of the condenser water pumps (40,000 gpm each) are typically operated depending upon the cooling needs of the Burns Harbor Power Station. For 2018 to 2020, more pumps were generally operated in the summer months than other times of the year. See Figure R3-1, above.

B. Intake Flows, Velocity of Intake Flows Through Submerged Intake Openings, and Velocity of Intake Flows Through Traveling Screens

1. Design and Maximum Actual Intake Flows

The combined maximum total installed pumping capacity (i.e., the design intake flow or DIF) for No. 1 LWPS and No. 2 LWPS is 748.8 MGD. See Table below. The DIF reflects the original design and configuration of the Burns Harbor Plant when it was first constructed by Bethlehem Steel during the mid to late 1960s.

Burns Harbor Pump Stations	Design Intake Flow	
	gpm	mgd
No. 1 LWPS	140,000	210.6
No. 2 LWPS	380,000	547.2
Total:	520,000	748.8

Measured water flow data for both No. 1 LWPS and No. 2 LWPS are not available. Therefore, to calculate actual daily water withdrawals, the permittee used the following information to estimate the intake flow:
(1) Daily Burns Harbor discharge flows measured at Outfalls 001 and 002 for the period January 2016 to December 2020;
(2) an estimated flow from Outfall 003; and
(3) estimated evaporative losses across the Burns Harbor Plant.

Attachment R3-B in the 316(b) application presents the Outfall 001 and Outfall 002 discharge flow data. Evaporative losses were estimated for the following source categories and are presented in Attachment R3-C of the 316(b) application. Total plant evaporative losses were estimated to be between 11 and 12 MGD.

- Wet Air Pollution Control Devices
- Process Evaporative Losses
- Noncontact Cooling Water and Process Water Recirculation Systems
- Power Station steam production

Based on the above-described calculation procedure, estimates of daily intake flows based on the past five years of outfall monitoring data and evaporative losses were summarized in the 316(b) application as follows:

Summary Statistics	Estimated Water Withdrawal(mgd)
Maximum	433.9
99th Percentile	415.0
95th Percentile	398.2
75th Percentile	360.8
Median	334.8
Mean	332.9

At various times, the permittee has provided different estimated maximum intake flow values using different assumptions and methods of calculations. For example, in the original partial 316(b) application submitted with the NPDES renewal application in December 2020, the maximum intake flow was estimated as 478.9 MGD. In the final version of the 316(b) application submitted June 9, 2021, the maximum intake flow value was estimated as 433.9 MGD. In the calculation of the 478.8 MGD estimated maximum flow, the permittee assumed about 57 MGD in evaporative losses, while for the 433.9 MGD estimated maximum flow, the permittee estimated 11.54 MGD in evaporative losses based on process-specific evaluations.

2. Design and Maximum Intake Velocities

The impingement best technology available (BTA) alternatives include two alternatives that are based on the intake velocity. These two alternatives are under 40 CFR 125.94(c)(2) and (3) and are:

- Operate a cooling water intake structure that has a maximum through-screen design intake velocity of 0.5 fps; or
- Operate a cooling water intake structure that has a maximum through screen intake velocity of 0.5 fps.

Under these alternatives, 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.

Impingement mortality can be reduced greatly by reducing the through-screen velocity in any screen. Reducing the rate of flow of cooling water through the screen (through-screen velocity) to 0.5 fps or less reduces impingement of most fish because it allows them to escape the intake current.

As presented previously, water enters the CWIS at two Lake Michigan offshore submerged intake cribs approximately 2,600 ft offshore and 38-foot depth. Each intake crib is connected to No. 2 LWPS via separate 9’0” conduits (intake pipes) located below the Lake bed. Water is withdrawn from the 9’0” eastern crib conduit by No. 1 LWPS via a 7’0” intake pipe.

At each of the two pump stations, traveling screens precede the respective intake pumps.

Calculated through-screen intake velocities at the CWIS offshore intake cribs and at the No. 1 LWPS and No. 2 LWPS traveling screens are shown below at the current Lake Michigan level (November 2020 daily average, 581.39 FASL), at the historic long-term (1918-2019) mean Lake Michigan level (578.84 FASL), and at the historic (1918-2019, January 2013) minimum monthly average Lake Michigan water level (576.02 FASL). Calculated intake velocities are presented at the maximum design intake flow (748.8 mgd) and at the calculated recent estimated daily maximum intake flow (433.9 mgd). See discussion above on derivation of actual intake flows. Attachment R6-A in the 316(b) application sets out the calculations of through-screen intake velocities at the intake cribs and at the No. 1 LWPS and No. 2 LWPS at a range of calculated actual intake flows.

Calculated Through-Screen Intake Velocity (ft/sec)		East and West Intake Cribs	No. 1 LWPS	No. 2 LWPS
Current Lake Michigan Level [November 2020, 581.39 FASL]				
Design Intake Flow (DIF)	748.8 mgd	0.25 to 0.44	0.71	0.78
Calculated Maximum Intake Flow	433.9 mgd	0.15 to 0.25	0.38	0.47
Actual Intake Flow (AIF)	332.9 mgd	0.12 to 0.19	0.29	0.36
Lake Michigan Historic Mean Level [1918 – 2019, 578.84 FASL]				
Design Intake Flow (DIF)		0.25 to 0.44	0.80	0.83
Calculated Maximum Intake Flow		0.15 to 0.25	0.43	0.50
Actual Intake Flow (AIF)		0.12 to 0.19	0.33	0.38
Lake Michigan Historic Low Monthly Average Level [1918 - 2019, 576.02 FASL]				
Design Intake Flow (DIF)		0.25 to 0.44	0.93	0.90
Calculated Maximum Intake Flow		0.15 to 0.25	0.50	0.54
Actual Intake Flow (AIF)		0.12 to 0.19	0.38	0.41

Because the east and west intake crib structures are located well below the surface of Lake Michigan, calculation of intake velocity at the cribs is independent of Lake level, unlike at the No. 1 LWPS and No. 2 LWPS traveling screens which are affected by Lake level. The range of calculated intake velocities at the intake cribs at the DIF covers three cases:

- the DIF distributed across the combined cross-sectional area of the east and west intake cribs (0.35 ft/sec);

- for the west crib, based on 50% of the No. 2 LWPS design pumping capacity (0.25 ft/sec); and,
- for the east crib, based on 50% of the No. 2 LWPS design pumping capacity plus 100% of the No. 1 LWPS design pumping capacity (0.44 ft/sec).

The same approach was used to calculate the range of intake velocities at the intake cribs for the calculated maximum actual intake flow.

As noted previously, during winter operations conditions may arise where “frazil ice” can form at the intake cribs and retard withdrawal of Lake water through the cribs. (Frazil ice comprises ice crystals or granules that form in supercooled turbulent waters, resembling slush.) When this occurs, Lake water withdrawal is made through the east intake crib to minimize the impact of frazil ice. This condition may persist for approximately 15 to 45 days each winter season. At the recent calculated maximum AIF cited above (433.9 mgd), the calculated intake velocity would be 0.40 ft/sec for the east intake crib under this mode of operation.

Through-screen intake velocities were calculated for the No. 1 LWPS and No. 2 LWPS at the respective DIFs for each pump station, and with allocation of the Burns Harbor calculated maximum actual intake flow based on the relative proportions of the pump station withdrawals considering the typical number of operating pumps.

The above calculations of through-screen intake velocities at the No. 1 and No. 2 LWPS show intake velocities are less than 0.5 fps at current Lake levels, but above the §125.94(c)(3) BTA standard of ≤ 0.5 ft/sec at minimum Lake levels for the No. 2 LWPS.

Based on the screen intake velocity at PS #2 being above 0.5 fps at minimum Lake level, the facility does not currently qualify for either of the velocity-based impingement alternatives for BTA under 40 CFR 125.94(b)(2) or (3).

Intake velocities at the two intake cribs are below the 0.5 fps standard, at the DIF of 748.8 MGD and maximum actual flow of 433.9 MGD independent of Lake level.

Intake velocities in the 9-foot diameter and 7-foot diameter pipes that connect the two offshore intakes to the two onshore pump stations were also calculated by IDEM. At the recent maximum intake flow of 433.9 MGD, IDEM calculated pipe velocities of approximately 4 fps and greater, depending on the pipe.
Based on the above velocity calculations, it is likely that fish can freely enter and exit the offshore intake structures. However, once fish enter the 9-foot diameter pipes that convey water from the intake structure, in-pipe velocities and the distance of the intake cribs from the pump stations likely entrap and prevent fish from exiting the CWIS.

6.4.3 Source Water Biological Characterization

The source water for the Burns Harbor Plant is withdrawn through the two intake crib structures located approximately 2,600 feet offshore and 38-foot depth in Lake Michigan. The intake cribs are located northeast of a “northern breakwater” and “eastern jetty”. The intake cribs are located in the open waters of Lake Michigan with no pertinent physical features in the vicinity. The area where the intake structures are located receives minimal commercial boat or ship traffic but is subject to occasional recreational boat activity. Bottom substrates for this portion of the southern shoreline of Lake Michigan consist of sand, the surface of which is unconsolidated and is constantly disrupted by surface wave energy. No critical or significant habitats, such as submerged aquatic vegetation or “sea grass beds,” have been identified in the area of the intake cribs.

Coastal shoreline fish assemblages in the vicinity of the CCBH intake cribs are likely limited due to the distance of the intake crib from the shore which likely reduces this area of the lake to planktivorous fish.

Numerous sampling studies have been performed to characterize fish assemblages in the nearshore area of southern Lake Michigan. These studies have been conducted by CCBH as well as other industrial facilities with cooling water intakes on the southern shore of Lake Michigan. Overall conclusions from these studies suggest Yellow Perch, Round Goby, Alewife, Gizzard Shad and Spottail Shiner are the most prevalent species in the vicinity of the CCBH intake cribs and most likely to be impacted by impingement and entrainment.

6.4.4 Impingement and Entrainment – Aquatic Life Studies

A. Impingement

Sampling studies to characterize numbers and species of organisms impinged at CWISs have been conducted at several of the industrial facilities located on the southern shore of Lake Michigan, including the CCBH facility. These other facilities include USS Gary Works, USS Midwest, and the Cleveland-Cliffs (formerly ArcelorMittal) Indiana Harbor facilities.

A typical fish impingement study involves the collection of fish from the fish return system following physical impingement on travelling screens and subsequent wash-down cycles.

All of the study findings are generally consistent in the species that were impinged. The numbers of impinged fish did vary significantly depending on season and calendar year sampled as well as location of the intake (onshore vs offshore).

The USS Gary Lakeside Pump Station and USS Midwest offshore intakes are offshore intakes with CWIS designs most similar to the CCBH CWIS. Data from these facility impingement studies is summarized in the most recent Fact Sheets of the NPDES permits for these facilities.

As presented in Section 6.4.2 above, fish likely become entrapped in the CWIS once they enter the 9-foot diameter pipes that convey water from the intake cribs. Once fish are conveyed to each onshore pump station wet well they can become impinged at the traveling screens at each pump station. Each pump station does have a fish return system for debris and fish washed off the traveling screens. This screen backwash, including any impinged fish, are discharged back to Lake Michigan at Outfall 003. While some of the impinged fish likely do survive impingement and discharge back to Lake Michigan, the traveling screens and backwash return at this facility are not classified as a fish friendly return system that qualifies as the best technology available under the federal rules.

As shown in Table 2-2 below, estimates of the number of Yellow Perch that would be impinged on an annual basis is 31,822 fish based on 2012 sampling and 7,959 fish based on sampling done in 2013.

Results of the impingement study conducted at the permittee's facility is summarized in more detail below.

<u>Cleveland-Cliffs Burns Harbor 316(b) Impingement Study</u>

Impingement sampling was conducted at the CC Burns Harbor facility from June 2012 through May 2014 and identified 11 different species impinged (alewife, round goby, yellow perch, smallmouth bass, bluegill, emerald shiner, spottail shiner, gizzard shad, rainbow smelt, burbot, unidentifiable). The permittee's fish impingement study collected fish from the fish return system following physical impingement on the travelling screens at each pump station.

No species of special concern were impinged at the Burns Harbor pump stations; however, there was one sport fish species impinged (yellow perch). Yellow perch, round goby, alewife, and spottail shiner were the most frequently impinged fish species at the pump stations, accounting for 39.8%, 31.3%, 18.9%, and 6.7% of the total impinged fish sample, respectively (ENVIRON, 2015).

Round goby and yellow perch were caught with regularity, while some species such as bluegill were only caught during one sample event. Round goby was caught the most of any species at No. 1 LWPS, while yellow perch dominated the overall catch at No. 2 LWPS. At No. 1 LWPS, 88 percent of the total catch for all 32 sample events consisted of alewife, round goby, and yellow perch; while at No. 2 LWPS the same three species accounted for 91 percent of the catch. At No. 1 LWPS, 96 percent of the total catch weight consisted of alewife, round goby, and yellow perch; while at No. 2 LWPS, the weight of the three most common fish accounted for 89 percent of the total.

Estimates of the number and species of fish that would be impinged annually based on the impingement sampling conducted in 2012 and 2013 are provided in Table 2-2 below which was taken from Attachment R11 - B in the 316(b) application.

Table 2-2. Baseline Annual Impingement Absolute Losses for 2012 and 2013

Taxa/Species	Scientific Name	Absolute Loss (number) 2012	Absolute Loss (number) 2013
Alewife	*Alosa pseudoharengus*	15,399	19,586
Bluegill	*Lepomis macrochirus*	1,440	0
Burbot	*Lota*	0	45
Emerald Shiner	*Notropis atherinoides*	186	31
Gizzard Shad	*Dorosoma cepedianum*	693	135
Rainbow smelt	*Osmerus mordax*	418	46
Round Goby	*Neogobius melanostomus*	14,524	18,524
Smallmouth bass	*Micropterus dolomieu*	136	0
Spottail shiner	*Notropis hudsonius*	2,982	6,343
Yellow Perch	*Perca flavescens*	31,822	7,959

B. Entrainment

Entrainment studies have been conducted at the permittee's facility as well as several other nearby facilities on the southern shore of Lake Michigan, including the adjacent USS Midwest facility. Entrainment includes small organisms such as fish and mussel larvae, eggs, aquatic insects and plankton that are incorporated within the intake water and are not removed by relatively coarse screens or other mechanisms of the CWIS. Mortality of entrained organisms can occur from exposure to a high degree of turbulence, abrasion, and a rapid change in water temperature. Differences in abundance of organisms within the water column that could be entrained are typically associated with fish spawning, diurnal foraging, and/or migration.

The results of these entrainment studies done at facilities on the southern shore of Lake Michigan indicate that, despite the large volumes of water withdrawn by these facilities, there were relatively small numbers of organisms entrained by their offshore intakes. Distance of intakes from shore at some intakes and lack of habitat likely contributed to the smaller number of organisms entrained.

Based on the studies from the permittee's facility, it appears that entrainment impacts from operation of the permittee's facility are not significant in terms of numbers or species entrained as well as impacts on the nearby ecosystem. Similar conclusions have been reached for the intakes at other Lake Michigan facilities including the nearby USS Midwest intake.

Results of the entrainment studies conducted at the permittee's facility are summarized in more detail below.

Cleveland-Cliffs Burns Harbor Entrainment Studies (mid 2012 – mid 2014, fall 2019 and spring 2020)

At the direction of IDEM, Burns Harbor conducted a two-year impingement and entrainment study at the No. 1 and No. 2 Lake Water Pumping Stations (No. 1 LWPS, No. 2 LWPS) during 2012-2014.

Also, at the request of IDEM, CCBH conducted supplemental seasonal entrainment studies at the No. 1 LWPS and No. 2 LWPS during the Fall of 2019 (October – November 2019) and Spring of 2020 (March - June 2020) to coincide with expected peak entrainment based on the 2012-2014 entrainment studies and known fish reproductive cycles and larval life stages.

Entrainment Results (mid 2012 – mid 2014)

Entrainment sample analysis focused on identification to the lowest practical taxonomic classification for enumeration of fish larvae, fish eggs, mussel veliger, and immature mussels. However, most of the entrained items were not able to be keyed out to genus and species level due to the limited number of defining physical characteristics of the specimens collected. Almost all fish larvae collected were round goby. Larvae from only one other species, alewife, was confirmed caught at No. 2 LWPS during the weeks of August 17, 2012 and August 16, 2013. In most cases fish eggs were identified only to class level (e.g., ray finned fishes) and in a single case were identified to family. Other forms of plankton were noted as present in relative abundance (e.g., common or rare) and identified in general terms (zooplankton, filamentous algae, etc.). A subsample of the largest fish larvae (or fish) from among all specimens captured was measured for total length.

No fish larvae and eggs were found in over 80 percent of the samples at No. 1 LWPS and No. 2 LWPS.

The total abundance of fish larvae and eggs was highest at No. 1 LWPS during the sampling period of August 16, 2013. At No. 2 LWPS, total abundance of ichthyoplankton also peaked the week of August 16, 2013.

Given the high percentage of samples with no entrained ichthyoplankton, and with most of the positive samples being dominated by round goby larvae, the impact due to entrainment is considered negligible. Entrainment Results (Fall 2019 – Spring 2020)

CCBH conducted supplemental seasonal entrainment studies at the No. 1 LWPS and No. 2 LWPS during the Fall of 2019 (October - November) and Spring of 2020 (March - June 2020) to coincide with expected peak entrainment based on the 2012-2014 entrainment studies and known fish reproductive cycles and larval life stages.

Entrainment sample analysis focused on identification to the lowest practical taxonomic classification and enumeration of ichthyoplankton (fish larvae and eggs). Invertebrate forms of zooplankton were noted as present or absent as appropriate and identified in general terms.

No fish larvae and eggs were found in over 90 percent of the samples at No. 1 LWPS and No. 2 LWPS. All the entrainable ichthyoplankton captured were collected during the months of April and May. The total daily entrainment estimates of ichthyoplankton varied radically from 0 to 7,555 larvae and/or eggs per day for No. 1 LWPS, and 0 to 5,375 larvae and/or eggs per day for and No. 2 LWPS. The entrained fish eggs (none with embryos present) were not able to be keyed out to genus and species level due to the limited number of defining physical characteristics of the specimens collected. However, there were enough characteristics to place them at the family level of Centrarchidae (basses and sunfishes) or Percidae (true perches and darters).

The perches, bass, and sunfish common to southern Lake Michigan are substrate spawning species which produce high numbers of attached demersal eggs on gravel, rocks, or plant material. Yellow perch (*Perca flavescens)* are unique in laying eggs in long gelatinous strings. As fertile eggs of sunfish and perches are not pelagic, i.e. drifting ichthyoplankton, the presence of these eggs in the entrainment samples suggests that sunfish/bass or perch spawning activity is taking place on or within the intake structures.

Given the high percentage of samples with no entrained ichthyoplankton, and with the only positive samples being comprised solely of demersal spawning Centrarchidae or Percidae eggs, the impact due to entrainment is likely negligible. The rates of ichthyoplankton entrainment were estimated for each sample and scaled proportional to intake flow. Estimated ichthyoplankton entrainment of 7,555 larvae and/or eggs per day at No. 1 LWPS and 5,375 larvae and/or eggs per day at No. 2 LWPS are significantly less than those rates found at other facilities in the Great Lakes Basin.

Comparison of 2012/2014 Entrainment Sampling to 2019/2020 Entrainment Sampling

The 2012 – 2014 Entrainment Study found no fish larvae or eggs in over 80 percent of the samples at No. 1 LWPS and No. 2 LWPS. Almost all the entrainable ichthyoplankton captured were during the months of June, July and August. The total daily entrainment estimates of ichthyoplankton vary from 0 to 19,000 larvae and/or eggs per day for No. 1 LWPS, and 0 to 132,000 larvae and/or eggs per day for No. 2 LWPS.

Round goby larvae accounted for the majority of fish larvae entrained in the 2012/2014 sampling. The only other identified larvae were alewife from two sampling events at No. 2 LWPS.

Fish eggs accounted for roughly two thirds of all ichthyoplankton entrained 2012/2014, but because they were only identified to the class or family level, no further assessment was possible. However, given the significant numbers of alewife found in the impingement data, it is assumed that that majority of the eggs are associated with alewife. None of the entrained fish eggs collected during the 2012/2014 study were keyed out to lower than the class level. Subsequently, no family level comparisons can be made from this data. However, most larvae or fry collected were round goby with three alewife larvae recovered.

Neither of these two species is represented in the identified ichthyoplankton collected during the 2019-2020 study. The only positive samples in 2019-2020 were comprised solely of demersal spawning Centrarchidae or Percidae eggs.

The 2019-2020 Study found no fish larvae or eggs in over 90 percent of the samples at No. 1 LWPS and No. 2 LWPS. All of the entrained ichthyoplankton were collected during the months of April and May. The total daily entrainment estimates of ichthyoplankton varied from 0 to 7,555 larvae and/or eggs per day for No. 1 LWPS, and 0 to 5,375 larvae and/or eggs per day for No. 2 LWPS in 2019-2020.

Estimated Annual Entrainment at CCBH

Estimates of annual absolute loss for a full year of entrainment based on sampling done in 2012 and 2013 were provided in Attachment R11 - B of the NPDES application. Data from the entrainment characterization study conducted in 2019 and 2020 are not included because the data were only collected during a subset of months and therefore the partial year data cannot be reliably converted to annual estimates. However, the data that were collected in 2019 and 2020 are generally consistent with the species and number of fish collected in 2012 and 2013 and therefore the partially sampled year was not likely to be materially different from the two fully sampled years.

Table 2-1. Baseline Annual Entrainment Absolute Losses for 2012 and 2013

Taxa/species	Scientific Name	Life stage	Absolute Loss (number) 2012	Absolute Loss (number) 2013
Alewife	*Alosa pseudoharengus*	Eggs	972,055	658,097
		Larvae	0	361,800
		Juveniles	235,974	0
Bluegill	*Lepomis macrochirus*	Eggs	34,257	25,314
Burbot	*Lota*	Eggs	2,766	1,861
Emerald Shiner	*Notropis atherinoides*	Eggs	5,525	4,083
Gizzard Shad	*Dorosoma cepedianum*	Eggs	29,860	20,967
Rainbow Smelt	*Osmerus mordax*	Eggs	22,681	15,479
Round Goby	*Neogobius melanostomus*	Eggs	1,145,853	798,419
		Larvae	626,629	3,561,828
		Juveniles	90,016	0
Smallmouth Bass	*Micropterus dolomieu*	Eggs	3,872	2,678
Spottail Shiner	*Notropis hudsonius*	Eggs	332,488	225,746
Yellow Perch	*Perca flavescens*	Eggs	1,981,110	1,344,450

C. Summary – Impingement and Entrainment Impacts Based on Sampling Studies

The above impingement and entrainment sampling studies provided annualized estimates on the numbers of organisms impinged and entrained at the permittee's facility. These annualized estimates were for entrained eggs and larvae and impinged fish of various size and age.

The permittee (see Attachment R11-B of the 316(b) application) used modeling (Equivalent Adult Modelling, or EAM) to convert these annualized impacts to numbers of age-1 equivalent organisms.

The EAM is a convenient means of converting changes in impingement and entrainment (which occur across many different life stages) and expressing them as an equivalent number of organisms at some standard age (often age-1-equivilents or A1Es), under the assumption that species are not limited by food or habitat. In addition to the change in impingement and entrainment absolute losses, the EAM calculation requires life stage-specific survival rates from the life stage of impingement or entrainment through to the selected "age of equivalence."

The model represents one way to place the loss of millions of young life stages (which have very high natural mortality rates) into an ecological context and understand the relative magnitude of entrainment and impingement at a facility. For additional information on the EAM including mathematical equations, see Section A1-4.1 in USEPA (2006).

Table 3-5 presented below from Attachment R11-B converts the impacts from both impingement and entrainment to 'age-1' equivalents. It was derived to determine the impact of installing closed cycle cooling which would eliminate all the impacts from both impingement and entrainment.

Table 3-5. Expected Annual Change in Age 1 Equivalents

Representative Species	Closed Cycle Cooling		
ENTRAINMENT	**2012**	**2013**	**Average**
Alewife	2,308	209	1,258
Bluegill	1	1	1
Emerald Shiner	275	187	231
Gizzard Shad	0.2	0.2	0.2
Round Goby	4,282	8,233	6,257
Yellow Perch	490	332	411
Total	**7,355**	**8,962**	**8,159**
Representative Species	**Closed Cycle Cooling**		
IMPINGEMENT	**2012**	**2013**	**Average**
Alewife	22,024	342	11,183
Bluegill	1,187	0	594
Emerald Shiner	13,073	9,542	11,307
Gizzard Shad	241	205	223
Round Goby	5,057,740	8,661,374	6,859,557
Yellow Perch	23,535	27,990	25,762
Total	**5,117,799**	**8,699,452**	**6,908,625**

As Table 3-5 shows, most of the impact on numbers of age-1 organisms is from impingement not entrainment. Aside from the exotic Round Goby, the important sport fish species Yellow Perch was most impacted by impingement. The annual average number of age-1 equivalent Yellow Perch impacted by the existing CWIS is modeled at 25,762 individuals from impingement and only 411 individuals from entrainment.

6.4.5 Protected Species Susceptible to Impingement and Entrainment

The federal regulation requires that facilities identify all federally listed threatened and endangered species and designated critical habitat that are present in the "action area." The "action area," as defined by the USFWS and NMFS under Section 7, includes all areas that may be directly or indirectly affected by the operation of a facility's CWIS and not merely the immediate area involved in the action; this is because the USFWS and NMFS consider that the effects of CWIS can extend well beyond the footprint of the CWIS.

There are no known federally listed threatened or endangered (T&E) aquatic species in the vicinity of the intakes that may be susceptible to impingement and entrainment.

However, Lake Sturgeon (*Acipenser fulvescens*) is listed as a state Endangered Species and is identified on IDNR's Wildlife Action Plan. One tagged adult Lake Sturgeon was found during the 2011 316(a) Demonstration conducted by the BP Whiting refinery, although it was not at a location in the vicinity of the Whiting Refinery Intakes. It is possible, however, based on habitat preferences of Lake Sturgeon that they could be found near the CCBH CWIS intakes.
In addition, Trout-perch (*Percopsis omiscomaycus*) and Slimy Sculpin (*Cottus cognatus*), both being State Species of Concern, have been identified in 316(b) impingement studies in the area.

On March 24, 2021, IDEM received the following comment from Dan Sparks, Senior Environmental Contaminants Specialist, U.S. Fish and Wildlife Service, Bloomington Field Office relative to endangered species and the permittee's 316(b) application:

> "I concur that there are no federal endangered species issues with this facility and only a minor impact to important state resources (those impacts to yellow perch)"

The complete, final 316(b) application was sent to the Bloomington Field Office of the U.S. Fish and Wildlife Service on June 10, 2021. Mr. Dan Sparks of that office responded on June 14, 2021, in pertinent part, as follows:

> "…[T]here are no federal listed threatened or endangered species impacted by this 316(b) permit action."

6.4.6 Best Technology Available (BTA) Determinations

A. Impingement BTA

Under 40 CFR 125.94(c) existing facilities subject to the rule must comply with one of the following seven BTA Standards for Impingement Mortality:

1. Operate a closed-cycle recirculating system as defined at 40 CFR §125.92;
2. Operate a cooling water intake structure (CWIS) that has a maximum design through-screen design intake velocity of 0.5 feet per second (fps);
3. Operate a CWIS that has a maximum actual through-screen intake velocity of 0.5 fps;
4. Operate an offshore velocity cap that is a minimum of 800 feet offshore;
5. Operate a modified traveling screen that the Director (IDEM) determines meets the definition of the rule (at §125.92(s)) and that the Director (IDEM) determines is BTA for impingement reduction;
6. Operate any other combination of technologies, management practices, and operational measures that the Director (IDEM) determines is BTA for impingement reduction; or
7. Achieve the specified impingement mortality performance standard of less than 24 percent.

The permittee has proposed to comply with alternative 3, above. Under this alternative, the permittee must operate cooling water intake structures that have 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 calculations of through-screen intake velocities at the No. 1 and No. 2 LWPS show intake velocities are above the §125.94(c)(3) BTA standard of ≤ 0.5 fps at minimum Lake levels for the No. 2 LWPS. See Section 6.4.2 above.

In addition, since the permittee does not have a means of measuring intake flow, the intake velocities were calculated using estimated flows. For the No. 1 LWPS, the calculated velocity using the estimated intake flow was equal to 0.5 fps. If the intake flow is actually slightly greater than the estimated flow, the intake velocity would also exceed 0.5 fps at No. 2 LWPS. See Section 6.4.2 above.

The permittee plans on installing flow monitoring systems for the intakes to determine reasonably accurate intake flows at both pump stations. Alternatively, as provided by the NPDES permit, if flow meters cannot be installed due to hydraulic or other issues, reasonably accurate calculation methods to establish daily through screen intake velocities will be developed by the permittee. After these flow monitoring systems have been installed or the alternate reasonably accurate calculation method has been implemented, the intake velocities can be calculated more accurately. If, based on these revised calculations, the intake velocity at LWPS No. 1 is greater than 0.5 fps, the permittee would need to reduce the velocity at this intake to comply with impingement alternative 3.

Therefore, Burns Harbor will need to make changes to the CWIS to assure compliance.

Burns Harbor has determined there are a number of alternatives available to achieve compliance with the §125.94(c)(3) BTA standard:

- Installation of a fifth traveling screen at the No. 2 Lake Water Pumping Station.
- Installation of replacement traveling screen sections with openings sufficiently large to achieve the BTA impingement mortality standard at each pumping station.
- Flow balancing at the No. 1 and No. 2 LWPS and possible restrictions on the maximum AIF to achieve the BTA impingement mortality standard.

The No. 2 LWPS has an available bay between the four existing travelling screens where a fifth traveling screen can be installed (see Figure R3-1 in Section 6.4.2.A.). With no other changes, this would increase the available screen open area at the No. 2 LWPS by 25% and allow for compliance with the BTA standard for impingement mortality. In addition, it is possible to retrofit the existing 0.25-inch opening screen panels with larger openings screen panels (e.g., 3/8-inch openings). This would also allow for compliance with the BTA standard.

In the renewal permit, IDEM proposes to include a compliance schedule which provides the permittee up to three years to achieve compliance with the 40 CFR §125.94(c)(3) BTA impingement standard. The proposed compliance schedule will contain the following major elements:

- Within 12 months of the effective date of the permit complete installation of:
  - flow monitoring systems at the No. 1 and No. 2 LWPS for determining reasonably accurate daily intake flow or if flow meters cannot be installed due to hydraulic or other issues provide for alternative means to estimate reasonably accurate intake screen and intake strainer backwash flows at each pumping station.
  - water level monitoring systems at the Lake side of the intake screens at each pumping station.
- Within 12 months of the permit effective date develop and submit calculation protocols for determining daily through-screen intake velocity at each pumping station considering either daily measured intake flows at each pumping station and daily water levels, or monitored discharge flows from Outfalls 001, 002 and 003, estimates of evaporative water losses across the Burns Harbor Plant and daily water levels at the intakes.
- Within 24 months after the permit effective date, select, and notify and receive IDEM's approval of that selection and complete engineering detail plans of one and/or all of the following technologies or other technologies directed at achieving the BTA impingement mortality standard at both No. 1 and No. 2 LWPS:
  - Installation of a fifth traveling screen at the No. 2 LWPS.
  - Installation of replacement traveling screen sections with openings sufficiently large to achieve the BTA impingement mortality standard at the screens for each pumping station.
  - Flow balancing at No. 1 and No. 2 LWPS and/or restrictions on maximum AIF to achieve the BTA impingement mortality standard.
- Within 36 months after the permit effective date complete installation of the selected technology to achieve the §122.94(c)(3) BTA for impingement mortality at each pumping station.

IDEM concurs with the permittee that the alternatives proposed for compliance with the impingement BTA standards are the best technology available (BTA).

B. Entrainment BTA

For existing facilities, EPA did not identify any single technology or group of technology controls as available and feasible for establishing national performance standards for entrainment. Instead, EPA's regulations require the permitting agency to make a site-specific determination of the best technology available standard for entrainment for each individual facility. See 40 CFR 125.94(d).

EPA's regulations put in place a framework for establishing entrainment requirements on a site-specific basis, including the factors that <u>must</u> be considered in the determination of the appropriate entrainment controls. These factors include the number of organisms entrained, emissions changes, land availability, and remaining useful plant life as well as social benefits and costs of available technologies when such information is of sufficient rigor to make a decision. These required factors are listed under 40 CFR 125.98(f)(2).

EPA's regulations also establish factors that <u>may</u> be considered when establishing site-specific entrainment BTA requirements, including: entrainment impacts on the waterbody, thermal discharge impacts, credit for flow reductions associated with unit retirements, impacts on reliability of energy delivery, impacts on water consumption, and availability of alternative sources of water. (40 CFR 125.98(f)(3))

As the owner/operator of an existing facility that withdraws greater than 125 MGD actual intake flow (AIF) of water for cooling purposes, the permittee is required to submit to IDEM for review the information required under paragraphs (r)(9), (10), (11), (12), and (13) of 40 CFR 122.21(r). This includes the following:

- Entrainment Characterization Study (§122.21(r)(9))
- Comprehensive Technical Feasibility and Cost Evaluation Study (§122.21(r)(10))
- Benefits Valuation Study (§122.21(r)(11))
- Non-water Quality Environmental and Other Impacts Study (§122.21(r)(12))
- Peer Review (§122.21(r)(13))

In accordance with these requirements, the permittee evaluated the technical feasibility and engineering costs for the implementation of ichthyoplankton entrainment reduction technologies, including conversion to a closed-cycle recirculation system and installation of fine mesh screens.

The 40 CFR 122.21(r)(10) through (r)(12) portions of the application quantified social benefits and costs and are discussed in more detail in the below discussion of the factors that must be considered under 40 CFR 125.98(f)(2) and the factors that may be considered under 40 CFR 125.98(f)(3).

The two entrainment control technologies evaluated in detail were closed cycle cooling and fine mesh screens. The 316(b) application quantified installation and operation costs for closed cycle cooling and installation costs for fine mesh screens. Also included was a discussion of operational issues associated with both of these technologies.

Other technologies, such as use of wastewater, grey water or alternate water sources were not evaluated in detail as they were determined to be technically infeasible.

According to the permittee, Burns Harbor water withdrawal from Lake Michigan would be higher by approximately 164 MGD but for installation and operation of 14 contact cooling water and noncontact cooling water closed-cycle recirculation systems and 3 process water re-use systems. This amounts to approximately 22% of the DIF and 38% of the maximum intake flow.

The capital costs of installing 1 mm fine mesh screens (FMS) were estimated at $19,600,000. The net increase in operation and maintenance costs for fine mesh screens was not developed. Net social benefits were also not developed for this technology. The permittee identified several operational concerns that preclude use of FMS at their facility and therefore warranted a reduced scope of cost and benefit evaluation.

The permittee provided an estimate of the cost of installation and operation and maintenance of closed cycle cooling for discrete portions of the facility and also the entire facility. These estimated costs are included in the table contained under Section 6.4.6.B.1.v., below.

The total costs for installation of closed cycle cooling for the entire facility were approximately $433,000,000 with an annual operating cost of close to $13,000,000. Assuming the closed-cycle recirculating cooling systems (CCRS) eliminated all mortality due to both impingement and entrainment, the estimated social benefits from the installation of closed cycle cooling was calculated at $1,089 per year.

After considering all the factors that must and may be considered by the federal rules (see discussion below), IDEM finds that the existing facility meets the best technology available (BTA) for entrainment mortality. This is primarily based on the following factors:

1. The species and number of organisms projected to be entrained by the facility and limited impact to the ecosystem;
2. The costs and technical difficulties installing CCRS or FMS;
3. The flow reduction/water reuse optimization efforts already implemented at the facility; and
4. The off-shore location of the intake cribs.

Must and May Factor Discussion (40 CFR 125.98(f)(2) and (3))

1. MUST FACTORS (40 CFR 125.98(f)(2))

   i. Numbers and types of organisms entrained, including, specifically, the numbers and species (or lowest taxonomic classification possible) of Federally-listed, threatened and endangered species, and designated critical habitat (e.g., prey base);

   The results of entrainment sampling and the subsequent data evaluation at the permittee's facility and other nearby industrial facilities demonstrate that entrainment of critical fish eggs, larvae, and other valued ichthyoplankton by the permittee's CWIS is likely negligible.

   There are no known Federally listed threatened or endangered (T&E) aquatic species near the intakes that may be susceptible to impingement and entrainment. US F&WS comments support this determination. In addition, there is no Federally listed designated critical habitat in the vicinity of the intakes.

   A state-listed endangered species, lake sturgeon (*Acipenser fulvescens*), is listed for Lake County, Indiana and is identified on IDNR's Wildlife Action Plan. One tagged adult lake sturgeon was found during the field work in 2011 in support of a 316(a) demonstration, however it was not at a location near the permittee's intakes.

   In addition to critical organisms such as threatened and endangered species, the total numbers of all organisms and resulting impact from entrainment of those organisms is likely insignificant based on the actual entrainment sampling done by the permittee and projected impact on number of age-1 equivalent organisms – see Table 3-5 from Attachment R11 – B presented previously in the above Section 6.4.4 Impingement and Entrainment – Aquatic Life Studies.

   This minor overall impact on aquatic life is likely due to a variety of factors, including the fact that coastal shoreline fish assemblages in the vicinity of the permittee's intake cribs and the available habitat in the vicinity of the intake cribs is limited. Moreover, the distance of the intake cribs from the shore likely reduces this area of the lake to planktivorous fish.

   While Yellow Perch (YP) eggs were identified in the entrainment sampling done by the permittee, the impact from entrainment is minimal (411 age-1 YP equivalent from entrainment) compared to the impacts from impingement (25,762 age-1 YP equivalent).

Installing closed cycle cooling would substantially reduce impacts from both entrainment and impingement. That said, the overall impacts on the Yellow Perch from impingement and entrainment are minor compared to the overall fishery and harvest of Yellow Perch in Southern Lake Michigan.

The social benefits and costs of that impact, is discussed in item v. below.

ii. *Impact of changes in particulate emissions or other pollutants associated with entrainment technologies;*

Reference is made to Attachment R12-A in the 316b application for estimates of estimated air pollutant emissions associated with installation of closed-cycle recirculating systems at Burns Harbor. The emission estimates are summarized below:

Pollutant	Estimated Annual Emissions (Tons/Year)
Estimated On-Site Emissions From Installation of MCDTs	
Total PM	37.4 to 40.4
PM10	32.6 to 35.5
PM2.5	15.8 to 17.4
Estimated Off-Site Combustion Emissions	
Carbon Dioxide (CO2)	341,430
Sulfur Dioxide (SO2)	255
Nitrogen Oxides (NOx)	255

Significant impacts to human health are not expected from the above projected emissions increase.

iii. *Land availability insofar as it relates to the feasibility of entrainment technology;*

Land availability is not a serious impediment to installation of closed-cycle recirculation systems at Burns Harbor.

The feasibility analysis for closed cycle cooling and site open areas show land is available within reasonable proximity for the following operations:

- By-Product Coke Plant
- Basic Oxygen Furnaces
- Power Station
- 110” Plate Mill
- 160” Plate Mill
- 80” Hot Strip Mill

Close-in space is limited at the C and D Blast Furnaces. Thorough assessments of site-specific features for each process operation would be needed to support more detailed Class 3 engineering cost estimates that would be necessary for capital appropriation purposes. Figure R10-2 of the 316(b) application shows the approximate location for possible mechanical draft cooling towers that would be part of Burns Harbor closed-cycle recirculating systems.

iv. Remaining useful plant life; and

Useful life was estimated at 30 years for newly installed closed-cycle recirculation systems. Remaining useful life for Burns Harbor manufacturing facilities is considered indefinite as they are upgraded, maintained and refurbished from time to time. Remaining useful life is not an issue for the Burns Harbor CWIS application.

v. Quantified and qualitative social benefits and costs of available entrainment technologies when such information on both benefits and costs is of sufficient rigor to make a decision.

The 40 CFR 122.21(r)(10) through (r)(12) reports submitted with the NPDES application quantified social benefits and costs for closed cycle cooling (CCRS) and capital costs for fine mesh screens (FMS).

Other technologies, such as use of wastewater, grey water or alternate water sources were not evaluated in detail as they were determined to be technically infeasible.

Fine Mesh Screens

Installation of fine mesh screens (FMS) would involve replacing the existing traveling screens in each pump station with finer mesh screens. The existing screen opening of 0.25” would be reduced to 1 mm or 2 mm size openings depending on mesh size selected. The finer the mesh size, the more organisms captured by the FMS. Captured organisms would be washed off the FMS screens and returned to Lake Michigan in a manner to maximize survival as much as possible.

Depending upon debris loading, the existing screens are operated from a few hours to several hours per day. When debris loadings are high during storm events that induce high Lake turbulence and when Lake grasses enter the CWIS, the screens must be operated in manual mode continuously for as long as necessary to allow for sufficient water withdrawal to meet plant needs.

This is fairly frequent per the permittee and may persist for several days depending upon Lake conditions. Of major concern to Burns Harbor are instances where the existing 0.25" opening screens are blinded and the screen wells are filled with sand over short periods of time from heavy Lake loadings of sand and debris.

Fine mesh screens significantly reduce the opening size of the traveling screens and increase the likelihood of blinding.

The utility of fine mesh traveling screens as an entrainment reduction technology at Burns Harbor is also questionable from a biological perspective because survivability of newly impinged fish eggs and larvae is highly uncertain.

Operationally, the permittee indicates that it would not be feasible to operate and maintain fine mesh traveling screens at Burns Harbor given the current configuration of the pumping stations and debris loadings from Lake Michigan. Because of reduced open screen area and screen plugging, four sets of fine mesh traveling screens at each pumping station would not provide sufficient screen capacity for Plant water needs.

From the standpoint of engineering and installation; however, it is technically feasible to install fine mesh traveling screens at the Burns Harbor No. 1 LWPS and No. 2 LWPS as currently configured. This would involve replacing the existing 10-foot screen panels at No. 1 LWPS and the 14-foot screen panels at No. 2 LWPS with fine mesh screen panels equipped with support grids. However, as noted above, the drawbacks and operational considerations make this technology questionable from a biological perspective and not feasible from a physical perspective:

Biological Considerations

- Conversion from entrainment of certain organisms to impingement
- Effectiveness of collection and transfer efficiency
- Post-collection survival prior to return to Lake Michigan

Physical Considerations

- Substantially reduced available surface area for intake water withdrawal at the No. 1 LWPS and No. 2 LWPS, resulting in:
  - Increased head loss through the screens
  - Increased through-screen intake velocity
  - Increased debris collection and screen clogging

In order for Burns Harbor to successfully operate with fine mesh traveling screens, the No. 1 LWPS and No. 2 LWPS would have to be reconstructed and expanded substantially to accommodate many more than four sets of traveling screens at each station.

Modifications to pumping and backwash systems would be required. Alternatively, a new pumping station or stations would have to be added. This would be necessary to provide sufficient fine mesh traveling screen capacity for water withdrawal to meet plant water needs. Operations would involve frequent rotations of screens sets into and out of service to maintain sufficient open screen area for water withdrawal to meet plant water needs. This would not be practical from an operating standpoint.

Based on the above, FMS were eliminated as a viable entrainment control technology at the Burns Harbor facility.

Closed Cycle Cooling (CCRS)

Installation and operation of closed-cycle recirculating systems for noncontact cooling water (NCCW) and contact cooling water (process water) applications at Burns Harbor is technically feasible, however, the plant-wide investment and annual operating and maintenance costs are significant.

Standard practice and standard engineering design in the iron and steel industry is to use mechanical induced-draft evaporative cooling towers for both NCCW and contact water closed-cycle recirculation systems. Dry, air-cooled cooling systems and wet/dry hybrid cooling towers for large-volume closed-cycle recirculation systems are not used to any appreciable extent in the steel industry.

Physical/chemical treatment of process water prior to cooling is required for most iron and steel industry process water applications, (e.g., removal of total suspended solids from blast furnace gas cleaning water; removal of total suspended solids and oil & grease from continuous casting and hot rolling process waters).

The approach taken to develop plant-wide cost estimates for closed-cycle recirculating systems at Burns Harbor was to develop costs on a process-by-process basis for recycle of NCCW and hot rolling mill process water rather than to consider a number of centralized closed-cycle recirculating systems. In a number of cases, the process operations are relatively far apart (e.g., coke plant, blast furnaces, hot rolling mills). Centralized closed-cycle recirculating systems would not be not practical in those cases because long, high-capacity piping runs to and from the centralized would be required. This would tend to offset possible cost savings for centralized systems. For this assessment, cost estimates are provided for each process and utility operation with the exception of a closed-cycle NCCW recirculation system for the hot rolling and steel finishing operations where a centralized system was considered.

Preliminary engineering order-of-magnitude estimates were prepared based on a range of process specific flow rates. Costs considered include mobilization, equipment, installation, mechanical, electrical, indirect and contingency. Operation and Maintenance cost estimates were also included.

The estimates are considered by the permittee as reasonably accurate to within ± 30% with a 30% contingency added and reflect 2019/2020 costs.

Burns Harbor Operations Entrainment Reduction Compliance Costs	**Design Noncontact and Contact Water Flow Rates**		**Investment Cost (rounded)**	**Operation & Maintenance Cost**
	gpm	**mgd**		
Outfall 002: Hot End Operations and Power Station (all NCCW)				
By-Product Coke Plant	20,100	28.9	$17,500,000	$525,000
C Blast Furnace	20,300	29.2	$17,500,000	$525,000
D Blast Furnace	19,700	28.4	$17,500,000	$525,000
Basic Oxygen Furnaces	7,000	10.1	$9,200,000	$276,000
Power Station	225,000	324.0	$113,700,000	$3,411,000
		Subtotal	$175,400,000	$5,262,000
Outfall 001: Rolling Mills and Steel Finishing				
110” Plate Mill (contact water)	4,700	6.8	$39,900,000	$1,197,000
160” Plate Mills (contact water)	9,700	14.0	$58,000,000	$1,740,000
80” Hot Strip Mill (contact water)	31,000	72.0	$132,600,000	$3,978,000
Hot Rolling, Steel Finishing NCCW	48,300	69.6	$27,400,000	$822,000
		Subtotal	$257,900,000	$7,737,000
		Total	$433,300,000	$12,999,000

Installation of closed-cycle recirculation systems throughout the Burns Harbor Plant would reduce actual Lake Michigan water withdrawals from between 400 and 500 mgd to the range of 90 mgd. See Attachment R10-C. This would result in operating substantially reduced pumping capacity at the No. 1 LWPS and No. 2 LWPS.

Social Benefits CCRS

Social benefits included an evaluation of ‘use’ and ‘non-use’ benefits along with uncertainty bands for those social benefits. ‘Use’ benefits include such things as economic benefits from recreational fishing. ‘Non-use’ benefits embody the concept that there may be a willingness-to-pay for natural resources outside of any active use (i.e. the idea of non-use value). The existence of such non-use values has since been widely adopted by natural resource economists.

Because the biological changes associated with alternative cooling water technologies at Burns Harbor facility occur among common species, are modest, and are unlikely to affect the viability of any population, Cardno (Burns Harbor consultant) assigned non-use a zero-dollar value. A safety factor was included in the upper bound social benefit calculation to account for uncertainty in the ‘non-use’ assumptions.

Table 4-4 (Attachment R11-B) of the 316(b) application and presented below represents estimates of the social benefits from the installation of a closed-cycle cooling system (The permittee assumed a complete elimination of all impingement and a reduction in entrainment in direct proportion to the estimated reduction in water withdrawal).

Table 4-4. Closed Cycle Cooling Social Benefits: Best Estimate

Benefit Category	Closed Cycle Cooling				
	Total Annual Benefit	Present Value of Benefit Discounted at 3 Percent	Annualized Benefit at 3 percent	Present Value of Benefit Discounted at 7 Percent	Annualized Benefit at 7 percent
Change in Commercial Landings	$0	$0	$0	$0	$0
Change in Recreational Harvest of Aquatic Organisms	$815	$12,489	$540	$5,554	$417
Change in Recreational Harvest of Birds and Wildlife	$263	$4,030	$174	$1,792	$134
Change in Active Viewing of Birds and Wildlife	$0	$0	$0	$0	$0
Non-use Value	$0	$0	$0	$0	$0
Adjustment for Organisms not included in Modeling Group	$11	$167	$7	$74	$6
TOTAL:	**$1,089**	**$16,686**	**$722**	**$7,420**	**$557**

Uncertainty surrounding the estimate of total social benefits (Table 4-5 from the 316(b) application and presented below) was also evaluated by allowing the entrainment and impingement data as well as key economic input variables to simultaneously assume “bounding” values. Specifically, the extreme upper bound and the lower range were calculated using the following:

- Individual years of entrainment and impingement data as maximum and minimum biological inputs;
- The 5th and 95th percentile estimates of willingness-to-pay for an increase in the recreational harvest of aquatic organisms (USEPA, 2014);
- Maximum and minimum willingness-to-pay for an additional trip for recreational harvest of birds and wildlife of $43.71 and $17.06;
- Adjustments for un-modeled organisms ranging from the highest (1.0 percent) and lowest (0.0 percent) proportion of un-modeled species; and
- An assumption that potential non-use value could range from 0 to 1.92 times the use value.

Table 4-5 Closed Cycle Cooling Social Benefits Bounds

Social Benefit Estimate		Closed Cycle Cooling
Extreme Upper Bound Estimate	Annual Value	$6,255
	Present Value Discounted at 3 Percent	$95,875
	Annualized at 3 Percent	$4,148
	Present Value Discounted at 7 Percent	$42,634
	Annualized at 7 percent	$3,198
Lower Bound Estimate	Annual Value	$465
	Present Value Discounted at 3 Percent	$7,135
	Annualized at 3 Percent	$309
	Present Value Discounted at 7 Percent	$3,173
	Annualized at 7 percent	$238

Given that the partial social cost of closed cycle cooling at the Facility is estimated to be at least $483,610,000 (present value of installation cost and operation/maintenance costs) discounted at 3 percent) and the total social benefit is extremely unlikely to exceed $96,000 (present value discounted at 3 percent), IDEM concurs with the permittee that a closed cycle cooling retrofit at the Facility should not be identified as BTA.

2. MAY FACTORS (40 CFR 125.98(f)(3))

i. Entrainment impacts on the waterbody;

The results of entrainment sampling and the subsequent data evaluation at CCBH and other nearby industrial facilities demonstrate that entrainment of critical fish eggs, larvae, and other valued ichthyoplankton by the CCBH CWIS is likely negligible.

There are no known Federally listed threatened or endangered (T&E) aquatic species near the intakes that may be susceptible to impingement and entrainment. US F&WS comments support this determination. In addition, there is no Federally listed designated critical habitat in the vicinity of the intakes.

In addition to critical organisms such as threatened and endangered species, the total numbers of all organisms and resulting impact on the waterbody from entrainment of those organisms is insignificant based on the actual entrainment sampling done by CCBH and projected impact on number of age-1 equivalent organisms – see Table 3-5 from Attachment R11 – B presented previously in the above Section 6.4.4 Impingement and Entrainment – Aquatic Life Studies.

Impingement at CCBH does have a greater impact than entrainment on Yellow Perch but even that impact is considered minor relative to the fishery.

ii. Thermal discharge impacts;

Installation of closed cycle cooling would substantially reduce the thermal loads discharged to East Branch Little Calumet River and the East Arm of Burns Harbor. While selection of the existing CWIS as entrainment BTA does not reduce the existing thermal load, as part of the 316(a) thermal variance the permit will require the permittee to conduct thermal and biological studies on the East Branch of the Little Calumet River, conduct thermal and/or biological studies on the East Arm of Burns Harbor and evaluate options to reduce the thermal load to the East Branch of the Little Calumet River to ensure the protection of the salmonids present in the stream. In addition, this evaluation will study possible relocation of a component of the thermal discharge from Outfall 001 to Outfall 002 as well as continued use of the water cannon to mitigate impacts from remaining thermal discharges to East Branch Little Calumet River.

See Section 6.3 Clean Water Act (CWA) Section 316(a) Alternative Thermal Effluent Limitations, above for additional information.

iii. Credit for reduction in flow associated with the retirement of units occurring with 10 years preceding October 14, 2014;

Not applicable.

iv. Impacts on the reliability of energy delivery within the immediate area;

If installed, the incremental energy demand associated with closed-cycle recirculation systems (~ 45 MW) is not anticipated to affect energy delivery within the immediate area of the Burns Harbor facility

v. Impacts on water consumption; and

The Burns Harbor facility withdraws an estimated average of about 333 MGD from Lake Michigan, with an estimated maximum of about 434 MGD. Current evaporative losses are estimated at about 11 to 12 MGD. If closed-cycle cooling were installed throughout the facility, evaporative losses would increase by approximately 11.2 MGD.

vi. <u>Availability of process water, gray water, waste water, reclaimed water, or other waters of appropriate quantity; and, quality for reuse as cooling water</u>

The Burns Harbor Plant was located on Lake Michigan by the original owner Bethlehem Steel in large part because of the availability of vast quantities of Lake Michigan water for cooling and process applications.

There are no alternate surface or subsurface sources of water in the vicinity of the Burns Harbor Plant that can supply approximately 400 to 500 mgd required for plant operations, or even the reduced water demand of approximately 90 mgd that would result from installation of closed-cycle recirculation systems on a plant-wide basis.

The nearest surface water other than Lake Michigan within 10 miles of Burns Harbor is the East Branch of the Little Calumet River (EBLCR). Burns Harbor Outfall 001 discharges to the EBLCR at a recent average flow of approximately 118 mgd. The upstream seven-day average low flow of the EBLCR with a 10-year recurrence interval is (7Q10) is 21 cfs or 14 mgd. The EBLCR is not a viable water source.

There are no local municipal water sources or publicly owned treatment works (POTWs) with capacity to supply the Burns Harbor Plant. Some local municipal potable water systems withdraw water from Lake Michigan, so even if municipal capacity was available to supply Burns Harbor, the net water withdrawal from Lake Michigan would be the about same. Finally, there are insufficient groundwater resources at Burns Harbor to supply plant water needs. Lake Michigan is the only viable water source.

As part of its Project Blue Sky initiative, Cleveland-Cliffs is evaluating potential reuse of treated process water from the Burns Harbor Secondary Wastewater Treatment Plant as cooling water for certain process operations. This will be assessed during the course of the pending renewal NPDES permit term.

6.4.7 Best Technology Available (BTA) Impingement and Entrainment Determination Summary

IDEM concurs with the permittee's selection of BTA impingement alternative 40 CFR 125.94(c)(3); operate a CWIS that has a maximum actual through-screen intake velocity of 0.5 fps at both intake cribs and at the traveling screens in each of the two pump stations. A 3-year schedule to fully comply with this impingement BTA alternative is included in the renewal permit.

After considering all the factors that must and may be considered by the federal rules (see discussion above), IDEM finds that the existing facility meets the 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 closed cycle cooling or fine mesh screens;
3. The flow reduction/water reuse optimization efforts already implemented at the facility; and
4. The off-shore location and design of the two intake cribs.

6.4.8 Permit Conditions

The permittee shall comply with requirements below:

A. Cooling Water Intake Structure (CWIS) 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 structure 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 (Outfall 003) 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. At a minimum frequency of daily, the permittee must monitor the velocity at the traveling screens in each of the two pump stations. Through-screen velocity monitoring shall be conducted at a point where intake velocities are the greatest. In lieu of velocity monitoring at the screen face of the traveling screens, the permittee may calculate the through-screen velocity separately at the No. 1 and No. 2 Lake Water Pumping Stations using water flow, water depth, and the screen open areas. These daily measurements, including the intake flow must be reported at Outfall 003 on the MMR with the monthly results summarized on the DMRs that are submitted every month.

6. The permittee must submit an annual summary of the actual intake flows measured or calculated at each intake 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. In addition, if the permittee uses the calculation method to determine the velocities required under Section 6.4.8.A.5., above, the input values and calculations for each day shall be included in this annual report.

7. 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 40 CFR 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).

8. In accordance with 40 CFR 125.97(c), by January 31 of each year, the permittee must submit to the Industrial NPDES Permit 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.

9. 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 the request for reduced cooling water intake structure and waterbody application information at least **two years and six months** prior to the expiration of the NPDES permit. The request must identify each element in this subsection 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.

10. The permittee shall submit and maintain all the information required by the applicable provisions of 40 CFR 125.97.

11. All required reports must be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch, Industrial NPDES Permit Section at OWQWWPER@idem.in.gov and the Compliance Branch at wwReports@idem.in.gov.

B. Compliance Schedule for Implementation of 316(b) Requirements

1. The below schedule of compliance is for installation of the selected BTA for impingement at No. 1 and No 2. LWPS.

    a. As soon as practicable but no later than 12 months after the effective date of the permit, the permittee shall complete installation of:
        i. flow monitoring systems at the No. 1 and No. 2 LWPS for determining reasonably accurate daily intake flow or if flow meters cannot be installed due to hydraulic or other issues provide for alternative means to estimate reasonably accurate intake screen and intake strainer backwash flows at each pumping station; and
        ii. water level monitoring systems at the Lake side of the intake screens at each pumping station.
    b. As soon as practicable but no later than 12 months after the effective date of the permit, the permittee shall develop and submit to IDEM calculation protocols for determining daily through-screen intake velocity at each pumping station considering either daily measured intake flows at each pumping station and daily water levels, or monitored discharge flows from Outfalls 001, 002 and 003, estimates of evaporative water losses across the Burns Harbor Plant and daily water levels at the intakes.
    c. As soon as practicable but no later than 24 months after the permit effective date the permittee shall select, notify and receive IDEM's approval-of that selection and complete engineering detail plans of one and/or all of the

following technologies or other IDEM approved technologies directed at achieving the BTA impingement mortality standard directed at achieving the BTA impingement mortality standard at both No. 1 and No. 2 LWPS:

- Installation of a fifth traveling screen at the No. 2 Lake Water Pumping Station.
- Installation of replacement traveling screen sections with openings sufficiently large to achieve the BTA impingement mortality standard at each pumping station.
- Flow balancing at No. 1 and No. 2 Lake water Pumping Stations and/or restrictions on maximum AIF to achieve the BTA impingement mortality standard.

d. As soon as practicable but no later than 36 months after the permit effective date, the permittee shall implement flow balancing and/or complete installation of the selected technology to achieve the 40 CFR §122.94(c)(3) BTA for impingement mortality at each pumping station.

e. Within thirty (30) days of completion of any construction, the permittee shall file with the Industrial NPDES Permits Section of Office of Water Quality (OWQ) a notice of installation for the installation of a traveling screen, replacement of traveling screens, and flow balancing and a design summary of any modifications.

f. 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.

2. If the permittee fails to comply with any deadline contained in the foregoing schedule, 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

6.5 301(g) Variance Limits

Section 301(g) of the Clean Water Act and 327 IAC 5-3-4(b)(2) allow for a variance from the applicable BAT requirements through a permittee’s submittal of a timely 301(g) variance request including the permittee’s proposed modified effluent limitations (PMELs) for the non-conventional pollutants of ammonia, chlorine, color, iron, and total phenols (4AAP) provided the following conditions are met:

1. The proposed modified effluent limits (PMELs) will meet the categorical BPT effluent limits (Technology Based Effluent Limits) or applicable water quality-based effluent limits (WQBEL), whichever are more stringent;

2. The PMELs will not result in any additional requirements on other point or nonpoint sources;

3. The PMELs will not interfere with the attainment or maintenance of water quality which will protect public water supplies, aquatic life, and recreational activities; and

4. The PMELs will not result in the discharge of pollutants in quantities which may reasonably be anticipated to pose an unacceptable risk to human health or the environment because of bioaccumulation, persistency in the environment, acute toxicity, chronic toxicity (including carcinogenicity, mutagenicity, or teratogenicity, or synergistic properties).

In November 1983, the owner and operator of the ArcelorMittal Burns Harbor facility, Bethlehem Steel, applied for “waiver” under Section 301(g) of the Clean Water Act from the BAT limitations for ammonia (as N) contained in the ironmaking and sintering subcategories of 40 CFR 420. That application supplemented previous applications submitted in September 1978 and July 1982. On February 4, 1988, the U.S. EPA granted a variance from the best available technology economically achievable requirements provided for by the federal NPDES permit requirements of the Clean Water Act pursuant to section 301(g). Based upon this authorization, modified limitations for ammonia and phenols were granted.

For this permit renewal, IDEM determined that the previously approved variance limits for ammonia and phenols will comply with the Indiana water quality standards and that all the above 301(g) conditions listed above will be met.

The WQBELs for ammonia based on the current applicable water quality criteria would be 0.75 mg/l as the monthly average and 1.7 mg/l as the daily maximum (these WQBELs are from the May 18, 2009 wasteload allocation included as Appendix B of this Fact Sheet). All of the PMELs are more stringent than the WQBELs for ammonia.

Indiana does not have numerical water quality criteria for total phenols (4AAP) applicable to the Little Calumet River. When the initial 301(g) variance was approved in 1988, IDEM and EPA Region V considered whether any toxic phenols were present in the Outfall 001 discharge at levels that would interfere with attainment of Indiana water quality standards. The Section 301(g) variance for total phenols was initially approved on that basis. The current Indiana water quality standards contain narrative criteria at 317 IAC 2-1.5-8(c)(1)(A) and (B) to protect aesthetic qualities of taste in food fish and odor in the vicinity of the discharge. There are no numeric criteria for Lake Michigan for total phenols (see 327 IAC 2-1.5-8(j)(1)).

The approved 301(g) variance limitations are identified in Section 6.1 of this Fact Sheet.

On February 3, 2021, the permittee submitted a request for a modified 301(g) variance for ammonia at Outfall 001. As of the issuance of this permit, IDEM and U.S. EPA have not been able to determine if the modified 301(g) variance request meets the conditions identified above adequately. Therefore, IDEM is proposing to continue the previously approved 301(g) variance limits for ammonia and phenols. IDEM, U.S. EPA, and the permittee will work to address the modified 301(g) variance in a future modification to this NPDES permit, if the permittee decides to pursue this modified variance.

However, the permittee has since informed IDEM that they plan voluntarily achieve BAT effluent limits for ammonia-N and total phenols applicable to the Burns Harbor blast furnaces. Prior to implementing that plan, the permittee plans to request that the permit be modified to eliminate the Section 301(g) variances for ammonia-N and total phenols at Outfall 001 and to impose BAT limits for ammonia-N and total phenols for the blast furnaces at an appropriate compliance monitoring location, most likely at a new internal outfall.

6.6 Polychlorinated Biphenyl (PCB)

There shall be no discharge of polychlorinated biphenyl (PCB) compounds attributable to facility operations such as those historically used in transformer fluids. In order to determine compliance with the PCB discharge prohibition, the permittee shall provide the following PCB data with the next NPDES permit renewal application for at least one sample taken from each final outfall. The corresponding facility water intakes shall be monitored at the same time as the final outfalls.

Pollutant	Test Method	LOD	LOQ
PCBs*	EPA 608	0.1 ug/L	0.3 ug/L

*PCB 1242, 1254, 1221, 1232, 1248, 1260, 1016

6.7 Spill Response and Reporting Requirement

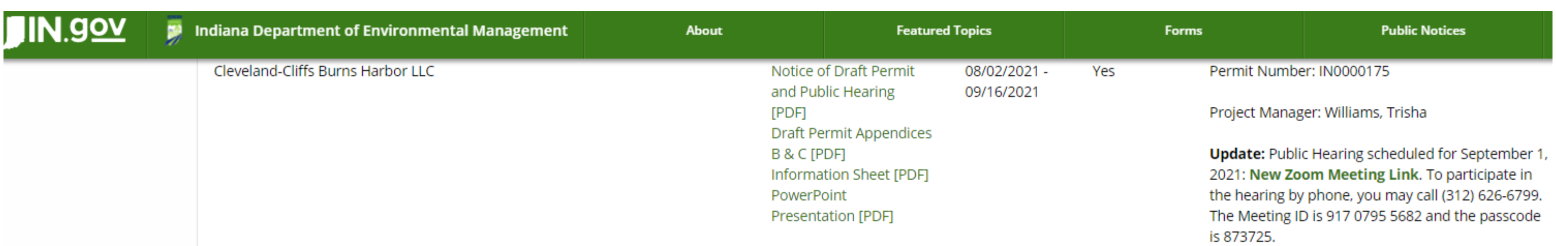
Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.(d), Part II.B.3.(c), and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the 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.

6.8 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/5474.htm. Additional information on public participation can be found in the "Citizens' Guide to IDEM", available at https://www.in.gov/idem/6900.htm. A 45-day comment period is available to solicit input from interested parties, including the public. A general notice will also be published in the newspaper with the largest general circulation within Porter County.

6.9 Post Public Notice Addendum



The draft NPDES permit for Cleveland-Cliffs Burns Harbor LLS was made available for public comment from August 2, 2021 through September 16, 2021 as part of Public Notice No. 2021-08-IN000175-RD/PH on IDEM's website at https://www.in.gov/idem/public-notices/public-notices-all-regions/. During this comment period, a public hearing was held on September 1, 2021. At the public hearing, three (3) individuals provided oral comments; Doug Cannon on behalf of the Town of Ogden Dunes Town Council, Susan Thomas on behalf of ABSR Environment Committee, and Thomas Weber as a concerned citizen. Also, during the comment period, additional written comments were received from: Cleveland-Cliffs Burns Harbor LLC; Doug Cannon on behalf of the Ogden Dunes Town Council; Barbara Lusco as a concerned citizen of Portage, Susan Thomas on behalf of ABSR Environment Committee, Ashley William on behalf of Just Transition Northwest Indiana, and Colin Deverell on behalf of National Parks Conservation Association et al. The comments submitted, and this Office's corresponding responses, are summarized below. Any changes to the permit and/or Fact Sheet are so noted below.

Public Hearing Comments by Doug Cannon, Ogden Dunes Town Council

Comment 1: My name is Doug Cannon. I am here representing the interest of the town of Ogden Dunes as the president of the town council. Our main purpose for being here tonight is three-fold. Number one, we wish to exercise the town's and the public's ability to provide oral testimony on this permit that has a significant public interest. It is important for the public to do so. Number two, we also wish to get our town on record regarding our concerns about the permit. We owe our residents who are impacted by it nothing less. And Number three, having our continued participation helps ensure that the lines of communication remain open with all parties from now and into the future.

Our Environmental Advisory Board has been hard at work reviewing the draft permit and fact sheet. We do have just a few comments we would like to make tonight and we are also working on written comments.

We recognize that IDEM is not required to respond to all our comments, but it is certainly worth a try. The words "national pollution discharge elimination system" reminds us that the Clean Water Act had a goal of eliminating discharges. While this permit does make some improvements in that regard, this facility, IDEM, and EPA are a long way from achieving that goal.

The Indiana American Water intake that supplies drinking water to our town through Ogden Dunes Water Works was closed as a preventative and precautionary measure during the August 2019 spill into the east branch of Little Calumet River.

We plead with you to make sure that the permit clearly addresses spill response measures required by 327 IAC 2-6.1-75, that Cleveland Cliffs upon discovery of a reportable spill to the soil or surface waters of the state exercises due diligence and documents all attempts to notify all affected downstream users, not just IDEM or the National Response Center.

This catastrophic failure was a serious and frightening incident and our residents will not forget it any time soon. I especially will not forget this because I actually went out into the water and dragged people out of the water who did not want to come -- didn't want to give up their play time, shall we say.

So anyway, it is something that – the cyanide spill was a very serious thing and the unfortunate part was that the spill had actually occurred four days prior to this on a Sunday, my being out there on the beach in August was on a Thursday. It amazes and confounds us to this day that it took Arcelor so long to recognize that they had an issue.

More frequent monitoring would have uncovered that issue much sooner. Thank you to IDEM for increasing monitoring frequencies for several parameters including free cyanide, total residual chlorine, and ammonia. As the facility hopefully achieves compliance we strongly believe these frequencies should remain throughout the permit period and beyond.

Some of the waste load allocations go back as far as 2009. An example is on Page 22 of the fact sheet where it references WLAs for copper, silver, zinc, and mercury. We would like to see a rationale adding -- indicating why these older WLAs are still applicable. These waste load allocations are supposed to have a margin of safety built in but how can we be assured that this margin of safety is still valid.

IDEM is proposing continued alternate thermal effluent limits in this permit at outfall 001 in the east branch of the Little Calumet River, an outfall of 002 in the east arm of Burns Harbor. We recognize and support efforts by Cleveland Cliffs to voluntarily commit to evaluating water management techniques that will reduce thermal loading to the east branch of the Little Calumet River; however, we are disappointed that this variance has been granted since 1975, especially since increased rainfall due to climate change is also increasing the amount of ground and pavement heated water to streams and lakes. In turn, base temperatures of both the river and Lake Michigan will continue to increase impacting cold water fisheries and potentially increasing algae in the lake.

We are disappointed that an agreed order or consent decree did not get issued prior to this hearing and hope these matters will be completed soon. And that's all we have for tonight. We look forward to submitting additional comments prior to the written comment deadline.

Thank you for providing us with this opportunity to comment on this permit and its significant impact on these outstanding state resource waters that require our utmost are and stewardship for now and future generations. Thank you.

Response 1: IDEM appreciates your participation in the Public Hearing. The Town of Ogden Dunes Town Council's written comments, and IDEM's response to those comments, are provided below.

Public Hearing Comments by Susan Thomas, ABSR Environment Committee

Comment 2: Thank you so much for this meeting. I am just going to dovetail on what Doug, my neighbor, in the next town over has spoken about, the alert system that needs to go out to the different towns and the emergency departments and the industry itself.

I live in Beverly Shores right next to Ogden Dunes in Burns Harbor. We were equally horrified by what happened that day of the Arcelor fish spill. You can imagine our alarm one year later when it is no longer ArcelorMittal but Cleveland Cliffs and there are -- the wet violations in 2020. And I believe those exceedances were 1,000 to 2,000 percent in excess of what the permit -- it was in excess of the permit violation.

So my question is has IDEM -- my statement question is it is necessary for IDEM to really re-enforce these communication systems with the public with emergency response teams and with the industry because we were left to find out about this through the media. And when we have exceedances that are so huge and so toxic, this is absolutely terrifying and this cannot continue in this way. It must be somehow made immediately to the public and we shouldn't be finding out days or weeks later through the media.

So I would appreciate knowing what IDEM has done to beef up that system, if anything, and I believe the towns are willing to participate, to be willing recipients to those phone calls. So please let us know how we can team up on that and I would love to know what IDEM's plan is on that. Thank you so much.

Response 2: IDEM appreciates your participation in the Public Hearing. The ABSR Environment Committee's written comments, and IDEM's response to those comments, are provided below.

Public Hearing Comments by Thomas Weber, Ogden Dunes concerned citizen

Comment 3: Okay. All right. My name is Thomas Weber. I consider myself a concerned citizen. I regularly swim and immerse myself in Lake Michigan a little more than six miles from your facility boundary and your outfalls.

In reviewing the draft permit and the fact sheets, one of the things that I think ought to be clarified at least in the fact sheet, perhaps in the permit, is the extent of the 301(g) variance for the parameters, I believe it is ammonia and phenol.

There is information in the permit which talks about how the variance was issued many years ago for probably certain reasons, you know, practicality of achieving the technology or whatever. But what I did not notice is how that ever expires, what demonstrations that Cleveland Cliffs has carried out to justify the continuation of the variance.

I did find in there that they indicate a voluntary program of achieving BAT, but these industrial sector effluent limits are I think very important to controlling the release of pollutants so that you just don't end up diluting these pollutants or causing, you know, causing some bad effect once all these wastewaters are mixed and discharge.

But I just could not find anything in there that said this variance was issued on this date, this variance is good until X date at such-and-such a time IDEM or USEPA will reevaluate whether this should continue. I think it is positive that there is a voluntary action being taken by the company, but I wonder if this place sold in a year and somebody had a better idea would this variance just continue.

So I am basically trying to figure out when practical technology can actually be mandated, and I don't believe that your fact sheet or your permit identifies any kind of deadline for that. That's it.

Response 3: Section 6.5 of the Fact Sheet contains a discussion of the 301(g) variance. EPA is the entity responsible for granting 301(g) variances. EPA may modify a 301(g) variance with the concurrence of IDEM.

Section 2.4 of the Fact Sheet explains the proposal of the permittee to meet best available technology (BAT) effluent limits for the Burns Harbor C and D blast furnaces and voluntarily discontinue the Section 301(g) variances for ammonia-N and total phenols that apply at Outfall 001.

Comment Letter from Cleveland-Cliffs LLC Burns Harbor

Comment 1: Please add building dewatering water and groundwater to authorized discharge flows for Outfall 001. Such flows were identified in the Burns Harbor NPDES permit application and supplements. They have been discharged through Outfall 001 since the Burns Harbor Plant was constructed in the 1960's. Furthermore, Cleveland-Cliffs Burns Harbor is obligated under the terms of the federal Consent Decree in Case No. 2-96-CV-96-RL-1 to collect groundwater at the Burns Harbor ore dock and use the collected groundwater for make-up to the sinter plant main stack scrubber recycle system. The blowdown from the sinter plant main stack scrubber recycle system is ultimately discharged from Outfall 011 and Outfall 001.

Response 1: No changes have been made. Groundwater and building dewatering water were not included in the original application, and it is not included in the previous permits. If the permittee provides more substantial and detailed information with respect to each of the groundwater and building dewatering water sources that the permittee believes contribute to this outfall, IDEM would review that information, and if appropriate, changes to the permit could be made through a permit modification.

Comment 2: Monitoring frequency for total residual chlorine (TRC). For Outfall 001, please include the Outfall 003 footnote [5] found on page 15 of the draft NPDES permit. Outfall 003 footnote [5] provides that daily TRC monitoring is required only when intake chlorination for zebra or quagga mussel control is practiced. The draft Fact Sheet at Section 5.3.2 for Outfall 001 states the Outfall 001 monitoring frequency is proposed to be increased to daily year-round because of increased use of chlorine-based chemicals. This was also reported during the September 1, 2021 NPDES permit public meeting. This is not the case.

There are four principal uses of chlorine-based chemicals at Burns Harbor:

- Year-round disinfection of the Outfall 031 sanitary wastewater treatment plant effluent with liquid chlorine that is vaporized for application at the Sanitary WTP. (6,000 to 9,000 lbs/year purchased)
- Seasonal bleach addition at the No. 1 & 2 Lake Water Pumping Stations for zebra/quagga mussel control, typically beginning during June and lasting through October of each year.
- Intermittent bleach use at the BFRS cyanide destruct system located at the BFCWPS for cyanide oxidation

- Bleach addition for microbiological control for recirculating water systems at certain process operations that are tributary to the Secondary Wastewater Treatment Plant (SWTP), Outfall 011 and Outfall 001.
- Recent seasonal bleach addition for treatment of ammonia-N at the temporary BFRS BAT treatment plant. This is expected to occur during July and August of each year for the next few years.

Following is a summary of bleach consumption at the No. 1 & 2 LWPS and at the BFRS cyanide destruct system from 2016 through 2021. The 2021 data are annualized values based on bleach consumption through August 2021.

Year	Bleach Consumed (pounds)		
	No. 1 & 2 LWPS	BFRS CN Destruct	Total
2016	1,032,584	19,816	1,052,400
2017	1,386,053	0	1,386,053
2018	1,141,926	20,725	1,162,651
2019	1,112,000	396,960	1,508,960
2020	1,077,417	387,899	1,465,316
2021 (see note above)	1,127,784	151,787	1,279,571
Annual Average	1,146,294	162,864	1,309,158

As shown above, use of bleach for zebra/quagga mussel control at the No. 1 & 2 LWPS has been within a fairly narrow range over the past six years. Use of bleach at the BFCWPS cyanide destruct system has been variable. Overall, total consumption of bleach at these operations has not materially increased over the past six years.

Here are a few additional comments:

- Any excess bleach in the form of residual chlorine at the BFRS cyanide destruct system, at the temporary BFRS BAT treatment system and bleach used for microbiological control at certain process operations is fully reacted by the time the process waters reach the effluent of the SWTP and Outfall 011 such that TRC is not detectable.

- The current 2016 Burns Harbor NPDES permit requires daily TRC monitoring at Outfalls 001, 002 and 003 during the period when beach is added at the No. 1 & No. 2 LWPS for zebra/quagga mussel control, typically June through October of each year. Bleach used for control of ammonia-N at the temporary BFRS BAT treatment system through August 31, 2021 was approximately 500,000 lbs. Operation of the temporary BFRS BAT treatment system falls within the period when daily outfall TRC monitoring occurs as noted above.
- Burns Harbor operates effluent dichlorination stations at Outfalls 001, 002 and 003 during the period when bleach is added for zebra/quagga mussel control at the No. 1 & 2 LWPS. There have been no TRC effluent limit exceedances for at least the last two NPDES permit terms (2011 and 2016 NPDES permits).

Based on the above, there is no basis to increase the monitoring frequency for TRC at Outfalls 001 and 002 to daily on a year-round basis.

Response 2: No changes have been made. Several chlorine-based additives are used at a number of locations at the facility at different times. In addition to bleach at the blast furnace recycle system, chlorine dioxide is being used to treat cyanide. The monitoring frequency can be re-evaluated with the next permit renewal.

Comment 3: Specific LODs and LOQs and specific analytical test methods should not be listed in the NPDES permit, as shown on page 4 of the draft permit for Outfall 001. The analytical methods specified add additional cost with no benefit. The standard permit language in Part I.C.4 and the 40 CFR 136 regulation allow for multiple EPA-approved analytical methods to be used. Specifying a particular analytical method with no scientific basis is contrary to 40 CFR 136. Additionally, NELAP and ISO 17025 certified environmental analytical laboratories must follow specific a LOD/LOQ procedure. See *Definition and Procedure for the Determination of the Method Detection Limit, Revision 2,* (USEPA Office of Water Quality, EPA 812-R-16-006, December 2016). A reasonable permit approach is to provide a mechanism for the inclusion of the properly calculated LOD/LOQ as required by USEPA and Independent Laboratory Accreditation Protocols such as NELAP and ISO 17025. The protocols also require annual recalculation of LODs/LOQs so the mechanism should recognize that annual updates are expected. Calculated LODs and LOQs may also change at the sample level due to interferences experienced with approved methods, instrument limitations, matrix issues and required dilutions to run a particular sample.

Response 3: Under 327 IAC 5-2-11.6(h)((2), when the permit contains a WQBEL that is less than the LOQ, IDEM is required to include in the permit “the most sensitive, applicable, analytical method, specified in or approved under 40 CFR 136 or by the commissioner, to be used to monitor for the presence and amount in an effluent of the pollutant for which the WQBEL is established and shall specify in accordance with clause (B), the LOD and LOQ that can be achieved by use of the specified analytical method.”

Therefore, at Outfall 001, for silver, total residual chlorine and free cyanide, we are required to include this information, since each of these parameters have WQBELs that are less than the LOQ.

At Outfall 001, the Permit also included the methods and LOD and LOQ for mercury, selenium, and total cyanide. However, total cyanide has been removed from the table because it is not required to be sampled for Outfall 001.

For mercury and selenium, we include the method and associated LOD and LOQ to ensure that the data collected by the permittee for these parameters is sufficiently sensitive for analysis.

As stated in the permit, “[a]lternative methods may be used if first approved by IDEM and EPA, if applicable.” In addition, the permit specifies that “[t]he permittee may determine and use a case-specific LOD or LOQ using the analytical method specified above, or any other analytical method which is approved by the Commissioner, and EPA if applicable, 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.”

As stated in Part A.4. of the permit, “[t]he analytical and sampling methods used shall conform to the version of 40 CFR 136 incorporated by reference in 327 IAC 5.” Currently, and as stated in Section 6.1 of the Fact Sheet, “[a]s specified at 327 IAC 5-2-13(d)(1), test procedures identified in 40 CFR 136, including analytical and sampling methods, shall be used for pollutants or pollutant parameters listed in that part unless an alternate test procedure has been approved under 40 CFR 136.5. The State of Indiana has currently incorporated by reference the July 1, 2016 version of 40 CFR 136 under 327 IAC 5-2-1.5 and 327 IAC 1-1-2; therefore, this is the version of 40 CFR 136 currently applicable in NPDES permits.”

Comment 4: Please delete footnote [12] regarding the calculation protocol for water cannon flow. Attachment A presents Cleveland-Cliffs detailed comments about the water cannon protocol.

Response 4: No changes have been made. The use of flow augmentation is not prohibited for WQBELs; however, 327 IAC 5-5-2(d) does establish prerequisites that must be met before it can be allowed. [Flow augmentation] "may be considered as a method of achieving water quality standards on a case-by-case basis when:

(1) the technology-based treatment requirements applicable to the discharge are not sufficient to achieve the promulgated water quality standards;
(2) the discharger agrees to waive any opportunity to request a variance under section 301(c) or 301(g) of the CWA; and
(3) the discharger demonstrates that such a technique is the preferred environmental and economic method to achieve the standards after consideration of alternatives such as advanced waste treatment, recycle and reuse, land disposal, changes in operating methods, and other available methods."

CCBH does not meet these conditions.

Further, the use of flow augmentation is not allowed for 301(g) variance limits, including the 301(g) variance concentration-based limits for ammonia. Therefore, the calculations in footnote [12] are needed to ensure compliance with the 301(g) and ELG limitations.

Comment 5: Footnote [8]. The Indiana water quality standards contain aquatic life criteria for "free cyanide" and does not contain criteria for "available cyanide". The draft NPDES permit sets out proposed water quality-based effluent limits for free cyanide at Outfall 001 that are the same as the Outfall 001 free cyanide effluent limits in the current NPDES permit. The draft NPDES permit specifies Method OIA 1677 for free cyanide monitoring at Outfall 001. Method OIA 1677 measures "available cyanide" with a ligand exchange procedure, which can measure more forms of cyanide than "free cyanide". The ligand extraction procedure is known to increase variability of "available cyanide", which affects final analytical results. Method OIA 1677 does contain a protocol to measure "free cyanide". The Method OIA 1677 free cyanide protocol provides the best measure for the proposed water quality-based effluent limits for free cyanide and is consistent with the Indiana water quality standards. Please specify that the free cyanide protocol for Method OIA 1677 should be used for compliance monitoring for Outfall 001 free cyanide effluent limits.

Response 5: The test methods in the tables have been updated to clarify that the test methods should analyze for available cyanide instead of free cyanide. Also, for OIA-1677-09, the LOD was not changed, but the LOQ was changed to 2.0 ug/l consistent with the detection and minimum levels established in the method.

Comment 6: Please add building dewatering water and groundwater to authorized discharge flows for Outfall 001 [sic, should be Outfall 011]. Such flows were identified in the Burns Harbor NPDES permit application and supplements. They have been discharged through Outfall 011 since the Burns Harbor Plant was constructed in the 1960's. Furthermore, Cleveland-Cliffs Burns Harbor is obligated under the terms of the federal Consent Decree in Case No. 2:96-CV-96-RL-1to collect groundwater at the Burns Harbor ore dock and use the collected groundwater for make-up to the sinter plant main stack scrubber recycle system. The blowdown from the sinter plant main stack scrubber recycle system is ultimately discharged from Outfalls 011 and 001.

Response 6: No changes have been made. Groundwater and building dewatering water were not included in the original application, and it is not included in the previous permits. If the permittee provides more substantial and detailed information with respect to each of the groundwater and building dewatering water sources that the permittee believes contribute to this outfall, IDEM would review that information, and if appropriate, changes to the permit could be made through a permit modification.

Comment 7: Please provide a compliance schedule to provide for reporting estimated Outfall 111 24-hour total flow for six months, followed by reporting 24-hour total flow based on measurements from a calibrated Parshall flume at the influent to the RSB final thickener.

Response 7: The Permit has been updated to allow up to six (6) months for the installation of a Parshall flume to monitor the flow at Outfall 111. Footnote [3] for Outfall 111 has been updated. Also, the sample type for flow has been changed to 24-Hr. Total in Table 1.

Comment 8: Available CDD/CDF data for Outfall 111 do not suggest the presence of a range of 2,3,7,8-substituted CDDs/CDFs in the discharge from internal Outfall 111 (see Attachment B). Notwithstanding, Cleveland-Cliffs is prepared to conduct an investigatory monitoring program for 2,3,7,8-substituted CDDs/CDFs along the lines of that set out at footnote [2]. The investigative program proposed in the draft NPDES permit is a substantial resource-intensive monitoring effort that was initially suggested by Cleveland-Cliffs in response to concerns expressed by IDEM regarding the potential for discharge of 2,3,7,8-substituted CDDs/CDFs from internal Outfall 111.

Cleveland-Cliffs proposes the following to compress the CDD/CDF investigatory monitoring program to six months. This could lead to possible earlier changes in operations that might affect formation of CDDs/CDFs in the sinter plant:

- 2/month concurrent sampling for 2,3,7,8-substituted CDDs/CDFs at the sinter plant main stack scrubber and at Outfall 111 for six months.
- Report of six-month CDD/CDF monitoring program within 60 days of completion of field sampling.

Please modify footnote [2] as described above. See proposed edits to the draft NPDES permit.

Response 8: No changes have been made to the permit. The facility has had 2 violations for 2,3,7,8-TCDF at this outfall since the draft permit was public noticed. The permittee can conduct more frequent sampling for the substituted CDDs/CDFs in the untreated sinter plant stack water and at Outfall 111 if that allows the permittee to make earlier changes in its operations to reduce the formation of CDDs/CDFs in the sinter plant.

Comment 9: Footnote [2]. Please delete the requirement to use EPA sampling method 1669 for the CDD/CDF investigatory monitoring program. EPA Method 1669 is not a sampling method required by 40 CFR Part 136. Data presented in Attachment B do not indicate use of EPA Method 1669 is called for. In lieu of EPA Method 1669, Cleveland-Cliffs proposes to use CDD/CDF sampling protocols recommended by the Bay Area Clean Water Agencies (BACWA). Sections 3.1.and 3.2 of the BACWA Guidance Document referenced below provide for rigorous clean sampling methods for composite and grab samples short of those required by EPA Method 1669.

BACWA Guidance Document, Part I: Sampling and Analysis Planning for Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution BY Method 1613 Revision B (October 1994). BACWA March 1, 2010.

Response 9: Reference to the use of EPA Sampling Method 1669 has been removed from the permit in this footnote.

Comment 10: Please add building dewatering water and groundwater to authorized discharge flows for Outfall 001. Such flows were identified in the Burns Harbor NPDES permit application and supplements. They have been discharged through Outfall 002 since the Burns Harbor Plant was constructed in the 1960’s.

Response 10: No changes have been made. As part of the investigations the permittee conducted for Outfall 002, the permittee reportedly eliminated all the groundwater sources for Outfall 002. If the permittee provides more substantial and detailed information with respect to each of the groundwater and building dewatering water sources that the permittee believes contribute to this outfall, IDEM would review that information, and if appropriate, changes to the permit could be made through a permit modification.

Comment 11: Monitoring requirements for fluoride. Please remove the monitoring requirements for fluoride at Outfall 002. Reference is made to the Cleveland-Cliffs comments on IDEM's review of Outfall 002 fluoride monitoring data presented on pages 32 and 33 of the draft Fact Sheet.

Response 11: No changes have been made. The permittee has previously requested the elimination of monitoring requirements for this parameter; however, as explained in the Fact Sheet, IDEM believes that fluoride could serve as a useful indicator of carry-over of process water containing fluoride into the Outfall 002 sewer. The internal Outfall 011 fluoride data can exceed 1 mg/l with the final Outfall 001 data in the 0.5 to 1 mg/l range. IDEM's downstream fixed station on Burns Ditch (BD-1) has shown consistent levels in the 0.3 to 0.7 mg/l range over the years due to the levels discharged at Outfall 001. The permittee has not identified any current significant sources of fluoride to Outfall 002, so any increased levels at Outfall 002 would have to be from process wastewater. In addition, the data from the permittee's expanded sampling shows that the intake and 002 concentrations are at reportable levels and at essentially the same concentrations; therefore, that makes fluoride a potentially valuable indicator pollutant.

Comment 12: Monitoring frequency for total residual chlorine (TRC). Reference is made to the Cleveland-Cliffs comment for TRC monitoring at Outfall 001, which apply to Outfall 002 as well.

For Outfall 002, please include Outfall 003 footnote [5] found on page 15 of the draft NPDES permit. Outfall 003 footnote [5] provides that daily TRC monitoring is required only when intake chlorination for zebra or quagga mussel control is practiced. The draft Fact Sheet at Section 5.3.5 for Outfall 002 does not provide any basis to increase the Outfall 002 TRC monitoring frequency to daily on a year-round basis. The Fact Sheet at page 33 recognizes that daily TRC monitoring is required only when intake chlorination is practiced for zebra or quagga mussel control. This is not consistent with the Outfall 002 TRC monitoring requirements set out on page 11.

Response 12: No changes have been made. Several chlorine-based additives are used at a number of locations at the facility. Based on the permittee's overall compliance record, the toxicity of chlorine, and the variable use of chlorine-based additives, IDEM considers daily monitoring for total residual chlorine to be appropriate for this outfall. This monitoring frequency can be re-evaluated during the next permit renewal.

Comment 13: Attachment C sets out Cleveland-Cliffs comments regarding conduct of biological studies at Outfall 002 and in the East Ram [Arm] of Burns Harbor as part of an updated Section 316(a) thermal demonstration for Outfall 002.

Response 13: The permit requires that "the permittee must consider and evaluate the feasibility of including biological studies as a component of [their 316(a) demonstration at Outfall 002]."

IDEM has required other Lake Michigan dischargers to conduct a biological study as part of their 316(a) demonstration (See July 19, 2012 "Final 316(a) Demonstration for the BP Whiting Refinery".) In addition, as noted in the Permit, the permittee has indicated that it may decide to re-route some of the wastestreams which currently contribute to Outfall 001 so that they discharge at Outfall 002, instead. This would significantly increase the thermal load being discharged at Outfall 002. Biological studies, conducted both before and after this type of change, could be valuable in determining appropriate 316(a) alternate thermal effluent limitations if this occurs.

While traditional IDEM biological standards, such as the IBI, may not be appropriate to evaluate unique habitats such as the East Arm of Burns Harbor, other sampling methods exist that would provide quantitative measurements of local communities. IDEM expects the permittee to submit a more extensive evaluation of the feasibility of including biological studies as part of their 316a demonstration than the evaluation provided in its comments on this public noticed permit.

Therefore, IDEM did not change this permit requirement. IDEM will evaluate whether biological studies should be included as part of the permittee's 316(a) demonstration after the permittee's 316(a) demonstration study plan has been submitted. This will also provide an opportunity for IDEM to seek input on this study plan from other parties, such as the U.S. National Park Service and the Indiana Department of Natural Resources, if such consultation is warranted.

Comment 14: Reference is made to Cleveland-Cliffs comments regarding authorized discharge flows for Outfall 001 on page 2 of the draft NPDES permit. Please make the Fact Sheet consistent with that comment for Outfall 001.

Response 14: Please refer to Response 1.

Comment 15: Please add the following sentence at the end of the paragraph that begins with *Treatment at the SWTP includes…* to provide a complete description of the Outfall 001 Storm Ditch.

The Outfall 001 Storm Ditch upstream of Outfall 001 conveys non-contact cooling water, storm water and building dewatering water (groundwater) from the hot rolling mills and steel finishing operations. The Outfall 001 Storm Ditch serves to dissipate some of the thermal loading from these operations.

Response 15: No changes have been made. IDEM does not believe these changes are necessary or appropriate.

Comment 16: Please add the following as a new paragraph at the end of the section on Outfall 011:

The Burns Harbor Plant was constructed with a pumping station located near the effluent of the Outfall 011 Polishing Lagoons for return of treated process water from the SWTP and Polishing Lagoons to the Plant service water system. The returned process water would ultimately be discharged to the East Arm of Burns Harbor through Outfall 002. The Outfall 011 pumping station was not used during the term of the 2016 Burns Harbor NPDES permit. Should the permittee plan to use the Outfall 011 pumping station, a request to modify this NPDES permit will be required.

Response 16: This paragraph has been added to Section 2.4 (Changes in Operations) of the Fact Sheet.

Comment 17: Please add the following paragraph after the second paragraph on page 9. This paragraph provides context for the results of the Outfall 002 Expanded Sampling Program that was conducted at the request of IDEM, as well as a low-level analytical methods performance study conducted during the Outfall 002 Expanded Sampling Program.

Outfall 002 Expanded Sampling Program

Interim Status Reports provided by the permittee for its Outfall 002 Expanded Sampling Program showed that discharges from Outfall 002 were well below Indiana Lake Michigan water quality standards in the Outfall 002 effluent prior to discharge and mixing in the East Arm of Burns Harbor. Low level discharges of monitored pollutants from Outfall 002 did not exhibit reasonable potential to exceed Lake Michigan water quality standards in the Outfall 002 effluent. As noted above, IDEM acknowledges the Outfall 002 Expanded Sampling Program and a low-

level analytical methods performance study conducted by the permittee. The low-level analytical methods performance study documents low level detections and estimated concentrations (J-values) within analytical method variability.

Response 17: No changes have been made. IDEM does not believe these changes are necessary or appropriate.

Comment 18*:* Please replace the Figure 2 Water Balance Diagram in the Fact Sheet with the updated Water Balance Diagram previously provided to be consistent with the Fact Sheet statements on page 8. See Attachment D.

Response 18: Figure 2 in the Fact Sheet has been updated.

Comment 19: Please replace Section 2.4 with the revised Section 2.4 set out in Attachment E. This presents Cleveland-Cliffs voluntary commitments to eliminate Section 301(g) variances at Outfall 001, achieve BAT-level discharges of ammonia-N ad address Outfall 001 thermal discharges to the East Branch of the Little Calumet River.

Response 19: IDEM has revised Section 2.4 of the Fact Sheet based on this comment. IDEM did not include all of the changes requested by the permittee.

Comment 20: Reference is made to Cleveland-Cliffs comments regarding the calculation protocol for the water cannon on pages 2 and 5 of the draft NPDES permit and footnote [12]. See Attachment A.

Response 20: Please refer to Response 4.

Comment 21: Please replace the second paragraph under *Phenols (4AAP)* with the following:

Reference is made to Section 2.4, Changes in Operation for a review of the permittee's plans to eliminate the Section 301(g) variance for total phenols.

Response 21: The permittee's requested change has not been made.

Comment 22: Please replace the second paragraph under Ammonia-N with the following:

Reference is made to Section 2.4, Changes in Operation for a review of the permittee's plans to eliminate the Section 301(g) variance for ammonia-N.

Response 22: The permittee's requested change has not been made.

Comment 23: Please replace the second paragraph under TRC with the following:

Reference is made to Section 2.4, Changes in Operation for a review of the permittee's plans for blast furnace process water treatment. Depending on the final plan, ELG effluent limits for TRC may be applied at a new internal outfall.

Response 23: The permittee's requested change has not been made.

Comment 24: Please modify the Fact Sheet regarding monitoring for 2,3,7,8-TCDF and other 2,3,7,8-substituted CDDs/CDFs to coincide with the above Cleveland-Cliffs comments for Outfall 111 in the draft NPDES permit. See proposed edits to the Fact Sheet.

Response 24: No changes have been made. Please refer to Response 8.

Comment 25: Monitoring requirements for fluoride. Contrary to IDEM's assertion, fluoride is not a useful indicator pollutant to assess possible process water contamination of Outfall 002 discharges to the East Arm of Burns Harbor. Reference is made to Attachment 10 of the Burns Harbor NPDES permit application. Attachment 10 presents statistical assessments of Outfall 002 and Lake Michigan intake data for fluoride from the Outfall 002 Expanded Sampling Program (Outfall 002 ESP) for the period January 2020 to January 2021 when more than 370 pairs of daily 24-hour composite Outfall 002 and Lake Michigan fluoride data were collected. The assessments show no evidence of statistically significant differences and no practical differences in fluoride concentrations between Outfall 002 and the intake water. Also, Lake Michigan and Outfall 002 fluoride concentrations are well below Indiana ambient water quality standards.

As reported in Outfall 002 ESP Interim Status Reports, elevated fluoride concentrations were found in a limited, localized section of the Outfall 002 sewer system. This section of the Outfall 002 sewer system does not receive sustained flow and was remediated. There was no discernable difference between Outfall 002 and Lake Michigan intake fluoride concentrations either before or after the sewer remediation noted above.

Given the abundant Outfall 002 and Lake Michigan fluoride data collected as part of the Outfall 002 ESP, the findings from that monitoring program, and IDEM's proposed monitoring for other more useful indicator pollutants (i.e., ammonia-N, total cyanide, total phenols, copper and zinc), continued monitoring for fluoride at Outfall 002 is not warranted. See proposed edits to the Fact Sheet.

Response 25: No changes have been made. Please refer to Response 11.

Comment 26: Reference is made to Cleveland-Cliffs comments regarding Section 5.4 of the draft Fact Sheet (Antibacksliding) in Attachment F. The comments report that although Indiana and federal NPDES permit regulations provide for modifying technology-based effluent limits based on changes in production rates at Burns Harbor, Cleveland-Cliffs has not requested relaxed technology-based effluent limits. Notwithstanding, Cleveland-Cliffs reserves the right to request alternate effluent limits under Indiana and federal NPDES permit regulations in any proposed modification of this permit and in any subsequent NPDES permit renewal. Please replace Section 5.4 of the Fact Sheet with Attachment F.

Response 26: IDEM has revised Section 5.4 of the Fact Sheet based on this comment. IDEM did not include all of the changes requested by the permittee. The Fact Sheet recognizes that Indiana and federal regulations make provision for increased TBELs based on increases in production that satisfy anti-backsliding requirements. The appropriate cause for modification in the case of increased production is 40 CFR 122.62(a)(1) relating to material and substantial alterations or additions and not 122.62(a)(2) relating to new information. While the permittee may request increased TBELs as part of a permit modification or NPDES permit renewal, IDEM still has to make a determination of whether the alterations or additions are considered substantial.

Comment 27: Please modify the Fact Sheet regarding the Outfall 111 investigatory program for CDDs/CDFs to coincide with the above Cleveland-Cliffs comments for Outfall 111 in the draft NPDES permit. See proposed edits to the Fact Sheet.

Response 27: Please refer to Response 8 concerning the investigatory program for CDDs/CDFs. The sample type for flow has been changed to 24-Hr. Total in the table for Internal Outfall 111.

Comment 28: Reference is made to Cleveland-Cliffs comments regarding biological studies at Outfall 002 and the East Arm of Burns Harbor at page 73 of the draft NPDES permit. See Attachment C. See proposed edits to the Fact Sheet.

Response 28: Please refer to Response 13. No changes to the Fact Sheet have been made.

Comment 29: Following the terms of the draft permit, Cleveland-Cliffs intends to evaluate possible installation of flow monitoring systems to measure Lake Michigan intake flows at the No. 1 and No. 2 LWPS. However, the draft NPDES permit provides for reporting intake flows based on outfall flow measurements and estimates of evaporative losses at the Burns Harbor Plant. The following modifications to the Fact Sheet are requested to make clear that installation of flow monitoring systems at the No. 1 and No. 2 LWPS is not a requirement of the NPDES permit. Please modify the first bullet item on page 95 as follows:

- *Within 12 months of the effective date of the permit, complete the following:*

  Evaluate installation of flow monitoring systems at the No. 1 and No. 2 LWPS …

Response 29: This requested change was not made. IDEM's preference is that flow monitors be installed to measure this flow; however, if that is not feasible alternate methods may be evaluated. Based on this comment and the changes the permittee requested in its redline version of the Fact Sheet, Part I.H.1.a.(Schedules of Compliance) of the Permit requires the following (bold added), and the Fact Sheet has been revised to be consistent with the Permit.

As soon as practicable, but no later than twelve (12) months after the effective date of the permit, complete installation of:

i. flow monitoring systems at the No. 1 and No. 2 LWPS for determining reasonably accurate daily intake flow, or **if flow meters cannot be installed due to hydraulic or other issues,** provide for alternative means to estimate reasonably accurate intake screen and intake strainer backwash flows at each pumping station; and
ii. water level monitoring systems at the Lake side of the intake screens at each pumping station.

Comment 30: Please replace the second paragraph on page 113 with the following to make clear the Cleveland-Cliffs voluntary commitment is to achieve BAT effluent limits for ammonia-N is specific to the Burns Harbor blast furnaces.

However, the permittee has since informed IDEM that they plan voluntarily achieve BAT effluent limits for ammonia-N and total phenols applicable to the Burns Harbor blast furnaces. Upon implementation of that plan, the permittee plans to request that the permit be modified to eliminate the Section 301(g) variances for ammonia-N and total phenols at Outfall 001 and to impose BAT limits for ammonia-N and total phenols for the blast furnaces at an appropriate compliance monitoring location, most likely at a new internal outfall.

Response 30: This change has been made.

Comment Letter from Barb Lusco (Portage Resident)

Comment 1: My name is Barb Lusco, my home address is 5895 Mulberry Ave, Portage, IN 46368. And my phone # 219-776-4012
I'd like to make a few comments regarding the above request for permit.

Page 6 of 78. 1 sample during each of the 4 quarters. My comment is; it's clearly not adequate and a company should not be allowed to pick and choose. Mandatory daily testing, by an independent lab, is something I would very much like to see based on past issues with the permittee, releasing cyanide into the waterway August 2019, and NOT informing the public for more than 3 days.

Response 1: The only parameter that is monitored on a quarterly basis is acute and chronic whole effluent toxicity (WET). Cyanide is required to be sampled daily.

Comment 2: Page 7 of 78 1. Shall not discharge spent hexavalent chromium solutions. Again, will the permittee be self monitoring? Not acceptable due to past history.

Response 2: Cleveland-Cliffs LLC Burns Harbor is responsible for following the monitoring/reporting requirements as explained in Part I.A and Part I.C. of the Permit. The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8.

Comment 3: Page 7 of 78 C 1. Representative sampling "shall not be taken at times to avoid showing elevated levels of any parameters." In a perfect world where everyone plays by the rules; this possibly could work. However; if relying on humans employed by the permittee to pick and choose, again not acceptable.

Response 3: Cleveland-Cliffs LLC Burns Harbor is responsible for following the monitoring/reporting requirements as explained in Part I.A and Part I.C. of the Permit. The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8.

Comment 4: Page 65 of 78 3. "24 hour reporting requirements if death to animals or humans does NOT occur, the requirements of 327 IAC 2-6.1 do not apply." So, if I read this correctly, if humans or animals do NOT die; the spill does not need to be reported? If this is the case and death has to occur before an incident is reported; I find this so unacceptable.

And exposure, whether; ingested or inhaled to all the carcinogens released into our most precious resources take years to manifest in various forms of cancer.

Response 4: As stated in the Permit, pursuant to 327 IAC 5-2-8(11)(C), the permittee is required to orally report to IDEM information on the following types of noncompliance within 24 hours from the time permittee becomes aware of such noncompliance.

a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

b. Any noncompliance which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the noncomplying circumstances;

c. Any upset (as defined in Part II.B.3 above) that causes an exceedance of any effluent limitation in the permit; or

d. Violation of a maximum daily discharge limitation for any of the following toxic pollutants: lead, zinc, free cyanide, ammonia (as N), total cyanide, mercury, naphthalene, tetrachloroethylene, 2,3,7,8-tetrachlorodibenzofuran, phenols, copper, and silver.

Nothing in 327 IAC 2-6.1 is intended to affect reporting or clean-up requirements set forth by other federal, state, or local laws. In addition, the permittee is required to comply with all of the reporting requirements included in 327 IAC 2-6.1.

Comment 5: From the NPDES fact sheet:
Page 21 Water cannon flow. Again relying on the permittee to follow the rules and not use the water cannon to comply with any of the other limitations at outfall 001. My opinion, the permittee has not given the public any reason to trust they will abide by the rules.

Response 5: The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. The Permit includes a calculation method the permittee is required to apply to ensure that the water cannon flow is not used to comply with its limits, other than temperature.

Comment 6: Page 24 Free Cyanide. Sampling 2 times a month not acceptable; this should be daily mandatory sampling.

To sum up my concerns: Granting this permit is allowing the permittee to make choices that affect the lives of all living things. I feel daily testing is mandatory and it should be done by an independent lab. The permittee is a profit generating big business; yes it does employ many local individuals. However, it's time to set some rules and guidelines that are enforced by professionals outside of their business facility.

Response 6: Note that the Fact Sheet states, "This permit proposes to increase sampling frequencies from 2 X Monthly to Daily due to compliance issues." The permittee is required with this Permit to sample cyanide at this outfall daily.

Comment Letter from Susan Thomas of ABSR Environment Committee

Comment 1: As the Association of Beverly Shores Residents (ABSR) Environment Committee, our public comments on IDEM NPDES Permit #000175 for Cleveland-Cliffs are as follows:

In the 2019 catastrophic spill into Burns Harbor from ArcelorMittal, the abundant communications failures by IDEM and ArcelorMittal to any emergency response teams and surrounding impacted communities were catastrophic as well. For the safety of our personal health and well-being, the health and viability of our communities, economies and environment, we expect and demand prompt emergency response in spill response as required by the state, 327 IAC 2-6.1-7 (5).

Inspection of the same code in section 327 IAC 2-6.1-8 "Emergency Response Actions" has no readily available information as to what constitutes an emergency response action. It is necessary that you clarify and make readily accessible the information detailing the chain of emergency response from Cleveland-Cliffs/area industry and IDEM to the surrounding towns. Media coverage of toxic permit violations should not be the first source of information to surrounding communities. Emergency communications should be direct and immediate to local governments and emergency responders. When and how will such a plan be available to the public. If there is an existing one can you please share it?

We greatly appreciate IDEM's increased testing/inspection plan of all five outflows at the Cleveland-Cliffs/Burns Harbor facility. However, as testing is the responsibility of the permittee and the former plant owner ArcelorMittal was found guilty of repeatedly falsifying testing data, we expect more vigorous oversight from IDEM on this process to prevent such egregious activity in the future. How will you monitor the monitor?

Cleveland-Cliffs has met some requirements already, demonstrating changes in industry can indeed be made swiftly. As our Lake Michigan and the Great Lakes continue to be impacted by increased precipitation due to climate crisis and these very industries along our shoreline contributing significant greenhouse gases, it is imperative the Clean Water Act and state code regarding water safety is strengthened and enforced by IDEM.

Response 1: Cleveland-Cliffs LLC Burns Harbor is required to abide by the notification requirements in the Spill Rule, 327 IAC 2-6.1-7(5), the notification requirements contained in the general conditions of the permit, and the notification requirements contained in other laws and rules.

IDEM compliance staff has been working with the permittee to ensure proper operation of the facility.

Comment Letter from Ashley Williams of Just Transition Northwest Indiana

Comment 1: Just Transition Northwest Indiana is an environmental justice organization working holistically with communities and workers impacted by area industry to transition justly to a sustainable, regenerative economy that benefits all. We wholly support environmental policy and legislation, including the Clean Water Act and its proper enforcement. However, we have seen these vital regulations frequently compromised in Northwest Indiana in recent years. As such, my comments on behalf of our organization reflect the alarm expressed by many of the surrounding communities for the ongoing discrepancies in enforcement and communication concerning the Burns Harbor LLC facility.

Undeniably, communities impacted by the 2019 ArcelorMittal spill are justifiably outraged by the lack of response from the company or IDEM to date. To discover this emergency four days later only by the presence of thousands of deceased fish floating in the harbor, in the absence of warning or explanation, is an absolute violation of state code as well as public trust. Still, these transgressions continued with no preventative measures and little oversight, even after ArcelorMittal had repeatedly and deliberately submitted falsified operational data. This unlawful offense amounted to no more than a slap on the wrist by IDEM.

Although we are encouraged by this permit's requirements for increased testing and other measures, we believe there is much work to be done. Therefore, we respectfully request the following actions to be taken in this permit:

- A public document outlining emergency chain of communication in the event of another crisis

- Real-time publication of all emergency incidents on the IDEM website and timely public advisory notices

- Randomized, routine inspections of testing procedures at the facility that ensure the safety of the environment, workers and the community

- A permanent remedy for the thermal discharges impacting aquatic life

We are at a critical climate juncture due to emissions impacts historically perpetrated by industry. In Indiana, the state's top toxic releases derive from the Burns Harbor facility. The company’s recent acquisition and transfer of leadership signals a potential change moment for Cleveland-Cliffs and, subsequently, IDEM. Now is the time to deviate from the business as usual path and usher in a new era.

Response 1: Cleveland-Cliffs LLC Burns Harbor is required to abide by the notification requirements in the Spill Rule, 327 IAC 2-6.1-7(5), the notification requirements contained in the general conditions of the permit, and the notification requirements contained in other laws and rules.

IDEM compliance staff has been working with the permittee to ensure proper operation of the facility.

Comment Letter from Douglas Cannon of Ogden Dunes Town Council

Comment 1: Thank you for providing us with the opportunity to comment on the Draft NPDES Permit for Cleveland-Cliffs Burns Harbor LLC.

The Town of Ogden Dunes is located less than five miles from this facility. As a downstream user from Cleveland-Cliffs Burns Harbor, the town has a vested interest in these proceedings and has been carefully reviewing the Draft Permit and Fact Sheet.

We recognize that this is a large and complex facility, but when you rack up the violations for temperature, ammonia, cyanide, oil, and grease, Tetrachlorodibenzofuran, total phenols and whole effluent toxicity, one can only imagine the cumulative effects on our residents, the wildlife, the Great Lakes, and our drinking water. We sincerely hope that Cleveland-Cliffs will be able to stay in compliance with this permit, and that IDEM will swiftly pursue enforcement actions when warranted.

Response 1: Cleveland-Cliffs LLC Burns Harbor is responsible for following the monitoring/reporting requirements as explained in Part I.A and Part I.C. of the Permit. The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8.

As noted in the Fact Sheet, IDEM and U.S. EPA are pursuing a joint enforcement action for the numerous violations of the Permit and are currently in ongoing settlement negotiations with the facility.

Comment 2: Wasteload Allocations
Some of the Wasteload Allocations (WLAs) used go back as far as 2009. An example is on page 22 of the Fact Sheet where it references WLAs for copper, silver, zinc, and mercury. We would like to see IDEM add a rationale indicating why these older WLA's are still applicable. The WLA's are supposed to have a margin of safety and reserve capacity built in, but how can we be assured that these are still valid after all these years, especially considering development in the watershed and the impacts of climate change? What is the status of Effectiveness Monitoring in the watershed? Have water quality improvements been demonstrated using these WLAs?

Response 2: A margin of safety and reserve loading capacity are components of a total maximum daily load (TMDL). A TMDL has only been completed for *E. coli* for East Branch Little Calumet River and the Lake Michigan shoreline which are the two waterbodies receiving the discharges from Outfall 001 and Outfall 002, respectively. A TMDL for these waterbodies is not currently required for any other pollutants of concern at this facility. The

2009 and 2015 WLA reports referenced in this Fact Sheet provide wasteload allocations calculated in the absence of TMDLs pursuant to 327 IAC 5-2-11.4(c). These wasteload allocations were used as part of the process to conduct a reasonable potential to exceed evaluation under 5-2-11.5 and establish water quality-based effluent limitations where required under 5-2-11.6. Based on a review of IDEM monthly stream monitoring data both upstream and downstream of Outfall 001 and in Lake Michigan, USGS low-flow information for East Branch Little Calumet River, effluent monitoring data and Indiana water quality criteria, IDEM determined that no significant changes occurred that warranted a new wasteload allocation for this permit renewal. Since a TMDL has not been completed for the pollutants of concern for which wasteload allocations were calculated, IDEM does not conduct Effectiveness Monitoring in the watershed for these pollutants. However, IDEM continues to maintain monthly water chemistry monitoring in the watershed both upstream and downstream of the facility which indicates water quality standards are being attained for the pollutants of concern.

Comment 3: Monitoring

While we are pleased that IDEM has taken great care to increase monitoring for several parameters, we are concerned that these requirements won't be upheld through the length of this permit. Please resist any attempts to lessen any monitoring requirements. The facility has a lot of work to do to rebuild trust with the community, and they need to prove that they can maintain compliance over the five years of this permit. We are also looking forward to seeing a draft Consent Decree that will also address keeping the facility in compliance and would like to be notified when it is available.

I personally cannot emphasize enough the importance of monitoring. The catastrophic failure that caused cyanide and ammonia to be dumped for days into the Little Calumet River East Branch and Lake Michigan was a frightening incident. I will never forget having to tell families on the beach after school that Thursday that they needed to immediately get out of the water, not knowing, of course, that the spill had been occurring since the previous Sunday!

When it comes to monitoring, if you aren't looking for a particular pollutant, you aren't going to find it. We would like to be assured that IDEM has considered all pollutants associated with impairment of the receiving waters and whether there may be a reasonable potential to exceed water quality standards. Our review of the Toxic Release Inventory has not brought to light any such pollutants, but it never hurts to ask, especially considering the voluntary nature of that program.

On page 20 of 78 of the Draft Permit, Item 7, Records Retention, please indicate if any of these requirements are cited in Indiana Administrative Code to help emphasize the legal requirement to do so, if it exists.

Thank you for increasing monitoring for phenols. TRI reporting indicates that the amount of phenols released into surface waters has been increasing over the years.

Response 3: The data submitted with the Form 2C of the renewal application was reviewed and monitoring requirements were added to the Permit for those pollutants of concern that showed some possibility of reasonable potential to exceed water quality criteria.

Cleveland-Cliffs LLC Burns Harbor is responsible for following the monitoring/reporting requirements as explained in Part I.A and Part I.C. of the Permit. The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8.

327 IAC 5-2-8(7) and (8) The permittee shall furnish to the commissioner, within a reasonable time, any information that the commissioner may request to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. The permittee shall also furnish to the commissioner, upon request, copies of records required to be kept by the permit and 40 CFR 122.41(h).

Comment 4: Hexavalent Chromium

On page 7 of 78 of the Draft Permit, the permittee is told not to discharge spent hexavalent chromium solutions from the Hot Dip Galvanizing Line into the Burns Harbor wastewater collection and treatment systems. Such solutions shall be disposed of off-site. However, what if something happens to cause chromium to discharge into the wastewater collection and treatment system, as it did at U.S. Steel Midwest? Should there be any requirements for secondary containment for any systems that can potentially leak or fail? What about monitoring? Again, if you aren’t looking for it, you won’t find it.

Response 4: The permittee is not authorized under the Permit to discharge spent hexavalent chromium solutions from the Hot Dip Galvanizing Line. If it ever does discharge this waste through its NPDES Permit, it would likely be a violation of its permit and subject to enforcement and potential penalties.

Comment 5: Flow Monitoring

On page 8 of 78 of the Draft Permit, IDEM is allowing the permittee a maximum of 2-years to install a flow monitoring station at Outfall 011 as described in Part I.H. of this permit. Considering the high level of production currently taking place at the facility, we believe that IDEM should shorten the implementation of the flow monitoring station to 1.5 years.

Also, the following sentence is a little confusing and should be modified to read: "Until such time, the flow shall be determined using measurements from the existing flow measuring device located at the effluent discharge point of the secondary wastewater treatment plant."

Response 5: Outfall 011 is an internal outfall that discharges to Outfall 001. Outfall 001 does have flow monitoring in place. After discussions with Cleveland-Cliffs LLC Burns Harbor, IDEM agrees that 2 years should be the maximum amount of time to install a flow monitoring station at Internal Outfall 011 due to construction issues that may arise.

The last sentence of footnote [6] has been updated as suggested.

Comment 6: Sampling Method for 2,3,7,8-tetrachlorodibenzofuran and dioxins

On page 9 of 78 of the Draft Permit, EPA Sampling Method 1669 and EPA test method 1613B are required. Is 1669 the correct Sampling Method for 2,3,7,8-tetrachlorodibenzofuran and dioxins? It is our understanding that that this Sampling Method is for trace metals (https://www.epa.gov/sites/default/files/2015-10/documents/method_1669_1996.pdf).

Response 6: Reference to EPA Sampling Method 1669 has been removed from the appropriate footnote at this Outfall.

Comment 7: Oil and Grease

On page 13 of 78 of the Draft Permit, the permittee is required to investigate and eliminate oil and grease in the effluent if it is "measured in significant quantities." We believe that the permittee should be "immediately required to investigate and eliminate oil and grease in the effluent…" In addition, the words "measured in significant quantities" does not really provide the permittee with parameters for decision making. What constitutes a "significant quantity?"

We would also like to see some justification by IDEM for not increasing monitoring for these substances, considering the facility had an exceedance for oil and grease at Internal Outfall 011 in March 2018.

Response 7: "Significant quantity" means quantities in excess of 5 mg/l as specified in the Permit. Outfall 002 requires weekly monitoring for oil and grease (O & G). IDEM believes this continues to be a sampling frequency to provide sufficient data for evaluation. The facility is required to investigate and eliminate any significant or measured concentration of O & G (quantities in excess of 5 mg/l).

Upon additional review of data, IDEM has updated the permit to increase sampling of O & G from 1 X Weekly to 2 X Weekly at Outfall 001 and Internal Outfall 011. Also, O & G must be sampled on the same day for each outfall.

Comment 8: Minimum Narrative Limitations

On Page 16 of 78 of the Draft Permit under Section B Minimum Narrative Limitations, we believe the following sentence is clearer and stronger: "Samples shall not be taken at times to purposely avoid showing elevated levels of any parameters." This would replace: "Samples shall not be taken at times to avoid showing elevated levels of any parameters..." *(Note: there is also an extra period in that sentence in the Draft Permit.)*

Response 8: The extra period has been removed. However, IDEM does not consider it to be necessary to add "purposely" to the sentence.

Comment 9: Notifications

The Indiana American Water Co. intake that supplies drinking water to our town through the Ogden Dunes Waterworks was closed as a preventative measure during the August 2019 spill into the East Branch of the Little Calumet River. Please make sure that the permit clearly addresses spill response measures required by 327 IAC 2-6.1-7(5) that Cleveland Cliffs, upon discovery of a reportable spill to the soil or surface waters of the state, exercises due diligence and documents all attempts to notify all affected downstream users, not just IDEM or the National Response Center. These downstream users would include the Town of Ogden Dunes, Ogden Dunes Waterworks as well as Indiana American Water.

Response 9: Cleveland-Cliffs LLC Burns Harbor is required to abide by the notification requirements in the Spill Rule, 327 IAC 2-6.1-7(5), the notification requirements contained in the general conditions of the permit and the notification requirements contained in other laws and rules.

Comment 10: 316a Thermal Variance

On page 68 of the Fact Sheet, IDEM indicates that the "existing alternate thermal effluent limitations (ATELs) are proposed to be included in this permit." It appears to me that due to a bit of run-around from the facility, IDEM's "back is up against a wall," and you believe you need to issue the variance even though ArcelorMittal and Cleveland-Cliffs did not provide the required information.

I'm sure when EPA approved the first variance way back in 1976, they never intended these variances to still be in place more than 41 years later. We are extremely disappointed this variance is still being allowed and are not convinced that the alternative thermal discharge limit, which has not changed from the 2016 permit, will be protective of the balanced, indigenous population of shellfish, fish, and wildlife.

Although steps are being taken to hold Cleveland-Cliffs accountable for temperature violations, and we understand the facility is also interested in reducing thermal impacts, we are not clear what the penalties are if the schedules for demonstrations and mitigation measures are not adhered to. IDEM and Cleveland-Cliffs can no longer kick the can down the road on this issue, especially when one considers how climate change will cause more heavy downpours, resulting in voluminous ground and pavement-warmed water being added to Lake Michigan. We also believe that IDEM needs to provide some justification in the Fact Sheet as to why the studies and actual implementation take so much time.

Response 10: Since the submittal of the permit application, the permittee has acknowledged that the thermal impacts of their discharge do need to be addressed and this permit requires the permittee to take steps to address the issue.

With respect to penalties, if the permittee does not adhere to a schedule in the Permit, that would be a violation of the Permit and subject them to a potential enforcement action for each such violation.

Comment 11: 2,3,7,8-Tetrachlorodibenzofuran

Thank you for increasing the sampling frequency for 2,3,7,8-TCDF from monthly to weekly, and for requiring Cleveland-Cliffs to add a flow monitoring requirement at Internal Outfall 111.

The draft permit also requires the permittee to initiate an investigatory monitoring program for chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans listed under 327 IAC 5-2-11.4(a)(4) in the untreated sinter plant main stack scrubber wastewater and in the Outfall 111 effluent. It is not quite clear, however, how much time IDEM requires this to be done to evaluate the need for water quality-based effluent limits for dioxin and dioxin-like compounds at this facility. It is also not clear when the monitoring should commence. Is it the effective date of the permit?

We would like to be notified if the permittee requests a review of these requirements, resulting in a permit modification that would require, at a minimum, public notice. Even better, due to the harmful nature of these compounds, we would like to see these monitoring requirements remain for the duration of the permit.

Thank you for at least not including language authorizing bypasses at Outfall 111 in certain circumstances. What is the penalty if a bypass happens anyways?

Response 11: Unless the permit specifically states otherwise, permit requirements, including the requirement to initiate the investigatory monitoring program at Outfall 111, begin on the effective date of the permit. Unless IDEM requests the results of the investigatory monitoring sooner, the permittee is required to submit an annual report on the results of investigation to IDEM. A reopening clause has been included in Part I.I.10. of the Permit which allows IDEM "to change the monitoring requirements at Outfall 111 for flow, 2,3,7,8-TCDF, or the investigatory monitoring for dioxins and furans, or to include appropriate effluent limitations or other appropriate requirements for dioxins and furans at an internal outfall, external outfall, or instream if warranted based on the sampling being conducted at Outfall 111."

The Permit does also contain a provision which allows the permittee to request a review of the investigatory monitoring requirements at the end of a one-year sampling period. The investigatory program requirements would remain in the permit until such time that the permit was modified to remove the requirements. If the Permit is not modified to remove the requirements, they would remain in place for the term of the permit.

Part II.B.2. of the Permit specifies the conditions which apply to bypasses of treatment facilities. IDEM may take enforcement action against a permittee for bypass. Penalties for violation of any permit condition are listed in Part II.A.10 of the Permit.

All permit actions are public information. IDEM OWQ uploads all permit applications, permits, and effluent data to the IDEM Virtual File Cabinet.

Any interested party can subscribe to the regional Public Notice pages by signing up at https://public.govdelivery.com/accounts/INDEM/subscriber/new. By subscribing, you will be sent an e-mail or text message to your phone every time IDEM adds information to a subscribed region.

Comment 12: Back-up Systems

Power outages and equipment failures have been responsible for several violations. For example, a spill in February 2019 of waste ammonia liquor was attributed to a power outage at the coke plant. It is my understanding that a battery failure is what set off the catastrophic fiasco in the blast furnace gas washing recycle system pump station that occurred on August 11, 2019. What sort of steps will Cleveland-Cliffs be required to take in the permit to make sure contingency plans and backup systems are developed and initiated, when necessary?

Response 12: The permittee is required to at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee, and which are necessary for achieving compliance with the terms and conditions of this permit in accordance with 327 IAC 5-2-8(9). Failure to do so would be a violation of the permit and would be subject to enforcement action. The type of corrective actions that you list in your comment are typically addressed as part of an enforcement action.

Comment 13: WET Testing

On Page 49 of 78 of the Draft Permit, the permittee "must complete items a., b., c. and d. from Part I.F.2. and reduce toxicity in the effluent discharge to acceptable levels as soon as possible, but no later than three (3) years from the date that toxicity is initially demonstrated in two (2) consecutive toxicity tests (i.e., the date of termination of the second test) as described in Part I.F.1.f.(4)."

We believe three years is too long for these reductions to take place. This kind of sustained toxicity for (potentially) up to three years could cause long lasting damage to the environment and the wildlife living in the affected waterways.

Thank you again for providing us with this opportunity to comment on this permit that has significant impacts on these Outstanding State Resource Waters that require our utmost care and stewardship for now and future generations.

Response 13: The permittee is required to complete the TRE as soon as possible. Three years is the maximum amount of time the TRE can take. As an example, in 2020 the permittee initiated a TRE due to WET test failures at this outfall in May and June 2020. Under the 2016 Permit the permittee had until June 2023 to complete the TRE and eliminate the toxicity. However, the permittee completed this TRE in September 2021. In addition, the permittee continued its quarterly WET monitoring while they were conducting the TRE and did not observe any toxicity in the samples taken after June 2020.

Comment Letter from Joel Brammeier, Alliance for the Great Lakes; Colin Deverell, National Parks Conservation Association; Indra Frank, Hoosier Environmental Council; Natalie Johnson, Save the Dunes; Jim Sweeney, Izaak Walton League – Porter County Chapter; Amanda Shepherd, The Sierra Club; Ashley Williams, Just Transition Northwest Indiana; and Sarah Damron, Surfrider Foundation

Comment 1: On behalf of our members and supporters, the Alliance for the Great Lakes, Hoosier Environmental Council, Izaak Walton League, Just Transition Northwest Indiana, National Parks Conservation Association, Save the Dunes, Sierra Club, and the Surfrider Foundation respectfully submit these comments concerning the National Pollutant Discharge Elimination System (NPDES) Draft Permit Number IN0000175 (Draft Permit) issued by the Indiana Department of Environmental Management (IDEM) to Cleveland-Cliffs, LLC., for its facility in Burns Harbor, Indiana.

Strong enforcement of the goals and tenets of the NPDES program is essential to the health of the people, wildlife, waters, and landscapes of the Great Lakes. With 85 percent of America's fresh surface water, the Great Lakes are a national and international treasure, providing drinking water, jobs, and recreation to more than 40 million United States citizens.

Indiana Dunes National Park, located immediately adjacent to the Cleveland-Cliffs facility, is especially vulnerable to diminished water quality. The Congressionally mandated purpose of Indiana Dunes National Park, the very reason the park was established, is "to preserve for the educational, inspirational, and recreational use of the public certain portions of the Indiana dunes and other areas of scenic, scientific, and historic interest and recreational value."[1] Indiana Dunes features a variety of natural and cultural features, including the lands and waters of the East Branch of the Little Calumet River. More than two million people visit Indiana Dunes each year to experience its beaches, waters, and trails. Failure to hold Cleveland-Cliffs accountable at its Burns Harbor site through strong NPDES permitting puts visitor and wildlife health and safety at risk and endangers the Park Service mission to protect Indiana Dunes in perpetuity.

As IDEM is aware, past violations at this facility, formerly owned and operated by ArcelorMittal, have necessitated enforcement action by both IDEM and the U.S. Environmental Protection Agency (US EPA). While the results of the government complaint against Cleveland-Cliffs and the Clean Water Act citizen (HEC) are pending, IDEM must take the necessary steps to ensure the protection of Lake Michigan, Indiana Dunes National Park, and the millions of people who rely on these places for clean drinking water and recreation.

We, the undersigned organizations, have significant concerns with Draft NPDES Permit Number IN0000175 and recommend a series of changes as detailed below. This permit, as currently constructed, is deferential to a facility with a substantial record of violations and provides little opportunity for public input. Attached to this letter is a technical memorandum completed by CEA Engineers, PC, hereinafter referenced as “Appendix A,” that further elaborates our concerns.

Public Notification of Permit Exceedances and Spills
Despite changes in reporting requirements and the general goals of the NPDES program, the risks to people recreating in the East Branch of the Little Calumet River and Lake Michigan warrant additional communication to the public and downstream stakeholders. Presently, the Draft Permit requires notification to IDEM in the event of changes in anticipated discharges[2] and Cleveland-Cliffs is required to “exercise due diligence” to notify downstream users in the event of a spill.[3] IDEM must add to the permit stronger communications protocols for Cleveland-Cliffs Burns Harbor, including immediate notification of downstream stakeholders when the facility is aware of potentially hazardous permit exceedances. IDEM has the authority to require additional communication protocols[4] and should use best practices adapted from the Emergency Planning and Community Right-to-Know Act (EPCRA) as a starting point.

The purpose of giving IDEM this kind of flexibility and discretion is to enhance the protection of human health and wildlife where circumstances warrant such enhanced protection. Those circumstances are present for Cleveland-Cliffs Burns Harbor. These include the substantial volumes of industrial wastewater discharges, the potential size and severity of the toxic discharges, the proximity of a national park and residential communities, and a history of permit noncompliance including the catastrophic release of cyanide and other toxics in 2019. When taken together, these problems warrant imposition of additional reporting requirements for this facility to include local governmental units and emergency response agencies when notifying IDEM of potentially dangerous exceedances and spills, in accordance with specifics set forth in EPCRA.

Even if EPCRA requirements would not normally be triggered, Cleveland-Cliffs has a responsibility to protect downstream stakeholders, including the National Park Service (NPS), Indiana American Water (IAW), and adjacent communities in the event of a potentially hazardous permit exceedance or spill. This information will allow land and water managers can make informed, timely decisions about use of the affected water resources. The public has a right to know as soon as IDEM knows about a significant health and safety risk when it occurs. This notification is a necessary step to safeguarding the people who use and recreate in the waters used by Cleveland-Cliffs to discharge their waste.

On August 11, 2019, the Cleveland-Cliffs facility, which at the time was owned and operated by ArcelorMittal, spilled millions of gallons of untreated wastewater containing elevated levels of cyanide and ammonia into the East Branch of the Little Calumet River, directly into Indiana Dunes National Park. As reported, it took four days for information of this catastrophic spill to reach IDEM, NPS, IAW, and other downstream stakeholders, during which the spill killed approximately 3,000 fish.[5] There is no telling how many individuals may have been exposed to this effluent while recreating in the river those four days during which no information was available to the public, NPS, or downstream communities. In fact, citizen users of the river were the first to alert IDEM when the fish kill became apparent.[6] When information was finally publicly available, NPS and other stakeholders took the appropriate steps of closing river and beach access to protect park visitors, as well as shutting down drinking water intakes to protect the health and safety of neighboring communities.

Since the August 2019 spill, the Cleveland-Cliffs Burns Harbor facility has violated its NPDES permit on 11 occasions, including exceedances in ammonia and the highly toxic compound tetrachlorodibenzofuran. This is not a sustainable pattern. The public that relies on safe drinking water and has opportunities for recreation in one of America's Great Lakes and newest national parks must be made aware of potential hazards as soon as possible.

Response 1: Cleveland-Cliffs LLC Burns Harbor is required to abide by the notification requirements in the Spill Rule, 327 IAC 2-6.1-7(5), the notification requirements contained in the general conditions of the permit, and the notification requirements contained in other laws and rules.

Comment 2: Public Involvement

While Cleveland-Cliffs stated its commitment to "substantial regulatory and stakeholder involvement throughout the process,"[7] IDEM must do more to ensure stakeholder and public participation in this NPDES permit process. We request that IDEM proactively share with the public, and seek input on, several forthcoming reports directly related to the effectiveness of the NPDES permit. These reports include:

1. Any analyses of the impacts of Cleveland-Cliffs discharges in the East Branch of the Little Calumet River, Salt Creek, and Trail Creek;

2. Any toxic reduction evaluation (TRE) work plan developed by Cleveland-Cliffs and submitted to IDEM for approval, related quarterly TRE reports, and any final TRE report upon conclusion of the work plan; and,

3. All of the required reports and plans in the 316(a) variance compliance schedule, as detailed further below and in Appendix A.

The Draft Permit requires Cleveland-Cliffs to complete more than a dozen required reports, plans, and analyses in the coming months, many of which are critical components to the efficacy of the Permit. During the September 1, 2021, public hearing on the Draft Permit, IDEM staff shared that these reports would be available online or subject to a public records request. Given the direct impacts to the national park's natural and recreational resources, in addition to public health risks to water users, IDEM should ensure that stakeholders have an opportunity to provide meaningful input.

Response 2: IDEM OWQ uploads all permit applications, permits, and effluent data to the IDEM Virtual File Cabinet. All of this is available to the public. Any permit actions, such as a permit modification, will require a public notice that will allow for public involvement.

Comment 3: Reopening Clause

IDEM and US EPA are currently pursuing an enforcement action and ongoing settlement negotiations with Cleveland-Cliffs as result of the August 11, 2019, spill and other NPDES permit violations. IDEM must modify the Draft Permit to include a requirement for immediate modification of the Burns Harbor facility's NPDES Permit to be inclusive of, and consistent with, any future consent decrees, court orders, or enforcement actions entered into by Cleveland-Cliffs.

Response 3: The purpose of the Consent Decree, in part, is to make the permittee take the necessary steps to come into compliance with their NPDES permit. The requirements established in a Consent Decree do not normally trigger the need for permit revisions; except where the Consent Decree specifically requires the permittee to request that IDEM include specific Consent Decree provisions in its NPDES permit.

If the final Consent Decree requires the permittee to request the inclusion of specific requirements in the permit, the permittee will be required to take the steps required by the Consent Decree.

Comment 4: Process Wastewater Discharge

As is further elaborated on in Appendix A, the Draft Permit needs to be revised to include completion of Cleveland-Cliffs' ongoing Outfall 002 process wastewater source investigation and elimination exercise as a condition of any NPDES permit modification related to process wastewater discharges through the outfall. In addition, IDEM must delay any anti-degradation, technology-based effluent limits, or water quality based effluent limit evaluations required by the submission of a NPDES permit modification and first require that Cleveland-Cliffs complete the investigation for, and elimination of, currently unidentified process wastewater discharge sources to Outfall 002 not intended for inclusion under a NPDES permit modification.

In addition, IDEM must consider increased monitoring of tetrachlorodibenzofuran in discharges. As IDEM is aware, tetrachlorodibenzofuran is a dioxin, which are dangerous substances that take significantly longer to break down than other toxics, such as hexavalent chromium. Due to the pernicious nature of this chemical, and the risk that an exceedance could occur before testing results are available, we request that an increased sampling and reporting requirement of dioxins to at least once per week is included in the Draft Permit. While Cleveland-Cliffs has voluntarily agreed to weekly sampling and testing, this increased level of testing is necessary to ensure the continual health and safety of wildlife and water recreational users.

Response 4: The Permit does not authorize the discharge of any process wastewater or wastestreams at Outfall 002. Any such discharge would be a violation of the NPDES Permit and would be subject to enforcement action. If the permittee does request a modification of the Permit to authorize the discharge of process wastestreams through Outfall 002, IDEM would evaluate the status and conclusions of the permittee's Outfall 002 process wastewater source investigation.

The Permit requires weekly testing for 2,3,7,8-tetrachlorodibenzofuran (TCDF) at Outfall 111. In addition, this Permit also includes the requirement to initiate an investigatory monitoring program to monitor for other dioxins and furans to determine whether any of them are present in quantities that would have the reasonable potential to cause or contribute to a water quality violation.

Comment 5: 316(a) Variance and Thermal Effluent Impacts to Receiving Waters

Critical to the mission of the National Park Service, along with the health and safety of its visitors, is the “unimpaired” preservation of its natural resources. In concerns raised by the Indiana Department of Natural Resources (IDNR), the ongoing effluent temperature from Outfall 001 is resulting in adverse impacts to salmonid species in the Each [East] Branch of the Little Calumet River, located within Indiana Dunes National Park, and its Trail Creek and Salt Creek tributaries. IDNR concluded that the effluent temperature of discharges from Outfall 001 create a thermal barrier to upstream adult salmon migration.[8] We commend IDEM for requiring biological analyses of Cleveland-Cliffs’ impacts to these national park and state waters from Outfall 001 and, as above, urge IDEM to make these reports available for public comment. In addition, we reinforce the need for IDEM to include NPS and IDNR in any consultation by Cleveland-Cliffs in the development of these reports.

Until these analyses are completed, IDEM should not grant Cleveland-Cliffs a 316(a) thermal variance for Outfall 001, as these reports form the basis for demonstrating the facility’s eligibility for alternative thermal effluent limitations. In addition, IDEM needs to revise the thermal impact mitigation alternative compliance schedule to reduce the timeframe for report submission by Cleveland-Cliffs in advance of submission of NPDES permit renewal and 316(a) variance applications.

For Outfall 002, which discharges directly into Lake Michigan, IDEM should also require Cleveland-Cliffs to conduct similar biological analyses in concert with IDNR and NPS prior to granting a 316(a) thermal variance.

Response 5: IDEM does intend to consult with the National Park Service (NPS) and the Indiana Department of Natural Resources (IDNR) with respect to the thermal studies and limits at both Outfall 001 and 002.

Since the submittal of the permit application, the permittee has acknowledged that the thermal impacts of their discharge do need to be addressed and this permit requires the permittee to take steps to address the issue.

Part III.B.3. of the permit requires the permittee to consider and evaluate the feasibility of including biological studies as part of their 316(a) demonstration at Outfall 002. IDEM will evaluate this issue when the permittee submits its 316(a) demonstration study plan for Outfall 002.

Comment 6: Cooling Water Intake Structures Fish Impingement

The Clean Water Act requires that a cooling water intake system achieve the best technology available to minimize adverse environmental impacts related to impingement and entrainment. The State of Indiana additionally requires that these systems be designed to minimize entrainment and damage to desirable organisms. IDEM determined that the Cleveland-Cliffs Burns Harbor facility adequately demonstrated achievement of best technology available for impingement and entrainment. However, as is further elaborated on in Appendix A, the facility has failed to demonstrate compliance with the best technology available standard it proposes for meeting Clean Water Act requirements. IDEM needs to require Cleveland-Cliffs complete an impingement study under current operating conditions. If the results of the impingement study demonstrate that the adverse impact to fish and aquatic species resulting from the cooling water intake system's operation has increased relative to the study conducted between June 2012 and May 2014 (which IDEM relied on during development of the Draft NPDES Permit), the compliance schedule needs to be modified to achieve full compliance with impingement best technology available requirements faster than the current proposed timeframe of 36 months after the NPDES permit effective date.

In addition, in order to reduce inaccuracies in the flow estimation process used to calculate through-screen intake velocities for compliance with impingement best technology requirements, IDEM needs to require installation of accurate flow monitoring technology at Lake Water Pump Stations One and Two and end reliance upon estimated flows that can be modified during the NPDES permit renewal process through use of varying assumptions and calculation methodology.

Response 6: The permit requires compliance with the BTA standard for impingement mortality under 40 CFR 125.94(c)(3), which requires the permittee to operate cooling water intake structures that have a maximum through screen intake velocity of 0.5 feet per second. Under EPA's regulations, a permittee is not required to conduct fish impingement studies. Compliance with one of the impingement mortality alternatives listed in EPA's regulations satisfies EPA's requirements with respect to impingement.

Part I.A.5. and Part IV. of the Permit require the permittee to monitor the velocity daily to verify compliance with this 0.5 fps requirement. EPA's regulations provide that the velocity must be monitored at the screen at a minimum frequency of daily; or, in lieu of velocity monitoring at the screen face, the through screen velocity may be calculated using water flow, water depth, and the screen open areas. The permittee does not have a mechanism to directly monitor the velocity at the screen face; therefore, the permit requires the screen velocity to be calculated using water flow, water depth, and the screen open areas, as authorized under these regulations.

The permittee does not currently have flow meters on their intakes. IDEM's preference is that flow monitors be installed on these intakes; however, if the permittee determines that the installation of flow meters on their intakes is not feasible; the permittee must propose an alternate reasonably accurate calculation method to make this determination. The permittee must submit any such alternate method to IDEM and IDEM will review the proposed method. The permit also requires the permittee to submit all such calculations and inputs used in these calculations to IDEM.

Conclusion
Indiana Dunes National Park and Lake Michigan are among America's most treasured places, underscored by the stewardship of NPS and the more than two million people who visit Indiana Dunes every year. While IDEM takes several steps through this permit towards a healthier national park, Lake Michigan, and higher quality of life in the state, it must go further to ensure the natural resources of the region, its residents, and visitors are well protected now and into the future. Thank you for the opportunity to comment.

[1] See 16 U.S.C. 460u.
[2] Cleveland-Cliffs Burns Harbor LLC Draft Permit, pages 68-69.
[3] See 327 IAC 2-6.1-7(5).
[4] See 327 IAC 5-2-9(1)(D).
[5] US EPA Cleveland-Cliffs Burns Harbor Webpage < https://www.epa.gov/in/cleveland-cliffs-llc-burns-harbor-formerlyarcelormittal-burns-harbor-portage-indiana>.
[6] United States Environmental Protection Agency, CWA Reconnaissance Inspection Report, Initial investigation related to fish kill incident in Burns Harbor, August 22, 2019.
[7] Cleveland-Cliffs Burns Harbor LLC Draft Permit Fact Sheet, pages 11-12.
[8] Permit Fact Sheet, pages 57-58.

Comment 7: CCBH continues to investigate for sources of process wastewater discharges through Outfall 002, despite earlier successes identifying and abating process wastewater sources through Outfall 002. Since investigations for additional process wastewater sources to Outfall 002 and the Expanding Sampling Program are currently ongoing, and currently unknown process wastewater sources to Outfall 002 potentially exist at CCBH, IDEM needs to delay any antidegradation, TBELs, or WQBELs evaluations required by the submission of a NPDES permit modification application by CCBH. IDEM needs to first require that CCBH completes the investigation for and elimination of currently unidentified process wastewater discharge sources to Outfall 002 not intended for inclusion under a NPDES permit modification. Discharge of process wastewater through Outfall 002 will constitute an unpermitted discharge according to the Draft NPDES Permit. Completion of the ongoing Outfall 002 process wastewater source investigation and elimination exercise will allow IDEM to have the most complete data and information available regarding flow sources to Outfall 002 for its antidegradation, TBELs, or WQBELs evaluations. The Draft NPDES Permit needs to be revised to include completion of CCBH's ongoing Outfall 002 process wastewater source investigation and elimination exercise as a condition of any NPDES permit modification by CCBH related to process wastewater discharges through Outfall 002.

CCBH began implementation of the Outfall 002 Expanded Sampling Program approximately two years ago after the August 2019 Spill and continues monitoring for potential process wastewaters that are entering the Outfall 002 collection and conveyance system and will not be permitted by the Draft NPDES Permit. CCBH should initiate investigative activities in addition to effluent monitoring to identify potential sources of process wastewater in effluent from Outfall 002 and eliminate the potential for unpermitted discharges. For example, dye testing of potential process wastewater sources can confirm the presence of process wastewater sources that are discharging to the Outfall 002 collection and conveyance system. Upon identification through dye testing, process wastewater sources to Outfall 002 can then be eliminated.

Response 7: The studies and expanded sampling plan at Outfall 002 was required as part of the enforcement action from the IDEM Compliance Section. Part of the studies included dye trace studies that resulted in finding and eliminating several unpermitted discharges. The purpose of enforcement and/or compliance actions, in part, is to make the permittee take the necessary steps to come into compliance with their NPDES permit. The requirements established by the enforcement and compliance sections do not normally trigger the need for permit revisions; except where an Agreed Order or Consent Decree specifically requires the permittee to request that IDEM include specific enforcement provisions in its NPDES permit. At this time, it is not necessary for the permit to include language for the completion of CCBH's ongoing Outfall 002 process wastewater source investigation and elimination exercise.

IDEM agrees that the investigation of Outfall 002 wastewater sources must be completed prior to evaluating WQBELs and antidegradation for any possible permit modification for system updates. This is one reason why new Wasteload Allocation Analyses were not done as part of this permit renewal.

Appendix A
Effluent Limitations Guidelines, Technology-based Effluent Limitations Calculations

PROCESS	ELG	PRODUCTION (TONS/DAY)	TSS AVE	TSS MAX	OIL& GREASE AVE	OIL& GREASE MAX	TOTAL LEAD AVE	TOTAL LEAD MAX	TOTAL ZINC AVE	TOTAL ZINC MAX
SINTERING	420.22/23	8,884	0.0250	0.0751	0.00501	0.0150	0.000150	0.000451	0.000225	0.000676
			444.20	1334.38	89.02	266.52	2.67	8.01	4.00	12.01
IRONMAKING	420.32/33	14,305	0.0260	0.0782			0.0000876	0.000263	0.000131	0.000394
"C" and "D"	(a)		743.86	2237.30	0	0	2.51	7.52	3.75	11.27
STEELMAKING	420.42/43	6,372	0.0104	0.0312			0.0000626	0.000188	0.0000939	0.000282
BOF-SC	(b)		132.54	397.61	0	0	0.80	2.40	1.20	3.59
STEELMAKING	420.42/43	11,904	0.0229	0.0687			0.000138	0.000413	0.000207	0.000620
BOF-OC	(c)		545.20	1635.61	0	0	3.29	9.83	4.93	14.76
VACUUM	420.52/53	17,958	0.00521	0.0156			0.0000313	0.0000939	0.0000469	0.000141
DEGASSING			187.12	560.29	0	0	1.12	3.37	1.68	5.06
CONTINUOUS	420.62/63	18,323	0.0260	0.0780	0.0078	0.0234	0.0000313	0.0000939	0.0000469	0.000141
CASTING No. 1 and 2			952.80	2858.39	285.84	857.52	1.15	3.44	1.72	5.17
HOT FORMING[2]	420.72/77	14,000	0.160	0.427		0.107	0.000108	0.000325	0.000163	0.000488
STRIP 80"	(c)(1)		4480.00	11956.00	0	2996.00	3.02	9.10	4.56	13.66
HOT FORMING[1]	420.72/77	4,291	0.0851	0.227		0.0568	0.0000584	0.000175	0.0000876	0.000263
PLATE 160", 110"	(c)(2)		730.33	1948.11	0	487.46	0.50	1.50	0.75	2.26
HCI PICKLING	420.92/93	10,908	0.0350	0.0818	0.0117	0.0350	0.000175	0.000526	0.000234	0.000701
Nos. 1, 2, CHTL	(b)(2)		763.56	1784.55	255.25	763.56	3.82	11.48	5.10	15.29
HCI PICKLING	420.92/93	3	2.45	5.72	0.819	2.45	0.0123	0.0368	0.0164	0.0491
Fume Scrubbers	(b)(4)		16.20	37.83	5.42	16.20	0.08	0.24	0.11	0.32
COLD ROLLING	420.102/103	7,717	0.00313	0.00626	0.00104	0.00261	0.0000156	0.0000469	0.0000104	0.0000313
Tandem Mill	(a)(2)		48.31	96.62	16.05	40.28	0.24	0.72	0.16	0.48
COLD ROLLING	420.102/103	3,193	0.0113	0.0225	0.00376	0.00939	0.0000563	0.000169	0.0000376	0.000113
Temper Mill	(a)(4)		72.16	143.69	24.01	59.96	0.36	1.08	0.24	0.72
ALKALINE CLEANING	420.112	2,986	0.0438	0.102	0.0146	0.0438				
HDGL, CHTL	(b)		261.57	609.14	87.19	261.57	0	0	0	0
HOT DIP GALV.	420.123/127	1,929	0.0751	0.175	0.0250	0.0751	0.000376	0.00113	0.000500	0.00150
HDGL	(a)(1)		289.74	675.15	96.45	289.74	1.45	4.36	1.93	5.79
HOT DIP GALV.	420.123/127	1	16.3	38.1	5.45	16.3	0.0123	0.0368	0.0164	0.0491
Fume Scrubber	c		35.93	84.00	12.02	35.93	0.03	0.08	0.04	0.11
Total Mill: Outfall 011:		**(lbs/day)**	**9,704**	**26,359**	**871**	**6,075**	**21.0**	**63.1**	**30.2**	**90.5**
Existing Outfall 011 Limits):		**(lbs/day)**	**7,000**	**24,530**	see note	**5,584**	**19.8**	**40.0**	**28.4**	**85.2**

		PROD,	**AMMONIA-N**		**T. CYANIDE**		**PHENOLS (4AAP)**		**Naphthalene**	**TCE**	**TRC**
PROCESS	ELG	(TONS/DAY)	AVE	MAX	AVE	MAX	AVE	MAX	MAX	MAX	MAX
SINTERING	420.22/23	8,884	0.00501	0.0150	0.00150	0.00300	0.0000501	0.000100			
			89.02	266.52	26.65	53.30	0.89	1.78	0	0	0
IRONMAKING	420.32/33	14,305	0.00292	0.00876	0.000876	0.00175	0.0000292	0.0000584			0.000146
"C" and "D"	(a)		83.54	250.62	25.06	50.07	0.84	1.67	0	0	4.18
STEELMAKING	420.42/43	6,372									
BOF-SC	(b)		0	0	0	0	0	0	0	0	0
STEELMAKING	420.42/43	11,904									
BOF-OC	(c)		0	0	0	0	0	0	0	0	0
VACUUM	420.52/53	17,958									
DEGASSING			0	0	0	0	0	0	0	0	0
CONTINUOUS	420.62/63	18,323									
CASTING No. 1 and 2			0	0	0	0	0	0	0	0	0
HOT FORMING[2]	420.72/77	14,000									
STRIP 80"	(c)(1)		0	0	0	0	0	0	0	0	0
HOT FORMING	420.72/77	4,291									
PLATE 160", 110"	(c)(2)		0	0	0	0	0	0	0	0	0
HCl PICKLING	420.92/93	10,908									
Nos. 1, 2, CHTL	(b)(2)		0	0	0	0	0	0	0	0	0
HCl PICKLING	420.92/93	3									
Fume Scrubbers	(b)(4)		0	0	0	0	0	0	0	0	0
COLD ROLLING	420.102/103	7,717							0.0000104	0.0000156	
Tandem Mill	(a)(2)		0	0	0	0	0	0	0.16	0.24	0
COLD ROLLING	420.102/103	3,193							0.0000376	0.0000563	
Temper Mill	(a)(4)		0	0	0	0	0	0	0.24	0.36	0
ALKALINE CLEANING	420.112	2,986									
HDGL, CHTL	(b)		0	0	0	0	0	0	0	0	0
HOT DIP GALV.	420.123/127	1,929									
HDGL	(a)(1)		0	0	0	0	0	0	0	0	0
HOT DIP GALV.	420.123/127	1									
Fume Scrubber	c		0	0	0	0	0	0	0	0	0
Total Mill: Outfall 011:		**(lbs/day)**	**172.56**	**517.14**	**51.71**	**103.37**	**1.73**	**3.45**	**0.401**	**0.600**	**4.18**
Existing Outfall 011 Limits):		**(lbs/day)**	Report	Report	Report	**21**	Report	Report	**0.402**	**0.602**	**4.32**

Notes

[1] BPJ BAT effluent limits for lead and zinc for Hot Forming operations from 1982 EPA Development Document, Vol IV, p.345 (EPA 440/1-82/024; May 1982). Same as current and prior NPDES permits.

Final NPDES permit limits for ammonia-N and phenols are Section 301(g) effluent limits, not the limits shown in the generally applicable calculations shown above.

Monitoring waivers for Naphthalene and Tetrachloroethylene are requested to be continued in renewal permit.

Hexavalent chromium solutions from the HDGL are not discharged to the secondary wastewater treatment plant, and no internal or external hexavalent chromium limits are requested. Same as current and prior NPDES permits.

For oil and grease, the monthly average limit equates to a concentration below the LOD and LOQ. Therefore, the permittee has requested that no monthly average limit (daily maximum limit only) be applied consistent with the effective permit.

For the fume scrubbers the numbers listed under the "Production" column are the number of units servicing the operation, not production in terms of tons/day.

Appendix B

Waste Load Allocation WLA000546

Appendix C
Waste Load Allocation WLA002161

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: May 18, 2009

To: Steve Roush
Permits Branch

From: John Elliott JE
Permits Branch

Subject: Wasteload Allocation Report for ArcelorMittal Burns Harbor in Porter County (IN0000175, WLA000546)

Reasonable potential and antidegradation analyses for individual toxic pollutants were done for the renewal of the NPDES permit for ArcelorMittal Burns Harbor (formerly Bethlehem Steel). The analyses were done for Outfall 001, Outfall 002 and Outfall 003. Outfall 001 consists of noncontact cooling water, stormwater, Lake Michigan water used for control of effluent temperature, groundwater from building dewatering wells and treated process wastewater (the treated process wastewater is regulated through internal Outfall 011). Outfall 002 consists of noncontact cooling water, stormwater and groundwater from building dewatering wells. Outfall 003 consists of water intake screen and strainer backwash water. The discharge through Outfall 001 is to the East Branch of the Little Calumet River, the discharge through Outfall 002 is to the East Harbor Arm of Port of Indiana - Burns Harbor and the discharge through Outfall 003 is to the Indiana portion of the open waters of Lake Michigan. The discharge through Outfall 002 is considered a discharge to the Indiana portion of the open waters of Lake Michigan. The discharge through each outfall is covered under the rules for the Great Lakes system. The effluent flows used in the analyses were 137 mgd for Outfall 001, 288 mgd for Outfall 002 and 1.44 mgd for Outfall 003.

The East Branch of the Little Calumet River is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. Therefore, the East Branch of the Little Calumet River and Portage-Burns Waterway are designated as salmonid waters. The East Branch of the Little Calumet River enters the Indiana Dunes National Lakeshore at S.R. 20 (upstream of Outfall 001) and leaves the Indiana Dunes National Lakeshore about 0.5 miles upstream of its confluence with Portage-Burns Waterway (about 1.0 miles downstream of Outfall 001). All waters incorporated in the Indiana Dunes National Lakeshore are designated in

327 IAC 2-1.5-19(b)(3) as an outstanding state resource water (OSRW). Discharges to OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7.

The Indiana portion of the open waters of Lake Michigan is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-5(a)(3)(G) as a salmonid water and shall be capable of supporting a salmonid fishery. Public water system intakes are located in the Indiana portion of the open waters of Lake Michigan so it is designated in 327 IAC 2-1.5-5(a)(4) as a public water supply. Industrial water supply intakes are located in the Indiana portion of the open waters of Lake Michigan so it is designated in 327 IAC 2-1.5-5(a)(5) as an industrial water supply. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW). As noted above, discharges to OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7.

The 2008 assessment units for East Branch Little Calumet River at Outfall 001 and Portage-Burns Waterway are INC0164_T1086 and INC0164_T1108, respectively. Both of these assessment units are on the 2008 303(d) list for PCBs in fish tissue. The 2008 assessment unit for the Lake Michigan shoreline at Outfalls 002 and 003 is INC0181G_G1093. The Lake Michigan shoreline in Indiana is on the 2008 303(d) list for mercury and PCBs in fish tissue. A TMDL for *E. coli* for East Branch Little Calumet River (including Assessment Unit INC0164_T1086) and Portage-Burns Waterway (Assessment Unit INC0164_T1108) was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. The current ArcelorMittal Burns Harbor permit includes the discharge of sanitary wastewater from internal Outfall 031. The TMDL notes that the sanitary WWTP was sold to the Town of Burns Harbor and that the Town has an operational permit for the WWTP. The TMDL notes that IDEM will apply *E. coli* limits in the operational permit. The TMDL requires load reductions for *E. coli* from nonpoint sources, but not from point source discharges. A TMDL for *E. coli* for the Lake Michigan shoreline (including Assessment Unit INC0181G_G1093) was approved by U.S. EPA September 1, 2004 and is part of the Lake Michigan TMDL. This TMDL does not place limits for *E. coli* on any of the ArcelorMittal Burns Harbor outfalls to Lake Michigan.

The Q7,10 of the East Branch of the Little Calumet River upstream of Outfall 001 is 21 cfs. Under 327 IAC 5-2-11.4(b)(2), except for a zone of initial dilution for acute aquatic life criteria, wasteload allocations for discharges to the open waters of Lake Michigan shall be based on meeting water quality criteria in the undiluted discharge unless a mixing zone demonstration is conducted and approved under 327 IAC 5-2-11.4(b)(4). The facility has not conducted a mixing zone demonstration for Outfall 002 or Outfall 003 so wasteload allocations based on chronic aquatic life, human health, wildlife and Lake Michigan criteria were calculated using no dilution and wastelaod allocations based on acute aquatic life criteria were calculated using a zone of initial dilution.

The facility adds chlorine to their intake water to control zebra mussels and the current permit includes limits for total residual chlorine at Outfalls 001, 002 and 003. Therefore, a reasonable potential analysis for total residual chlorine was done under 5-2-11.5(a) and it was determined that water quality-based effluent limitations (WQBELs) for total residual chlorine are required for Outfalls 001, 002 and 003. A reasonable potential analysis for Outfall 001 was done for pollutants of concern other than total residual chlorine in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b). The facility provided effluent data for a number of pollutants of concern as part of their permit renewal application in 1992. The facility provided additional effluent sampling data in 2008 and 2009 in response to a request by IDEM. Under the current permit, the facility monitors Outfall 001 and their treated process wastewater at internal Outfall 011 for several of the pollutants of concern. Data for chloride were not available for Outfall 001 so the data collected at internal Outfall 011 were used in the reasonable potential analysis. The use of internal Outfall 011 data for chloride is considered to result in a conservative reasonable potential analysis since the concentration of chloride at Outfall 001 is expected to be lower than that at internal Outfall 011 due to the addition of noncontact cooling water to Outfall 001. The calculation of the monthly average and daily maximum projected effluent quality (PEQ) for individual toxic pollutants is included in Table 1. The results of the reasonable potential procedure are included in Table 2 and they show that there is a reasonable potential to exceed for copper, mercury, silver and zinc.

A reasonable potential analysis for Outfall 002 was done for pollutants of concern other than total residual chlorine in accordance with the provision for discharges of once-through noncontact cooling water in 327 IAC 5-2-11.5(g). In accordance with 5-2-11.5(g)(3), if a substance is present at elevated levels in the noncontact cooling water wastestream due to improper operation or maintenance of the cooling system, and this substance is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above a numeric criterion or value for a toxic substance as determined under 5-2-11.5(b), WQBELs shall be established for the substance. The current permit requires monitoring at Outfall 002 for ammonia-N, chloride, sulfate and dissolved iron to detect any possible contamination of the noncontact cooling water with process wastewater. Therefore, the reasonable potential statistical procedure under 5-2-11.5(b) was done for these pollutants of concern. The calculation of the monthly average and daily maximum projected effluent quality (PEQ) is included in Table 3 and the results of the reasonable potential procedure are included in Table 4. The results of the statistical analysis show that there is not a reasonable potential to exceed for any of the pollutants of concern considered in the analysis. The results of the reasonable potential analysis under 5-2-11.5(g) for pollutants of concern not included in the statistical analysis show that there is also not a reasonable potential to exceed for any of these pollutants of concern. In accordance with 5-2-11.5(g)(6), it is assumed that the stormwater discharges to Outfall 002 will be regulated as if they discharged directly to Lake Michigan and will receive requirements consistent with other stormwater discharges.

The WQBELs for total residual chlorine for Outfalls 001, 002 and 003 are included in Tables 5, 6 and 7, respectively. Water quality-based effluent limitations for copper, mercury, silver and zinc at Outfall 001 are included in Table 5 based on the results of the reasonable potential analysis. Federal Effluent Limitation Guidelines for ammonia-N, total cyanide, hexavalent chromium, lead, zinc, naphthalene and tetrachloroethylene apply to internal Outfall 011. Therefore, WQBELs for these pollutants for Outfall 001 are included in Table 5 for comparison to technology-based effluent limitations that apply to internal Outfall 011. It should be noted that technology-based effluent limitations for ammonia-N in the current permit are applied at Outfall 001 instead of internal Outfall 011 and are based on a Clean Water Act Section 301(g) variance. The WQBELs for tetrachloroethylene in Table 5 were calculated in accordance with the additivity provision under 327 IAC 5-2-11.4(a)(4)(A) since effluent data show that the discharge contains four pollutants with human health cancer criteria (benzene, benzo(a)pyrene, chloroform and tetrachloroethylene). The additivity provision was implemented by allocating one percent (1%) to benzene, eighty percent (80%) to benzo(a)pyrene, one-half percent (0.5%) to chloroform and eighteen and one-half percent (18.5%) to tetrachloroethylene.

Antidegradation for OSRWs under 327 IAC 5-2-11.7 was only considered in this WLA report for the new WQBELs for copper, mercury, silver and zinc required at Outfall 001 and the new mass limits for total residual chlorine required at Outfalls 001, 002 and 003. It was determined that the new WQBELs for copper, mercury, silver and zinc and the new mass limits for total residual chlorine are allowable based on the provision in 327 IAC 5-2-11.7(b)(2). While WQBELs for ammonia-N, total cyanide, hexavalent chromium, lead, naphthalene and tetrachloroethylene are presented in Table 5, antidegradation was not considered because the need for new or increased effluent limitations for these pollutants of concern at Outfall 001 has not yet been determined. The documentation of the wasteload allocation analysis is included as an attachment.

TABLE 1
Calculation of Projected Effluent Quality
For ArcelorMittal Burns Harbor Outfall 001 in Porter County
(IN0000175, WLA000546)

Parameter	Monthly Average PEQ					Daily Maximum PEQ				
	Maximum Monthly Average (mg/l)	Number of Monthly Averages	CV	Multiplying Factor	Monthly Average PEQ (mg/l)	Maximum Daily Sample (mg/l)	Number of Daily Samples	CV	Multiplying Factor	Daily Maximum PEQ (mg/l)
Antimony	0.0015	10	0.2	1.2	0.0018	0.0018	43	0.2	1.0	0.0018
Arsenic III					0.031	0.005	1	0.6	6.2	0.031
Barium					0.12	0.019	1	0.6	6.2	0.12
Beryllium					0.012	0.002	1	0.6	6.2	0.012
Cadmium					0.0031	0.0005	1	0.6	6.2	0.0031
Chromium (VI)	0.005	10	0.0	1.0	0.005	0.005	42	0.0	1.0	0.005
Total Chromium					0.031	0.005	1	0.6	6.2	0.031
Cobalt	0.00043	10	0.4	1.5	0.00065	0.0016	43	1.1	1.1	0.0018
Copper	0.021	10	0.4	1.5	0.032	0.063	44	0.8	1.1	0.069
Lead	0.0094	10	0.7	1.9	0.018	0.024	43	1.4	1.2	0.029
Manganese					0.31	0.05	1	0.6	6.2	0.31
Mercury	0.00000332	5	0.6	2.3	0.0000076	0.00000588	17	0.8	1.6	0.0000094
Molybdenum					0.19	0.03	1	0.6	6.2	0.19
Nickel					0.062	0.01	1	0.6	6.2	0.062
Selenium	0.0021	10	0.3	1.3	0.0027	0.0026	43	0.5	1.1	0.0029
Silver	0.000068	9	0.6	1.8	0.00012	0.00026	38	1.6	1.3	0.00034
Thallium	0.002	10	0.8	2.0	0.004	0.0038	43	1.2	1.2	0.0046
Tin	0.0034	10	0.6	1.7	0.0058	0.0082	43	1	1.1	0.009
Titanium					0.05	0.008	1	0.6	6.2	0.05
Vanadium	0.0043	10	0.5	1.6	0.0069	0.011	43	1.2	1.2	0.013
Zinc	0.159	9	0.6	1.8	0.29	0.3	39	0.7	1.1	0.33
Benzene	0.0014	8	0.6	1.9	0.0027	0.00267	37	0.5	1.1	0.0029
Benzo(a)anthracene	0.000081	10	0.2	1.2	0.000097	0.00011	43	0.3	1.0	0.00011
Benzo(k)fluoranthene	0.000054	10	0.6	1.7	0.000092	0.00008	43	0.7	1.1	0.000088
Benzo(a)pyrene	0.000054	10	0.4	1.5	0.000081	0.00007	43	0.5	1.1	0.000077
Chloroform	0.00098	8	0.6	1.9	0.0019	0.0012	36	0.1	1.0	0.0012
Chrysene	0.000044	10	0.4	1.5	0.000066	0.00009	43	0.6	1.1	0.000099
2,4-Dimethylphenol	0.00087	10	0.0	1.0	0.00087	0.00095	43	0.1	1.0	0.00095
Ethylbenzene					0.012	0.002	1	0.6	6.2	0.012
Fluoranthene	0.000063	10	0.4	1.5	0.000095	0.00016	43	0.7	1.1	0.00018
Naphthalene	0.0012	10	1.5	3.0	0.0036	0.002	43	1.6	1.2	0.0024
4-Nitrophenol	0.0047	10	0.0	1.0	0.0047	0.0051	43	0.1	1.0	0.0051
Phenanthrene	0.000047	10	0.2	1.2	0.000056	0.000095	43	0.5	1.1	0.0001
Phenol					0.12	0.02	1	0.6	6.2	0.12
Pyrene	0.000096	10	0.1	1.1	0.00011	0.0001	43	0.2	1.0	0.0001
Tetrachloroethylene					0.012	0.002	1	0.6	6.2	0.012
Toluene					0.012	0.002	1	0.6	6.2	0.012
1,1,1-Trichloroethane					0.012	0.002	1	0.6	6.2	0.012
Boron	0.158	10	0.6	1.7	0.27	0.23	43	0.6	1.1	0.25
Chloride					49	49	36	0.1	1.0	49
Cyanide, Free	0.0036	10	0.1	1.1	0.004	0.0058	43	0.1	1.0	0.0058
Cyanide, Total	0.0078	36	0.5	1.1	0.0086	0.016	157	0.6	0.9	0.014
Sulfate	61	10	0.2	1.2	73	88	44	0.2	1.0	88
Fluoride	0.99	10	0.1	1.1	1.1	1.2	44	0.2	1.0	1.2
Total Ammonia (as N)										
Summer	0.4	21	0.3	1.2	0.48	0.68	289	0.5	0.9	0.61
Winter	0.5	15	0.3	1.2	0.6	0.84	195	0.4	0.9	0.76

TABLE 2
Results of Reasonable Potential Statistical Procedure
For ArcelorMittal Burns Harbor Outfall 001 in Porter County
(IN0000175, WLA000546)

Parameter	Monthly Average Comparison			Daily Maximum Comparison			WQBELs Required?
	Monthly Average PEQ (mg/l)	Monthly Average PEL (mg/l)	PEQ > PEL?	Daily Maximum PEQ (mg/l)	Daily Maximum PEL (mg/l)	PEQ > PEL?	
Antimony	0.0018	0.067	No	0.0018	0.13	No	No
Arsenic III	0.031	0.12	No	0.031	0.25	No	No
Barium	0.12	1.0	No	0.12	2.0	No	No
Beryllium	0.012	0.022	No	0.012	0.044	No	No
Cadmium	0.0031	0.0044	No	0.0031	0.0087	No	No
Chromium (VI)	0.005	0.0087	No	0.005	0.018	No	No
Total Chromium	0.031	0.17	No	0.031	0.33	No	No
Cobalt	0.00065	0.016	No	0.0018	0.032	No	No
Copper	0.032	0.018	Yes	0.069	0.035	Yes	Yes
Lead	0.018	0.018	No	0.029	0.036	No	No
Manganese	0.31	1.0	No	0.31	2.0	No	No
Mercury	0.0000076	0.0000013	Yes	0.0000094	0.0000032	Yes	Yes
Molybdenum	0.19	0.65	No	0.19	1.3	No	No
Nickel	0.062	0.098	No	0.062	0.2	No	No
Selenium	0.0027	0.0042	No	0.0029	0.0084	No	No
Silver	0.00012	0.000048	Yes	0.00034	0.000097	Yes	Yes
Thallium	0.004	0.005	No	0.0046	0.01	No	No
Tin	0.0058	0.12	No	0.009	0.24	No	No
Titanium	0.05	2.1	No	0.05	4.2	No	No
Vanadium	0.0069	0.01	No	0.013	0.02	No	No
Zinc	0.29	0.15	Yes	0.33	0.29	Yes	Yes
Benzene	0.0027	0.0033	No	0.0029	0.0079	No	No
Benzo(a)anthracene	0.000097	0.0039	No	0.00011	0.0079	No	No
Benzo(k)fluoranthene	0.000092	0.0022	No	0.000088	0.0044	No	No
Benzo(a)pyrene	0.000081	0.000081	No	0.000077	0.0002	No	No
Chloroform	0.0019	0.009	No	0.0012	0.022	No	No
Chrysene	0.000066	0.0042	No	0.000099	0.0084	No	No
2,4-Dimethylphenol	0.00087	0.018	No	0.00095	0.035	No	No
Ethylbenzene	0.012	0.092	No	0.012	0.19	No	No
Fluoranthene	0.000095	0.003	No	0.00018	0.0061	No	No
Naphthalene	0.0036	0.022	No	0.0024	0.044	No	No
4-Nitrophenol	0.0047	0.049	No	0.0051	0.098	No	No
Phenanthrene	0.000056	0.00078	No	0.0001	0.0016	No	No
Phenol	0.12	0.15	No	0.12	0.3	No	No
Pyrene	0.00011	0.0034	No	0.0001	0.0067	No	No
Tetrachloroethylene	0.012	0.012	No	0.012	0.028	No	No
Toluene	0.012	0.079	No	0.012	0.16	No	No
1,1,1-Trichloroethane	0.012	0.34	No	0.012	0.69	No	No
Boron	0.27	1.3	No	0.25	2.7	No	No
Chloride	49	192	No	49	385	No	No
Cyanide, Free	0.004	0.0044	No	0.0058	0.0088	No	No
Cyanide, Total	0.0086	51	No	0.014	123	No	No
Sulfate	73	221	No	88	443	No	No
Fluoride	1.1	1.1	No	1.2	2.3	No	No
Total Ammonia (as N)							
Summer	0.48	0.75	No	0.61	1.7	No	No
Winter	0.6	0.75	No	0.76	1.7	No	No

TABLE 3

Calculation of Projected Effluent Quality
For ArcelorMittal Burns Harbor Outfall 002 in Porter County
(IN0000175, WLA000546)

Parameter	Monthly Average PEQ					Daily Maximum PEQ				
	Maximum Monthly Average (mg/l)	Number of Monthly Averages	CV	Multiplying Factor	Monthly Average PEQ (mg/l)	Maximum Daily Sample (mg/l)	Number of Daily Samples	CV	Multiplying Factor	Daily Maximum PEQ (mg/l)
Chloride					20	20	36	0.2	1.0	20
Sulfate					49	49	36	0.2	1.0	49
Iron, Dissolved	0.104	36	0.5	1.1	0.11	0.24	157	0.7	0.9	0.22
Total Ammonia (as N)										
Summer	0.166	15	0.4	1.3	0.22	0.29	65	0.6	1.0	0.29
Winter	0.207	21	0.5	1.3	0.27	0.67	92	1.0	0.8	0.54

5/18/2009

TABLE 4
Results of Reasonable Potential Statistical Procedure
For ArcelorMittal Burns Harbor Outfall 002 in Porter County
(IN0000175, WLA000546)

Parameter	Monthly Average Comparison			Daily Maximum Comparison			WQBELs Required?
	Monthly Average PEQ (mg/l)	Monthly Average PEL (mg/l)	PEQ > PEL?	Daily Maximum PEQ (mg/l)	Daily Maximum PEL (mg/l)	PEQ > PEL?	
Chloride	20	188	No	20	378	No	No
Sulfate	49	205	No	49	411	No	No
Iron, Dissolved	0.11	0.25	No	0.22	0.49	No	No
Total Ammonia (as N)							
Summer	0.22	0.54	No	0.29	1.1	No	No
Winter	0.27	0.54	No	0.54	1.1	No	No

5/18/2009

TABLE 5
Water Quality-based Effluent Limitations
For ArcelorMittal Burns Harbor Outfall 001 in Porter County
(IN0000175, WLA000546)

Parameter	Quality or Concentration			Quantity or Loading*			Monthly Sampling Frequency
	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	
Chromium (VI)	0.0087	0.018	mg/l	9.9	21	lbs/day	4
Copper	0.018	0.035	mg/l	21	40	lbs/day	4
Lead	0.018	0.036	mg/l	21	41	lbs/day	4
Mercury	0.0000013	0.0000032	mg/l	0.0015	0.0037	lbs/day	1
Silver	0.000048	0.000097	mg/l	0.055	0.11	lbs/day	4
Zinc	0.15	0.29	mg/l	171	332	lbs/day	4
Naphthalene	0.022	0.044	mg/l	25	50	lbs/day	4
Tetrachloroethylene	0.012	0.028	mg/l	14	32	lbs/day	4
Chlorine (total residual)	0.01	0.02	mg/l	11	23	lbs/day	4
Cyanide, Total	51	123	mg/l	58309	140628	lbs/day	4
Total Ammonia (as N)							
Summer	0.75	1.7	mg/l	857	1944	lbs/day	10
Winter	0.75	1.7	mg/l	857	1944	lbs/day	10

*Based on an effluent flow of 137 mgd.

TABLE 6
Water Quality-based Effluent Limitations
For ArcelorMittal Burns Harbor Outfall 002 in Porter County
(IN0000175, WLA000546)

Parameter	Quality or Concentration			Quantity or Loading*			Monthly Sampling Frequency
	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	
Chlorine (total residual)	0.01	0.02	mg/l	24	48	lbs/day	4

*Based on an effluent flow of 288 mgd.

5/18/2009

TABLE 7
Water Quality-based Effluent Limitations
For ArcelorMittal Burns Harbor Outfall 003 in Porter County
(IN0000175, WLA000546)

Parameter	Quality or Concentration			Quantity or Loading*			Monthly Sampling Frequency
	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	
Chlorine (total residual)	0.01	0.02	mg/l	0.12	0.24	lbs/day	4

*Based on an effluent flow of 1.44 mgd.

Documentation of Wasteload Allocation Analysis
For Discharges to the Great Lakes System

Analysis By: John Elliott JE
Date: May 18, 2009
WLA Number: 546

Facility Information

- **Name:** ArcelorMittal Burns Harbor (formerly Bethlehem Steel)
- **NPDES Permit Number:** IN0000175
- **Permit Expiration Date:** August 31, 1993
- **County:** Porter
- **Purpose of Analysis:** Permit Renewal

Outfall 001

- **Facility Operations:** treated process wastewater from internal Outfall 011, noncontact cooling water, storm water, Lake Michigan water used for control of effluent temperature and groundwater from building dewatering wells
- **Applicable Effluent Guidelines:** only those that apply to internal Outfall 011; however, the technology-based effluent limits for ammonia-N and phenols (4AAP) that would apply to internal Outfall 011 are applied to Outfall 001 and are based on a Clean Water Act Section 301(g) variance; according to the Fact Sheet of the current permit, many of the seven-day average ammonia-N limits were derived directly from the water quality criteria using the average temperature and mid-range pH in the effluent for each month
- **Current Permitted Flow:** the actual effluent flows used to calculate the mass limits for ammonia-N are not listed in the Fact Sheet of the current permit; however, the Fact Sheet does mention that the monthly flow values consisted of the long-term average flow plus two times the standard deviation for each month
- **Type of Treatment:** none besides the treatment for internal Outfall 011
- **Current Effluent Limits:** (In addition to the parameters in the following tables, effluent limits for temperature are included in the current permit.)

Parameter	Monthly Average		Daily Maximum	
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)
Total Suspended Solids	Report	Report	Report	Report
Oil & Grease	Report	Report	Report	Report
Phenols (4AAP)	Report	14.0	Report	22.0
Total Cyanide	Report	Report	Report	Report

Ammonia-N Limits				
Month	**7-day Average**		**Daily Maximum**	
	(mg/l)	**(lbs/day)**	**(mg/l)**	**(lbs/day)**
January	0.68	720	0.86	915
February	0.72	645	1.02	910
March	0.90	940	1.27	1300
April	0.82	730	1.16	1030
May	0.74	680	1.05	970
June	0.62	650	0.87	920
July	0.36	375	0.51	540
August	0.37	385	0.52	540
September	0.82	550	1.16	775
October	0.67	635	0.95	900
November	0.47	530	0.60	680
December	0.90	635	1.27	900

- **Effluent Flow for WLA Analysis:** 137 mgd (Under 327 IAC 5-2-11.4(a)(9) the effluent flow used to develop WLAs for industrial dischargers is the highest monthly average flow from the previous two years of monitoring. An alternate effluent flow value may be used if the discharger provides flow data that supports the alternate value. The highest monthly average flow from October 2006 through September 2008 was 119.7 mgd and occurred during September 2008. The highest monthly average flow from January 2005 through September 2008 was 137.1 mgd and occurred during August 2005. It was decided to use the value of 137 mgd since data are available to support it and it occurred during the period of production used to develop the technology-based effluent limits. The monthly average flow data are included in Attachment 1.)

Internal Outfall 011

- **Facility Operations:** this outfall receives treated process wastewater from the secondary treatment plant and treated sanitary wastewater from the sanitary wastewater treatment plant (internal Outfall 031); internal Outfall 111 (new monitoring point) discharges to the secondary treatment plant
- **Applicable Effluent Guidelines:** 40 CFR Part 420 Iron and Steel Manufacturing Point Source Category; the pollutants covered include total suspended solids, oil and grease, ammonia-N, total cyanide, phenols (4AAP), lead, zinc, naphthalene and tetrachloroethylene

- **Current Permitted Flow:** the current limits are not based on flow
- **Type of Treatment:** the treated wastewater from the secondary treatment plant and sanitary wastewater treatment plant flow through two terminal lagoons prior to discharge through internal Outfall 011
- **Current Effluent Limits:**

Parameter	Monthly Average		Daily Maximum	
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)
Total Suspended Solids	Report	6000	Report	20000
Oil & Grease	Report	Report	Report	6000
Total Cyanide	Report	Report	Report	21
Lead	Report	22.8	Report	66.9
Zinc	Report	34.6	Report	99.7
Ammonia-N	Report	Report	Report	Report
Phenols (4AAP)	Report	Report	Report	Report
Chloride	Report	Report	Report	Report
Sulfate	Report	Report	Report	Report
Total Residual Chlorine	Report	Report	Report	Report

- **Effluent Flow for WLA Analysis:** Not Applicable (The highest monthly average flow from October 2006 through September 2008 was 85.2 mgd and occurred during October 2007. (see Attachment 1))

Internal Outfall 111 (New)

- **Facility Operations:** this is a new monitoring point and receives treated process wastewater from the sinter plant; the treated process wastewater is then sent to the secondary treatment plant for further treatment
- **Applicable Effluent Guidelines:** 40 CFR Part 420 Iron and Steel Manufacturing Point Source Category; the pollutant covered is 2,3,7,8-tetrachlorodibenzofuran (2,3,7,8-TCDF)

Internal Outfall 031 (Will be Removed from Permit)

- **Current Average Design Flow:** 1.05 mgd (This outfall consists of treated sanitary wastewater and is included in the current permit, but is now permitted under operational permit INJ060801.)
- **Type of Treatment:** activated sludge and effluent chlorination

- **Current Effluent Limits:**

Parameter	Monthly Average		Daily Maximum	
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)
BOD5	30	Report	45	Report
Total Suspended Solids	30	Report	45	Report

Outfall 002

- **Facility Operations:** noncontact cooling water, storm water and groundwater from building dewatering wells
- **Current Permitted Flow:** there are no current limits based on flow
- **Type of Treatment:** none
- **Current Effluent Limits:** (In addition to the parameters in the following table, effluent limits for temperature are included in the current permit.)

Parameter	Monthly Average		Daily Maximum	
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)
Total Suspended Solids	Report	Report	Report	Report
Oil & Grease	Report	Report	Report	Report
Ammonia-N	Report	Report	Report	Report
Phenols (4AAP)	Report	Report	Report	Report
Chloride	Report	Report	Report	Report
Sulfate	Report	Report	Report	Report
Dissolved Iron	Report	Report	Report	Report

- **Effluent Flow for WLA Analysis:** 288 mgd (The highest monthly average flow from October 2006 through September 2008 was 288.5 mgd and occurred during September 2007. (see Attachment 1))

Outfall 003

- **Facility Operations:** water intake screen and strainer backwash from the Number 1 and Number 2 Lake Water Pump Stations
- **Current Permitted Flow:** there are no current limits based on flow
- **Type of Treatment:** none

- **Current Effluent Limits:** see permit modification below for Outfalls 001, 002 and 003
- **Effluent Flow for WLA Analysis:** 1.44 mgd (Effluent flow for this outfall is not reported by the facility; a maximum daily average flow of 1.44 mgd (1000 gpm) was provided in the 1993 permit renewal application)

Outfalls 001, 002 and 003

- **Type of Treatment:** A permit modification was issued September 23, 1991 to allow the use of sodium bromide and sodium hypochlorite for treatment of zebra mussels and microfouling and as a slimicide
- **Current Effluent Limits:**

Parameter	Monthly Average		Daily Maximum	
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)
Total Residual Oxidants	Report	Report	0.05	Report
Total Residual Chlorine	0.02	Report	0.04	Report

__Pollutants of Concern for WLA Analysis for Outfall 001__

The pollutants of concern were identified by first considering the parameters included in the existing permit for Outfall 001 and any chemicals added to the cooling water. The next step was to consider the parameters included in the Federal Effluent Limitation Guidelines that apply to internal Outfall 011 and the parameters included in the existing permit for internal Outfall 011. Next, the "Development Document for Final Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category," April 2002, EPA-821-R-02-004, was reviewed to identify pollutants of concern for each applicable subcategory of the guidelines. Finally, Form 2C was reviewed. The detections of chloroform and bis (2-ethylhexyl) phthalate reported on Form 2C are suspected by the facility to be the result of sample contamination. The pollutants of concern are included in the table below:

Pollutants of Concern for WLA Analysis for Outfall 001	
Parameter	**Reason for Inclusion on Pollutants of Concern List**
Ammonia-N	Limited in existing permit at Outfall 001. Effluent Limitation Guidelines apply to internal Outfall 011.
Total residual chlorine	Limited in existing permit at Outfall 001. The facility uses chlorine.
Total cyanide	Monitored in existing permit at Outfall 001. Effluent Limitation Guidelines apply to internal Outfall 011. Limited in existing permit at internal Outfall 011.
Lead and zinc	Effluent Limitation Guidelines apply to internal Outfall 011. Limited in existing permit at internal Outfall 011.
Naphthalene and tetrachloroethylene	Effluent Limitation Guidelines apply to internal Outfall 011. Data available from Form 2C.
Hexavalent chromium	Effluent Limitation Guidelines apply to internal Outfall 011. Data not available from Form 2C, but are available from additional monitoring.
Chloride	Monitored in existing permit at internal Outfall 011.
Sulfate	Monitored in existing permit at internal Outfall 011. Identified as pollutant of concern in Development Document.
Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, cobalt, copper, fluoride, iron, manganese, molybdenum, nickel, selenium, silver, thallium, tin, titanium, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, 2,4-dimethylphenol, ethylbenzene, fluoranthene, 4-nitrophenol, phenanthrene, phenol, pyrene, toluene and 1,1,1-trichloroethane	Identified as pollutant of concern in Development Document. Data available from Form 2C and for some parameters from additional monitoring.
Free cyanide, mercury and vanadium	Identified as pollutant of concern in Development Document. Data not available from Form 2C, but are available from additional monitoring.
Benzene and chloroform	Data available from Form 2C are above the limit of detection. Data are available from additional monitoring.

Pollutants of Concern for WLA Analysis for Outfall 002

There are no Federal Effluent Limitation Guidelines that apply to Outfall 002. Therefore, the pollutants of concern were identified by first considering the parameters included in the existing permit for Outfall 002 and any chemicals added to the cooling water. The next step was to consider data reported on Form 2C. Finally, pollutants seen in elevated concentrations in noncontact cooling water at similar facilities were considered. The pollutants of concern are included in the table below.

Pollutants of Concern for WLA Analysis for Outfall 002	
Parameter	**Reason for Inclusion on Pollutants of Concern List**
Total residual chlorine	Limited in existing permit at Outfall 002. The facility uses chlorine.
Ammonia-N, chloride, sulfate and dissolved iron	Monitored in existing permit at Outfall 002.
Aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, total chromium, cobalt, copper, total cyanide, fluoride, iron, lead, manganese, molybdenum, nickel, selenium, silver, thallium, tin, titanium and zinc	Data available from Form 2C.

Pollutants of Concern for WLA Analysis for Outfall 003

Pollutants of Concern for WLA Analysis for Outfall 003	
Parameter	**Reason for Inclusion on Pollutants of Concern List**
Total residual chlorine	Limited in existing permit at Outfall 003. The facility uses chlorine.

Receiving Stream Information

- **Receiving Stream:** Outfall 001 discharges to the East Branch of the Little Calumet River to Portage-Burns Waterway to the Indiana portion of the open waters of Lake Michigan; Outfall 002 discharges to the East Harbor Arm of Port of Indiana - Burns Harbor which is considered to be part of the open waters of Lake Michigan based on the definition of "open waters of Lake Michigan" in 327 IAC 2-1.5-2(64); Outfall 003 discharges to the Indiana portion of the open waters of Lake Michigan; Outfall 001 is within the Indiana Dunes National Lakeshore (see Attachments 2A and 2B)
- **Drainage Basin:** Lake Michigan

Outfall 001

- **Public Water System Intakes Downstream:** None on the East Branch of the Little Calumet River or Portage-Burns Waterway. There are several public water system intakes in Lake Michigan, but none will impact this analysis.
- **Designated Stream Use:** The East Branch of the Little Calumet River is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. Lake Michigan is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. Therefore, the East Branch of the Little Calumet River and Portage-Burns Waterway are designated as salmonid waters. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-5(a)(3)(G) as a salmonid water and shall be capable of supporting a salmonid fishery. The East Branch of the Little Calumet River enters the Indiana Dunes National Lakeshore at S.R. 20 (upstream of Outfall 001) and leaves the Indiana Dunes National Lakeshore about 0.5 miles upstream of its confluence with Portage-Burns Waterway (about 1.0 miles downstream of Outfall 001). All waters incorporated in the Indiana Dunes National Lakeshore are designated in 327 IAC 2-1.5-19(b)(3) as an outstanding state resource water (OSRW). The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW). Discharges to OSRWs and to tributaries of OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7.
- **14 Digit HUC:** 04040001060040
- **Assessment Unit (2008):** INC0164_T1086 (Little Calumet River)
- **303(d) List (2008):** At the outfall (Assessment Unit INC0164_T1086), East Branch Little Calumet River is on the 2008 303(d) list for PCBs in fish tissue. Portage-Burns Waterway (assessment unit INC0164_T1108) is on the 2008 303(d) list for PCBs in fish tissue. The Lake Michigan shoreline in Indiana is on the 2008 303(d) list for mercury and PCBs in fish tissue. Lake Michigan (Assessment Unit INM00G1000_00) is on the 2008 303(d) list for mercury and PCBs in fish tissue.
- **TMDL Status:** A TMDL for *E. coli* for East Branch Little Calumet River at the outfall

(Assessment Unit INC0164_T1086) and Portage-Burns Waterway (Assessment Unit INC0164_T1108) was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. The current ArcelorMittal Burns Harbor permit includes the discharge of sanitary wastewater from internal Outfall 031. The TMDL notes that the sanitary WWTP was sold to the Town of Burns Harbor and that the Town has an operational permit for the WWTP. The TMDL notes that IDEM will apply *E. coli* limits in the operational permit. The TMDL requires load reductions from nonpoint sources, but not from point source discharges. A TMDL for *E. coli* for the Lake Michigan shoreline was approved by U.S. EPA September 1, 2004 and is part of the Lake Michigan TMDL.

- **Q7,10 (Outfall):** 21 cfs (USGS gaging station 04094000 Little Calumet River at Porter is upstream of the outfall at S.R. 20. The drainage area at this gage is 66.2 mi^2, the Q7,10 is 21 cfs and the Q1,10 is 20 cfs. The drainage area, Q7,10 and Q1,10 were obtained from the book Low-Flow Characteristics of Indiana Streams by Kathleen K. Fowler and John T. Wilson, published in 1996 by the USGS.)
- **Q1,10 (Outfall):** 20 cfs
- **Q90,10 (Outfall):** 26 cfs (The Q90,10 at USGS gaging station 04094000 Little Calumet River at Porter is 26 cfs and was extrapolated using the Q60,10 (24 cfs) and Q120,10 (27 cfs) values listed in Low-Flow Characteristics of Indiana Streams.)
- **Harmonic Mean Flow (Outfall):** 47 cfs (The harmonic mean flow at USGS gaging station 04094000 Little Calumet River at Porter is 47 cfs and was calculated using data obtained for the station from April 1, 1946 through March 31, 2007. The data were obtained from the USGS website.)
- **Nearby Dischargers:** The Chesterton WWTP (IN0022578) and Praxair (IN0043435) discharge to East Branch Little Calumet River upstream of Outfall 001. U.S. Steel - Midwest Plant (IN0000337) has four outfalls on Portage-Burns Waterway downstream of Outfall 001. The Chesterton WWTP currently does not have limits for any metals other than mercury. Praxair has limits for total residual chlorine, but the discharge flow is small in comparison to the stream flow. Therefore, none of these dischargers will impact this analysis.

Outfalls 002 and 003

- **Public Water System Intakes Downstream:** There are several public water system intakes in Lake Michigan, but none will impact this analysis.
- **Designated Stream Use:** Lake Michigan is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-5(a)(3)(G) as a salmonid water and shall be capable of supporting a salmonid fishery. Public water system intakes are located in the Indiana portion of the open waters of Lake Michigan so it is designated in 327 IAC 2-1.5-5(a)(4) as a public water supply. Industrial water supply intakes are located in the Indiana portion of the open waters of Lake Michigan so it is designated in 327 IAC 2-1.5-5(a)(5) as an industrial water supply. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW). Discharges to OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7.

- **14-Digit HUC:** 04040001080010
- **Assessment Unit (2008):** INC0181G_G1093 (Lake Michigan Shoreline – Dunes)
- **303(d) List (2008):** The Lake Michigan shoreline at the outfall (Assessment Unit INC0181G_G1093) is on the 2008 303(d) list for mercury and PCBs in fish tissue. The Lake Michigan shoreline in Indiana is on the 2008 303(d) list for mercury and PCBs in fish tissue. Lake Michigan (Assessment Unit INM00G1000_00) is on the 2008 303(d) list for mercury and PCBs in fish tissue.
- **TMDL Status:** A TMDL for *E. coli* for the Lake Michigan shoreline (including Assessment Unit INC0181G_G1093) was approved by U.S. EPA September 1, 2004 and is part of the Lake Michigan TMDL. This TMDL does not place limits for *E. coli* on any of the ArcelorMittal Burns Harbor outfalls to Lake Michigan.
- **Q7,10 (Outfalls 002 and 003):** 0.0 cfs (According to 327 IAC 5-2-11.4(b)(2)(A)(ii)(AA), for discharges to Lake Michigan, a WLA based on a chronic criterion or value shall be set equal to the criterion or value unless an alternate mixing zone demonstration is conducted and approved under 327 IAC 5-2-11.4(b)(4). Therefore, the stream design flows for chronic aquatic life (Q7,10), human health (harmonic mean flow) and wildlife (Q90,10) criteria were set equal to zero.)
- **Q1,10 (Outfall 002):** 446 cfs (288 mgd) (According to 327 IAC 5-2-11.4(b)(2)(A)(i)(AA), for discharges to Lake Michigan, the acute aquatic life criterion or value shall not be exceeded outside the zone of initial dilution and the final acute value shall not be exceeded in the undiluted discharge unless a mixing zone demonstration is conducted and approved under 327 IAC 5-2-11.4(b)(4). There is no Q1,10 for Lake Michigan, therefore, the Q1,10 was set equal to the discharge flow in order to allow for a zone of initial dilution.)
- **Q1,10 (Outfall 003):** 2.2 cfs (1.44 mgd)
- **Q90,10 (Outfalls 002 and 003):** 0.0 cfs
- **Harmonic Mean Flow (Outfalls 002 and 003):** 0.0 cfs
- **Nearby Dischargers:** Beta Steel (IN0059714) discharges to the West Harbor Arm of Port of Indiana - Burns Harbor. This discharger will not impact the analysis for Outfall 002. NIPSCO Bailly Generating Station (IN0000132) discharges to Lake Michigan just east of Outfall 003. This discharger will not impact the analysis for Outfall 003.

Calculation of Preliminary Effluent Limitations for Outfall 001

Water quality data upstream of the outfall were obtained from fixed water quality monitoring station LCR 39 East Branch Little Calumet River at Porter for the period January 2004 through December 2008. The station is located at S.R. 149, south of U.S. Highway 12. The station is downstream of the Chesterton WWTP and upstream of Praxair. Data for fluoride are only available for the period October 2008 through February 2009. Instream data for all of the pollutants of concern are not available from fixed station LCR 39 so data were obtained from nearby waterbodies. The Surveys Section conducted quarterly trace metals sampling in Deep River downstream of the Lake George Dam during the period from 2002 through 2006. The data from the trace metals sampling were used for several pollutants that are not monitored at the fixed station and for cadmium which was reported as nondetect at the fixed station. Water quality data were obtained from the Surveys Section database. The time periods chosen for the different data sets are based on the availability of data and the desire to have data for whole years. Data were limited to the last five years. IDEM sampling data were not available for boron, cobalt, molybdenum, tin and titanium so the background concentrations were determined using data for Lake Michigan reported by BP Products in their April 2002 permit renewal application. Based on 327 IAC 5-2-11.4(b)(1), a mixing zone is not allowed for BCCs so stream data were not required for mercury.

The background concentration for each pollutant was determined by calculating the geometric mean of the instream data for the pollutant (327 IAC 5-2-11.4(a)(8)). In 327 IAC 5-2-11.4(a)(8) a procedure is included for calculating background concentrations when the data set includes values below the limit of detection. In this procedure, values in the data set below the limit of detection (LOD) are assigned the value (V) and then the geometric mean of the data set is calculated. The value (V) is determined as follows:

$$V = (LOD) \times [1 - (\text{Number of nondetects})/(\text{Total number of values})]$$

The fixed station data are actually reported as less than the limit of quantitation (LOQ). Therefore, a procedure based on best professional judgment was used for the fixed station data. If less than one-half the values in the data set were below the LOQ, the values below the LOQ were assigned the value (V) and then the geometric mean of the data set was calculated. The value (V) was determined as follows:

$$V = (LOQ) \times [1 - (\text{Number below LOQ})/(\text{Total number of values})]$$

If one-half or more of the values in the data set were below the LOQ, the values below the LOQ were set equal to one-half the LOQ. The determination of background concentrations is included in Attachments 3 through 9.

The background concentration of hexavalent chromium was set equal to zero after consideration of the trace metals sampling results for hexavalent chromium. The background concentration of free cyanide was set equal to zero after consideration of the sampling results for total cyanide at the fixed station. The background concentrations of total residual chlorine and each organic chemical were set equal to zero after consideration of the upstream dischargers, the nature of the pollutants and the absence of stream data.

According to 5-2-11.4(a)(13), the 50^{th} percentile downstream hardness is to be used to determine the criteria for those metals whose criteria are dependent on hardness. Hardness data were obtained from fixed station BD 2E. The station is located at the S.R. 249 bridge (Crisman Road) about 1.4 miles downstream of the outfall. The 50^{th} percentile hardness value calculated using the last five years of data is 258 mg/l. The data are included in Attachment 10.

According to 5-2-11.4(a)(13), the 75th percentile downstream temperature and pH are to be used to determine the ammonia-N criteria. Temperature and pH data were obtained from fixed station BD 2E. Using the last five years of data, the summer/winter 75th percentile pH values are 8.1/8.1 s.u. and the summer/winter 75th percentile temperatures are 24/9.5 °C. The data are included in Attachments 11 and 12. The summer period was defined as May through November and the winter period was defined as December through April to be consistent with how these periods have been defined historically for other dischargers in the watershed. Considering the distance between the outfall and fixed station BD 2E, and the fact that Salt Creek enters the East Branch of the Little Calumet River between the outfall and fixed station BD 2E, five years of pH and temperature data for Outfall 001 were obtained from the facility and from monthly monitoring reports (MMRs). Both daily maximum and daily minimum data are reported by the facility. Daily maximum and daily minimum data for the same period used above for BD 2E (December 2003 through November 2008) were used to determine the 75th percentile summer/winter pH and temperature values. The values based on the daily maximum data are 8.1/8.2 s.u. for pH and 27/15 °C for temperature. The values based on the daily minimum data are 7.9/8.0 s.u. for pH and 24/13 °C for temperature. The data are not included in this report due to the large number of samples. Considering that the fixed station data for pH fall within the values based on the maximum and minimum data, summer/winter pH values of 8.1/8.1 s.u. were used in the analysis. The temperature data show the heat loss that can occur between the outfall and fixed station, especially during the winter months. Considering the heat loss between the outfall and fixed station, summer/winter temperatures of 27/15 °C were used in the analysis.

In addition to the aquatic life, human health and wildlife criteria that apply to all waters within the Great Lakes system, there are criteria in 327 IAC 2-1.5-8(j) that apply specifically to Lake Michigan. For the pollutants of concern, Lake Michigan criteria apply to chloride, fluoride and sulfate. The criteria for chloride are the same as the aquatic life criteria that apply to the East Branch of the Little Calumet River. The criteria for fluoride and sulfate are more stringent. In accordance with 327 IAC 5-2-11.4(a)(3), TMDLs, WLAs calculated in the absence of a TMDL, and preliminary WLAs must ensure attainment of applicable water quality standards including all numeric and narrative water quality criteria set forth in 327 IAC 2-1.5-8 and 327 IAC 2-1.5-16, and Tier I criteria and Tier II values established under 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16.

Water quality data for fluoride and sulfate in Portage-Burns Waterway are available from fixed station BD 1 Burns Ditch at Portage. This station is located at the U.S. Highway 12 bridge over Portage-Burns Waterway and is downstream of the inputs from East Branch Little Calumet River, Salt Creek and Burns Ditch. Water quality data from fixed station BD 1 for fluoride and sulfate were obtained for the period January 2003 through December 2007. The data are included in Attachment 13. USGS gaging station 04095090 Burns Ditch at Portage is located on Portage-Burns Waterway downstream of fixed station BD 1 and daily mean flow data are available from January 2003 through December 2007. The daily mean flow measured at the USGS gage the day each sample at fixed station BD 1 was collected is included in Attachment 13 along with the pollutant concentration data. A review of the data shows that the concentration of sulfate is well below the 250 mg/l Lake Michigan criterion, but the concentration of fluoride has approached the 1 mg/l Lake Michigan criterion on many occasions, especially during low-flow periods when the discharge from ArcelorMittal is a large portion of the flow. Therefore, to ensure that the concentrations of fluoride and sulfate in Portage-Burns Waterway meet the Lake Michigan criteria for these pollutants at the confluence of Portage-Burns Waterway with Lake Michigan, preliminary effluent limitations (PELs) for sulfate were calculated using the Lake Michigan criteria and 100% of the available dilution upstream of Outfall 001 and the PELs for fluoride were calculated using the Lake Michigan criteria and 100% of the available dilution upstream and downstream of Outfall 001. These PELs were compared to the PELs based on the discharge meeting aquatic life, human health and wildlife criteria in the East Branch of the Little Calumet River and the more stringent PELs were used as the applicable PELs.

Developing defensible PELs for fluoride that would ensure that the Lake Michigan criteria are maintained requires information about the sources of dilution flow and the sources of fluoride in the watershed. The applicable stream design flow for the Lake Michigan criteria is the Q7,10 flow. Sources of dilution flow upstream of Portage-Burns Waterway include the Q7,10 flows from East Branch Little Calumet River upstream of Outfall 001, Salt Creek and Burns Ditch. Based on information in Low-Flow Characteristics of Indiana Streams, the Q7,10 of Salt Creek is 19 cfs (12 mgd) (USGS gaging station 04094500 Salt Creek near McCool) and the Q7,10 of Burns Ditch, not including the discharge from the Portage WWTP (around 3 mgd), is 7.4 cfs (4.8 mgd) (USGS gaging station 04093000 Deep River at Lake George outlet at Hobart was used to calculate the Q7,10 using the ratio of drainage areas; the drainage area at this gage is 124 mi^2 and the Q7,10 is 5.1 cfs; the drainage area of Burns Ditch upstream of Portage-Burns Waterway is 179 mi^2). U.S. Steel Midwest adds noncontact cooling water and process wastewater flow to Portage-Burns Waterway through three outfalls. Based on data from October 2006 through September 2008, the lowest monthly average flows were 5.1 mgd (Outfall 002), 15.3 mgd (Outfall 003) and 16.8 mgd (Outfall 004). The maximum fluoride concentrations in Outfalls 002 and 003 are 0.2 mg/l based on available intake data and the maximum fluoride concentration in Outfall 004 during a 2008 sampling was 0.5 mg/l. The fluoride concentrations associated with the dilution flows from Salt Creek and Burns Ditch can be determined from data collected at fixed stations SLC-1 and BD-3W, respectively. The data are included in Attachment 6. Fluoride was added to both of these fixed stations starting in December 2007 to gather data for the ArcelorMittal Burns Harbor WLA. A mass balance on the dilution flows and associated concentrations gives a dilution flow of 68 mgd and a fluoride concentration of 255 ug/l (Q7,10 upstream of Outfall 001 (14 mgd/94 ug/l), Salt Creek (12 mgd/170 ug/l), Burns Ditch (4.8 mgd/310 ug/l), Midwest 002 (5.1 mgd/200 ug/l), Midwest 003 (15.3 mgd/200 ug/l) and Midwest 004 (16.8 mgd/500 ug/l). These values were used in a separate PEL determination for fluoride.

The coefficient of variation used to calculate monthly average and daily maximum PELs was set equal to the default value of 0.6. The number of samples per month used to calculate monthly average PELs was based on the expected monitoring frequency. For ammonia-N the number of samples per month was set equal to 10 and for mercury the number of samples per month was set equal to 1. For the other pollutants the number of samples per month was set equal to 4. Aquatic life criteria or ambient screening values are currently not available for aluminum or iron so PELs could not be calculated for these pollutants of concern. Based on a conversation with staff at the Indiana State Department of Health laboratory, concentrations of bis(2-ethylhexyl) phthalate in the range of 10 to 20 ug/l could be the result of lab contamination. The facility was requested to conduct ten months of additional monitoring for a number of pollutants of concern including bis(2-ethylhexyl) phthalate. The data for bis(2-ethylhexyl) phthalate are included in Attachment 30. Considering the results of the sampling and the fact that bis(2-ethylhexyl) phthalate is a common laboratory contaminant, PELs for bis(2-ethylhexyl) phthalate were not calculated.

The spreadsheet used to calculate PELs for all pollutants of concern, except fluoride using the Lake Michigan criterion, is included in Attachment 14. For fluoride, the calculation of PELs using the Lake Michigan criterion is included in Attachment 15. Human health cancer criteria or values are available for benzene, benzo(a)pyrene, chloroform and tetrachloroethylene, so the PELs for these pollutants were calculated with consideration for the additivity provision under 327 IAC 5-2-11.4(a)(4)(A) by only allocating a percentage of the human health cancer wasteload allocation for each pollutant. The percentages of benzene (1%), benzo(a)pyrene (80%), chloroform (0.5%) and tetrachlorethylene (18.5%) were selected, if possible, to allow the PELs to be equal to or greater than the projected effluent quality while ensuring that the sum of the percentages for the four carcinogens equaled one hundred. For tetrachloroethylene, the percentage was also selected to ensure that the mass-based WQBELs at Outfall 001 would be greater than the mass-based technology-based limits at internal Outfall 011. Aquatic life screening values for sulfate in Attachment 14 are based on the sulfate criteria in 327 IAC 2-1-6(a)(5) using Lake Michigan hardness (140 mg/l) and chloride (15 mg/l) concentrations. The applicable PELs for fluoride and sulfate are based on Lake Michigan criteria. The PELs for tin, titanium, benzo(a)anthracene, benzo(k)fluoranthene, chrysene and pyrene were calculated using ambient screening values instead of actual water quality criteria. Therefore, they cannot be used as effluent limitations in an NPDES permit, but they can be used to screen the discharge for potential water quality impacts.

IDEM current practice is to develop summer/winter (seasonal) limits for ammonia-N, but the current permit has effluent limitations for ammonia-N that vary from month to month (monthly limits). From the Fact Sheet of the current permit, it appears that monthly limits were developed because the discharge dominates the river at low upstream flows. These limits were developed with consideration for ammonia-N criteria for salmonids included in the Indiana rules at the time the permit was issued. The criteria no longer apply to waters within the Great Lakes system, but are included in 327 IAC 2-1-6(b)(5) for salmonid waters that are not within the Great Lakes system. The existing rules applicable to waters within the Great Lakes system do not include separate ammonia-N criteria for salmonids. The ammonia-N criteria are included in 327 IAC 2-1.5-8(c)(5) and are based on ammonia-N criteria in the January 1996 U.S. EPA "Water Quality Criteria and Standards" Newsletter (EPA-823-N-96-001). The criteria were included in the rules as part of the 1997 rulemaking for waters within the Great Lakes system. In 1999, U.S. EPA published its current recommended criteria for ammonia-N. The criteria are included in "1999 Update of Ambient Water Quality Criteria for Ammonia," December 1999, EPA-822-R-99-014. The 1999 acute criteria include separate criteria for salmonids, but the 1999 chronic criteria do not. The 1999 chronic criteria include separate criteria for the case where fish early life stages are present. The 1999 chronic criteria are expressed as 30-day average criteria and the highest 4-day average within the 30-day period should not exceed 2.5 times the 30-day average criterion. The 1996 criteria are expressed as 4-day average criteria.

Considering the size of the discharge flow in comparison to the upstream flow, and the fact that the receiving stream is a salmonid water and an outstanding state resource water, it was decided to determine whether the calculated summer/winter (seasonal) limits adequately protect the receiving stream on a month to month basis considering U.S. EPA's current recommended ammonia-N criteria (1999 criteria with fish early life stages present). The highest monthly average effluent flow for each month from January 2005 through September 2008 was used (see Attachment 1). The background ammonia-N concentration for each month was calculated using data from fixed station LCR 39 for the period January 2004 through December 2008. The 75th percentile pH for each month was determined by comparing monthly 75th percentile pH values calculated using fixed station BD 2E data for the period January 2004 through December 2008 to monthly 75th percentile pH values calculated using Outfall 001 maximum and minimum data for the period January 2004 through December 2008. The BD 2E data were used unless the Outfall 001 data indicated that a higher value was more representative. This only occurred for the months of February and August in which a higher value based on Outfall 001 data was used. The 75th percentile temperature for each month was determined using Outfall 001 data.

The input values for the calculation of monthly limits and a comparison of seasonal and monthly ammonia-N limits are included in Attachment 16. The comparison shows that for the months of March, April, May, July and November, the seasonal limits calculated using the Great Lakes criteria are less stringent than the monthly limits calculated using the Great Lakes criteria. However, the seasonal limits are more stringent than the monthly limits calculated using the 1999 criteria for all months except July. In July the monthly average limit calculated using the 1999 criteria is a little more stringent. For the months where monthly limits were more stringent than seasonal limits, the main reason they were more stringent was due to the fact that determining pH values on a monthly basis resulted in higher pH values being used to calculate limits. From the comparison in Attachment 16, it can be concluded that the seasonal ammonia-N limits are adequate to protect the receiving stream on a month to month basis considering U.S. EPA's current recommended ammonia-N criteria.

Calculation of Preliminary Effluent Limitations for Outfalls 002 and 003

In addition to the aquatic life, human health and wildlife criteria that apply to all waters within the Great Lakes system, there are specific criteria that apply to Lake Michigan. These criteria are included in 327 IAC 2-1.5-8(j). For the pollutants of concern, Lake Michigan criteria are available for chloride, fluoride, dissolved iron and sulfate. The criteria for chloride are the same as the aquatic life criteria that apply to all waters within the Great Lakes system. The criteria for fluoride and sulfate are more stringent and there are currently no criteria for dissolved iron that apply to all waters within the Great Lakes system. The PELs calculated using Lake Michigan criteria were compared to the PELs calculated using the criteria that apply to all waters within the

Great Lakes system and the more stringent PELs were used as the applicable PELs.

For discharges to the open waters of Lake Michigan without an approved alternate mixing zone, WLAs based on chronic aquatic life, human health, wildlife and Lake Michigan criteria are calculated using no dilution and WLAs based on acute aquatic life criteria are calculated using a zone of initial dilution (327 IAC 5-2-11.4(b)(2)). Considering the pollutants of concern, the PELs for hexavalent chromium, copper, molybdenum, zinc and sulfate (calculated using aquatic life screening values) calculated without a zone of initial dilution are based on the acute aquatic life criterion. Therefore, it was necessary to determine background concentrations for these pollutants to ensure that assimilative capacity is available. The PELs for the other pollutants of concern are based on chronic aquatic life, human health, wildlife or Lake Michigan criteria. Since the WLAs based on these criteria are calculated using no dilution, it was not necessary to determine background concentrations for these pollutants.

Water quality data for Lake Michigan are available from fixed water quality monitoring station LM M Lake Michigan at Michigan City. The data are collected from water withdrawn from the Michigan City public water system intake. The time periods chosen for the fixed station data sets are based on the availability of data and the desire to have data for whole years. Data were limited to the last five years. IDEM sampling data were not available for molybdenum so the background concentration was determined using data for Lake Michigan reported by BP Products in their April 2002 permit renewal application. Based on 327 IAC 5-2-11.4(b)(1), a mixing zone is not allowed for BCCs so stream data were not required for mercury.

The background concentration for each pollutant was determined by calculating the geometric mean of the data for the pollutant (327 IAC 5-2-11.4(a)(8)). In 327 IAC 5-2-11.4(a)(8) a procedure is included for calculating background concentrations when the data set includes values below the limit of detection. In this procedure, values in the data set below the limit of detection (LOD) are assigned the value (V) and then the geometric mean of the data set is calculated. The value (V) is determined as follows:

$$V = (\text{LOD}) \times [1 - (\text{Number of nondetects})/(\text{Total number of values})]$$

The fixed station data are actually reported as less than the limit of quantitation (LOQ). Therefore, a procedure based on best professional judgment was used for the fixed station data. If less than one-half the values in the data set were below the LOQ, the values below the LOQ were assigned the value (V) and then the geometric mean of the data set was calculated. The value (V) was determined as follows:

$$V = (\text{LOQ}) \times [1 - (\text{Number below LOQ})/(\text{Total number of values})]$$

If one-half or more of the values in the data set were below the LOQ, the values below the LOQ were set equal to one-half the LOQ. The determination of background concentrations using fixed station data is included in Attachment 17. The determination of the background concentration for molybdenum using data reported by BP Products is included in Attachment 9. The background concentration of hexavalent chromium was set equal to zero after consideration of the fixed station data for hexavalent chromium and the nature of the pollutant.

According to 327 IAC 5-2-11.4(a)(13), for discharges to Lake Michigan, the 50^{th} percentile hardness outside the applicable mixing zone (based on data from Lake Michigan) is to be used to determine the criteria for those metals whose criteria are dependent on hardness. The 50^{th} percentile hardness value at fixed station LM M calculated using the last five years of data is 140 mg/l. The data are included in Attachment 18.

According to 327 IAC 5-2-11.4(a)(13), for discharges to Lake Michigan, the 75^{th} percentile temperature and pH outside the applicable mixing zone (based on data from Lake Michigan) are to be used to determine the ammonia-N criteria. For Lake Michigan, field data are only collected at fixed water quality monitoring station LM DSP Lake Michigan at Dunes State Park. These data are collected from the beach. Using the last five years of data, the summer/winter 75^{th} percentile pH values are 8.3/8.3 s.u. and the summer/winter 75^{th} percentile temperatures are 22/14 °C. The summer period was defined as July through September and the winter period was defined as October through June to be consistent with how these periods for Lake Michigan have been defined historically by IDEM. The data are included in Attachments 19 and 20.

The coefficient of variation used to calculate monthly average and daily maximum PELs was set equal to the default value of 0.6. The number of samples per month used to calculate monthly average PELs was set equal to 4 based on the expected monitoring frequency. The spreadsheet used to calculate PELs without an approved alternate mixing zone is included in Attachment 21 for Outfall 002 and Attachment 22 for Outfall 003 (total residual chlorine only). The PELs for tin and titanium were calculated using screening values instead of actual water quality criteria. Therefore, they cannot be used as effluent limitations in an NPDES permit, but they can be used to screen the discharge for potential water quality impacts. The applicable PELs for fluoride and sulfate are based on Lake Michigan criteria.

Reasonable Potential Analysis for Outfall 001

Calculation of Projected Effluent Quality

ArcelorMittal Burns Harbor currently monitors Outfall 001 for ammonia-N and total cyanide. Data for ammonia-N and total cyanide for the period October 2005 through September 2008 were used in the reasonable potential analysis. The data were obtained from the monthly monitoring report (MMR) for each month and, except for a portion of the total cyanide data noted later in this report, are not included in this report due to the large number of samples. For the other pollutants of concern, the facility provided effluent data for Outfall 001 as part of their permit renewal application. The data were collected in December 1992. The data are included in Attachment 23. According to the facility, the December 1992 sample for lead is not representative because a new wastewater treatment plant for the Sinter Plant blowdown (the primary source of lead to Outfall 001) was installed after the sample was collected. Therefore, the December 1992 sample for lead was not used in the reasonable potential analysis. The facility suspects that the detections of chloroform and bis (2-ethylhexyl) phthalate reported on Form 2C are the result of sample contamination. At the request of IDEM, the facility conducted additional monitoring at Outfall 001 from October 2007 through August 2008 for a number of pollutants including chloroform and bis (2-ethylhexyl) phthalate. The data are included in Attachments 24 through 30. As noted above, PELs for bis (2-ethylhexyl) phthalate were not calculated based on the results of additional effluent sampling and it being a common laboratory contaminant. However, PELs for chloroform were calculated and only the data collected in 2007 and 2008 were used in the reasonable potential analysis. For the other pollutants of concern with additional monitoring data, the data from 1992 were only used if the value was reported as greater than the LOD. The facility also conducted sampling for mercury at Outfall 001 from October 2008 through February 2009 and the data are included in Attachment 31.

Outfall 001 consists of treated wastewater from internal Outfall 011, noncontact cooling water, storm water, Lake Michigan water used for control of effluent temperature and groundwater from building dewatering wells. The facility currently monitors internal Outfall 011 for lead, zinc, chloride and sulfate. Considering the other sources of flow to Outfall 001, the concentrations of these pollutants at internal Outfall 011 are expected to be higher than at Outfall 001. Therefore, in addition to the data included as part of the permit renewal application, data collected at internal Outfall 011 for the period October 2005 through September 2008 were used in a separate, conservative test of reasonable potential at Outfall 001. The data for internal Outfall 011 were obtained from the monthly monitoring report (MMR) for each month. The data for lead and zinc are not included in this report due to the large number of samples. The data for chloride and sulfate are included in Attachment 32.

The effluent data used in the reasonable potential analysis include values reported as less than (<) the LOD. There is no procedure in the rules for handling effluent data reported as less than the LOD. As a conservative first test of reasonable potential, they are typically set equal to the LOD. Therefore, except for hexavalent chromium and free cyanide, values reported as less than (<) the LOD were assigned the reported less than value. For hexavalent chromium, all the values were reported as less than (<) the LOD, the most sensitive analytical method was used and the monthly average PEL is less than the LOD. Therefore, a value of one-half the LOD was used. For free cyanide, all but one value was less than the LOD, but a more sensitive analytical method is available. The facility monitored total cyanide at Outfall 001 during the months when free cyanide was monitored. The data are included in Attachment 33. A lower LOD was reported along with a maximum detected value of 0.0028 mg/l. Based on the data for total cyanide, a value of 0.003 mg/l was used for values of free cyanide reported as less than the LOD. Monthly averages were calculated for those months for which at least two data points were available.

Comparison of PEQs to PELs

The reasonable potential analysis using Outfall 001 data is included in Attachments 34 and 35. The results show that a PEQ exceeds a PEL for copper, mercury, silver and zinc. The reasonable potential analysis using the internal Outfall 011 data is included in Attachment 36. The results show that a PEQ does not exceed a PEL for any of the pollutants considered. Further analysis for each parameter that had a PEQ exceed a PEL is included below:

Copper: One sample (10 ug/l) was reported with the permit renewal application and the facility conducted weekly sampling for ten months during 2007 and 2008. The highest monthly average was 21 ug/l and the highest daily value was 63 ug/l. The monthly average PEQ is 32 ug/l and the monthly average PEL is 18 ug/l. The daily maximum PEQ is 69 ug/l and the daily maximum PEL is 35 ug/l. Therefore, reasonable potential is based on high effluent data.

Mercury: The facility conducted sampling for five months in 2008 and 2009. The highest monthly average was 3.32 ng/l and the highest daily value was 5.88 ng/l. The monthly average PEQ is 7.6 ng/l and the monthly average PEL is 1.3 ng/l. The daily maximum PEQ is 9.4 ng/l and the daily maximum PEL is 3.2 ng/l. Therefore, reasonable potential is based on high effluent data.

Silver: One sample (<2 ug/l) was reported with the permit renewal application and the facility conducted weekly sampling for ten months during 2007 and 2008 using a more sensitive test method that resulted in detectable values. The highest monthly average was 0.068 ug/l and the highest daily value was 0.26 ug/l. The monthly average PEQ is 0.12 ug/l and the monthly average PEL is 0.048 ug/l. The daily maximum PEQ is 0.34 ug/l and the daily maximum PEL is 0.097 ug/l. Therefore, reasonable potential is based on high effluent data.

Zinc: One sample (22 ug/l) was reported with the permit renewal application and the facility conducted weekly sampling for ten months during 2007 and 2008. The highest monthly average was 159 ug/l and the highest daily value was 300 ug/l. The monthly average PEQ is 290 ug/l and the monthly average PEL is 150 ug/l. The daily maximum PEQ is 330 ug/l and the daily maximum PEL is 290 ug/l. Therefore, reasonable potential is based on high effluent data. The reasonable potential analysis using internal Outfall 011 data for zinc did not show reasonable potential. However, this was due to a multiplying factor of less than one being used to calculate the daily maximum PEQ.

In addition to the effluent data, IDEM fixed station data are available for many of the pollutants of concern downstream of the facility. A comparison of data for many of the pollutants of concern upstream (LCR 39) and downstream (BD 2E and BD 1) of Outfall 001 is included in Attachments 37-40 along with flow data for Portage-Burns Waterway from USGS gaging station 04095090 Burns Ditch at Portage (upstream of BD 1). The dates correspond to the date the BD 1 sample was collected. The samples for LCR 39 and BD 2E are typically the same day or the day before the BD 1 sample was collected. For comparison purposes, values reported as less than (<) the LOQ were set equal to the LOQ. Data for other pollutants of concern that are only sampled at fixed station BD 1 are included in Attachment 41. Except for one sample for selenium and one sample for silver, the fixed station data do not show any concentrations exceeding PELs and high concentrations for metals are associated with high stream flow events.

The comparisons for copper and zinc are included in Attachments 38 and 40, respectively. The fixed station data show that copper and zinc concentrations increase downstream of Outfall 001, but they are less than the monthly average PELs. The higher upstream and downstream concentrations occur during high stream flow events, but not during low stream flow events when the ArcelorMittal Burns Harbor discharge is a large portion of the stream flow. Fixed station data are not available for mercury and the fixed station data for silver were collected using a less sensitive method than was used to analyze the Outfall 001 data.

Effluent data collected in the form of dissolved metal are not available and fixed station data collected in the form of dissolved metal are available for a limited number of pollutants (including copper and zinc) at fixed station BD-1. Therefore, the facility may want to collect effluent data for copper, silver and zinc in the form of total recoverable metal and dissolved metal to have the reasonable potential analysis done based on dissolved metal effluent data under 327 IAC 5-2-11.5(b)(1)(D). The facility could also develop dissolved metal translators to have the WLAs for copper, zinc and silver adjusted under 327 IAC 5-2-11.4(c)(8).

Reasonable Potential Analysis for Outfall 002

Outfall 002 consists of once-through noncontact cooling water, storm water and groundwater from building dewatering wells. Since this outfall consists of once-through noncontact cooling water, a reasonable potential to exceed analysis was conducted in accordance with 327 IAC 5-2-11.5(g). The implementation of this provision must be in accordance with the following: "Revised Addendum to the National Pollutant Discharge Elimination System Memorandum of Agreement Between the State of Indiana and the United States Environmental Protection Agency Region 5 Concerning Indiana's Great Lakes Water Quality Standards and Implementation Procedures Rulemaking" signed in March 2006.

The provision in 5-2-11.5(g) may be used if the intake and outfall points for the noncontact cooling water are located on the same body of water and the discharge consists solely of once-through noncontact cooling water. The ArcelorMittal Burns Harbor cooling water intake is in Lake Michigan and Outfall 002 discharges to the East Harbor Arm of Port of Indiana - Burns Harbor which is considered part of the open waters of Lake Michigan. Therefore, the intake and outfall points are located on the same body of water.

In accordance with 5-2-11.5(g)(6), if a wastestream consisting solely of noncontact cooling water combines with one or more wastestreams not consisting solely of noncontact cooling water, this provision may still be applied to the wastestream consisting solely of noncontact cooling water if, for the wastestreams that do not consist solely of noncontact cooling water, the following requirements are imposed:

(A) For each wastestream composed entirely of stormwater, permit conditions that the commissioner determines to be necessary to protect the water quality of the receiving waterbody shall be imposed. The requirements imposed shall be as if the stormwater wastestream discharged directly into the receiving waterbody and shall be consistent with requirements imposed on other similar stormwater discharges to the waterbody.

(B) For each wastestream not composed entirely of stormwater, each wastestream shall be evaluated to determine if there is reasonable potential using the procedures in 5-2-11.5. For purposes of determining reasonable potential and developing WQBELs for these wastestreams, the WLAs shall be determined as if these wastestreams discharged directly into the receiving waterbody without combining with the wastestreams consisting solely of noncontact cooling water.

It is assumed that the stormwater discharges to Outfall 002 will be regulated as if they discharged directly to Lake Michigan and will receive requirements consistent with other stormwater discharges. Based on flow information presented in the 1993 permit renewal application, the groundwater flow is less than one percent of the total flow at Outfall 002. Also, according to the 1993 permit renewal application, treatment of groundwater is not necessary. There are no data available for the pollutants of concern in the groundwater. However, some of the groundwater in the area is known to be contaminated with ammonia-N. The reasonable potential statistical procedure will be conducted below using Outfall 002 data for ammonia-N. For the other pollutants of concern, in accordance with 5-2-11.5(b)(2), based on best professional judgment, it is determined that it is not necessary to require the facility to collect data for the groundwater for use in making a reasonable potential determination.

In accordance with 5-2-11.5(g)(3), if a substance is present at elevated levels in the noncontact cooling water wastestream due to improper operation or maintenance of the cooling system, and this substance is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above a numeric criterion or value for a toxic substance as determined under 5-2-11.5(b), WQBELs shall be established for the substance. ArcelorMittal Burns Harbor provided data for their intake water and Outfall 002 as part of their 1993 permit renewal application. The data were collected in December 1992 and are included in Attachment 23. Lake Michigan data are also available from IDEM fixed water quality monitoring stations. A comparison of the intake data to the Outfall 002 data in Attachment 23 shows that the concentrations of the pollutants of concern in Outfall 002 are similar to the concentrations in the intake water. Therefore, the use of the intake water as noncontact cooling water is not resulting in elevated levels of the pollutants of concern in the discharge through Outfall 002.

The current permit requires monitoring at Outfall 002 for ammonia-N, chloride, sulfate and dissolved iron to detect any possible contamination of the noncontact cooling water with process wastewater. Therefore, the reasonable potential statistical procedure under 5-2-11.5(b) was done for these pollutants of concern. Data for these pollutants for the period October 2005 through September 2008 were used in the reasonable potential analysis. The data were obtained from the monthly monitoring report (MMR) for each month. Data for chloride and sulfate are included in Attachment 42, but data for ammonia-N and dissolved iron are not included in this report due to the large number of samples. The effluent data include values reported as less than (<) the LOD.

There is no procedure in the rules for handling effluent data reported as less than the LOD. As a conservative first test of reasonable potential, they are typically set equal to the LOD. Therefore, values reported as less than (<) the LOD were assigned the reported less than value. Monthly averages were calculated for those months for which at least two data points were available. The reasonable potential analysis is included in Attachment 43. The results show that a PEQ does not exceed a PEL for any of the pollutants considered in the reasonable potential analysis. Therefore, based on the provision in 5-2-11.5(g), the pollutants of concern for which Outfall 002 data are available do not show reasonable potential and WQBELs for these pollutants shall not be imposed at Outfall 002.

Reasonable Potential Analysis for Total Residual Chlorine at Outfalls 001, 002 and 003

In addition to establishing WQBELs based on the reasonable potential statistical procedure, IDEM is also required to establish WQBELs under 5-2-11.5(a) "If the commissioner determines that a pollutant or pollutant parameter (either conventional, nonconventional, a toxic substance, or whole effluent toxicity (WET)) is or may be discharged into the Great Lakes system at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any applicable narrative criterion or numeric water quality criterion or value under 327 IAC 2-1.5." Chlorine is added to the intake water for zebra mussel control at concentrations exceeding water quality criteria. Therefore, chlorine may be discharged at a level that will cause an excursion above the numeric water quality criterion for total residual chlorine under 2-1.5 and WQBELs for total residual chlorine are required at Outfalls 001 and 002 which receive noncontact cooling water and at Outfall 003 which consists of intake screen backwash water.

Antidegradation Analysis for OSRWs

The discharges through Outfalls 001, 002 and 003 are all directly to outstanding state resource waters (OSRWs). Discharges directly to OSRWs are subject to the antidegradation implementation procedure for OSRWs in 327 IAC 5-2-11.7. The pollutants of concern in this WLA analysis for Outfalls 001, 002 and 003 are either pollutants that currently exist in the discharges, but are not currently limited, or pollutants that are currently limited. No new pollutants were considered in the WLA analysis. The effluent flows used in the WLA analysis are based on historical effluent flow data so increased flows were not considered in the WLA analysis.

The current permit has concentration limits for total residual chlorine for Outfalls 001, 002 and 003. More stringent WQBELs for total residual were calculated for these outfalls. In addition to more stringent concentration limits, new mass limits for total residual chlorine will also apply to these outfalls. New mass and concentration WQBELs for copper, mercury, silver and zinc are required at Outfall 001 based on the reasonable potential analysis. The applicable antidegradation provision for the new mass limits for total residual chlorine at Outfalls 001, 002 and 003 and the new mass and concentration limits for copper, mercury, silver and zinc at Outfall 001 is 5-2-11.7(b)(2). This provision allows new limits for an existing permitted discharger that are not a result of increases in pollutant loading and will not allow an increase in pollutant loading including new limits that are a result of the following:

(A) New or improved monitoring data.
(B) New or improved analytical methods.
(C) New or modified water quality criteria or values.
(D) New or modified effluent limitations guidelines, pretreatment standards, or control requirements for POTWs.

The new mass limits for total residual chlorine are not a result of any of the reasons listed above, but simply a requirement under 5-2-11.6(g) that WQBELs be expressed as both a concentration value and a corresponding mass loading rate. However, the new mass limits are not the result of an increase in pollutant loading and will not allow an increase in pollutant loading since the concentration limits are decreasing and the effluent flows used to calculate the mass limits are based on historical effluent data. Therefore, the new mass limits for total residual chlorine are allowed under 5-2-11.7.

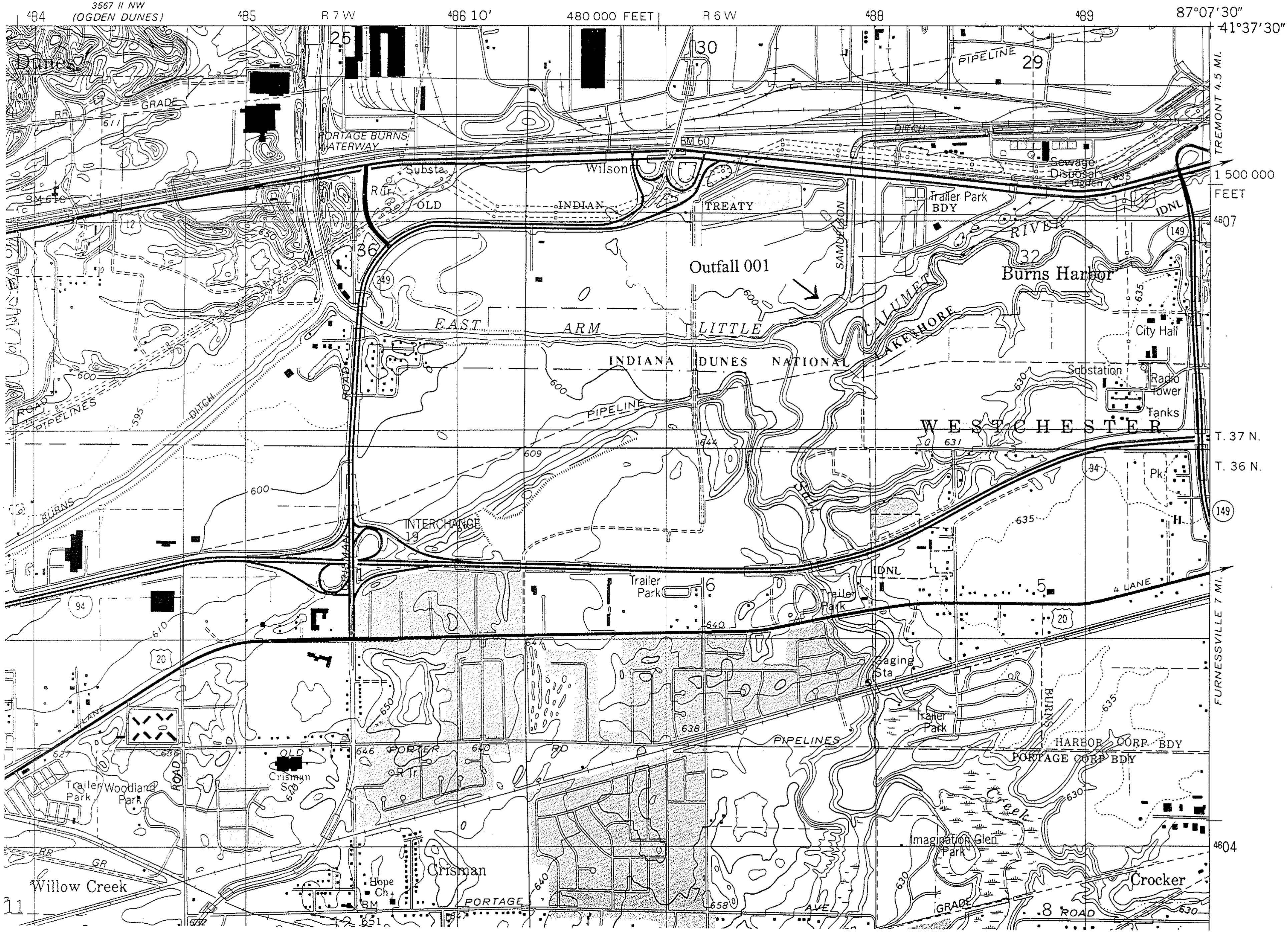
The new mass and concentration limits for copper, silver and zinc fall under (A) and the new mass and concentration limits for mercury fall under (A), (B) and (C). The new mass and concentration limits are not the result of an increase in pollutant loading and will not allow an increase in pollutant loading since the limits are required based on a PEQ exceeding a PEL and the effluent flow used to calculate the mass limits is based on historical effluent data. Therefore, the new mass and concentration limits for copper, mercury, silver and zinc are allowed under 5-2-11.7.

ATTACHMENT 1
ArcelorMittal Burns Harbor Monthly Average Flow

Month	Outfall 001 (mgd)	Outfall 011 (mgd)	Outfall 002 (mgd)
Jan-05	97.6	70.6	167.5
Feb-05	98.4	71.5	164.8
Mar-05	101.8	74.0	159.0
Apr-05	103.6	72.5	189.8
May-05	105.1	65.3	218.9
Jun-05	110.8	78.1	229.1
Jul-05	136.3	75.5	268.0
Aug-05	137.1	78.8	269.3
Sep-05	110.5	80.2	283.3
Oct-05	107.4	79.1	246.2
Nov-05	106.7	74.3	226.8
Dec-05	105.4	73.3	221.0
Jan-06	106.1	74.9	256.5
Feb-06	106.8	73.9	243.1
Mar-06	109.3	72.5	201.3
Apr-06	108.2	74.7	226.6
May-06	107.0	75.4	230.4
Jun-06	122.1	72.5	221.3
Jul-06	123.8	78.8	149.9
Aug-06	119.1	80.5	141.0
Sep-06	122.4	80.5	153.4
Oct-06	112.2	79.1	217.2
Nov-06	101.1	68.9	148.6
Dec-06	103.1	68.6	179.6
Jan-07	106.8	69.6	256.6
Feb-07	105.1	69.4	190.0
Mar-07	108.8	70.0	200.9
Apr-07	108.8	65.3	201.9
May-07	96.9	63.8	177.2
Jun-07	102.7	67.0	214.7
Jul-07	106.8	76.1	276.7
Aug-07	108.6	73.2	277.9
Sep-07	107.5	78.2	288.5
Oct-07	108.0	85.2	274.3
Nov-07	100.4	69.9	261.3
Dec-07	100.1	74.5	233.9
Jan-08	109.9	77.1	237.3
Feb-08	111.6	76.2	181.1
Mar-08	107.6	73.3	170.5
Apr-08	107.0	62.8	198.9
May-08	106.1	63.0	191.2
Jun-08	101.5	63.2	219.8
Jul-08	109.1	78.4	243.5
Aug-08	110.8	80.1	258.0
Sep-08	119.7	74.1	240.2
Maximum			
1-05 thru 9-08	**137.1**	**85.2**	**288.5**
Last 2 Years	**119.7**	**85.2**	**288.5**

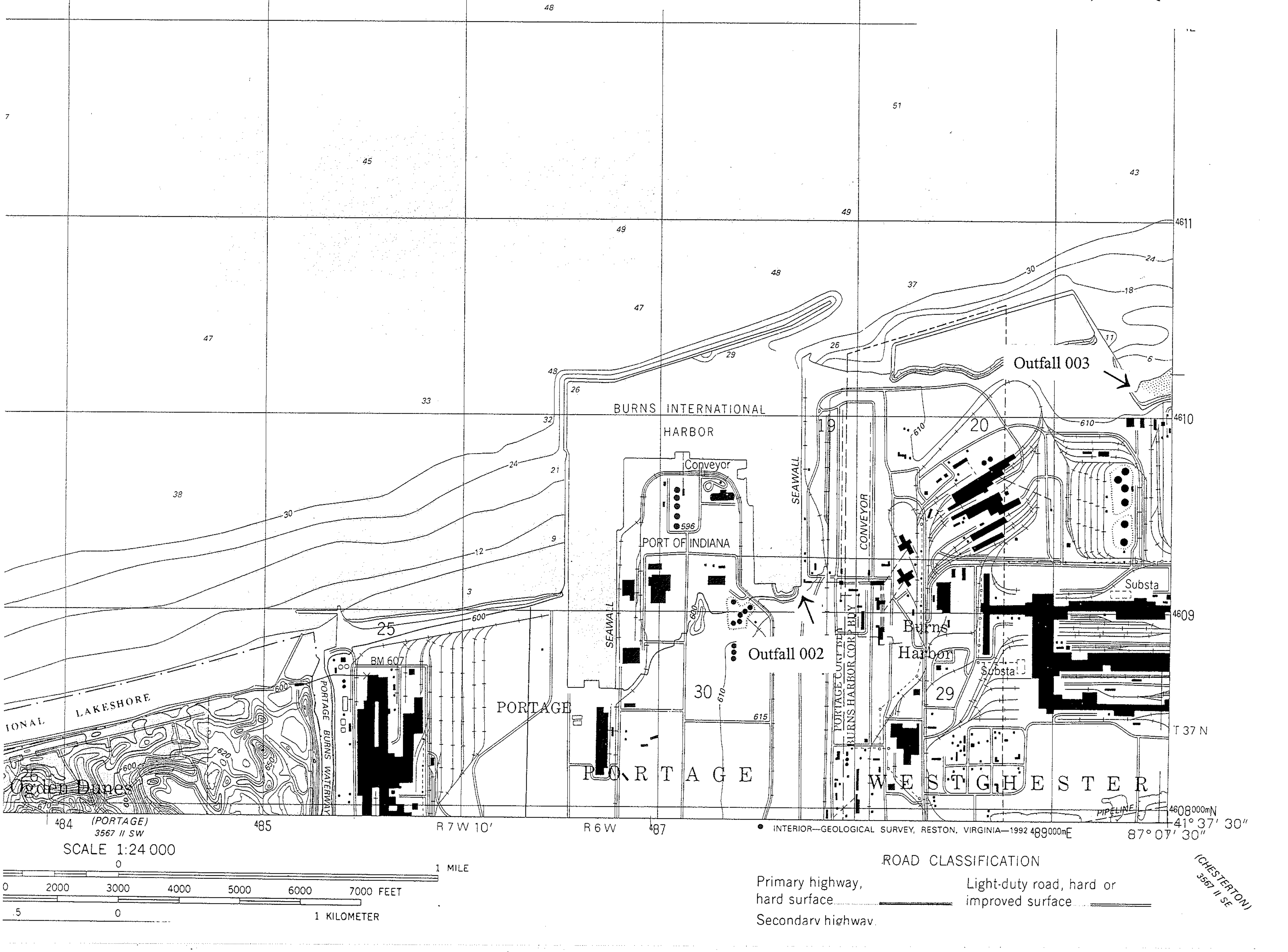
ATTACHMENT 2A

PORTAGE QUADRANGLE
INDIANA
7.5 MINUTE SERIES (TOPOGRAPHIC)



ATTACHMENT 2B

USGS TOPOGRAPHICAL MAP
OGDEN DUNES, IND. QUADRANGLE



ATTACHMENT 3
Data From Fixed Station LCR 39

Date	Summer Ammonia-N (mg/l)	Adjusted Summer Ammonia-N (mg/l)
5/17/2004	0.1	0.1
6/2/2004	<0.1	0.05
7/6/2004	<0.1	0.05
8/9/2004	<0.1	0.05
9/1/2004	<0.1	0.05
10/4/2004	<0.1	0.05
11/3/2004	<0.1	0.05
5/9/2005	<0.1	0.05
6/13/2005	<0.1	0.05
7/11/2005	<0.1	0.05
8/3/2005	<0.1	0.05
9/12/2005	<0.1	0.05
10/11/2005	<0.1	0.05
11/15/2005	<0.1	0.05
5/15/2006	0.1	0.1
6/26/2006	<0.1	0.05
7/25/2006	<0.1	0.05
8/29/2006	<0.1	0.05
9/13/2006	<0.1	0.05
10/2/2006	<0.1	0.05
11/15/2006	<0.1	0.05
5/23/2007	< 0.1	0.05
6/12/2007	< 0.1	0.05
7/24/2007	< 0.1	0.05
8/21/2007	< 0.1	0.05
9/4/2007	< 0.1	0.05
10/9/2007	< 0.1	0.05
11/28/2007	< 0.1	0.05
5/14/2008	< 0.1	0.05
6/5/2008	< 0.1	0.05
7/2/2008	< 0.1	0.05
8/4/2008	< 0.1	0.05
9/8/2008	< 0.1	0.05
10/29/2008	< 0.1	0.05
11/24/2008	< 0.1	0.05
Geomean		**0.052**
Maximum		**0.1**

Date	Winter Ammonia-N (mg/l)	Adjusted Winter Ammonia-N (mg/l)
12/2/2003	<0.1	0.05
1/5/2004	<0.1	0.05
2/23/2004	<0.1	0.05
3/15/2004	<0.1	0.05
4/12/2004	<0.1	0.05
12/15/2004	<0.1	0.05
1/3/2005	<0.1	0.05
2/2/2005	<0.1	0.05
3/28/2005	<0.1	0.05
4/11/2005	<0.1	0.05
12/19/2005	<0.1	0.05
1/30/2006	<0.1	0.05
3/13/2006	<0.1	0.05
4/5/2006	<0.1	0.05
12/4/2006	< 0.1	0.05
1/18/2007	< 0.1	0.05
2/26/2007	0.169	0.169
3/14/2007	< 0.1	0.05
4/11/2007	< 0.1	0.05
12/20/2007	< 0.1	0.05
1/29/2008	< 0.1	0.05
2/12/2008	< 0.1	0.05
3/13/2008	< 0.1	0.05
4/1/2008	< 0.1	0.05
Geomean		**0.053**
Maximum		**0.169**

ATTACHMENT 4
Data From Fixed Station LCR 39

Date	Total Arsenic (ug/l)	Adjusted Total Arsenic (ug/l)	Total Cadmium (ug/l)	Adjusted Total Cadmium (ug/l)	Chloride (mg/l)	Total Chromium (ug/l)	Adjusted Total Chromium (ug/l)	Total Copper (ug/l)	Adjusted Total Copper (ug/l)
1/5/2004	< 1.2	0.69	< 1	0.5	78	< 1.2	0.6	1.19	1.19
2/23/2004	2.03	2.03	< 1	0.5	94	1.48	1.48	2.38	2.38
3/15/2004	1.87	1.87	< 1	0.5	60	< 1.2	0.6	1.43	1.43
4/12/2004	1.49	1.49	< 1	0.5	57	< 1.2	0.6	1.43	1.43
5/17/2004	2.27	2.27	< 1	0.5	71	1.21	1.21	2.21	2.21
6/2/2004	3	3	< 1	0.5	37	2.62	2.62	3.38	3.38
7/6/2004	1.4	1.4	< 1	0.5	49	< 1.2	0.6	1.93	1.93
8/9/2004	1.45	1.45	< 1	0.5	60	< 1.2	0.6	1.72	1.72
9/1/2004	1.58	1.58	< 1	0.5	45	< 1.2	0.6	2.09	2.09
10/4/2004	< 1.2	0.69	< 1	0.5	62	< 1.2	0.6	1.14	1.14
11/3/2004	1.95	1.95	< 1	0.5	51	< 1.2	0.6	2.38	2.38
12/15/2004	< 1.2	0.69	< 1	0.5	51	< 1.2	0.6	1.23	1.23
1/3/2005	< 1.2	0.69	< 1	0.5	66	2.21	2.21	2.92	2.92
2/2/2005	< 1.2	0.69	< 1	0.5	82	< 1.2	0.6	1.45	1.45
3/28/2005	1.46	1.46	< 1	0.5	74	< 1.2	0.6	1.09	1.09
4/11/2005	< 1.2	0.69	< 1	0.5	64	< 1.2	0.6	1.43	1.43
5/9/2005	< 1.2	0.69	< 1	0.5	58	< 1.2	0.6	1.21	1.21
6/13/2005	1.9	1.9	< 1	0.5	70	2.17	2.17	2.88	2.88
7/11/2005	1.5	1.5	< 1	0.5	75	< 1.2	0.6	1.79	1.79
8/3/2005	1.49	1.49	< 1	0.5	74	< 1.2	0.6	1.64	1.64
9/12/2005	1.25	1.25	< 1	0.5	78	< 1.2	0.6	1.73	1.73
10/11/2005	< 1.2	0.69	< 1	0.5	65	< 1.2	0.6	1.59	1.59
11/15/2005	< 1.2	0.69	< 1	0.5	59	< 1.2	0.6	1.39	1.39
12/19/2005	< 1.2	0.69	< 1	0.5	79	< 1.2	0.6	1.3	1.3
1/30/2006	< 1.2	0.69	< 1	0.5	76	3.45	3.45	3.85	3.85
3/13/2006	1.41	1.41	< 1	0.5	69	5.54	5.54	5	5
4/5/2006	< 1.2	0.69	< 1	0.5	67	< 1.2	0.6	1.77	1.77
5/15/2006	1.32	1.32	< 1	0.5	61	1.45	1.45	2.83	2.83
6/26/2006	1.48	1.48	< 1	0.5	66	< 1.2	0.6	2.33	2.33
7/25/2006	2.01	2.01	< 1	0.5	67	< 1.2	0.6	2.35	2.35
8/29/2006	2.33	2.33	< 1	0.5	37	2.97	2.97	4.44	4.44
9/13/2006	2.11	2.11	< 1	0.5	25	4.7	4.7	5.43	5.43
10/2/2006	1.45	1.45	< 1	0.5	54	< 1.2	0.6	2.37	2.37
11/15/2006	< 1.2	0.69	< 1	0.5	56	< 1.2	0.6	1.92	1.92
12/4/2006	< 1.2	0.69	< 1	0.5	38	1.42	1.42	2.26	2.26
1/18/2007	< 1.2	0.69	< 1	0.5	45	1.46	1.46	2.27	2.27
2/26/2007	< 1.2	0.69	< 1	0.5	121	1.77	1.77	2.61	2.61
3/14/2007	< 1.2	0.69	< 1	0.5	49	< 1.2	0.6	1.7	1.7
4/11/2007	< 1.2	0.69	< 1	0.5	70	< 1.2	0.6	1.8	1.8
5/23/2007	1.37	1.37	< 1	0.5	63	< 1.2	0.6	2.21	2.21
6/12/2007	1.48	1.48	< 1	0.5	67	< 1.2	0.6	2.31	2.31
7/24/2007	1.78	1.78	< 1	0.5	63	< 1.2	0.6	2.16	2.16
8/21/2007	2.17	2.17	< 1	0.5	32	2.6	2.6	3.47	3.47
9/4/2007	1.59	1.59	< 1	0.5	56	< 1.2	0.6	2.2	2.2
10/9/2007	1.82	1.82	< 1	0.5	59	< 1.2	0.6	1.68	1.68
11/28/2007	1.3	1.3	< 1	0.5	56	< 1.2	0.6	1.39	1.39
12/20/2007	< 1.2	0.69	< 1	0.5	59	< 1.2	0.6	1.52	1.52
1/29/2008	< 1.2	0.69	< 1	0.5	95	< 1.2	0.6	1.45	1.45
2/12/2008	< 1.2	0.69	< 1	0.5	61	< 1.2	0.6	1.72	1.72
3/13/2008	< 1.2	0.69	< 1	0.5	62	< 1.2	0.6	1.4	1.4
4/1/2008	1.8	1.8	< 1	0.5	62	3.46	3.46	3.75	3.75
5/14/2008	1.51	1.51	< 1	0.5	63	< 1.2	0.6	1.69	1.69
6/5/2008	1.95	1.95	< 1	0.5	58	< 1.2	0.6	2.34	2.34
7/2/2008	1.74	1.74	< 1	0.5	60	< 1.2	0.6	2.18	2.18
8/4/2008	1.63	1.63	< 1	0.5	64	< 1.2	0.6	1.87	1.87
9/8/2008	1.85	1.85	< 1	0.5	59	< 1.2	0.6	1.84	1.84
10/29/2008	< 1.2	0.69	< 1	0.5	55	< 1.2	0.6	1.02	1.02
11/24/2008	< 1.2	0.69	< 1	0.5	54	< 1.2	0.6	1.25	1.25
12/3/2008	< 1.2	0.69	< 1	0.5	62	< 1.2	0.6	< 1	0.98
Geomean		**1.2**		**0.5**	**60**		**0.85**		**1.9**
Maximum		**3**		**0.5**	**121**		**5.54**		**5.43**

ATTACHMENT 5
Data From Fixed Station LCR 39

Date	Total Cyanide (mg/l)	Adjusted Total Cyanide (mg/l)	Total Lead (ug/l)	Adjusted Total Lead (ug/l)	Total Nickel (ug/l)	Adjusted Total Nickel (ug/l)	Sulfate (mg/l)	Total Zinc (ug/l)	Adjusted Total Zinc (ug/l)
1/5/2004	< 0.005	0.0025	< 1	0.5	1.58	1.58	88	< 6	3.1
2/23/2004	< 0.005	0.0025	< 1	0.5	2.22	2.22	75	< 6	3.1
3/15/2004	< 0.005	0.0025	< 1	0.5	1.64	1.64	80	< 6	3.1
4/12/2004	< 0.005	0.0025	< 1	0.5	2.04	2.04	81	< 6	3.1
5/17/2004	< 0.005	0.0025	< 1	0.5	2.48	2.48	69	< 6	3.1
6/2/2004	< 0.005	0.0025	1.96	1.96	2.99	2.99	38	10.5	10.5
7/6/2004	< 0.005	0.0025	1.04	1.04	2.02	2.02	58	< 6	3.1
8/9/2004	< 0.005	0.0025	< 1	0.5	1.58	1.58	62	7.3	7.3.1
9/1/2004	< 0.005	0.0025	< 1	0.5	2.33	2.33	60	< 6	3.1
10/4/2004	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	67	< 6	3.1
11/3/2004	< 0.005	0.0025	< 1	0.5	2.06	2.06	57	6.46	6.46
12/15/2004	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	64	< 6	3.1
1/3/2005	< 0.005	0.0025	1.77	1.77	2.43	2.43	49	14.6	14.6
2/2/2005	< 0.005	0.0025	< 1	0.5	1.44	1.44	68	< 6	3.1
3/28/2005	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	65	< 6	3.1
4/11/2005	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	73	< 6	3.1
5/9/2005	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	66	< 6	3.1
6/13/2005	< 0.005	0.0025	2.37	2.37	2.85	2.85	63	14.7	14.7
7/11/2005	< 0.005	0.0025	< 1	0.5	1.89	1.89	68	6.03	6.03.1
8/3/2005	< 0.005	0.0025	< 1	0.5	1.74	1.74	58	< 6	3.1
9/12/2005	< 0.005	0.0025	< 1	0.5	1.78	1.78	59	< 6	3.1
10/11/2005	< 0.005	0.0025	< 1	0.5	1.76	1.76	58	< 6	3.1
11/15/2005	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	72	< 6	3.1
12/19/2005	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	89	< 6	3.1
1/30/2006	< 0.005	0.0025	2.04	2.04	2.91	2.91	107	25.6	25.6
3/13/2006	< 0.005	0.0025	4.14	4.14	4.06	4.06	62	21.7	21.7
4/5/2006	< 0.005	0.0025	< 1	0.5	< 1.4	1.1	99	< 6	3.1
5/15/2006	< 0.005	0.0025	< 1	0.5	2.02	2.02	79	8.04	8.04
6/26/2006			< 1	0.5	1.82	1.82	68	8.81	8.81
7/25/2006			< 1	0.5	1.81	1.81	55	7.51	7.51
8/29/2006			2.82	2.82	3.25	3.25	31	18.7	18.7
9/13/2006			4.65	4.65	4.37	4.37	20	29.3	29.3.1
10/2/2006			< 1	0.5	1.76	1.76	53	6.72	6.72
11/15/2006			< 1	0.5	1.74	1.74	59	< 6	3.1
12/4/2006			< 1	0.5	1.94	1.94	43	6.48	6.48
1/18/2007			< 1	0.5	1.96	1.96	57.1	7.51	7.51
2/26/2007			< 1	0.5	1.91	1.91	42.2	9.73	9.73.1
3/14/2007			< 1	0.5	1.5	1.5	57.1	6.35	6.3.15
4/11/2007			< 1	0.5	1.48	1.48	67	6.98	6.98
5/23/2007			< 1	0.5	1.74	1.74	57	< 6	3.1
6/12/2007			< 1	0.5	2.09	2.09	59	6.7	6.7
7/24/2007			< 1	0.5	1.77	1.77	60	< 6	3.1
8/21/2007			1.98	1.98	2.88	2.88	43	11.9	11.9
9/4/2007			< 1	0.5	1.83	1.83	56	6.17	6.17
10/9/2007			< 1	0.5	< 1.4	1.1	58	< 6	3.1
11/28/2007			< 1	0.5	< 1.4	1.1	73	< 6	3.1
12/20/2007			< 1	0.5	< 1.4	1.1	65	< 6	3.1
1/29/2008			< 1	0.5	< 1.4	1.1	71	7.09	7.09
2/12/2008			< 1	0.5	1.53	1.53	58	7.32	7.32
3/13/2008			< 1	0.5	1.42	1.42	63	7.01	7.01
4/1/2008			2.61	2.61	3.49	3.49	44	16	16
5/14/2008			< 1	0.5	1.7	1.7	50	6.25	6.25
6/5/2008			1.34	1.34	2.07	2.07	48	11.8	11.8
7/2/2008			1.14	1.14	1.89	1.89	58	9.63	9.63
8/4/2008			< 1	0.5	1.51	1.51	59	7.28	7.28
9/8/2008			< 1	0.5	1.61	1.61	64	< 6	3.1
10/29/2008			< 1	0.5	< 1.4	1.1	50	< 6	3.1
11/24/2008			< 1	0.5	< 1.4	1.1	67	< 6	3.1
12/3/2008			< 1	0.5	1.97	1.97	63	< 6	3.1
Geomean		**0.0025**		**0.67**		**1.8**	**60**		**5.2**
Maximum		**0.0025**		**4.65**		**4.37**	**107**		**25.6**

ATTACHMENT 6

Data for Fluoride Collected at ArcelorMittal Burns Harbor Outfall 001 and at Fixed Stations for Streams Tributary to Portage-Burns Waterway

LCR 39 East Branch Little Calumet River at S.R. 149			ArcelorMittal Outfall 001		SLC 1 Salt Creek at U.S. 20		BD 2E East Branch Little Calumet River at S.R. 249 (Crisman Road)		BD 3W Burns Ditch at Portage Boat Yard Dock		BD 1 Portage-Burns Waterway at U.S. 12	
Date	Fluoride (mg/l)	Adjusted Fluoride (mg/l)	Date	Fluoride (mg/l)	Date	Fluoride (mg/l)	Date	Fluoride (mg/l)	Date	Fluoride (mg/l)	Date	Fluoride (mg/l)
			12/17/2007	0.83	12/20/2007	0.2	12/20/2007	0.4	12/20/2007	0.3	12/20/2007	0.4
			1/28/2008	0.88	1/29/2008	0.2	1/29/2008	0.4	1/29/2008	0.2	1/29/2008	0.4
			2/11/2008	0.91	2/12/2008	0.1	2/12/2008	0.4	2/12/2008	0.2	2/12/2008	0.3
			3/10/2008	0.64	3/12/2008	0.2	3/13/2008	0.3	3/13/2008	0.3	3/13/2008	0.3
			3/31/2008	0.93	4/1/2008	0.2	4/1/2008	0.2	4/1/2008	0.2	4/1/2008	0.2
			5/12/2008	0.54	5/14/2008	0.1	5/14/2008	0.3	5/14/2008	0.3	5/14/2008	0.3
			6/2/2008	0.83	6/5/2008	0.2	6/5/2008	0.4	6/5/2008	0.5	6/5/2008	0.4
			6/30/2008	1.1	7/2/2008	0.3	7/1/2008	0.4	7/1/2008	0.7	7/1/2008	0.5
			8/4/2008	0.92	8/4/2008	0.3	8/4/2008	0.6	8/4/2008	0.6	8/4/2008	0.6
					9/8/2008	0.2	9/8/2008	0.6	9/8/2008	0.3	9/8/2008	0.4
10/29/2008	0.1	0.1			10/29/2008	0.2	10/29/2008	0.2	10/29/2008	0.4	10/29/2008	0.3
11/24/2008	0.2	0.2			11/24/2008	0.1	11/25/2008	0.2	11/25/2008	0.4	11/25/2008	0.2
12/3/2008	< 0.1	0.06			12/3/2008	0.1	12/4/2008	0.2	12/4/2008	0.5	12/4/2008	0.2
1/7/2009	< 0.1	0.06			1/7/2009	0.1	1/7/2009	0.2	1/7/2009	0.1	1/7/2009	0.2
2/25/2009	0.1	0.1			2/25/2009	0.2	2/25/2009	0.2	2/26/2009	0.2	2/26/2009	0.2
Geomean		**0.094**	**Geomean**	**0.83**	**Geomean**	**0.17**	**Geomean**	**0.31**	**Geomean**	**0.31**	**Geomean**	**0.31**
Maximum		**0.2**	**Maximum**	**1.1**	**Maximum**	**0.3**	**Maximum**	**0.6**	**Maximum**	**0.7**	**Maximum**	**0.6**

ATTACHMENT 7
Data From Deep River Trace Metals Sampling

Date	Total Antimony (ug/l)	Adjusted Total Antimony (ug/l)	Total Barium (ug/l)	Total Beryllium (ug/l)	Total Cadmium (ug/l)	Adjusted Total Cadmium (ug/l)	Hexavalent Chromium (ug/l)	Adjusted Hexavalent Chromium (ug/l)
4/24/2002	0.29	0.29	38	0.0445	0.033	0.033	0.2	0.2
7/10/2002	0.3	0.3	41	0.0151	< 0.037	0.028	< 0.6	0.3
10/22/2002	0.35	0.35	40	0.0173	< 0.037	0.028	< 0.6	0.3
1/14/2003	0.35	0.35	36	0.0104	0.013	0.013	< 0.6	0.3
5/20/2003	0.5	0.5	49	0.0322	< 0.037	0.028	< 0.6	0.3
8/19/2003	0.5	0.5	36	0.0193	< 0.037	0.028	< 0.6	0.3
11/18/2003	< 0.73	0.64	40	0.0208	0.013	0.013	< 0.6	0.3
2/24/2004	< 0.73	0.64	39	0.0183	0.031	0.031	< 0.6	0.3
9/8/2004	0.26	0.26	37	0.0205	0.02	0.02		
10/20/2004	0.22	0.22	38	0.023	0.039	0.039		
3/10/2005	0.22	0.22	41	0.0198	0.029	0.029		
6/23/2005	0.3	0.3	28	0.0189	0.017	0.017		
9/1/2005	0.29	0.29	38	0.0208	0.022	0.022		
12/8/2005	0.27	0.27	47	0.0208	0.03	0.03		
3/16/2006	0.3	0.3	45	0.102	0.038	0.038		
5/25/2006	0.25	0.25	47	0.0157	0.023	0.023		
Geomean		**0.33**	**40**	**0.022**		**0.025**		**0.3**
Maximum		**0.64**	**49**	**0.102**		**0.039**		**0.3**

ATTACHMENT 8
Data From Deep River Trace Metals Sampling

Date	Fluoride (mg/l)	Total Manganese (ug/l)	Total Selenium (ug/l)	Adjusted Total Selenium (ug/l)	Total Silver (ug/l)	Adjusted Total Silver (ug/l)	Total Thallium (ug/l)
4/24/2002	0.21	73	1	1	0.0236	0.0236	0.0279
7/10/2002	0.3	187	< 0.9	0.45	< 0.014	0.011	0.007
10/22/2002	0.2	74	< 0.9	0.45	0.0081	0.0081	0.0102
1/14/2003	0.23	61	< 0.9	0.45	0.0078	0.0078	0.0102
5/20/2003	0.23	204	< 0.9	0.45	0.0144	0.0144	0.0238
8/19/2003	0.22	100	< 0.9	0.45	0.0155	0.0155	0.0096
11/18/2003	0.25	106	< 0.9	0.45	0.0104	0.0104	0.0079
2/24/2004	0.22	183	0.6	0.6	0.0256	0.0256	0.0164
9/8/2004		106	< 0.9	0.45	0.0073	0.0073	0.009
10/20/2004		60	< 0.9	0.45	0.0078	0.0078	0.0113
3/10/2005		77	0.5	0.5	0.0195	0.0195	0.0202
6/23/2005		101	0.5	0.5	< 0.014	0.011	0.0151
9/1/2005		121	0.6	0.6	< 0.014	0.011	0.0079
12/8/2005		86.6	0.7	0.7	0.0493	0.0493	0.0145
3/16/2006	0.18	72.5	0.7	0.7	0.0258	0.0258	0.0476
5/25/2006		66.5	1	1	0.0197	0.0197	0.0113
Geomean	**0.22**	**97**		**0.6**		**0.014**	**0.013**
Maximum	**0.3**	**204**		**1**		**0.0493**	**0.0476**

ATTACHMENT 9

Lake Michigan Data From BP Products April 2002 Permit Renewal Application

Date	Total Boron (mg/l)	Total Cobalt (ug/l)	Total Molybdenum (mg/l)	Adjusted Total Molybdenum (mg/l)	Total Tin (mg/l)	Adjusted Total Tin (mg/l)	Total Titanium (mg/l)	Adjusted Total Titanium (mg/l)	Total Vanadium (mg/l)
9/5/2001		0.16	0.001	0.001	<0.01	0.005	<0.025	0.012	
9/10/2001		0.9	0.0012	0.0012	<0.01	0.005	<0.025	0.012	
9/12/2001		0.11	<0.001	0.00085	<0.01	0.005	<0.025	0.012	
9/13/2001		0.28	<0.001	0.00085	<0.01	0.005	<0.025	0.012	
9/18/2001		0.49	0.0009	0.0009	<0.01	0.005	<0.025	0.012	
10/1/2001		0.16	0.00086	0.00086	<0.01	0.005	<0.025	0.012	
10/3/2001		0.89	0.00078	0.00078	<0.01	0.005	<0.025	0.012	
6/24/1998	0.029		0.00129	0.00129					0.00169
6/24/1998	0.0209		0.00053	0.00053					0.0022
8/31/1998	0.064		0.00134	0.00134					0.00317
8/31/1998	0.0196		0.00115	0.00115					0.0026
8/31/1998	0.06		0.00127	0.00127					0.00336
11/4/1998			0.0015	0.0015					0.0092
Geomean	**0.034**	**0.32**		**0.001**		**0.005**		**0.012**	**0.0031**

ATTACHMENT 10
Data From Fixed Station BD 2E

Date	Hardness (mg/l)
1/5/2004	281
2/23/2004	296
3/15/2004	283
4/12/2004	267
5/17/2004	258
6/2/2004	219
7/7/2004	224
8/10/2004	237
9/1/2004	261
10/5/2004	248
11/3/2004	258
12/15/2004	277
1/3/2005	239
2/2/2005	282
3/28/2005	270
4/11/2005	279
5/9/2005	264
6/13/2005	254
7/12/2005	196
8/3/2005	202
9/12/2005	214
10/11/2005	222
11/15/2005	231
12/19/2005	249
1/30/2006	280
2/22/2006	271
3/13/2006	233
4/5/2006	295
5/15/2006	272
6/26/2006	199
7/25/2006	200
8/28/2006	222
9/13/2006	182
10/2/2006	258
11/16/2006	294
12/4/2006	256
1/17/2007	241
2/26/2007	151
3/15/2007	263
4/11/2007	268
5/23/2007	256
6/12/2007	247
7/24/2007	234
8/22/2007	202
9/4/2007	258
10/10/2007	239
11/28/2007	276
12/20/2007	279
1/29/2008	286
2/12/2008	277
3/13/2008	274
4/1/2008	250
5/14/2008	280
6/5/2008	275
7/1/2008	259
8/4/2008	220
9/8/2008	237
10/29/2008	266
11/25/2008	332
12/4/2008	313
50th %	**258**

ATTACHMENT 11
Data From Fixed Station BD 2E

Date	Summer pH (s.u.)
5/17/2004	8.1
6/2/2004	8
7/7/2004	8.2
8/10/2004	7.8
9/1/2004	8.1
10/5/2004	8
11/3/2004	8
5/9/2005	8.1
6/13/2005	8.2
7/12/2005	8.1
8/3/2005	7.6
9/12/2005	7.8
10/11/2005	8
11/15/2005	7.8
5/15/2006	7.9
6/26/2006	8.1
7/25/2006	8.2
8/28/2006	7.7
9/13/2006	7.7
10/2/2006	8.2
11/16/2006	8
5/23/2007	8.1
6/12/2007	8
7/24/2007	8.12
8/22/2007	7.88
9/4/2007	8.05
10/10/2007	7.94
11/28/2007	8.15
5/14/2008	7.94
6/5/2008	8.02
7/1/2008	8.27
8/4/2008	8.11
9/8/2008	7.87
10/29/2008	7.99
11/25/2008	8.1
75th %	**8.1**
Maximum	**8.27**

Date	Winter pH (s.u.)
12/3/2003	7.9
1/5/2004	7.9
2/23/2004	8
3/15/2004	8.2
4/12/2004	8.2
12/15/2004	7.9
1/3/2005	7.9
2/2/2005	7.8
3/28/2005	8.2
4/11/2005	8.3
12/19/2005	7.8
1/30/2006	7.73
2/22/2006	7.9
3/13/2006	7.8
4/5/2006	8.1
12/4/2006	7.8
1/17/2007	8
2/26/2007	7.8
3/15/2007	8
4/11/2007	8
12/20/2007	8.31
1/29/2008	8.16
2/12/2008	7.88
3/13/2008	7.96
4/1/2008	8.02
75th %	**8.1**
Maximum	**8.31**

ATTACHMENT 12
Data From Fixed Station BD 2E

Date	Summer Temp. (°C)	Date	Winter Temp. (°C)
5/17/2004	20.7	12/3/2003	6.7
6/2/2004	17.7	1/5/2004	6.3
7/7/2004	22.9	2/23/2004	6.7
8/10/2004	23.4	3/15/2004	9.5
9/1/2004	23.5	4/12/2004	12.4
10/5/2004	16.1	12/15/2004	5.5
11/3/2004	12.9	1/3/2005	5.9
5/9/2005	19.5	2/2/2005	6.9
6/13/2005	23.6	3/28/2005	10.7
7/12/2005	21	4/11/2005	16.3
8/3/2005	27.3	12/19/2005	4.9
9/12/2005	26.7	1/30/2006	7.72
10/11/2005	18.4	2/22/2006	8.1
11/15/2005	14	3/13/2006	12.9
5/15/2006	14.7	4/5/2006	11.4
6/26/2006	24	12/4/2006	2.9
7/25/2006	28.4	1/17/2007	2.5
8/28/2006	23.9	2/26/2007	2.5
9/13/2006	19.2	3/15/2007	9
10/2/2006	20.2	4/11/2007	9.6
11/16/2006	10.5	12/20/2007	4.55
5/23/2007	22.8	1/29/2008	6.79
6/12/2007	22.75	2/12/2008	1.79
7/24/2007	24.2	3/13/2008	7.38
8/22/2007	20.97	4/1/2008	9.11
9/4/2007	23.51		
10/10/2007	17.89	**75th %**	**9.5**
11/28/2007	8.88	**Maximum**	**16.3**
5/14/2008	15.16		
6/5/2008	21.3		
7/1/2008	24.26		
8/4/2008	25.73		
9/8/2008	22.33		
10/29/2008	11.53		
11/25/2008	4.51		
75th %	**24**		
Maximum	**28.4**		

ATTACHMENT 13
Data From Fixed Station BD 1
and USGS Gaging Station 04095090

Date	Stream Flow (cfs)	Fluoride (mg/l)	Sulfate (mg/l)
1/8/2003	254	0.7	76
2/6/2003	329	0.6	92
3/11/2003	313	0.8	91
4/9/2003	786	0.5	95
5/8/2003	1470	0.4	64
6/5/2003	539	0.5	84
7/1/2003	248	0.6	64
8/4/2003	720	0.4	53
9/4/2003	360	0.7	72
10/7/2003	315		63
11/17/2003	403		66
12/3/2003	472	0.5	78
1/5/2004	397	0.6	91
2/23/2004	915	0.4	90
3/15/2004	537	0.6	80
4/12/2004	383	0.6	85
5/17/2004	829	0.6	69
6/2/2004	1550	0.3	50
7/7/2004	413	0.5	71
8/10/2004	268	0.7	70
9/1/2004	665	0.4	59
10/5/2004	296	0.6	64
11/3/2004	875	0.2	83
12/15/2004	712	0.5	74
1/3/2005	1150	0.3	62
2/2/2005	441	0.5	75
3/28/2005	623	0.4	74
4/11/2005	321	0.4	81
5/9/2005	305	0.6	76
6/13/2005	396	0.6	66
7/11/2005	265	0.6	44
8/3/2005	257	0.6	48
9/12/2005	249	0.7	54
10/11/2005	238	0.6	53
11/15/2005	288	0.4	67
12/19/2005	384	0.7	77
1/30/2006	854	0.4	96
2/22/2006	406	0.6	95
3/13/2006	1750	0.2	65
4/5/2006	494	0.5	92
5/15/2006	943	0.4	76
6/27/2006	367	0.6	58
7/26/2006	430	0.5	46
8/28/2006	681	0.5	50
9/14/2006	2580	0.2	34
10/2/2006	417	0.5	55
11/15/2006	618	0.5	67
12/4/2006	2090	0.3	50
1/17/2007	1670	0.23	55.5
2/26/2007	1530	0.3	48.7
3/15/2007	970	0.41	58.7
4/12/2007	1400	0.3	69
5/23/2007	418	0.4	48
6/12/2007	315	0.4	68
7/24/2007	324	0.7	52
8/22/2007	3190	0.2	45
9/4/2007	675	0.4	50
10/10/2007	332	0.6	65
11/29/2007	364	0.5	70
12/20/2007	511	0.4	67
Geomean		**0.46**	**66**
Maximum		**0.8**	**96**

ATTACHMENT 14
Calculation of Preliminary Effluent Limitations

5/18/2009
12:03 PM

Discharger Name:	ArcelorMittal Burns Harbor Outfall 001
Receiving Stream:	East Branch Little Calumet River

			Mixing Zone
Discharge Flow	=	137 mgd	
Q1,10 receiving stream (Outfall)	=	13 mgd	
Q7,10 receiving stream (Outfall)	=	14 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	mgd	25%
Harmonic Mean Flow (Outfall)	=	30 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	mgd	25%
Q90,10 receiving stream	=	17 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	258 mg/l	
Stream pH (50th percentile)	=	s.u.	
Summer Stream Temperature (75th percentile)	=	27 C	
Summer Stream pH (75th percentile)	=	8.1 s.u.	
Winter Stream Temperature (75th percentile)	=	15 C	
Winter Stream pH (75th percentile)	=	8.1 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum		
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.904	0.869
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron		
Lead	0.653	0.653
Manganese	1.000	1.000
Mercury	0.85	0.85
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium		0.922
Silver	0.85	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
4	4	3	3				0.33			4	0.6	7440360	Antimony
1	1	3	3				1.2			4	0.6	7440382	Arsenic III[4]
4	4						40			4	0.6	7440393	Barium
4	4	3	3				0.022			4	0.6	7440417	Beryllium[4]
1	1	3	3				0.025			4	0.6	7440439	Cadmium[4]
1	1	3	3				0.85			4	0.6	16065831	Chromium (III)
1	1	3	3				0			4	0.6	18540299	Chromium (VI)
												7440473	Total Chromium
4	4	5	5				0.32			4	0.6	7440484	Cobalt
1	1	3	3				1.9			4	0.6	7440508	Copper
3	3						0.67			4	0.6	7439921	Lead[4]
4	4	5	5				97			4	0.6	7439965	Manganese
1	1	1	1			1		Y		1	0.6	7439976	Mercury[6]
4	4	5	5				1			4	0.6	7439987	Molybdenum
1	1	3	3				1.8			4	0.6	7440020	Nickel
	1	3	3				0.6			4	0.6	7782492	Selenium
3	4	3	3				0.014			4	0.6	7440224	Silver
4	4	3	3				0.013			4	0.6	7440280	Thallium
5	5						5			4	0.6	7440315	Tin
5	5						12			4	0.6	7440326	Titanium
4	4	3	3				3.1			4	0.6	7440622	Vanadium
1	1	3	3				5.2			4	0.6	7440666	Zinc
4	4	1	1	1	1		0		Y	4	0.6	71432	Benzene[4]
5	5	5	5				0			4	0.6	56553	Benzo(a)anthracene[4]
5	5	5	5				0			4	0.6	207089	Benzo(k)fluoranthene[4]
				3	3		0		Y	4	0.6	50328	Benzo(a)pyrene[4]
4	4	3	3	3	3		0		Y	4	0.6	67663	Chloroform[4]

	Indiana Water Quality Criteria for the Great Lakes System (ug/l)							Preliminary Effluent Limitations (calculated in accordance with 327 IAC 5-2-11.4 and 11.6)					
	A	B	C	D	E	F	G						
	Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Wildlife Criteria	Concentration (ug/l)[3]		Mass (lbs/day)		Criteria	
Parameters[2]	Acute (CMC)	Chronic (CCC)	Drinking (HNC-D)	Nondrinking (HNC-N)	Drinking (HCC-D)	Nondrinking (HCC-N)	(WC)	Average	Maximum	Average	Maximum	Type	Basis
Antimony	720	80	10	2000				67	130	77	149	Tier II	CCC
Arsenic III[4]	339.8	147.9	10	230				120	250	137	286	Tier I	CCC
Barium	3420.84	1198.88						1000	2000	1143	2287	Tier II	CCC
Beryllium[4]	236.48	26.26	40	300				22	44	25	50	Tier II	CCC
Cadmium[4]	11.90	4.50	14	1400				4.4	8.7	5	9.9	Tier I	CCC
Chromium (III)	1238	161	410000	43000000				157.26	315.48	179.79	360.70	Tier I	CCC
Chromium (VI)	15.73	10.56	230	25000				8.7	18	9.9	21	Tier I	CMC
Total Chromium								170	330	190	382	Tier I	CCC
Cobalt	120	19	140	11000				16	32	18	37	Tier II	CCC
Copper	32.82	20.13	280	56000				18	35	21	40	Tier I	CCC
Lead[4]	267.09	14.01						18	36	21	41	Tier I	CCC
Manganese	2617	1216	3900	320000				1000	2000	1143	2287	Tier II	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.0015	0.0037	Tier I	WC
Molybdenum	1200	800	130	10000				650	1300	743	1486	Tier II	CMC
Nickel	1043.99	115.95	460	42000				98	200	112	229	Tier I	CCC
Selenium		4.61	140	3400				4.2	8.4	4.8	9.6	Tier I	CCC
Silver	0.46	0.058	130	26000				0.048	0.097	0.055	0.11	Tier II	CCC
Thallium	54	6	2	5				5	10	5.7	11	Tier II	CCC
Tin	1300	140						120	240	137	274	EASV[7]	CCC
Titanium	23000	2500						2100	4200	2401	4802	EASV[7]	CCC
Vanadium	110	12	230	2300				10	20	11	23	Tier II	CCC
Zinc	261.59	263.73	9000	250000				150	290	171	332	Tier I	CMC
Benzene[4]	880	98	19	510	12	310		3.3	7.9	3.8	9	Tier I	HCC-N
Benzo(a)anthracene[4]	42	4.7	24	24				3.9	7.9	4.5	9	EASV[7]	CCC
Benzo(k)fluoranthene[4]	23	2.6	6	6				2.2	4.4	2.5	5	EASV[7]	CCC
Benzo(a)pyrene[4]					0.032	0.096		0.081	0.2	0.093	0.23	Tier I	HCC-N
Chloroform[4]	1300	170	350	11000	56	1700		9	22	10	25	Tier I	HCC-N

5	5						0			4	0.6	218019	Chrysene[4]	42	5						4.2	8.4	4.8	9.6	EASV[7]	CCC
4	4	1	1				0			4	0.6	105679	2,4-Dimethylphenol	140	21	450	8700				18	35	21	40	Tier II	CCC
4	4	3	3				0			4	0.6	100414	Ethylbenzene	1000	110	2100	9100				92	190	105	217	Tier II	CCC
4	4	4	4				0			4	0.6	206440	Fluoranthene	17	3.6	9.4	9.5				3	6.1	3.4	7	Tier II	CCC
4	4	3	3				0			4	0.6	91203	Naphthalene	200	26	490	1900				22	44	25	50	Tier II	CCC
4	4						0			4	0.6	100027	4-Nitrophenol	530	58						49	98	56	112	Tier II	CCC
4	4	5	5				0			4	0.6	85018	Phenanthrene	8.4	0.93	84	480				0.78	1.6	0.89	1.8	Tier II	CCC
3	4	4	4				0			4	0.6	108952	Phenol	1300	180	2000	2300				150	300	171	343	Tier II	CCC
5	5	4	4				0			4	0.6	129000	Pyrene	42	4	15	15				3.4	6.7	3.9	7.7	EASV[7]	CCC
4	4	3	3	3	3		0		Y	4	0.6	127184	Tetrachloroethylene[4]	480	60	320	1700	11	60		12	28	14	32	Tier I	HCC-N
4	4	1	1				0			4	0.6	108883	Toluene	840	94	5600	51000				79	160	90	183	Tier II	CCC
4	4						0			4	0.6	71556	1,1,1-Trichloroethane	3700	410						340	690	389	789	Tier II	CCC
												7664417	Total Ammonia (as N)													
1	1						52			10	0.6		Summer	4535.98	1033.84						750	1700	857	1944	Tier I	CCC
1	1						53			10	0.6		Winter	4524.40	1031.20						750	1700	857	1944	Tier I	CCC
4	4	5	5				34			4	0.6	7440428	Boron	10000	1600	2500	200000				1300	2700	1486	3087	Tier II	CCC
1	1	1					60000			4	0.6	1688706	Chloride	860000	230000	250000					192000	385000	219517	440178	Tier I	CCC
1	1						0			4	0.6	7782505	Chlorine (total residual)	19	11						10	20	11	23	Tier I	CCC
1	1						0			4	0.6	57125	Cyanide, Free	22	5.2						4.4	8.8	5	10	Tier I	CCC
		1	1				2.5			4	0.6	57125	Cyanide, Total			600	48000				51000	123000	58309	140628	Tier I	HNC-N
4	4						94			4	0.6	16984488	Fluoride	12000	3400						2900	5700	3316	6517	Tier II	CCC
5	5	1					60000			4	0.6	14808798	Sulfate	1000000	1000000	250000					543000	1089000	620823	1245075	EASV[7]	CMC
													Whole Effluent Toxicity (WET)													
1													Acute (TUa) without Mixing Zone	1.0								1.0				
	1												Chronic (TUc)		1.0						1.0					
													Additional Criteria for Lake Michigan													
	2						60000			4	0.6	14808798	Sulfate[8]		250000						221000	443000	252674	506491	Lake M	CCC

4 Number of Carcinogenic pollutants present in the effluent (1% benzene, 80% benzo(a)pyrene, 0.5% chloroform and 18.5% tetrachloroethylene)

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

[8] The preliminary effluent limitations calculated using the additional criteria for Lake Michigan were calculated using 100% of the Q7,10 flow.

Last revised: 10 February 2009

ATTACHMENT 15

Calculation of Preliminary Effluent Limitations for Fluoride to Protect Lake Michigan

5/18/2009
12:04 PM

Discharger Name:	ArcelorMittal Burns Harbor Outfall 001
Receiving Stream:	East Branch Little Calumet River

			Mixing Zone
Discharge Flow	=	137 mgd	
Q1,10 receiving stream (Outfall)	=	mgd	
Q7,10 receiving stream (Outfall)	=	68 mgd	100%
Q7,10 receiving stream (Industrial Water Supply)	=	mgd	25%
Harmonic Mean Flow (Outfall)	=	mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	mgd	25%
Q90,10 receiving stream	=	mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	mg/l	
Stream pH (50th percentile)	=	s.u.	
Summer Stream Temperature (75th percentile)	=	C	
Summer Stream pH (75th percentile)	=	s.u.	
Winter Stream Temperature (75th percentile)	=	C	
Winter Stream pH (75th percentile)	=	s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum		
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	#NUM!	#NUM!
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron		
Lead	#NUM!	#NUM!
Manganese	1.000	1.000
Mercury	0.85	0.85
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium		0.922
Silver	0.85	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1]							Background	BCC	Add.	Samples/	CV	CAS		Indiana Water Quality Criteria for the Great Lakes System (ug/l)							Preliminary Effluent Limitations (calculated in accordance with 327 IAC 5-2-11.4 and 11.6)					
														A	B	C	D	E	F	G						
														Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Wildlife Criteria	Concentration (ug/l)[3]		Mass (lbs/day)		Criteria	
A	B	C	D	E	F	G	(ug/l)			Month		Number	Parameters[2]	Acute (CMC)	Chronic (CCC)	Drinking (HNC-D)	Nondrinking (HNC-N)	Drinking (HCC-D)	Nondrinking (HCC-N)	(WC)	Average	Maximum	Average	Maximum	Type	Basis
													Additional Criteria for Lake Michigan													
	2						255			4	0.6	16984488	Fluoride[8]		1000						1100	2300	1258	2630	Lake M	CCC

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

[8] The preliminary effluent limitations calculated using the additional criteria for Lake Michigan were calculated using 100% of the Q7,10 flow.

Last revised: 10 February 2009

ATTACHMENT 16

Comparison of Outfall 001 Ammonia-N Limits Calculated on a Seasonal Basis to Limits Calculated on a Monthly Basis

	Input Values for Monthly Limits				Seasonal Limits Based on Indiana Great Lakes Criteria		Monthly Limits Based on Indiana Great Lakes Criteria		Monthly Limits Based on EPA 1999 Criteria	
Month	Monthly Ave. Flow (mgd)	Background Ammonia-N (mg/l)	75th % Temp (°C)	75th % pH (s.u.)	Monthly Average (mg/l)	Daily Maximum (mg/l)	Monthly Average (mg/l)	Daily Maximum (mg/l)	Monthly Average (mg/l)	Daily Maximum (mg/l)
January	110	0.05	13	8.0	0.75	1.7	0.95	2.2	2.6	6.3
February	112	0.068	14	8.0	0.75	1.7	0.94	2.2	2.6	6.3
March	109	0.05	15	8.2	0.75	1.7	0.60	1.4	1.8	4.5
April	109	0.05	19	8.2	0.75	1.7	0.60	1.4	1.4	3.5
May	107	0.066	23	8.1	0.75	1.7	0.74	1.7	1.3	3.1
June	122	0.05	27	8.1	0.75	1.7	0.75	1.7	1.0	2.4
July	136	0.05	29	8.2	0.75	1.7	0.61	1.4	0.74	1.8
August	137	0.05	29	8.0	0.75	1.7	0.93	2.2	1.0	2.4
September	122	0.05	27	8.1	0.75	1.7	0.75	1.7	1.0	2.4
October	112	0.05	23	8.0	0.75	1.7	0.92	2.1	1.5	3.6
November	107	0.05	18	8.1	0.75	1.7	0.74	1.7	1.8	4.3
December	105	0.05	13	8.1	0.75	1.7	0.76	1.8	2.2	5.4

ATTACHMENT 17
Data From Fixed Station LM M

Date	Hexavalent Chromium (ug/l)	Total Copper (ug/l)	Adjusted Total Copper (ug/l)	Sulfate (mg/l)	Total Zinc (ug/l)	Adjusted Total Zinc (ug/l)
1/6/2004	< 10	< 1	0.5	25	< 6	3
2/24/2004	< 10	< 1	0.5	22	< 6	3
3/16/2004	< 10	1.15	1.15	27	< 6	3
4/13/2004	< 10	1.47	1.47	29	< 6	3
5/18/2004	< 10	< 1	0.5	24	< 6	3
6/1/2004	< 10	< 1	0.5	24	< 6	3
7/6/2004	< 10	< 1	0.5	22	< 6	3
8/9/2004		1.05	1.05	21	< 6	3
9/2/2004	< 10	< 1	0.5	21	< 6	3
10/4/2004		< 1	0.5	21	< 6	3
11/4/2004	< 10	< 1	0.5	27	< 6	3
12/16/2004	< 10	1.39	1.39	26	< 6	3
1/4/2005		1.41	1.41	26	< 6	3
2/3/2005		1.06	1.06	24	< 6	3
3/29/2005	< 10	< 1	0.5	25	< 6	3
4/12/2005	< 10	1.06	1.06	26	< 6	3
5/10/2005	< 10	< 1	0.5	26	< 6	3
6/13/2005		< 1	0.5	24	< 6	3
7/11/2005	< 10	< 1	0.5	25	< 6	3
9/13/2005	< 10	< 1	0.5	22	< 6	3
10/12/2005	< 10	< 1	0.5	23	< 6	3
11/16/2005	< 10	< 1	0.5	22	< 6	3
12/20/2005	< 10	< 1	0.5	24	< 6	3
1/30/2006		1.02	1.02	25	< 6	3
2/23/2006	< 10	1.07	1.07	25	< 6	3
3/14/2006	< 10	1.23	1.23	28	< 6	3
4/6/2006	< 10	1	1	25	6.06	6.06
5/16/2006	< 10	1.04	1.04	27	< 6	3
6/26/2006		< 1	0.5	26	< 6	3
7/25/2006		< 1	0.5	20	< 6	3
8/29/2006	< 10	1.02	1.02	21	< 6	3
9/13/2006		1.07	1.07	19	< 6	3
10/3/2006	< 10	< 1	0.5	18	< 6	3
11/15/2006	< 10	1.15	1.15	20	< 6	3
12/5/2006		1.44	1.44	22	< 6	3
1/18/2007		1.25	1.25	23.6	< 6	3
2/27/2007		< 1	0.5	24	< 6	3
3/14/2007		1.01	1.01	22.2	6.71	6.71
4/12/2007	< 10	1.22	1.22	26	< 6	3
5/24/2007	< 10	< 1	0.5	18	< 6	3
6/13/2007	< 10	< 1	0.5	21	< 6	3
7/25/2007	< 10	< 1	0.5	26	< 6	3
8/21/2007		< 1	0.5	22	< 6	3
9/5/2007	< 10	< 1	0.5	24	< 6	3
10/9/2007		< 1	0.5	25	< 6	3
11/28/2007		1.06	1.06	24	< 6	3
12/20/2007	< 10	1.22	1.22	24	< 6	3
1/29/2008		< 1	0.5	22	< 6	3
2/13/2008	< 10	1.14	1.14	27	< 6	3
3/13/2008		< 1	0.5	25	< 6	3
4/2/2008	< 10	< 1	0.5	24	< 6	3
5/15/2008	< 10	< 1	0.5	22	< 6	3
6/5/2008	< 10	1.42	1.42	23	8.85	8.85
7/2/2008	< 10	< 1	0.5	21	< 6	3
8/5/2008	< 10	< 1	0.5	21	< 6	3
9/9/2008	< 10	< 1	0.5	23	< 6	3
10/30/2008	< 10	< 1	0.5	21	< 6	3
11/24/2008	< 10	1.08	1.08	26	< 6	3
12/3/2008	< 10	1.15	1.15	25	< 6	3
Geomean			**0.71**	**23**		**3.1**

ATTACHMENT 18
Data From Fixed Station LM M

Date	Hardness (mg/l)
1/6/2004	136
2/24/2004	142
3/16/2004	149
4/13/2004	120
5/18/2004	124
6/1/2004	129
7/6/2004	127
8/9/2004	135
9/2/2004	131
10/4/2004	134
11/4/2004	121
12/16/2004	140
1/4/2005	141
2/3/2005	150
3/29/2005	144
4/12/2005	146
5/10/2005	143
6/13/2005	129
7/11/2005	139
9/13/2005	147
10/12/2005	139
11/16/2005	142
12/20/2005	139
1/30/2006	141
2/23/2006	147
3/14/2006	144
4/6/2006	140
5/16/2006	133
6/26/2006	123
7/25/2006	128
8/29/2006	135
9/13/2006	131
10/3/2006	134
11/15/2006	137
12/5/2006	156
1/18/2007	146
2/27/2007	140
3/14/2007	149
4/12/2007	158
5/24/2007	133
6/13/2007	139
7/25/2007	148
8/21/2007	146
9/5/2007	134
10/9/2007	139
11/28/2007	144
12/20/2007	154
1/29/2008	150
2/13/2008	150
3/13/2008	139
4/2/2008	135
5/15/2008	142
6/5/2008	151
7/2/2008	130
8/5/2008	136
9/9/2008	135
10/30/2008	144
11/24/2008	145
12/3/2008	147
50th %	**140**

ATTACHMENT 19
Data From Fixed LM DSP

Date	Summer pH (s.u.)
7/20/2004	8.2
8/10/2004	8.2
9/2/2004	8.4
7/12/2005	8.4
8/4/2005	8
9/13/2005	7.8
7/26/2006	8.2
8/29/2006	7.9
9/14/2006	8.2
7/25/2007	8.3
8/22/2007	8.01
9/5/2007	8.24
7/2/2008	8.3
8/5/2008	8.25
9/9/2008	8.31
75th %	**8.3**
Maximum	**8.4**

Date	Winter pH (s.u.)
10/7/2003	8.3
11/20/2003	8.1
12/3/2003	8
1/5/2004	7.9
4/21/2004	8.3
5/18/2004	8.4
6/2/2004	8.2
10/5/2004	8.3
11/4/2004	8.2
12/15/2004	8.1
1/4/2005	8.1
3/29/2005	8.1
4/12/2005	8.2
5/10/2005	8.2
6/14/2005	8.4
10/12/2005	8.2
11/29/2005	8.4
1/30/2006	7.99
3/15/2006	7.8
4/6/2006	8.2
5/16/2006	8.1
6/27/2006	8.2
10/3/2006	8.2
11/16/2006	8.1
1/18/2007	8.1
3/28/2007	8
4/11/2007	8.1
5/24/2007	8.1
6/13/2007	8.29
10/10/2007	8.32
11/29/2007	8.48
12/20/2007	8.35
4/2/2008	8.16
5/15/2008	8.12
6/6/2008	8.25
75th %	**8.3**
Maximum	**8.48**

ATTACHMENT 20
Data From Fixed Station LM DSP

Date	Summer Temp. (°C)
7/20/2004	21.7
8/10/2004	21.1
9/2/2004	19
7/12/2005	22.2
8/4/2005	24.4
9/13/2005	20.8
7/26/2006	23.1
8/29/2006	19.3
9/14/2006	18.7
7/25/2007	20.78
8/22/2007	16.62
9/5/2007	19.74
7/2/2008	18.11
8/5/2008	23.23
9/9/2008	18.19
75th %	**22**
Maximum	**24.4**

Date	Winter Temp. (°C)
10/7/2003	11.5
11/20/2003	8.2
12/3/2003	3.6
1/5/2004	1.7
4/21/2004	13
5/18/2004	14.1
6/2/2004	15.7
10/5/2004	11.2
11/4/2004	10
12/15/2004	3.5
1/4/2005	2.3
3/29/2005	3.8
4/12/2005	8.7
5/10/2005	12.7
6/14/2005	19.1
10/12/2005	14.1
11/29/2005	4.4
1/30/2006	6.57
3/15/2006	5.3
4/6/2006	7.4
5/16/2006	11.5
6/27/2006	18.7
10/3/2006	16.9
11/16/2006	6.9
1/18/2007	1.2
3/28/2007	9.7
4/11/2007	5.9
5/24/2007	15.2
6/13/2007	14.16
10/10/2007	14.14
11/29/2007	3.25
12/20/2007	0.59
4/2/2008	1.55
5/15/2008	9.41
6/6/2008	17.8
75th %	**14**
Maximum	**19.1**

ATTACHMENT 21
Calculation of Preliminary Effluent Limitations

5/18/2009
12:28 PM

Discharger Name:	ArcelorMittal Burns Harbor Outfall 002
Receiving Stream:	Lake Michigan

			Mixing Zone
Discharge Flow	=	288 mgd	
Q1,10 receiving stream (Outfall)	=	288 mgd	
Q7,10 receiving stream (Outfall)	=	0 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	mgd	25%
Harmonic Mean Flow (Outfall)	=	0 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	mgd	25%
Q90,10 receiving stream	=	0 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	140 mg/l	
Stream pH (50th percentile)	=	s.u.	
Summer Stream Temperature (75th percentile)	=	22 C	
Summer Stream pH (75th percentile)	=	8.3 s.u.	
Winter Stream Temperature (75th percentile)	=	14 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum		
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.930	0.895
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron		
Lead	0.742	0.742
Manganese	1.000	1.000
Mercury	0.85	0.85
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium		0.922
Silver	0.85	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1]							Background			Samples/		CAS		Indiana Water Quality Criteria for the Great Lakes System (ug/l)							Preliminary Effluent Limitations (calculated in accordance with 327 IAC 5-2-11.4 and 11.6)					
														A	B	C	D	E	F	G						
														Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Wildlife Criteria	Concentration (ug/l)[3]		Mass (lbs/day)		Criteria	
A	B	C	D	E	F	G	(ug/l)	BCC	Add.	Month	CV	Number	Parameters[2]	Acute (CMC)	Chronic (CCC)	Drinking (HNC-D)	Nondrinking (HNC-N)	Drinking (HCC-D)	Nondrinking (HCC-N)	(WC)	Average	Maximum	Average	Maximum	Type	Basis
4	4	3	3							4	0.6	7440360	Antimony	720	80	10	2000				66	130	159	312	Tier II	CCC
1	1	3	3							4	0.6	7440382	Arsenic III[4]	339.8	147.9	10	230				120	240	288	577	Tier I	CCC
4	4									4	0.6	7440393	Barium	1786.25	626.01						510	1000	1226	2403	Tier II	CCC
4	4	3	3							4	0.6	7440417	Beryllium[4]	50.42	5.60	40	300				4.6	9.2	11	22	Tier II	CCC
1	1	3	3							4	0.6	7440439	Cadmium[4]	6.14	2.87	14	1400				2.6	5.3	6.2	13	Tier I	CCC
1	1	3	3							4	0.6	16065831	Chromium (III)	751	98	410000	43000000				92.95	186.48	223.41	448.20	Tier I	CCC
1	1	3	3				0			4	0.6	18540299	Chromium (VI)	15.73	10.56	230	25000				9	18	22	43	Tier I	CCC
												7440473	Total Chromium								100	200	245	491	Tier I	CCC
4	4	5	5							4	0.6	7440484	Cobalt	120	19	140	11000				16	31	38	75	Tier II	CCC
1	1	3	3				0.71			4	0.6	7440508	Copper	18.45	11.94	280	56000				10	20	24	48	Tier I	CCC
3	3									4	0.6	7439921	Lead[4]	139.39	7.31						8.1	16	19	38	Tier I	CCC
4	4	5	5							4	0.6	7439965	Manganese	1530	711	3900	320000				580	1200	1394	2884	Tier II	CCC
4	4	5	5				1			4	0.6	7439987	Molybdenum	1200	800	130	10000				660	1300	1586	3125	Tier II	CCC
1	1	3	3							4	0.6	7440020	Nickel	622.43	69.13	460	42000				57	110	137	264	Tier I	CCC
	1	3	3							4	0.6	7782492	Selenium		4.61	140	3400				4.1	8.2	9.9	20	Tier I	CCC
4	4	3	3							4	0.6	7440280	Thallium	54	6	2	5				4.9	9.9	12	24	Tier II	CCC
5	5									4	0.6	7440315	Tin	1300	140						110	230	264	553	EASV[7]	CCC
5	5									4	0.6	7440326	Titanium	23000	2500						2000	4100	4807	9854	EASV[7]	CCC
1	1	3	3				3.1			4	0.6	7440666	Zinc	155.84	157.11	9000	250000				130	260	312	625	Tier I	CCC
												7664417	Total Ammonia (as N)													
1	1									4	0.6		Summer	2913.31	664.00						540	1100	1298	2644	Tier I	CCC
1	1									4	0.6		Winter	2919.45	665.40						540	1100	1298	2644	Tier I	CCC
4	4	5	5							4	0.6	7440428	Boron	10000	1600	2500	200000				1300	2600	3125	6249	Tier II	CCC
1	1	1								4	0.6	1688706	Chloride	860000	230000	250000					188000	378000	451853	908514	Tier I	CCC
1	1									4	0.6	7782505	Chlorine (total residual)	19	11						10	20	24	48	Tier I	CCC
		1	1							4	0.6	57125	Cyanide, Total			600	48000				48000	117000	115367	281207	Tier I	HNC-N

4	4									4	0.6	16984488	Fluoride	12000	3400						2800	5600	6730	13459	Tier II	CCC
5	5	1					23000			4	0.6	14808798	Sulfate	1000000	1000000	250000					819000	1643000	1968446	3948910	EASV[7]	CCC
													Additional Criteria for Lake Michigan													
	2						23000			4	0.6	14808798	Sulfate		250000						205000	411000	492712	987828	Lake M	CCC
	2									4	0.6	16984488	Fluoride		1000						820	1600	1971	3846	Lake M	CCC
	2									4	0.6		Iron, Dissolved		300						250	490	601	1178	Lake M	CCC

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 10 February 2009

ATTACHMENT 22
Calculation of Preliminary Effluent Limitations

5/18/2009
12:29 PM

Discharger Name:	ArcelorMittal Burns Harbor Outfall 003
Receiving Stream:	Lake Michigan

			Mixing Zone
Discharge Flow	=	1.44 mgd	
Q1,10 receiving stream (Outfall)	=	1.44 mgd	
Q7,10 receiving stream (Outfall)	=	0 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	mgd	25%
Harmonic Mean Flow (Outfall)	=	0 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	mgd	25%
Q90,10 receiving stream	=	0 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	mg/l	
Stream pH (50th percentile)	=	s.u.	
Summer Stream Temperature (75th percentile)	=	C	
Summer Stream pH (75th percentile)	=	s.u.	
Winter Stream Temperature (75th percentile)	=	C	
Winter Stream pH (75th percentile)	=	s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum		
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	#NUM!	#NUM!
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron		
Lead	#NUM!	#NUM!
Manganese	1.000	1.000
Mercury	0.85	0.85
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium		0.922
Silver	0.85	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
1	1									4	0.6	7782505	Chlorine (total residual)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l): A – Aquatic Life Criteria Acute (CMC)	B – Aquatic Life Criteria Chronic (CCC)	C – Human Health Noncancer Criteria Drinking (HNC-D)	D – Human Health Noncancer Criteria Nondrinking (HNC-N)	E – Human Health Cancer Criteria Drinking (HCC-D)	F – Human Health Cancer Criteria Nondrinking (HCC-N)	G – Wildlife Criteria (WC)
Chlorine (total residual)	19	11					

Preliminary Effluent Limitations
(calculated in accordance with 327 IAC 5-2-11.4 and 11.6)

Parameters[2]	Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Chlorine (total residual)	10	20	0.12	0.24	Tier I	CCC

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 10 February 2009

ATTACHMENT 23
Effluent Data For ArcelorMittal Burns Harbor from Form 2C

Parameter	Intake (mg/l)	Outfall 001 (mg/l)	Outfall 002 (mg/l)
Aluminum	<0.09	0.102	<0.09
Ammonia-N	<0.05	0.179	<0.05
Antimony	<0.012	<0.06	<0.06
Arsenic	<0.005	<0.005	<0.005
Barium	0.018	0.019	0.024
Beryllium	<0.002	<0.002	<0.002
Boron	<0.25	<0.25	<0.25
Cadmium	<0.0005	<0.0005	<0.0005
Chloride	-	-	-
Total Residual Chlorine	<0.05	<0.05	<0.05
Total Chromium	<0.005	<0.005	<0.005
Hexavalent Chromium	-	-	-
Cobalt	<0.025	<0.025	<0.025
Copper	0.005	0.01	0.008
Free Cyanide	-	-	-
Total Cyanide	<0.005	<0.005	0.006
Fluoride	0.212	0.629	0.229
Iron	0.18	0.946	0.366
Lead	<0.005	0.01	<0.005
Manganese	0.008	0.05	0.012
Mercury	-	-	-
Molybdenum	<0.03	<0.03	<0.03
Nickel	<0.01	<0.01	<0.01
Selenium	<0.005	<0.005	<0.005
Silver	<0.002	<0.002	<0.002
Sulfate	24.2	36.1	24.2
Thallium	<0.2	<0.2	<0.2
Tin	<0.08	<0.08	<0.08
Titanium	<0.008	<0.008	<0.008
Zinc	0.022	0.022	0.035
Benzene	<0.0015	0.00267	<0.0015
Benzo(a)anthracene	<0.02	<0.02	<0.02
Benzo(k)fluoranthene	<0.02	<0.02	<0.02
Benzo(a)pyrene	<0.02	<0.02	<0.02
Bis(2-ethylhexyl)phthalate	0.3	0.25	0.23
Chloroform	0.0105	0.0174	0.0101
Chrysene	<0.02	<0.02	<0.02
2,4-Dimethylphenol	<0.02	<0.02	<0.02
Ethylbenzene	<0.002	<0.002	<0.002
Fluoranthene	<0.02	<0.02	<0.02
Naphthalene	<0.02	<0.02	<0.02
4-Nitrophenol	<0.04	<0.04	<0.04
Phenanthrene	<0.02	<0.02	<0.02
Phenol	<0.02	<0.02	<0.02
Total Phenols	<0.005	<0.005	<0.005
Pyrene	<0.02	<0.02	<0.02
Tetrachloroethylene	<0.002	<0.002	<0.002
Toluene	<0.002	<0.002	<0.002
1,1,1-Trichloroethane	<0.002	<0.002	<0.002

ATTACHMENT 24
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

Date	Antimony (ug/L)			Boron (ug/L)			Hex. Chromium (ug/L)				Cobalt (ug/L)		
		Daily	Monthly Average		Daily	Monthly Average		Daily	Adjusted Daily	Monthly Average		Daily	Monthly Average
10/29/2007	b	1.5			83		<	10	5		J	0.26	
11/5/2007		1.1	1.1	b	51	59	<	10	5	5	J	0.29	0.24
11/12/2007	J	0.91		b	61		<	10	5		J	0.16	
11/23/2007	Jb	0.99		b	55						J	0.23	
11/26/2007	b	1.2		b	70		<	10	5		Jb	0.28	
12/3/2007	Jb	1.4	1.3		82	82	<	10	5	5	J	0.31	0.19
12/10/2007		1.2			87		<	10	5		J	0.14	
12/17/2007		1.2			78		<	10	5		J	0.13	
1/2/2008		1.8	1.5	b	100	132	<	10	5	5	Jb	0.6	0.26
1/7/2008		1.4			170		<	10	5		J	0.13	
1/14/2008	b	1.4			100		<	10	5		J	0.31	
1/21/2008		1.5		b	120		<	10	5		J	0.14	
1/28/2008		1.6		b	170		<	10	5		J	0.13	
2/4/2008	b	1.6	1.4		170	158	<	10	5	5	J	0.12	0.18
2/11/2008		1.3			120		<	10	5		Jb	0.18	
2/18/2008		1.4		b	110		<	10	5		J	0.14	
2/25/2008		1.2			230		<	10	5		J	0.28	
3/3/2008	b	1.3	1.2		140	96	<	10	5	5	J	0.15	0.14
3/10/2008	b	1.5		b	120		<	10	5		Jb	0.17	
3/17/2008		1.1		b	82		<	10	5		J	0.13	
3/24/2008	J	1			78		<	10	5		J	0.13	
3/31/2008		1.3		b	60		<	10	5		J	0.12	
4/7/2008		1.2	1.0	b	64	37	<	10	5	5	J	0.12	0.15
4/14/2008	J	0.76		b	39		<	10	5		J	0.14	
4/21/2008		1		<	0.61		<	10	5		J	0.17	
4/28/2008		1.2			46		<	10	5		Jb	0.15	
5/5/2008		1.1	1.2		46	54	<	10	5	5	J	0.14	0.20
5/12/2008	J	0.82			44		<	10	5		J	0.12	
5/19/2008		1.1			45		<	10	5		J	0.13	
5/28/2008		1.6		b	81		<	10	5		J	0.41	
6/2/2008		1.2	1.1	b	43	41	<	10	5	5	J	0.17	0.43
6/9/2008	J	0.92			42		<	10	5		J	0.14	
6/16/2008		1.3			40		<	10	5			1.6	
6/23/2008		1.1			43		<	10	5		Jb	0.11	
6/30/2008		1			36		<	10	5		J	0.11	
7/7/2008	J	1.6	1.0		62	40	<	10	5	5	J	0.15	0.22
7/14/2008	J	0.86			37		<	10	5		J	0.21	
7/21/2008	J	0.76			36		<	10	5		J	0.092	
7/28/2008	J	0.79			25		<	10	5		J	0.42	
8/4/2008	J	0.98	0.95		43	33	<	10	5	5	J	0.26	0.17
8/11/2008	J	0.91			32		<	10	5		J	0.13	
8/18/2008		1			22		<	10	5		J	0.12	
8/25/2008	J	0.9			35		<	10	5		J	0.18	
mean		**1.2**			**74**			**10**	**5**			**0.22**	
std		**0.26**			**48**			**0**	**0**			**0.24**	
mean + 3std		**2.0**			**217**			**10**	**5**			**0.94**	
n		**43**	**10**		**43**	**10**		**42**	**42**	**10**		**43**	**10**
CV		**0.2**	**0.2**		**0.6**	**0.6**		**0.0**	**0.0**	**0.0**		**1.1**	**0.4**
max		**1.8**	**1.5**		**230**	**158**		**10**	**5**	**5**		**1.6**	**0.43**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 25
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

Date	Copper (ug/L) Daily	Copper (ug/L) Monthly Average	Lead (ug/L) Daily	Lead (ug/L) Monthly Average	Selenium (ug/L) Daily	Selenium (ug/L) Monthly Average	Silver (ug/L) Daily	Silver (ug/L) Monthly Average
1992	10							
10/29/2007	9.8		4.9		b 1.6			
11/5/2007	12	9.2	6.3	4.6	1.7	1.7		
11/12/2007	7.1		1.7		b 2.2			
11/23/2007	7.7		4.7		1			
11/26/2007	b 10		5.5		1.7			
12/3/2007	9.3	6.8	4.3	2.4	2.1	1.6	J 0.019	0.011
12/10/2007	6.4		Jb 1.9		J 0.84		J 0.013	
12/17/2007	4.7		1.1		1.8		< 0.001	
1/2/2008	27	13	24	9.4	2.6	2.1	J 0.2	0.068
1/7/2008	7.1		2.3		1.9		J 0.016	
1/14/2008	15		17		b 2.5		J 0.073	
1/21/2008	6.2		1.8		2		J 0.022	
1/28/2008	7.3		2.1		1.5		J 0.031	
2/4/2008	7.8	11	1.4	3.0	1.2	1.5	J 0.0085	0.030
2/11/2008	11		3.1		b 1.4		J 0.034	
2/18/2008	9.2		2		1.8		J 0.032	
2/25/2008	17		5.4		1.7		J 0.046	
3/3/2008	11	11	2.3	1.6	1.7	1.1	J 0.04	0.017
3/10/2008	12		2.5		Jb 1.5		J 0.029	
3/17/2008	11		1.5		1.1		J 0.0046	
3/24/2008	11		J 0.5		J 0.47		< 0.001	
3/31/2008	9.3		1		J 0.83		J 0.011	
4/7/2008	9.9	7.0	J 0.9	0.98	1.5	1.4	J 0.0052	0.010
4/14/2008	5.7		1		b 1.4		J 0.003	
4/21/2008	6.2		1.2		1.2		J 0.031	
4/28/2008	6.3		J 0.82		b 1.5		J 0.0016	
5/5/2008	6.2	9.7	J 0.93	2.5	J 0.96	1.3	J 0.0048	0.023
5/12/2008	5.9		J 0.51		J 0.54		J 0.0064	
5/19/2008	7.6		J 0.89		1.4		J 0.016	
5/28/2008	19		7.5		b 2.2		J 0.065	
6/2/2008	9.4	21	2.6	6.3	J 0.36	0.73	J 0.016	0.067
6/9/2008	11		2.9		1.3		J 0.051	
6/16/2008	63		24		1.1		J 0.26	
6/23/2008	11		J 0.96		J 0.27		J 0.0078	
6/30/2008	11		1.1		J 0.64		J 0.0016	
7/7/2008	16	14	2.4	3.6	J 0.79	0.81	J 0.016	0.037
7/14/2008	13		3		1.1		J 0.012	
7/21/2008	8		J 0.62		J 0.68		< 0.001	
7/28/2008	18		8.2		J 0.65		J 0.12	
8/4/2008	14	12	3.8	1.9	1.1	0.77	J 0.028	0.024
8/11/2008	11		1.2		1		J 0.025	
8/18/2008	10		1.2		J 0.92		J 0.028	
8/25/2008	12		1.5		< 0.04		Jb 0.013	
mean	**12**		**3.8**		**1.3**		**0.034**	
std	**9.0**		**5.4**		**0.60**		**0.053**	
mean + 3std	**39**		**20**		**3.1**		**0.19**	
n	**44**	**10**	**43**	**10**	**43**	**10**	**38**	**9**
CV	**0.8**	**0.4**	**1.4**	**0.7**	**0.5**	**0.3**	**1.6**	
max	**63**	**21**	**24**	**9.4**	**2.6**	**2.1**	**0.26**	**0.068**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.
< = Constituent not detected above the Method Detection Limit.
J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 26
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

	Thallium (ug/L)			Tin (ug/L)			Vanadium (ug/L)			Zinc (ug/L)	
Date		Daily	Monthly Average		Daily	Monthly Average		Daily	Monthly Average	Daily	Monthly Average
1992										22	
10/29/2007	J	0.76			8.2		<	0.8			
11/5/2007	J	0.67	1.3	<	0.99	2.2		2.8	1.4		
11/12/2007	b	3.7			5.8		<	0.8			
11/23/2007	Jb	0.54		<	0.99		<	0.8			
11/26/2007	J	0.45		<	1		<	1			
12/3/2007		2.1	2.0		6.3	3.4		1	4.3	51	36
12/10/2007		1.3		<	0.99		b	11		31	
12/17/2007		2.6			2.8		<	0.8		26	
1/2/2008		1.2	0.69		2.4	1.3	<	0.8	1.5	140	101
1/7/2008	J	0.18		<	0.99			2.2		72	
1/14/2008	Jb	0.57		<	0.99			1.1		120	
1/21/2008		1		<	0.99		<	0.8		88	
1/28/2008	Jb	0.5		<	0.99		J	2.4		87	
2/4/2008		1.5	1.6		1.1	1.1	<	0.8	0.80	81	95
2/11/2008	Jb	0.62			1.2		<	0.8		100	
2/18/2008		3.8		<	0.99		<	0.8		88	
2/25/2008	J	0.52		<	0.99		<	0.8		110	
3/3/2008	J	0.57	0.46	<	0.99	1.0	J	1.4	0.92	110	99
3/10/2008	Jb	1.6		<	0.99		<	0.8		110	
3/17/2008	<	0.02		<	0.99		<	0.8		89	
3/24/2008	J	0.086		<	0.99		<	0.8		100	
3/31/2008	J	0.045		<	0.99		<	0.8		84	
4/7/2008	J	0.51	0.45	<	0.99	1.0	<	0.8	2.1	84	48
4/14/2008	J	0.44		<	0.99			5.1		29	
4/21/2008	J	0.37		J	1		<	0.8		53	
4/28/2008	J	0.47		<	0.99			1.6		25	
5/5/2008	Jb	0.45	0.59	<	0.99	1.0		3.1	2.2	33	55
5/12/2008	J	0.19		<	0.99		<	0.8		28	
5/19/2008	J	0.43		<	0.99		<	0.8		49	
5/28/2008	b	1.3			1		J	4.1		110	
6/2/2008	J	0.66	0.34	<	0.99	1.2	<	0.8	3.3	42	90
6/9/2008	J	0.14		<	0.99		<	0.8		89	
6/16/2008	J	0.36			1.8			11		240	
6/23/2008	Jb	0.37		<	0.99		<	0.8		45	
6/30/2008	J	0.17		<	0.99		J	3		32	
7/7/2008	J	0.15	0.21	<	0.99	0.99	<	0.8	1.4	300	159
7/14/2008	J	0.14		<	0.99			1.4		130	
7/21/2008	Jb	0.24		<	0.99		<	0.8		84	
7/28/2008	Jb	0.29		<	0.99		Jb	2.5		120	
8/4/2008	J	0.34	0.10	<	0.99	0.99		3.4	2.2	35	44
8/11/2008	<	0.02		<	0.99		<	0.8		80	
8/18/2008	<	0.02		<	0.99		<	0.8		31	
8/25/2008	<	0.02		<	0.99		J	3.7		29	
mean		**0.73**			**1.5**			**1.9**		**81**	
std		**0.88**			**1.5**			**2.3**		**57**	
mean + 3std		**3.4**			**6.1**			**8.8**		**251**	
n		**43**	**10**		**43**	**10**		**43**	**10**	**39**	**9**
CV		**1.2**	**0.8**		**1.0**	**0.6**		**1.2**	**0.5**	**0.7**	
max		**3.8**	**2.0**		**8.2**	**3.4**		**11**	**4.3**	**300**	**159**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 27
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

Date	Cyanide (Weak/Acid Diss.) (mg/L)				Fluoride (mg/L)		Sulfate (mg/L)	
		Daily	Adjusted Daily	Monthly Average	Daily	Monthly Average	Daily	Monthly Average
1992					0.629		36.1	
10/29/2007	<	0.005	0.003		0.7		52	
11/5/2007	<	0.005	0.003	0.003	0.81	0.87	52	57
11/12/2007	<	0.005	0.003		0.95		64	
11/23/2007	<	0.005	0.003		0.89		50	
11/26/2007	<	0.005	0.003		0.83		61	
12/3/2007	<	0.005	0.003	0.003	0.66	0.83	47	48
12/10/2007	<	0.005	0.003		1		53	
12/17/2007	<	0.005	0.003		0.83		43	
1/2/2008	<	0.005	0.003	0.0036	1.2	1.0	51	56
1/7/2008		0.0058	0.0058		0.95		56	
1/14/2008	<	0.005	0.003		0.96		63	
1/21/2008	<	0.005	0.003		0.97		59	
1/28/2008	<	0.005	0.003		0.88		50	
2/4/2008	<	0.005	0.003	0.003	0.9	0.93	47	61
2/11/2008	<	0.005	0.003		0.91		61	
2/18/2008	<	0.005	0.003		1		47	
2/25/2008	<	0.005	0.003		0.89		88	
3/3/2008	<	0.005	0.003	0.003	0.74	0.77	42	50
3/10/2008	<	0.005	0.003		0.64		46	
3/17/2008	<	0.005	0.003		0.77		65	
3/24/2008	<	0.005	0.003		0.75		45	
3/31/2008	<	0.005	0.003		0.93		50	
4/7/2008	<	0.005	0.003	0.003	0.85	0.78	44	48
4/14/2008	<	0.005	0.003		0.69		51	
4/21/2008	<	0.005	0.003		0.69		48	
4/28/2008	<	0.005	0.003		0.87		48	
5/5/2008	<	0.005	0.003	0.003	0.7	0.68	49	44
5/12/2008	<	0.005	0.003		0.54		36	
5/19/2008	<	0.005	0.003		0.8		45	
5/28/2008	<	0.005	0.003		0.69		47	
6/2/2008	<	0.005	0.003	0.003	0.83	0.93	43	45
6/9/2008	<	0.005	0.003		0.97		45	
6/16/2008	<	0.005	0.003		0.63		39	
6/23/2008	<	0.005	0.003		1.1		52	
6/30/2008	<	0.005	0.003		1.1		44	
7/7/2008	<	0.005	0.003	0.003	0.98	0.87	48	40
7/14/2008	<	0.005	0.003		0.95		40	
7/21/2008	<	0.005	0.003		0.85		35	
7/28/2008	<	0.005	0.003		0.71		38	
8/4/2008	<	0.005	0.003	0.003	0.92	0.77	40	34
8/11/2008	<	0.005	0.003		0.66		36	
8/18/2008	<	0.005	0.003		0.86		36	
8/25/2008	<	0.005	0.003		0.65		24	
mean			**0.003**		**0.84**		**48**	
std			**0.000**		**0.15**		**11**	
mean + 3std			**0.004**		**1.3**		**80**	
n			**43**	**10**	**44**	**10**	**44**	**10**
CV			**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**
max			**0.0058**	**0.0036**	**1.2**	**0.99**	**88**	**61**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 28
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

Date	Benzene (ug/L) Daily	Benzene (ug/L) Monthly Average	Benzo(a)anthracene (ug/L) Daily	Benzo(a)anthracene (ug/L) Monthly Average	Benzo(a)pyrene (ug/L) Daily	Benzo(a)pyrene (ug/L) Monthly Average	Benzo(k)fluoranthene (ug/L) Daily	Benzo(k)fluoranthene (ug/L) Monthly Average
1992	2.67							
10/29/2007			< 0.044		< 0.056		< 0.056	
11/5/2007			< 0.044	0.042	< 0.055	0.053	< 0.055	0.053
11/12/2007			< 0.04		< 0.051		< 0.051	
11/23/2007			< 0.042		< 0.053		< 0.053	
11/26/2007			< 0.04		< 0.051		< 0.051	
12/3/2007			< 0.047	0.044	< 0.058	0.054	< 0.058	0.054
12/10/2007			< 0.043		< 0.053		< 0.053	
12/17/2007	< 0.8		< 0.041		< 0.052		< 0.052	
1/2/2008	< 0.8	0.80	< 0.041	0.041	< 0.052	0.051	< 0.052	0.051
1/7/2008	< 0.8		< 0.041		< 0.052		< 0.052	
1/14/2008	< 0.8		< 0.04		< 0.051		< 0.051	
1/21/2008	< 0.8		< 0.04		< 0.05		< 0.05	
1/28/2008	< 0.8		< 0.041		< 0.051		< 0.051	
2/4/2008	< 0.8	0.80	< 0.072	0.073	< 0.021	0.021	< 0.01	0.011
2/11/2008	< 0.8		< 0.07		< 0.02		J 0.01	
2/18/2008	< 0.8		< 0.076		< 0.022		< 0.011	
2/25/2008	< 0.8		< 0.074		< 0.021		< 0.011	
3/3/2008	< 0.8	0.92	< 0.071	0.081	< 0.02	0.035	< 0.01	0.028
3/10/2008	< 0.8		0.11		J 0.07		J 0.08	
3/17/2008	J 1.4		< 0.071		J 0.04		Jb 0.03	
3/24/2008	< 0.8		< 0.081		< 0.023		< 0.012	
3/31/2008	< 0.8		< 0.071		< 0.02		< 0.01	
4/7/2008	< 0.8	0.80	< 0.069	0.071	< 0.02	0.021	J 0.0098	0.013
4/14/2008	< 0.8		< 0.069		< 0.02		< 0.0098	
4/21/2008	< 0.8		< 0.071		< 0.02		J 0.02	
4/28/2008	< 0.8		< 0.075		< 0.022		< 0.011	
5/5/2008	< 0.8	0.80	< 0.071	0.074	< 0.02	0.024	Jb 0.02	0.021
5/12/2008	< 0.8		< 0.071		J 0.031		J 0.041	
5/19/2008	< 0.8		< 0.078		< 0.022		< 0.011	
5/28/2008	< 0.8		< 0.074		< 0.021		< 0.011	
6/2/2008	J 1.5	1.3	< 0.076	0.075	< 0.022	0.026	< 0.011	0.024
6/9/2008	< 0.8		< 0.08		J 0.045		J 0.068	
6/16/2008	J 2.6		< 0.076		< 0.022		< 0.011	
6/23/2008	< 0.8		< 0.069		< 0.02		Jb 0.02	
6/30/2008	< 0.8		< 0.073		< 0.021		< 0.01	
7/7/2008	J 1.7	1.4	< 0.073	0.076	< 0.021	0.025	< 0.01	0.014
7/14/2008	< 0.8		< 0.071		< 0.02		< 0.01	
7/21/2008	Jb 0.94		< 0.083		< 0.024		< 0.012	
7/28/2008	J 2.2		< 0.077		J 0.033		J 0.022	
8/4/2008	< 0.8	0.80	< 0.074	0.063	< 0.021	0.021	< 0.011	0.014
8/11/2008	< 0.8		< 0.071		< 0.02		< 0.01	
8/18/2008	< 0.8		< 0.037		< 0.011		< 0.0053	
8/25/2008	< 0.8		< 0.071		J 0.031		J 0.031	
mean	**1.0**		**0.064**		**0.033**		**0.029**	
std	**0.50**		**0.017**		**0.016**		**0.021**	
mean + 3std	**2.5**		**0.12**		**0.081**		**0.093**	
n	**37**	**8**	**43**	**10**	**43**	**10**	**43**	**10**
CV	**0.5**		**0.3**	**0.2**	**0.5**	**0.4**	**0.7**	**0.6**
max	**2.67**	**1.4**	**0.11**	**0.081**	**0.07**	**0.054**	**0.08**	**0.054**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 29
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

	Chloroform (ug/L)			Chrysene (ug/L)			Fluoranthene (ug/L)			Naphthalene (ug/L)		
Date		Daily	Monthly Average		Daily	Monthly Average		Daily	Monthly Average		Daily	Monthly Average
10/29/2007				<	0.044		<	0.033		<	0.4	
11/5/2007				<	0.044	0.042	J	0.04	0.033		1.4	0.96
11/12/2007				<	0.04		<	0.03		<	0.36	
11/23/2007				<	0.042		<	0.032			0.99	
11/26/2007				<	0.04		<	0.03			1.1	
12/3/2007				<	0.047	0.044	<	0.035	0.033	<	0.42	0.59
12/10/2007				<	0.043		<	0.032		<	0.38	
12/17/2007	<	0.9		<	0.041		<	0.031			0.96	
1/2/2008	<	0.9	0.9	<	0.041	0.041	<	0.031	0.057	<	0.37	1.2
1/7/2008	<	0.9		<	0.041		<	0.031			1.5	
1/14/2008	<	0.9		<	0.04			0.16			2	
1/21/2008	<	0.9		<	0.04		<	0.03			1.1	
1/28/2008	<	0.9		<	0.041		<	0.031			0.98	
2/4/2008	<	0.9	0.9	<	0.01	0.011	<	0.021	0.024	J	0.031	0.032
2/11/2008	<	0.9		<	0.01		J	0.03		J	0.02	
2/18/2008	<	0.9		<	0.011		<	0.022		<	0.022	
2/25/2008	<	0.9		<	0.011		<	0.021		J	0.053	
3/3/2008	<	0.9	0.9	<	0.01	0.031	J	0.03	0.039	Jb	0.051	0.10
3/10/2008	<	0.9		J	0.09		J	0.03		Jb	0.1	
3/17/2008	<	0.9		Jb	0.02		Jb	0.061		Jb	0.21	
3/24/2008	<	0.9		Jb	0.023		Jb	0.035		Jb	0.1	
3/31/2008	<	0.9		<	0.01		J	0.04		Jb	0.04	
4/7/2008	<	0.9	0.9	J	0.029	0.035	J	0.029	0.063	Jb	0.039	0.033
4/14/2008	<	0.9		J	0.039		J	0.11		<	0.02	
4/21/2008	<	0.9		J	0.051		J	0.071		Jb	0.051	
4/28/2008	<	0.9		Jb	0.022		J	0.043		<	0.022	
5/5/2008	<	0.9	0.9	Jb	0.02	0.018	J	0.02	0.021	Jb	0.081	0.046
5/12/2008	<	0.9		J	0.031		<	0.02		Jb	0.061	
5/19/2008	<	0.9		<	0.011		<	0.022		<	0.022	
5/28/2008	<	0.9		<	0.011		<	0.021		<	0.021	
6/2/2008	<	0.9	0.98	<	0.011	0.019	J	0.033	0.034	J	0.033	0.034
6/9/2008	J	0.9		J	0.023		<	0.023		J	0.034	
6/16/2008	J	1.2		<	0.011		<	0.022		J	0.043	
6/23/2008	J	1		Jb	0.03		Jb	0.069		<	0.02	
6/30/2008	<	0.9		J	0.021		<	0.021		J	0.042	
7/7/2008	<	0.9	0.9	J	0.021	0.016	J	0.031	0.024	<	0.021	0.025
7/14/2008	<	0.9		J	0.01		J	0.02		J	0.02	
7/21/2008	<	0.9		<	0.012		<	0.024		J	0.036	
7/28/2008	<	0.9		J	0.022		<	0.022		<	0.022	
8/4/2008	<	0.9	0.9	J	0.032	0.022	J	0.043	0.024	J	0.043	0.027
8/11/2008	<	0.9		<	0.01		J	0.02		Jb	0.03	
8/18/2008	<	0.9		<	0.0053		<	0.011		Jb	0.016	
8/25/2008	<	0.9		J	0.041		<	0.02		<	0.02	
mean		**0.9**			**0.028**			**0.036**			**0.31**	
std		**0.1**			**0.017**			**0.026**			**0.49**	
mean + 3std		**1.1**			**0.079**			**0.11**			**1.8**	
n		**36**	**8**		**43**	**10**		**43**	**10**		**43**	**10**
CV		**0.1**			**0.6**	**0.4**		**0.7**	**0.4**		**1.6**	**1.5**
max		**1.2**	**0.98**		**0.09**	**0.044**		**0.16**	**0.063**		**2**	**1.2**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 30
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

Date		Phenanthrene (ug/L) Daily	Phenanthrene (ug/L) Monthly Average		Pyrene (ug/L) Daily	Pyrene (ug/L) Monthly Average		2,4-Dimethylphenol (ug/L) Daily	2,4-Dimethylphenol (ug/L) Monthly Average		4-Nitrophenol (ug/L) Daily	4-Nitrophenol (ug/L) Monthly Average		Bis(2-ethylhexyl)phthalate (ug/L) Daily	Bis(2-ethylhexyl)phthalate (ug/L) Monthly Average
10/29/2007	<	0.033		<	0.1		<	0.84		<	4.5		J	1.4	
11/5/2007		0.095	0.047	<	0.099	0.094	<	0.87	0.83	<	4.7	4.5	J	5.1	7.1
11/12/2007	<	0.03		<	0.091		<	0.8		<	4.3		J	9.7	
11/23/2007	<	0.032		<	0.095		<	0.83		<	4.5		J	2.7	
11/26/2007	<	0.03		<	0.091		<	0.8		<	4.3			11	
12/3/2007	<	0.035	0.040	<	0.1	0.096	<	0.88	0.87	<	4.7	4.6	J	4.2	2.3
12/10/2007	<	0.032		<	0.096		<	0.88		<	4.7		<	1.2	
12/17/2007	J	0.052		<	0.093		<	0.84		<	4.5		J	1.4	
1/2/2008	<	0.031	0.033	<	0.093	0.092	<	0.86	0.85	<	4.6	4.5	<	1.2	3.2
1/7/2008	<	0.031		<	0.093		<	0.82		<	4.4		J	7.7	
1/14/2008	<	0.03		<	0.091		<	0.83		<	4.5		J	2.7	
1/21/2008	J	0.04		<	0.09		<	0.88		<	4.7		J	2.3	
1/28/2008	<	0.031		<	0.092		<	0.84		<	4.5		J	1.9	
2/4/2008	J	0.052	0.029	<	0.072	0.073	<	0.84	0.84	<	4.5	4.5	J	4.5	4.1
2/11/2008	<	0.02		<	0.07		<	0.8		<	4.3		J	7.3	
2/18/2008	<	0.022		<	0.076		<	0.87		<	4.7		Jb	3.5	
2/25/2008	<	0.021		<	0.074		<	0.84		<	4.5		<	1.2	
3/3/2008	<	0.02	0.037	<	0.071	0.073	<	0.81	0.83	<	4.3	4.4	J	2.1	3.6
3/10/2008	J	0.03		<	0.07		<	0.8		<	4.3		J	2.4	
3/17/2008	Jb	0.04		<	0.071		<	0.81		<	4.3		J	2.5	
3/24/2008	Jb	0.035		<	0.081		<	0.93		<	5		J	4.8	
3/31/2008	J	0.061		<	0.071		<	0.81		<	4.3		J	6.2	
4/7/2008	<	0.02	0.033	<	0.069	0.071	<	0.78	0.81	<	4.2	4.4		11	4.4
4/14/2008	J	0.059		<	0.069		<	0.78		<	4.2		J	2	
4/21/2008	Jb	0.031		J	0.071		<	0.82		<	4.4		J	2.4	
4/28/2008	<	0.022		<	0.075		<	0.86		<	4.6		J	2.2	
5/5/2008	Jb	0.03	0.026	<	0.071	0.074	<	0.81	0.84	<	4.3	4.5	J	3.1	4.1
5/12/2008	<	0.02		<	0.071		<	0.82		<	4.4		J	2.7	
5/19/2008	J	0.033		<	0.078		<	0.89		<	4.8		J	2.3	
5/28/2008	<	0.021		<	0.074		<	0.84		<	4.5		Jb	8.1	
6/2/2008	<	0.022	0.032	<	0.076	0.075	<	0.87	0.85	<	4.7	4.6	Jb	4.1	6.2
6/9/2008	J	0.034		<	0.08		<	0.91		<	4.9			12	
6/16/2008	<	0.022		<	0.076		<	0.87		<	4.7		J	3.7	
6/23/2008	Jb	0.059		Jb	0.069		<	0.79		<	4.3		J	3.2	
6/30/2008	<	0.021		<	0.073		<	0.83		<	4.5		J	8	
7/7/2008	Jb	0.031	0.044	<	0.073	0.076	<	0.83	0.87	<	4.5	4.7	b	39	18
7/14/2008	Jb	0.041		<	0.071		<	0.82		<	4.4		J	3.7	
7/21/2008	J	0.071		<	0.083		<	0.95		<	5.1			27	
7/28/2008	Jb	0.033		<	0.077		<	0.88		<	4.7		J	1.7	
8/4/2008	Jb	0.053	0.026	<	0.074	0.063	<	0.85	0.73	<	4.6	3.9		58	21
8/11/2008	Jb	0.02		<	0.071		<	0.81		<	4.3			18	
8/18/2008	<	0.011		<	0.037		<	0.42		<	2.3		J	3.6	
8/25/2008	<	0.02		<	0.071		<	0.82		<	4.4		J	4.8	
mean		**0.034**			**0.079**			**0.83**			**4.5**			**7.2**	
std		**0.016**			**0.012**			**0.075**			**0.40**			**11**	
mean + 3std		**0.083**			**0.12**			**1.1**			**5.7**			**39**	
n		**43**	**10**		**43**	**10**		**43**	**10**		**43**	**10**		**43**	**10**
CV		**0.5**	**0.2**		**0.2**	**0.1**		**0.1**	**0.0**		**0.1**	**0.0**		**1.5**	**0.9**
max		**0.095**	**0.047**		**0.1**	**0.096**		**0.95**	**0.87**		**5.1**	**4.7**		**58**	**21**

Lab Qualifiers:

b = Constituent detected above the MDL in the method blank.
< = Constituent not detected above the Method Detection Limit.
J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 31
ArcelorMittal Burns Harbor Outfall 001 Data from Additional Sampling

	Mercury (ng/L)				
Date		**Original Sample**	**Duplicate Sample**	**Daily**	**Monthly Average**
10/17/2008		3.26	3.16	3.21	2.75
10/23/2008		2.29		2.29	
10/29/2008		2.75	2.72	2.74	
11/4/2008		5.88		5.88	3.32
11/13/2008		2.39	3	2.70	
11/17/2008		2.93	3.38	3.16	
11/26/2008		1.56		1.56	
12/4/2008		1.63	1.44	1.54	1.32
12/10/2008		1.68	1.18	1.43	
12/17/2008		1.00		1.00	
1/8/2009		1.06	0.892	0.98	0.94
1/22/2009		1.08		1.08	
1/30/2009		0.692	0.865	0.779	
2/5/2009	J	0.152	0.576	0.364	0.39
2/12/2009	<	0.130		0.130	
2/20/2009		0.860	0.895	0.878	
2/26/2009	J	0.195		0.195	
mean				**1.76**	
std				**1.45**	
mean + 3std				**6.12**	
n				**17**	**5**
CV				**0.8**	
max				**5.88**	**3.32**

Lab Qualifiers:

< = Constituent not detected above the Method Detection Limit.

J = Constituent detected above the MDL but below quantifiable concentration (RL)

ATTACHMENT 32
Effluent Data for ArcelorMittal Burns Harbor Outfall 011

Date	Chloride (mg/l)		Sulfate (mg/l)	
		Daily		Daily
Oct-05		34		47
Nov-05		32		49
Dec-05		37		44
Jan-06		32		52
Feb-06		36		35
Mar-06		35		52
Apr-06		40		60
May-06		39		59
Jun-06		35		58
Jul-06		30		51
Aug-06		30		52
Sep-06		31		49
Oct-06		44		67
Nov-06		31		61
Dec-06		34		55
Jan-07		38		65
Feb-07		44		56
Mar-07		38		55
Apr-07		37		48
May-07		39		41
Jun-07		28		59
Jul-07		32		56
Aug-07		30		54
Sep-07		32		49
Oct-07		27		53
Nov-07		34		54
Dec-07		34		64
Jan-08		38		65
Feb-08		42		24
Mar-08		49		48
Apr-08		33		48
May-08		32		56
Jun-08		40		53
Jul-08		46		55
Aug-08		32		38
Sep-08		38		56
Outlier Analysis	**mean**	**36**	**mean**	**52**
	std	**5.1**	**std**	**8.7**
	mean + 3std	**51**	**mean + 3std**	**78**
Reasonable Potential Analysis	**n**	**36**	**n**	**36**
	CV	**0.1**	**CV**	**0.2**
	max	**49**	**max**	**67**

ATTACHMENT 33
Effluent Data for ArcelorMittal Burns Harbor Outfall 001

	Total Cyanide (mg/l)		
Date	**Daily**	**Adjusted Daily**	**Monthly Average**
Oct-07	<0.002	0.002	0.0022
	<0.002	0.002	
	0.0026	0.0026	
	<0.002	0.002	
Nov-07	<0.002	0.002	0.0022
	<0.002	0.002	
	<0.002	0.002	
	0.0026	0.0026	
Dec-07	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
	0.0021	0.0021	
Jan-08	<0.002	0.002	0.0024
	0.0026	0.0026	
	0.0028	0.0028	
	<0.002	0.002	
Feb-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	0.002	0.002	
Mar-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
Apr-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
May-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
Jun-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
Jul-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
Aug-08	<0.002	0.002	0.0020
	<0.002	0.002	
	<0.002	0.002	
	<0.002	0.002	
Outlier Analysis	**mean**	**0.0021**	
	std	**0.0002**	
	mean + 3std	**0.0026**	
Reasonable Potential Analysis	**n**	**47**	**11**
	CV	**0.1**	**0.1**
	max	**0.0028**	**0.0024**

ATTACHMENT 34

Reasonable Potential Statistical Procedure for ArcelorMittal Burns Harbor Using Outfall 001 Data

5/18/2009
12:37 PM

(calculated in accordance with 327 IAC 5-2-11.5)		Monthly Average Determination							Daily Maximum Determination						
Parameters	WQBELs Required*	Maximum Monthly Average (ug/l)	Number of Monthly Averages	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?	Maximum Daily Sample (ug/l)	Number of Daily Samples	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?
Antimony	No	1.5	10	0.2	1.2	1.8	67	No	1.8	43	0.2	1.0	1.8	130	No
Arsenic III	No					31	120	No	5	1	0.6	6.2	31	250	No
Barium	No					120	1000	No	19	1	0.6	6.2	120	2000	No
Beryllium	No					12	22	No	2	1	0.6	6.2	12	44	No
Cadmium	No					3.1	4.4	No	0.5	1	0.6	6.2	3.1	8.7	No
Chromium (VI)	No	5	10	0.0	1.0	5	8.7	No	5	42	0.0	1.0	5	18	No
Total Chromium	No					31	170	No	5	1	0.6	6.2	31	330	No
Cobalt	No	0.43	10	0.4	1.5	0.65	16	No	1.6	43	1.1	1.1	1.8	32	No
Copper	Yes I	21	10	0.4	1.5	32	18	Yes	63	44	0.8	1.1	69	35	Yes
Lead	No	9.4	10	0.7	1.9	18	18	No	24	43	1.4	1.2	29	36	No
Manganese	No					310	1000	No	50	1	0.6	6.2	310	2000	No
Mercury	Yes I	0.00332	5	0.6	2.3	0.0076	0.0013	Yes	0.00588	17	0.8	1.6	0.0094	0.0032	Yes
Molybdenum	No					190	650	No	30	1	0.6	6.2	190	1300	No
Nickel	No					62	98	No	10	1	0.6	6.2	62	200	No
Selenium	No	2.1	10	0.3	1.3	2.7	4.2	No	2.6	43	0.5	1.1	2.9	8.4	No
Silver	Yes II	0.068	9	0.6	1.8	0.12	0.048	Yes	0.26	38	1.6	1.3	0.34	0.097	Yes
Thallium	No	2	10	0.8	2.0	4	5	No	3.8	43	1.2	1.2	4.6	10	No
Tin	No	3.4	10	0.6	1.7	5.8	120	No	8.2	43	1.0	1.1	9	240	No
Titanium	No					50	2100	No	8	1	0.6	6.2	50	4200	No
Vanadium	No	4.3	10	0.5	1.6	6.9	10	No	11	43	1.2	1.2	13	20	No
Zinc	Yes I	159	9	0.6	1.8	290	150	Yes	300	39	0.7	1.1	330	290	Yes
Benzene	No	1.4	8	0.6	1.9	2.7	3.3	No	2.67	37	0.5	1.1	2.9	7.9	No
Benzo(a)anthracene	No	0.081	10	0.2	1.2	0.097	3.9	No	0.11	43	0.3	1.0	0.11	7.9	No
Benzo(k)fluoranthene	No	0.054	10	0.6	1.7	0.092	2.2	No	0.08	43	0.7	1.1	0.088	4.4	No
Benzo(a)pyrene	No	0.054	10	0.4	1.5	0.081	0.081	No	0.07	43	0.5	1.1	0.077	0.2	No
Chloroform	No	0.98	8	0.6	1.9	1.9	9	No	1.2	36	0.1	1.0	1.2	22	No
Chrysene	No	0.044	10	0.4	1.5	0.066	4.2	No	0.09	43	0.6	1.1	0.099	8.4	No
2,4-Dimethylphenol	No	0.87	10	0.0	1.0	0.87	18	No	0.95	43	0.1	1.0	0.95	35	No
Ethylbenzene	No					12	92	No	2	1	0.6	6.2	12	190	No
Fluoranthene	No	0.063	10	0.4	1.5	0.095	3	No	0.16	43	0.7	1.1	0.18	6.1	No
Naphthalene	No	1.2	10	1.5	3.0	3.6	22	No	2	43	1.6	1.2	2.4	44	No
4-Nitrophenol	No	4.7	10	0.0	1.0	4.7	49	No	5.1	43	0.1	1.0	5.1	98	No
Phenanthrene	No	0.047	10	0.2	1.2	0.056	0.78	No	0.095	43	0.5	1.1	0.1	1.6	No
Phenol	No					120	150	No	20	1	0.6	6.2	120	300	No
Pyrene	No	0.096	10	0.1	1.1	0.11	3.4	No	0.1	43	0.2	1.0	0.1	6.7	No
Tetrachloroethylene	No					12	12	No	2	1	0.6	6.2	12	28	No
Toluene	No					12	79	No	2	1	0.6	6.2	12	160	No
1,1,1-Trichloroethane	No					12	340	No	2	1	0.6	6.2	12	690	No
Total Ammonia (as N)															
Summer	No	400	21	0.3	1.2	480	750	No	680	289	0.5	0.9	610	1700	No
Winter	No	500	15	0.3	1.2	600	750	No	840	195	0.4	0.9	760	1700	No
Boron	No	158	10	0.6	1.7	270	1300	No	230	43	0.6	1.1	250	2700	No
Cyanide, Free	No	3.6	10	0.1	1.1	4	4.4	No	5.8	43	0.1	1.0	5.8	8.8	No
Cyanide, Total	No	7.8	36	0.5	1.1	8.6	51000	No	16	157	0.6	0.9	14	123000	No
Fluoride	No	990	10	0.1	1.1	1100	2900	No	1200	44	0.2	1.0	1200	5700	No
Sulfate	No	61000	10	0.2	1.2	73000	543000	No	88000	44	0.2	1.0	88000	1089000	No
Additional Criteria for Lake Michigan															
Sulfate	No	61000	10	0.2	1.2	73000	221000	No	88000	44	0.2	1.0	88000	443000	No

*WQBELs Required:

[1] "Yes I" means that a projected effluent quality (PEQ) exceeded a preliminary effluent limitation (PEL) based on a Tier I criterion and WQBELs must be included in the NPDES permit.

[2] "Yes II" means that a PEQ exceeded a PEL based on a Tier II value and WQBELs must be included in the NPDES permit.

[3] "No" means that a PEQ did not exceed a PEL and WQBELs do not have to be included in the NPDES permit based on the reasonable potential statistical procedure.

[4] "Data" means that a PEQ exceeded a PEL based on an "estimated ambient screening value" and the permittee must generate sufficient data to develop a Tier I criterion or Tier II value for the parameter.

ATTACHMENT 35

Reasonable Potential Statistical Procedure for ArcelorMittal Burns Harbor Using Outfall 001 Data

5/18/2009
12:38 PM

(calculated in accordance with 327 IAC 5-2-11.5)		Monthly Average Determination							Daily Maximum Determination						
Parameters	WQBELs Required*	Maximum Monthly Average (ug/l)	Number of Monthly Averages	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?	Maximum Daily Sample (ug/l)	Number of Daily Samples	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?
Additional Criteria for Lake Michigan															
Fluoride	No	990	10	0.1	1.1	1100	1100	No	1200	44	0.2	1.0	1200	2300	No

*WQBELs Required:

[1] "Yes I" means that a projected effluent quality (PEQ) exceeded a preliminary effluent limitation (PEL) based on a Tier I criterion and WQBELs must be included in the NPDES permit.
[2] "Yes II" means that a PEQ exceeded a PEL based on a Tier II value and WQBELs must be included in the NPDES permit.
[3] "No" means that a PEQ did not exceed a PEL and WQBELs do not have to be included in the NPDES permit based on the reasonable potential statistical procedure.
[4] "Data" means that a PEQ exceeded a PEL based on an "estimated ambient screening value" and the permittee must generate sufficient data to develop a Tier I criterion or Tier II value for the parameter.

ATTACHMENT 36

Reasonable Potential Statistical Procedure for ArcelorMittal Burns Harbor Using Internal Outfall 011 Data

5/18/2009
12:42 PM

(calculated in accordance with 327 IAC 5-2-11.5)		Monthly Average Determination							Daily Maximum Determination						
Parameters	WQBELs Required*	Maximum Monthly Average (ug/l)	Number of Monthly Averages	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?	Maximum Daily Sample (ug/l)	Number of Daily Samples	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?
Lead	No	12	36	0.4	1.1	13	18	No	34	470	0.6	0.9	31	36	No
Zinc	No	78	36	0.5	1.1	86	150	No	360	488	1.1	0.8	290	290	No
Chloride	No					49000	192000	No	49000	36	0.1	1.0	49000	385000	No
Sulfate	No					67000	543000	No	67000	36	0.2	1.0	67000	1089000	No
Additional Criteria for Lake Michigan															
Sulfate	No					67000	221000	No	67000	36	0.2	1.0	67000	443000	No

*WQBELs Required:

[1] "Yes I" means that a projected effluent quality (PEQ) exceeded a preliminary effluent limitation (PEL) based on a Tier I criterion and WQBELs must be included in the NPDES permit.
[2] "Yes II" means that a PEQ exceeded a PEL based on a Tier II value and WQBELs must be included in the NPDES permit.
[3] "No" means that a PEQ did not exceed a PEL and WQBELs do not have to be included in the NPDES permit based on the reasonable potential statistical procedure.
[4] "Data" means that a PEQ exceeded a PEL based on an "estimated ambient screening value" and the permittee must generate sufficient data to develop a Tier I criterion or Tier II value for the parameter.

ATTACHMENT 37
Comparison of Data From Fixed Stations LCR 39, BD 2E and BD1

Date	Stream Flow at BD 1 (cfs)	Total Arsenic (ug/l) LCR 39	Total Arsenic (ug/l) BD 2E	Total Arsenic (ug/l) BD 1	Total Cadmium (ug/l) LCR 39	Total Cadmium (ug/l) BD 2E	Total Cadmium (ug/l) BD 1	Chloride (mg/l) LCR 39	Chloride (mg/l) BD 2E	Chloride (mg/l) BD 1
1/5/2004	397	< 1.2	1.99	< 1.2	< 1	< 1	< 1	78	52	79
2/23/2004	915	2.03	2.35	1.8	< 1	< 1	< 1	94	79	147
3/15/2004	537	1.87	< 1.2	< 1.2	< 1	< 1	< 1	60	56	89
4/12/2004	383	1.49	1.54	1.7	< 1	< 1	< 1	57	52	74
5/17/2004	829	2.27	1.91	2.35	< 1	< 1	< 1	71	54	82
6/2/2004	1550	3	2.15	2.87	< 1	< 1	< 1	37	41	44
7/7/2004	413	1.4	< 1.2	1.89	< 1	< 1	< 1	49	39	73
8/10/2004	268	1.45	1.39	1.6	< 1	< 1	< 1	60	43	55
9/1/2004	665	1.58	1.95	2.13	< 1	< 1	< 1	45	43	52
10/5/2004	296	< 1.2	1.44	1.49	< 1	< 1	< 1	62	40	47
11/3/2004	875	1.95	1.96	2.27	< 1	< 1	< 1	51	46	60
12/15/2004	712	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	51	54	56
1/3/2005	1150	< 1.2	1.35	1.37	< 1	< 1	< 1	66	73	76
2/2/2005	441	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	82	66	99
3/28/2005	623	1.46	1.33	1.39	< 1	< 1	< 1	74	66	104
4/11/2005	321	< 1.2	< 1.2	2.14	< 1	< 1	< 1	64	57	68
5/9/2005	305	< 1.2	1.3	1.3	< 1	< 1	< 1	58	49	72
6/13/2005	396	1.9	1.43	1.88	< 1	< 1	< 1	70	49	68
7/11/2005	265	1.5	1.39	1.5	< 1	< 1	< 1	75	35	38
8/3/2005	257	1.49	< 1.2	1.42	< 1	< 1	< 1	74	39	44
9/12/2005	249	1.25	< 1.2	1.26	< 1	< 1	< 1	78	42	48
10/11/2005	238	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	65	43	50
11/15/2005	288	< 1.2	< 1.2	1.4	< 1	< 1	< 1	59	44	59
12/19/2005	384	< 1.2	1.42	1.5	< 1	< 1	< 1	79	52	83
1/30/2006	854	< 1.2	1.22	< 1.2	< 1	< 1	< 1	76	70	106
2/22/2006	406		< 1.2	< 1.2		< 1	< 1		60	100
3/13/2006	1750	1.41	3.77	3.44	< 1	< 1	< 1	69	75	75
4/5/2006	494	< 1.2	< 1.2	1.27	< 1	< 1	< 1	67	61	88
5/15/2006	943	1.32	1.36	1.52	< 1	< 1	< 1	61	56	79
6/27/2006	367	1.48	1.32	1.42	< 1	< 1	< 1	66	36	55
7/26/2006	430	2.01	1.46	1.81	< 1	< 1	< 1	67	40	44
8/28/2006	681	2.33	1.97	1.94	< 1	< 1	< 1	37	39	53
9/14/2006	2580	2.11	3.26	2.97	< 1	< 1	< 1	25	34	35
10/2/2006	417	1.45	1.49	1.62	< 1	< 1	< 1	54	51	61
11/15/2006	618	< 1.2	1.28	1.23	< 1	< 1	< 1	56	52	62
12/4/2006	2090	< 1.2	1.26	< 1.2	< 1	< 1	< 1	38	44	49
1/17/2007	1670	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	45	44	47
2/26/2007	1530	< 1.2	1.48	1.28	< 1	< 1	< 1	121	126	120
3/15/2007	970	< 1.2	< 1.2	1.28	< 1	< 1	< 1	49	64	87
4/12/2007	1400	< 1.2	< 1.2	1.4	< 1	< 1	< 1	70	58	81
5/23/2007	418	1.37	1.59	1.41	< 1	< 1	< 1	63	51	64
6/12/2007	315	1.48	1.69	1.79	< 1	< 1	< 1	67	47	69
7/24/2007	324	1.78	1.7	1.89	< 1	< 1	< 1	63	46	64
8/22/2007	3190	2.17	2.17	2.32	< 1	< 1	< 1	32	33	32
9/4/2007	675	1.59	1.54	2.62	< 1	< 1	< 1	56	46	49
10/10/2007	332	1.82	1.55	1.89	< 1	< 1	< 1	59	42	61
11/29/2007	364	1.3	1.58	1.63	< 1	< 1	< 1	56	50	63
12/20/2007	511	< 1.2	< 1.2	1.33	< 1	< 1	< 1	59	57	63
1/29/2008	449	< 1.2	1.31	1.42	< 1	< 1	< 1	95	78	104
2/12/2008	905	< 1.2	1.54	1.48	< 1	< 1	< 1	61	74	79
3/13/2008	592	< 1.2	1.28	1.44	< 1	< 1	< 1	62	64	90
4/1/2008	1050	1.8	2.01	1.92	< 1	< 1	< 1	62	65	76
5/14/2008	943	1.51	1.74	1.81	< 1	< 1	< 1	63	59	72
6/5/2008	605	1.95	1.78	1.92	< 1	< 1	< 1	58	57	65
7/1/2008	452	1.74	1.56	1.8	< 1	< 1	< 1	60	49	63
8/4/2008	541	1.63	1.55	1.96	< 1	< 1	< 1	64	45	65
9/8/2008	922	1.85	1.83	1.77	< 1	< 1	< 1	59	47	52
10/29/2008	419	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	55	48	61
11/25/2008	400	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	54	61	70
12/4/2008	394	< 1.2	< 1.2	< 1.2	< 1	< 1	< 1	62	63	69
Geomean		**1.5**	**1.5**	**1.6**	**1**	**1**	**1**	**60**	**52**	**66**
Maximum		**3**	**3.77**	**3.44**	**< 1**	**< 1**	**< 1**	**121**	**126**	**147**

ATTACHMENT 38
Comparison of Data From Fixed Stations LCR 39, BD 2E and BD1

Date	Stream Flow at BD 1 (cfs)	Total Chromium (ug/l)			Total Copper (ug/l)			Total Cyanide (mg/l)		
		LCR 39	BD 2E	BD 1	LCR 39	BD 2E	BD 1	LCR 39	BD 2E	BD 1
1/5/2004	397	< 1.2	< 1.2	< 1.2	1.19	3.47	2.18	< 0.005	< 0.005	< 0.005
2/23/2004	915	1.48	1.61	1.33	2.38	3.2	2.68	< 0.005	< 0.005	< 0.005
3/15/2004	537	< 1.2	< 1.2	< 1.2	1.43	2.41	2.31	< 0.005	< 0.005	< 0.005
4/12/2004	383	< 1.2	< 1.2	< 1.2	1.43	3.04	2.83	< 0.005	< 0.005	< 0.005
5/17/2004	829	1.21	1.22	1.81	2.21	2.68	3.32	< 0.005	< 0.005	< 0.005
6/2/2004	1550	2.62	2.58	2.39	3.38	3.82	4.33	< 0.005	< 0.005	< 0.005
7/7/2004	413	< 1.2	< 1.2	< 1.2	1.93	2.29	2.48	< 0.005	< 0.005	< 0.005
8/10/2004	268	< 1.2	< 1.2	< 1.2	1.72	2.16	2.09	< 0.005	< 0.005	< 0.005
9/1/2004	665	< 1.2	< 1.2	< 1.2	2.09	2.16	2.73	< 0.005	< 0.005	< 0.005
10/5/2004	296	< 1.2	< 1.2	< 1.2	1.14	1.89	2.08	< 0.005	< 0.005	< 0.005
11/3/2004	875	< 1.2	1.2	1.69	2.38	2.91	3.59	< 0.005	< 0.005	< 0.005
12/15/2004	712	< 1.2	< 1.2	< 1.2	1.23	1.98	2.12	< 0.005	< 0.005	< 0.005
1/3/2005	1150	2.21	1.76	2.28	2.92	3.21	3.76	< 0.005	< 0.005	< 0.005
2/2/2005	441	< 1.2	< 1.2	< 1.2	1.45	2.08	1.98	< 0.005	< 0.005	< 0.005
3/28/2005	623	< 1.2	< 1.2	< 1.2	1.09	1.89	1.83	< 0.005	< 0.005	< 0.005
4/11/2005	321	< 1.2	< 1.2	< 1.2	1.43	1.96	2.04	< 0.005	< 0.005	< 0.005
5/9/2005	305	< 1.2	< 1.2	< 1.2	1.21	2.02	2.33	< 0.005	< 0.005	< 0.005
6/13/2005	396	2.17	< 1.2	< 1.2	2.88	2.76	3.07	< 0.005	< 0.005	< 0.005
7/11/2005	265	< 1.2	< 1.2	< 1.2	1.79	1.8	2.14	< 0.005	< 0.005	< 0.005
8/3/2005	257	< 1.2	< 1.2	< 1.2	1.64	1.62	1.93	< 0.005	< 0.005	< 0.005
9/12/2005	249	< 1.2	< 1.2	< 1.2	1.73	1.87	2.22	< 0.005	< 0.005	< 0.005
10/11/2005	238	< 1.2	< 1.2	< 1.2	1.59	1.91	2.85	< 0.005	< 0.005	< 0.005
11/15/2005	288	< 1.2	< 1.2	< 1.2	1.39	1.87	2.15	< 0.005	< 0.005	< 0.005
12/19/2005	384	< 1.2	< 1.2	< 1.2	1.3	2.34	2.28	< 0.005	< 0.005	< 0.005
1/30/2006	854	3.45	2.77	2.2	3.85	4.28	3.88	< 0.005	< 0.005	< 0.005
2/22/2006	406		< 1.2	1.52		2.35	2.83		< 0.005	< 0.005
3/13/2006	1750	5.54	12	11.3	5	12.2	11.8	< 0.005	< 0.005	< 0.005
4/5/2006	494	< 1.2	< 1.2	< 1.2	1.77	2.32	2.62	< 0.005	< 0.005	< 0.005
5/15/2006	943	1.45	1.55	2.13	2.83	3.02	3.58	< 0.005	< 0.005	< 0.005
6/27/2006	367	< 1.2	< 1.2	< 1.2	2.33	2.41	2.45			
7/26/2006	430	< 1.2	< 1.2	1.23	2.35	2.33	2.98			
8/28/2006	681	2.97	1.63	1.32	4.44	3.06	2.97			
9/14/2006	2580	4.7	6.09	4.64	5.43	8.39	7.34			
10/2/2006	417	< 1.2	1.52	1.75	2.37	2.99	3.95			
11/15/2006	618	< 1.2	< 1.2	1.31	1.92	2.43	2.87			
12/4/2006	2090	1.42	1.69	1.99	2.26	2.8	3.04			
1/17/2007	1670	1.46	2.05	2.3	2.27	2.62	2.62			
2/26/2007	1530	1.77	2.4	2.42	2.61	4.04	4.28			
3/15/2007	970	< 1.2	< 1.2	1.78	1.7	2.54	3.14			
4/12/2007	1400	< 1.2	1.28	2.69	1.8	2.66	4.36			
5/23/2007	418	< 1.2	< 1.2	< 1.2	2.21	2.57	2.82			
6/12/2007	315	< 1.2	< 1.2	< 1.2	2.31	2.47	2.71			
7/24/2007	324	< 1.2	< 1.2	< 1.2	2.16	2.07	2.27			
8/22/2007	3190	2.6	2.28	2.73	3.47	4.08	4.56			
9/4/2007	675	< 1.2	< 1.2	< 1.2	2.2	2.19	2.42			
10/10/2007	332	< 1.2	< 1.2	< 1.2	1.68	2.33	2.64			
11/29/2007	364	< 1.2	< 1.2	< 1.2	1.39	2.61	2.35			
12/20/2007	511	< 1.2	< 1.2	< 1.2	1.52	2.43	2.38			
1/29/2008	449	< 1.2	< 1.2	< 1.2	1.45	2.73	2.53			
2/12/2008	905	< 1.2	< 1.2	< 1.2	1.72	3.48	3.2			
3/13/2008	592	< 1.2	< 1.2	< 1.2	1.4	2.07	2.25			
4/1/2008	1050	3.46	3.33	2.78	3.75	4.19	3.75			
5/14/2008	943	< 1.2	< 1.2	< 1.2	1.69	2.32	2.69			
6/5/2008	605	< 1.2	< 1.2	< 1.2	2.34	2.46	3.09			
7/1/2008	452	< 1.2	< 1.2	< 1.2	2.18	2.02	2.51			
8/4/2008	541	< 1.2	< 1.2	< 1.2	1.87	2.8	2.67			
9/8/2008	922	< 1.2	< 1.2	< 1.2	1.84	2.97	2.52			
10/29/2008	419	< 1.2	< 1.2	< 1.2	1.02	1.62	1.62			
11/25/2008	400	< 1.2	< 1.2	< 1.2	1.25	1.67	1.69			
12/4/2008	394	< 1.2	< 1.2	< 1.2	< 1	1.55	1.57			
Geomean		**1.4**	**1.4**	**1.5**	**1.9**	**2.6**	**2.8**	**0.005**	**0.005**	**0.005**
Maximum		**5.54**	**12**	**11.3**	**5.43**	**12.2**	**11.8**	**< 0.005**	**< 0.005**	**< 0.005**

ATTACHMENT 39
Comparison of Data From Fixed Stations LCR 39, BD 2E and BD1

Date	Stream Flow at BD 1 (cfs)	Total Lead (ug/l) LCR 39	Total Lead (ug/l) BD 2E	Total Lead (ug/l) BD 1	Total Nickel (ug/l) LCR 39	Total Nickel (ug/l) BD 2E	Total Nickel (ug/l) BD 1	Sulfate (mg/l) LCR 39	Sulfate (mg/l) BD 2E	Sulfate (mg/l) BD 1
1/5/2004	397	< 1	1.62	1.1	1.58	2.43	2.26	88	73	91
2/23/2004	915	< 1	1.75	1.37	2.22	3.03	2.74	75	64	90
3/15/2004	537	< 1	1.79	1.5	1.64	2.28	2.35	80	74	80
4/12/2004	383	< 1	1.62	1.62	2.04	2.77	2.82	81	68	85
5/17/2004	829	< 1	1.61	2.46	2.48	2.62	3.22	69	59	69
6/2/2004	1550	1.96	2.55	2.56	2.99	3.26	3.15	38	46	50
7/7/2004	413	1.04	1.09	1.23	2.02	1.62	2.23	58	57	71
8/10/2004	268	< 1	4.87	4.17	1.58	2.45	2.28	62	62	70
9/1/2004	665	< 1	1.3	1.65	2.33	2.01	2.35	60	55	59
10/5/2004	296	< 1	3.03	2.56	< 1.4	1.74	1.73	67	66	64
11/3/2004	875	< 1	1.58	2.73	2.06	2.43	2.87	57	62	83
12/15/2004	712	< 1	1.18	1.25	< 1.4	2.17	2.26	64	70	74
1/3/2005	1150	1.77	2.19	2.77	2.43	2.54	2.86	49	49	62
2/2/2005	441	< 1	< 1	< 1	1.44	2.26	2.29	68	68	75
3/28/2005	623	< 1	< 1	< 1	< 1.4	1.91	1.92	65	68	74
4/11/2005	321	< 1	< 1	< 1	< 1.4	1.67	1.65	73	67	81
5/9/2005	305	< 1	< 1	1.14	< 1.4	1.82	1.94	66	61	76
6/13/2005	396	2.37	11	5.96	2.85	2.05	2.31	63	72	66
7/11/2005	265	< 1	< 1	1.23	1.89	1.35	1.68	68	44	44
8/3/2005	257	< 1	< 1	< 1	1.74	1.35	1.58	58	42	48
9/12/2005	249	< 1	1.29	1.27	1.78	1.92	2.11	59	51	54
10/11/2005	238	< 1	< 1	< 1	1.76	1.89	2.52	58	47	53
11/15/2005	288	< 1	< 1	1.22	< 1.4	2	3.02	72	52	67
12/19/2005	384	< 1	1.1	< 1	< 1.4	2.41	2.69	89	59	77
1/30/2006	854	2.04	2.56	2.07	2.91	3.05	2.75	107	94	96
2/22/2006	406		1.07	1.33		2.3	2.68		80	95
3/13/2006	1750	4.14	12.6	12.6	4.06	10.5	9.89	62	61	65
4/5/2006	494	< 1	< 1	1.18	< 1.4	1.76	2.31	99	79	92
5/15/2006	943	< 1	1.54	2.17	2.02	2.23	2.91	79	72	76
6/27/2006	367	< 1	1.26	1.19	1.82	1.62	1.88	68	50	58
7/26/2006	430	< 1	1.23	1.64	1.81	1.62	2.06	55	44	46
8/28/2006	681	2.82	2.12	1.72	3.25	2.4	2.4	31	45	50
9/14/2006	2580	4.65	7.1	6.27	4.37	6.49	5.33	20	35	34
10/2/2006	417	< 1	1.57	1.9	1.76	2.29	2.55	53	50	55
11/15/2006	618	< 1	< 1	< 1	1.74	2.43	2.61	59	61	67
12/4/2006	2090	< 1	1.25	1.46	1.94	2.51	2.8	43	52	50
1/17/2007	1670	< 1	1.05	1.18	1.96	2.38	2.46	57.1	54.4	55.5
2/26/2007	1530	< 1	2.16	2.39	1.91	2.92	2.97	42.2	50.9	48.7
3/15/2007	970	< 1	1.25	2	1.5	2.3	2.74	57.1	56.4	58.7
4/12/2007	1400	< 1	1.56	2.62	1.48	2.12	3.27	67	66	69
5/23/2007	418	< 1	1.34	1.16	1.74	2.38	2.57	57	42	48
6/12/2007	315	< 1	1.21	1.21	2.09	2.44	2.88	59	58	68
7/24/2007	324	< 1	< 1	< 1	1.77	2.1	2.36	60	45	52
8/22/2007	3190	1.98	2.03	2.68	2.88	3.15	3.48	43	44	45
9/4/2007	675	< 1	< 1	< 1	1.83	1.73	2.25	56	54	50
10/10/2007	332	< 1	1	1.01	< 1.4	2	2.6	58	45	65
11/29/2007	364	< 1	2.24	1.95	< 1.4	1.96	2.13	73	58	70
12/20/2007	511	< 1	1.16	1.04	< 1.4	2.02	2.03	65	61	67
1/29/2008	449	< 1	1.44	1.22	< 1.4	2.05	2.26	71	64	75
2/12/2008	905	< 1	1.22	1.19	1.53	2.34	2.34	58	66	64
3/13/2008	592	< 1	< 1	< 1	1.42	1.92	2.13	63	64	69
4/1/2008	1050	2.61	2.97	2.49	3.49	4.03	3.47	44	54	59
5/14/2008	943	< 1	1.03	1.53	1.7	2.05	2.42	50	52	56
6/5/2008	605	1.34	1.52	2.07	2.07	2.02	2.29	48	60	62
7/1/2008	452	1.14	< 1	< 1	1.89	1.49	2.02	58	48	54
8/4/2008	541	< 1	1.35	1.38	1.51	1.67	1.99	59	51	56
9/8/2008	922	< 1	1.24	1.07	1.61	1.97	1.87	64	58	53
10/29/2008	419	< 1	< 1	< 1	< 1.4	1.64	1.79	50	46	60
11/25/2008	400	< 1	< 1	< 1	< 1.4	1.52	1.55	67	60	68
12/4/2008	394	< 1	< 1	< 1	1.97	2.35	2.53	63	59	70
Geomean		**1.2**	**1.5**	**1.6**	**1.9**	**2.2**	**2.5**	**60**	**57**	**63**
Maximum		**4.65**	**12.6**	**12.6**	**4.37**	**10.5**	**9.89**	**107**	**94**	**96**

ATTACHMENT 40
Comparison of Data From Fixed Stations LCR 39, BD 2E and BD1

Date	Stream Flow at BD 1 (cfs)	Total Zinc (ug/l) LCR 39	Total Zinc (ug/l) BD 2E	Total Zinc (ug/l) BD 1	Ammonia-N (mg/l) LCR 39	Ammonia-N (mg/l) BD 2E	Ammonia-N (mg/l) BD 1	Total Suspended Solids (mg/l) LCR 39	Total Suspended Solids (mg/l) BD 2E	Total Suspended Solids (mg/l) BD 1
1/5/2004	397	< 6	6.79	< 6	< 0.1	0.3	0.3	4	4	7
2/23/2004	915	< 6	10.1	11.4	< 0.1	0.2	0.4	21	16	17
3/15/2004	537	< 6	< 6	< 6	< 0.1	0.2	0.2	< 4	8	12
4/12/2004	383	< 6	< 6	6.81	< 0.1	0.2	0.2	5	7	13
5/17/2004	829	< 6	< 6	9.62	0.1	0.2	0.2	14	14	32
6/2/2004	1550	10.5	11.9	12.4	< 0.1	< 0.1	< 0.1	33	50	49
7/7/2004	413	< 6	< 6	< 6	< 0.1	0.1	< 0.1	23	10	17
8/10/2004	268	7.3	< 6	< 6	< 0.1	0.2	0.2	17	10	10
9/1/2004	665	< 6	6.37	7.65	< 0.1	< 0.1	< 0.1	21	15	24
10/5/2004	296	< 6	< 6	< 6	< 0.1	0.2	0.2	5	7	8
11/3/2004	875	6.46	9.33	14.2	< 0.1	< 0.1	< 0.1	18	20	44
12/15/2004	712	< 6	6.58	7	< 0.1	0.3	0.3	7	9	10
1/3/2005	1150	14.6	12.9	15.1	< 0.1	0.1	0.2	35	45	49
2/2/2005	441	< 6	6.47	8.42	< 0.1	0.3	0.3	6	7	6
3/28/2005	623	< 6	6.78	< 6	< 0.1	0.2	0.1	5	6	9
4/11/2005	321	< 6	< 6	< 6	< 0.1	< 0.1	< 0.1	5	4	8
5/9/2005	305	< 6	7.56	8.26	< 0.1	0.3	0.3	6	10	19
6/13/2005	396	14.7	11.6	9.49	< 0.1	0.3	0.2	62	18	20
7/11/2005	265	6.03	< 6	6.72	< 0.1	< 0.1	< 0.1	24	8	10
8/3/2005	257	< 6	< 6	< 6	< 0.1	< 0.1	< 0.1	15	10	11
9/12/2005	249	< 6	6.67	6.89	< 0.1	0.2	0.1	11	8	8
10/11/2005	238	< 6	< 6	7.59	< 0.1	0.2	0.2	10	8	9
11/15/2005	288	< 6	7.3	8.58	< 0.1	0.2	0.2	5	7	10
12/19/2005	384	< 6	9.06	9.72	< 0.1	0.3	0.3	6	9	10
1/30/2006	854	25.6	25.8	21.5	< 0.1	0.1	0.1	42	40	28
2/22/2006	406		8.45	11.4		0.2	0.2		9	15
3/13/2006	1750	21.7	58.8	56.8	< 0.1	0.1	0.1	72	242	270
4/5/2006	494	< 6	7.69	8.78	< 0.1	0.2	0.1	4	11	15
5/15/2006	943	8.04	9.79	12.3	0.1	0.2	0.2	19	23	31
6/27/2006	367	8.81	8.11	9.54	< 0.1	0.1	< 0.1	26	11	13
7/26/2006	430	7.51	8.83	12.5	< 0.1	0.1	< 0.1	20	14	17
8/28/2006	681	18.7	12.8	10.9	< 0.1	0.1	0.1	58	17	15
9/14/2006	2580	29.3	39.1	30.9	< 0.1	< 0.1	< 0.1	105	161	124
10/2/2006	417	6.72	9.36	11.4	< 0.1	0.2	0.1	13	18	34
11/15/2006	618	< 6	9.07	8.58	< 0.1	0.2	< 0.1	< 4	9	12
12/4/2006	2090	6.48	11.1	11.4	< 0.1	0.1	0.1	11	18	25
1/17/2007	1670	7.51	8.32	8.76	< 0.1	0.15	0.139	9	15	18
2/26/2007	1530	9.73	14.2	15.1	0.169	0.285	0.317	28	53	47
3/15/2007	970	6.35	14.4	15.4	< 0.1	0.231	0.192			28
4/12/2007	1400	6.98	10.7	20.9	< 0.1	0.2	0.2	12	12	63
5/23/2007	418	< 6	8.65	8.44	< 0.1	0.1	0.1	10	10	14
6/12/2007	315	6.7	6.85	8.68	< 0.1	0.2	0.2	15	21	16
7/24/2007	324	< 6	6.74	6.93	< 0.1	< 0.1	< 0.1	10	11	12
8/22/2007	3190	11.9	12.7	14.6	< 0.1	< 0.1	< 0.1	35	43	55
9/4/2007	675	6.17	6	7.91	< 0.1	0.1	0.1	13	7	10
10/10/2007	332	< 6	6.77	8.44	< 0.1	0.1	< 0.1	4	9	11
11/29/2007	364	< 6	8.21	10.2	< 0.1	0.1	< 0.1	4	6	8
12/20/2007	511	< 6	9.02	8.95	< 0.1	0.1	0.1	5	9	8
1/29/2008	449	7.09	12.4	12.2	< 0.1	0.2	0.2	7	10	9
2/12/2008	905	7.32	11.4	11.9	< 0.1	0.2	0.2	10	10	10
3/13/2008	592	7.01	8.58	10.5	< 0.1	0.2	0.2	8	7	10
4/1/2008	1050	16	18.7	16.1	< 0.1	< 0.1	0.1	48	65	50
5/14/2008	943	6.25	8.64	11	< 0.1	0.2	0.1	11	15	26
6/5/2008	605	11.8	10.8	13.7	< 0.1	0.1	0.1	33	22	30
7/1/2008	452	9.63	7.49	8.23	< 0.1	0.1	0.1	13	9	14
8/4/2008	541	7.28	10.7	9.16	< 0.1	0.1	< 0.1	18	10	15
9/8/2008	922	< 6	8.86	7.13	< 0.1	0.2	0.2	23	12	12
10/29/2008	419	< 6	6.62	6.28	< 0.1	< 0.1	< 0.1	5	5	6
11/25/2008	400	< 6	11.8	9.83	< 0.1	0.1	0.1	6	4	4
12/4/2008	394	< 6	26.2	23.4	< 0.1	0.2	0.2	< 4	5	4
Geomean		**7.6**	**9.3**	**10**	**0.10**	**0.15**	**0.14**	**12**	**13**	**16**
Maximum		**29.3**	**58.8**	**56.8**	**0.169**	**0.3**	**0.4**	**105**	**242**	**270**

ATTACHMENT 41
Data From Fixed Station BD 1

Date	Stream Flow (cfs)	Barium (ug/l)	Hexavalent Chromium (ug/l)	Fluoride (mg/l)	Total Manganese (ug/l)	Total Selenium (ug/l)	Total Silver (ug/l)
1/5/2004	397	46	< 10	0.6	90.7	< 2	< 1
2/23/2004	915	50.7	< 10	0.4	163	< 2	< 1
3/15/2004	537	40.8	< 10	0.6	90	< 2	< 1
4/12/2004	383	44.3	< 10	0.6	93.4	< 2	< 1
5/17/2004	829	45.9	< 10	0.6	133	< 2.2	< 1
6/2/2004	1550	50.3	< 10	0.3	116	2.69	< 1
7/7/2004	413	41.8	< 10	0.5	110		< 1
8/10/2004	268	38.2	< 10	0.7	88	< 2.2	< 1
9/1/2004	665	44		0.4	98	< 2.2	< 1
10/5/2004	296	32.8	< 10	0.6	56	< 2.2	< 1
11/3/2004	875	49.4	< 10	0.2	143	< 2.2	< 1
12/15/2004	712	35.3	< 10	0.5	80.1	< 2.2	< 1
1/3/2005	1150	41.9		0.3	105	< 2.2	< 1
2/2/2005	441	38.6		0.5	125	< 2.2	9.2
3/28/2005	623	40.4	< 10	0.4	89.8	< 2.2	< 1
4/11/2005	321	41.7	< 10	0.4	99.6	5.56	< 1
5/9/2005	305	39.3	< 10	0.6	106	< 2.2	< 1
6/13/2005	396	38.3	< 10	0.6	151	< 2.2	< 1
7/11/2005	265	29.4	< 10	0.6	62.7	< 2.2	< 1
8/3/2005	257	31.9	< 10	0.6	69.7	< 2.2	< 1
9/12/2005	249	31.5	< 10	0.7	72.4	< 2.2	< 1
10/11/2005	238	33.2	< 10	0.6	64.6	< 2.2	< 1
11/15/2005	288	34.4	< 10	0.4	74.6	< 2.2	< 1
12/19/2005	384	35.4		0.7	86.9	< 2.2	< 1
1/30/2006	854	49.8	< 10	0.4	100	< 2.2	< 1
2/22/2006	406	38.6	< 10	0.6	98.5	< 2.2	< 1
3/13/2006	1750	86.2	< 10	0.2	384	< 2.2	< 1
4/5/2006	494	43.6	< 10	0.5	109	< 2.2	< 1
5/15/2006	943	47.1	< 10	0.4	111	< 2.2	< 1
6/27/2006	367	33.3	< 10	0.6	69.5	< 2.2	< 1
7/26/2006	430	37.4	< 10	0.5	85.6	< 2.2	< 1
8/28/2006	681	39.9	< 10	0.5	101	< 2.2	< 1
9/14/2006	2580	64.2	< 10	0.2	268	< 2.2	< 1
10/2/2006	417	44.4	< 10	0.5	129	< 2.2	< 1
11/15/2006	618	40.1	< 10	0.5	84.4	< 2.2	< 1
12/4/2006	2090	41.7		0.3	94.7	< 2.2	< 1
1/17/2007	1670	35.4		0.23	69.8	< 2.2	< 1
2/26/2007	1530	41.1		0.3	214	< 2.2	< 1
3/15/2007	970	41.4	< 10	0.41	114	< 2.2	< 1
4/12/2007	1400	41.2	< 10	0.3	178	< 2.2	< 1
5/23/2007	418	42.8	< 10	0.4	104	< 2.2	< 1
6/12/2007	315	40.7	< 10	0.4	108	2.28	< 1
7/24/2007	324	37.6	< 10	0.7	91.5	< 2.2	< 1
8/22/2007	3190	46.2	< 10	0.2	121	< 2.2	< 1
9/4/2007	675	40.1		0.4	327	< 2.2	< 1
10/10/2007	332	40.4	< 10	0.6	112	< 2.2	< 1
11/29/2007	364	37.7	< 10	0.5	94.2	< 2.2	< 1
12/20/2007	511	36	< 10	0.4	95.4	< 2.2	< 1
1/29/2008	449	41	< 10	0.4	160	< 2.2	< 1
2/12/2008	905	37.4	< 10	0.3	113	< 2.2	< 1
3/13/2008	592	38.2	< 10	0.3	120	< 2.2	< 1
4/1/2008	1050	45.5	< 10	0.2	124	< 2.2	< 1
5/14/2008	943	37.2	< 10	0.3	108	< 2.2	< 1
6/5/2008	605	43.4	< 10	0.4	160	< 2.2	< 1
7/1/2008	452	39.5		0.5	122	< 2.2	< 1
8/4/2008	541	37.1	< 10	0.6	104	< 2.2	< 1
9/8/2008	922	36.3		0.4	95.4	< 2.2	< 1
10/29/2008	419	41.2	< 10	0.3	86.2	< 2.2	< 1
11/25/2008	400	43.2	< 10	0.2	105	< 2.2	< 1
12/4/2008	394	36.2	< 10	0.2	92.8	< 2.2	< 1
Geomean		**41**		**0.41**	**108**		
Maximum		**86.2**		**0.7**	**384**		

ATTACHMENT 42
Effluent Data for ArcelorMittal Burns Harbor Outfall 002

Date	Chloride (mg/l)		Sulfate (mg/l)	
		Daily		Daily
Oct-05		14		28
Nov-05		20		16
Dec-05		15		21
Jan-06		12		23
Feb-06		14		19
Mar-06		14		19
Apr-06		18		27
May-06		15		28
Jun-06		15		24
Jul-06		12		25
Aug-06		11		25
Sep-06		15		27
Oct-06		16		33
Nov-06		12		29
Dec-06		12		26
Jan-07		10		28
Feb-07		14		26
Mar-07		15		22
Apr-07		18		29
May-07		20		28
Jun-07		12		23
Jul-07		14		24
Aug-07		13		25
Sep-07		12		22
Oct-07		12		26
Nov-07		14		29
Dec-07		15		31
Jan-08		14		26
Feb-08		14		49
Mar-08		15		25
Apr-08		18		28
May-08		17		26
Jun-08		15		24
Jul-08		13		23
Aug-08		15		24
Sep-08		12		21
Outlier Analysis	**mean**	**14**	**mean**	**26**
	std	**2.4**	**std**	**5.3**
	mean + 3std	**21**	**mean + 3std**	**42**
Reasonable Potential Analysis	**n**	**36**	**n**	**36**
	CV	**0.2**	**CV**	**0.2**
	max	**20**	**max**	**49**

ATTACHMENT 43

Reasonable Potential Statistical Procedure for ArcelorMittal Burns Harbor Using Outfall 002 Data

5/18/2009
12:31 PM

(calculated in accordance with 327 IAC 5-2-11.5)		Monthly Average Determination							Daily Maximum Determination						
Parameters	WQBELs Required*	Maximum Monthly Average (ug/l)	Number of Monthly Averages	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?	Maximum Daily Sample (ug/l)	Number of Daily Samples	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?
Total Ammonia (as N)															
Summer	No	166	15	0.4	1.3	220	540	No	290	65	0.6	1.0	290	1100	No
Winter	No	207	21	0.5	1.3	270	540	No	670	92	1.0	0.8	540	1100	No
Chloride	No					20000	188000	No	20000	36	0.2	1.0	20000	378000	No
Additional Criteria for Lake Michigan															
Sulfate	No					49000	205000	No	49000	36	0.2	1.0	49000	411000	No
Iron, Dissolved	No	104	36	0.5	1.1	110	250	No	240	157	0.7	0.9	220	490	No

*WQBELs Required:

[1] "Yes I" means that a projected effluent quality (PEQ) exceeded a preliminary effluent limitation (PEL) based on a Tier I criterion and WQBELs must be included in the NPDES permit.
[2] "Yes II" means that a PEQ exceeded a PEL based on a Tier II value and WQBELs must be included in the NPDES permit.
[3] "No" means that a PEQ did not exceed a PEL and WQBELs do not have to be included in the NPDES permit based on the reasonable potential statistical procedure.
[4] "Data" means that a PEQ exceeded a PEL based on an "estimated ambient screening value" and the permittee must generate sufficient data to develop a Tier I criterion or Tier II value for the parameter.

State Form 4336

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

Date: December 21, 2015

To: Richard Hamblin
Permits Branch

From: John Elliott JE
Permits Branch

Subject: Wasteload Allocation Report for ArcelorMittal Burns Harbor in Porter County (IN0000175, WLA002161)

Reasonable potential analyses for free cyanide and whole effluent toxicity (WET) were done for the renewal of the NPDES permit for ArcelorMittal Burns Harbor. The analyses were done for Outfall 001 which discharges to the East Branch of the Little Calumet River. The discharge through Outfall 001 is covered under the rules for the Great Lakes system. The effluent flow used in the analyses was 135 mgd.

The East Branch of the Little Calumet River is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. Therefore, the East Branch of the Little Calumet River and Portage-Burns Waterway are designated as salmonid waters. The East Branch of the Little Calumet River enters the Indiana Dunes National Lakeshore at S.R. 20 (upstream of Outfall 001) and leaves the Indiana Dunes National Lakeshore about 0.5 miles upstream of its confluence with Portage-Burns Waterway (about 1.0 miles downstream of Outfall 001). All waters incorporated in the Indiana Dunes National Lakeshore are designated in 327 IAC 2-1.5-19(b)(3) as an outstanding state resource water (OSRW).

The 2012 assessment unit for East Branch Little Calumet River at Outfall 001 is INC0143_04. This assessment unit is on the 2012 303(d) list for PCBs in fish tissue and impaired biotic communities. A TMDL for *E. coli* for East Branch Little Calumet River at the outfall was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. The Q7,10 of the East Branch of the Little Calumet River upstream of Outfall 001 is 21 cfs.

A reasonable potential analysis for Outfall 001 was done for free cyanide in accordance with the reasonable potential statistical procedure in 327 IAC 5-2-11.5(b). The facility provided effluent data for free cyanide as part of their permit renewal application. The calculation of the monthly average and daily maximum projected effluent quality (PEQ) for free cyanide is included in Table 1. The results of the reasonable potential procedure are included in Table 2 and they show that there is a reasonable potential to exceed for free cyanide. Therefore, water quality-based effluent limitations (WQBELs) are required for free cyanide. WQBELs for free cyanide are included in Table 3.

A reasonable potential analysis for WET was done in accordance with the Federal Great Lakes Guidance in 40 CFR Part 132. U.S. EPA overpromulgated Indiana's reasonable potential procedure for WET in 327 IAC 5-2-11.5(c)(1) and Indiana is now required to apply specific portions of the Federal Great Lakes Guidance when conducting reasonable potential analyses for WET. Indiana's requirements are included under 40 CFR Part 132.6. The results of the reasonable potential analysis for WET show that the discharge has a reasonable potential to exceed the numeric interpretation of the narrative criterion for chronic WET. Therefore, WQBELs are required for WET.

Once a determination is made that WQBELs are required for WET, the WQBELs are established in accordance with 327 IAC 5-2-11.6(d). This provision allows a case-by-case determination of whether to establish a WQBEL for only acute or chronic WET, or WQBELs for both acute and chronic WET, the number of species required for testing and the particular species required for testing. The purpose of this WLA report is not to make these determinations, but to provide the numerical limits. The numerical limits for acute and chronic WET are included in Table 3. The documentation of the wasteload allocation analysis is included as an attachment.

TABLE 1
Calculation of Projected Effluent Quality
For ArcelorMittal Burns Harbor in Porter County
(IN0000175, WLA002161)

Parameter	Monthly Average PEQ					Daily Maximum PEQ				
	Maximum Monthly Average (mg/l)	Number of Monthly Averages	CV	Multiplying Factor	Monthly Average PEQ (mg/l)	Maximum Daily Sample (mg/l)	Number of Daily Samples	CV	Multiplying Factor	Daily Maximum PEQ (mg/l)
Cyanide, Free	0.0182	3	0.6	3.0	0.055	0.0537	14	1.7	2.5	0.13

12/21/2015

TABLE 2
Results of Reasonable Potential Statistical Procedure
For ArcelorMittal Burns Harbor in Porter County
(IN0000175, WLA002161)

Parameter	Monthly Average Comparison			Daily Maximum Comparison			WQBELs Required?
	Monthly Average PEQ (mg/l)	Monthly Average PEL (mg/l)	PEQ > PEL?	Daily Maximum PEQ (mg/l)	Daily Maximum PEL (mg/l)	PEQ > PEL?	
Cyanide, Free	0.055	0.0044	Yes	0.13	0.0088	Yes	Yes

12/21/2015

TABLE 3
Water Quality-based Effluent Limitations
For ArcelorMittal Burns Harbor in Porter County
(IN0000175, WLA002161)

Parameter	Quality or Concentration Monthly Average	Quality or Concentration Daily Maximum	Units	Quantity or Loading* Monthly Average	Quantity or Loading* Daily Maximum	Units	Monthly Sampling Frequency
Cyanide, Free	0.0044	0.0088	mg/l	5.0	9.9	lbs/day	4
Whole Effluent Toxicity							
Acute		1.0	TUa				
Chronic	1.0		TUc				

*Based on an effluent flow of 135 mgd.

12/21/2015

Documentation of Wasteload Allocation Analysis For Discharges to the Great Lakes System

Analysis By: John Elliott
Date: December 21, 2015
WLA Number: 002161

Facility Information

- **Name:** ArcelorMittal Burns Harbor
- **NPDES Permit Number:** IN0000175
- **Permit Expiration Date:** February 29, 2016
- **County:** Porter
- **Purpose of Analysis:** Reasonable potential analysis for the permit renewal.
- **Outfall Number:** 001
- **Facility Operations:** Treated process wastewater from Internal Outfall 011 (which includes treated sanitary wastewater from the Town of Burns Harbor's WWTP permitted under operational permit (INJ060801)), noncontact cooling water, storm water, and Lake Michigan water used for control of effluent temperature
- **Current Permitted Flow:** 137 mgd (used to calculate WQBELs in current permit)
- **Type of Treatment:** None besides the treatment for sources to Internal Outfall 011
- **Current Effluent Limits:** This table only includes the parameters for which a reasonable potential analysis is being conducted.

Parameter	Monthly Average		Daily Maximum		Measurement Frequency
	(mg/l)	(lbs/day)	(mg/l)	(lbs/day)	
Acute WET (TUa)#	--	--	Report	--	Quarterly
Chronic WET (TUc)+	Report	--	--	--	Quarterly

\# An acute toxicity reduction evaluation trigger of 1.0 TUa applies to the discharge.
\+ A chronic toxicity reduction evaluation trigger of 1.0 TUc applies to the discharge.

- **Effluent Flow for WLA Analysis:** 135 mgd (Under 327 IAC 5-2-11.4(a)(9) the effluent flow used to develop WLAs for industrial dischargers is the highest monthly average flow from the previous two years of monitoring. An alternate effluent flow value may be used if the discharger provides flow data that supports the alternate value. The highest monthly average flow from November 2013 through October 2015 was 133 mgd and occurred during September 2014. The highest monthly average flow during the term of the current permit (March 2011 through October 2015) was 135 mgd and occurred in August 2011. It was decided to use the value of 135 mgd since data are available to support it and it is noted as the maximum monthly average flow in the NPDES permit renewal application. The monthly average flow data are included in Attachment 1.)

Pollutants of Concern and Type of WLA Analysis

Pollutants of Concern and Type of WLA Analysis		
Parameter	**Type of Analysis**	**Reason for Inclusion on Pollutants of Concern List**
Free Cyanide	RPE	Data collected for permit renewal and submitted on Form 2C were elevated. Internal Outfall 011 has a technology-based effluent limitation for total cyanide.
Acute and Chronic WET	RPE	Monitored in current permit.

Receiving Stream Information

- **Receiving Stream:** Outfall 001 discharges to the East Branch of the Little Calumet River to Portage-Burns Waterway to the Indiana portion of the open waters of Lake Michigan; Outfall 001 is within the Indiana Dunes National Lakeshore (see Attachment 2)
- **Drainage Basin:** Lake Michigan
- **Public Water System Intakes Downstream:** None on the East Branch of the Little Calumet River or Portage-Burns Waterway. There are several public water system intakes in Lake Michigan, but none will impact this analysis.
- **Designated Stream Use:** The East Branch of the Little Calumet River is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. Portage-Burns Waterway is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. Lake Michigan is designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The East Branch of the Little Calumet River and its tributaries downstream to Lake Michigan via Burns Ditch (Portage-Burns Waterway) are designated in 327 IAC 2-1.5-5(a)(3)(B) as salmonid waters and shall be capable of supporting a salmonid fishery. Therefore, the East Branch of the Little Calumet River and Portage-Burns Waterway are designated as salmonid waters. The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-5(a)(3)(G) as a salmonid water and shall be capable of supporting a salmonid fishery. The East Branch of the Little Calumet River enters the Indiana Dunes National Lakeshore at S.R. 20 (upstream of Outfall 001) and leaves the Indiana Dunes National Lakeshore about 0.5 miles upstream of its confluence with Portage-Burns Waterway (about 1.0 miles downstream of Outfall 001). All waters incorporated in the Indiana Dunes National Lakeshore are designated in 327 IAC 2-1.5-19(b)(3) as an outstanding state resource water (OSRW). The Indiana portion of the open waters of Lake Michigan is designated in 327 IAC 2-1.5-19(b)(2) as an outstanding state resource water (OSRW).
- **12 Digit HUC:** 040400010403
- **Assessment Unit (2012):** INC0143_04 (Little Calumet River, East Arm)
- **303(d) List (2012):** At the outfall (Assessment Unit INC0143_04), East Branch Little Calumet River is on the 2012 303(d) list for PCBs in fish tissue and impaired biotic

communities. Portage-Burns Waterway (assessment unit INC0159_02) is on the 2012 303(d) list for PCBs in fish tissue. The Lake Michigan shoreline from Portage-Burns Waterway east to Trail Creek (assessment unit INC0163G_G1093) is on the 2012 303(d) list for mercury and PCBs in fish tissue. Lake Michigan (Assessment Unit INM00G1000_00) is on the 2012 303(d) list for mercury and PCBs in fish tissue.

- **TMDL Status:** A TMDL for *E. coli* for East Branch Little Calumet River at the outfall and Portage-Burns Waterway was approved by U.S. EPA January 28, 2005 and is part of the Little Calumet/Burns Ditch TMDL. A TMDL for *E. coli* for the Lake Michigan shoreline was approved by U.S. EPA September 1, 2004 and is part of the Lake Michigan TMDL.
- **Q7,10 (Outfall):** 21 cfs
- **Q1,10 (Outfall):** 20 cfs
- **Harmonic Mean Flow (Outfall):** 48 cfs

(USGS gaging station 04094000 Little Calumet River at Porter is upstream of the outfall at S.R. 20. The drainage area at this gage is 66.2 mi^2, the Q7,10 is 21 cfs, the Q1,10 is 20 cfs, and the harmonic mean flow is 48 cfs. The drainage area and stream design flows were obtained from the book Low-Flow Characteristics for Selected Streams in Indiana by Kathleen K. Fowler and John T. Wilson, published in 2015 by the USGS.)

- **Nearby Dischargers:** The Chesterton WWTP (IN0022578) and Praxair (IN0043435) discharge to East Branch Little Calumet River upstream of Outfall 001. U.S. Steel - Midwest Plant (IN0000337) has three outfalls on Portage-Burns Waterway downstream of Outfall 001. The Chesterton WWTP currently does not have limits for any metals other than mercury. Praxair has limits for total residual chlorine, but the discharge flow is small in comparison to the stream flow. Therefore, none of these dischargers will impact this analysis.

Calculation of Preliminary Effluent Limitations

For free cyanide, water quality is only measured if samples measured for total cyanide show values above the limit of quantitation (LOQ). Water quality data for total cyanide upstream of the outfall were obtained from fixed water quality monitoring station LCR 39 East Branch Little Calumet River at Porter. The station is located at S.R. 149, south of U.S. Highway 12. The station is downstream of the Chesterton WWTP and upstream of Praxair. Monitoring for total cyanide was discontinued in May 2006. The period January 2004 through May 2006 was used in the analysis and all values were less than the LOQ. Therefore, the background concentration of free cyanide was set equal to zero. The data for total cyanide are in Attachment 3.

The coefficient of variation used to calculate monthly average and daily maximum PELs was set equal to the default value of 0.6. The number of samples per month used to calculate monthly average PELs was set equal to 4 for free cyanide based on the expected monitoring frequency. The spreadsheet used to calculate PELs for all pollutants of concern is included in Attachment 4.

Reasonable Potential Analysis

Calculation of Projected Effluent Quality

The facility provided effluent data for free cyanide for Outfall 001 as part of their permit renewal application. The data were collected in May, July and August 2015. The data are included in Attachment 5. The facility currently has technology-based effluent limitations for total cyanide at internal Outfall 011. The effluent data used in the reasonable potential analysis include values reported as less than (<) the LOD. There is no procedure in the rules for handling effluent data reported as less than the LOD. As a conservative first test of reasonable potential, they were set equal to the LOD.

Comparison of PEQs to PELs

The reasonable potential analysis using Outfall 001 data is included in Attachment 6. The results show that a PEQ exceeds a PEL for free cyanide. Therefore, water quality-based effluent limitations (WQBELs) are required for free cyanide.

Calculation of Water Quality-based Effluent Limitations

The PELs for free cyanide in Attachment 4 are based on water quality criteria and may be included in an NPDES permit as WQBELs.

Reasonable Potential Analysis for Whole Effluent Toxicity (WET)

U.S. EPA disapproved the reasonable potential procedure for whole effluent toxicity at 327 IAC 5-2-11.5(c)(1). In place of 327 IAC 5-2-11.5(c)(1), IDEM is required to apply Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132. The following analysis is based on Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CFR Part 132.

Effluent Data

The permit renewal effective March 1, 2011 required ArcelorMittal Burns Harbor to monitor its effluent for acute and chronic WET using *Ceriodaphnia dubia* and Fathead Minnow for three months and then quarterly for the duration of the permit. The discharge has not shown any acute toxicity to either species and only chronic toxicity to *Ceriodaphnia dubia*. Based on demonstrated toxicity, the facility conducted two toxicity reduction evaluations (TREs) during the term of the permit. Effluent data for *Ceriodaphnia dubia* beginning August 2014 are considered representative since completion of the last TRE. All of the WET data collected under the term of the current permit are included in Attachment 7.

Reasonable Potential Analysis for Acute WET

The WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above the numeric interpretation of the narrative criterion for acute WET at 2-1.5-8(b)(1)(E)(ii) when effluent specific WET data demonstrates that:

(TUa effluent) x (B) x (effluent flow)/(Qad + effluent flow) > AC, where:

TUa effluent = maximum acute WET result
B = multiplying factor from 5-2-11.5(h)
effluent flow = effluent flow used to calculate WQBELs for individual pollutants
Qad = amount of receiving water available for dilution
AC = numeric interpretation of the narrative criterion for acute WET

For ArcelorMittal Burns Harbor the calculations are:

TUa effluent = <1.0 TUa (*Ceriodaphnia dubia* and Fathead Minnow)
B = 1.0 (based on 28 samples for *C. dubia* and a CV of 0.0)
effluent flow = 135 mgd
Qad = 0.0 mgd (an alternate mixing zone has not been approved for acute WET)
AC = 1.0 TUa (the applicable numeric interpretation of the narrative criterion for acute WET for the case where an alternate mixing zone for acute WET has not been approved)

(<1.0 TUa effluent) x (1.0) x (135 mgd)/(0.0 mgd + 135 mgd) = <1.0 TUa

It cannot be demonstrated that the calculated value is greater than 1.0 TUa, so there is no reasonable potential for acute WET.

Reasonable Potential Analysis for Chronic WET

The WET of an effluent is or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above the numeric interpretation of the narrative criterion for chronic WET at 2-1.5-8(b)(2)(A)(iv) when effluent specific WET data demonstrates that:

(TUc effluent) x (B) x (effluent flow)/(Qad + effluent flow) > CC, where:

TUc effluent = maximum chronic WET result
B = multiplying factor from 5-2-11.5(h)
effluent flow = effluent flow used to calculate WQBELs for individual pollutants
Qad = amount of receiving water available for dilution
CC = numeric interpretation of the narrative criterion for chronic WET

For ArcelorMittal Burns Harbor the calculations are:

TUc effluent = 2.0 TUc (*Ceriodaphnia dubia*)
B = 1.9 (based on 8 samples and a CV of 0.6)
effluent flow = 135 mgd
Qad = 3.5 mgd (25% of the Q7,10 (14 mgd))
CC = 1.0 TUc

(2.0 TUc) x (1.9) x (135 mgd)/(3.5 mgd + 135 mgd) = 3.7 TUc

Since the calculated value is greater than 1.0 TUc, there is reasonable potential for chronic WET.

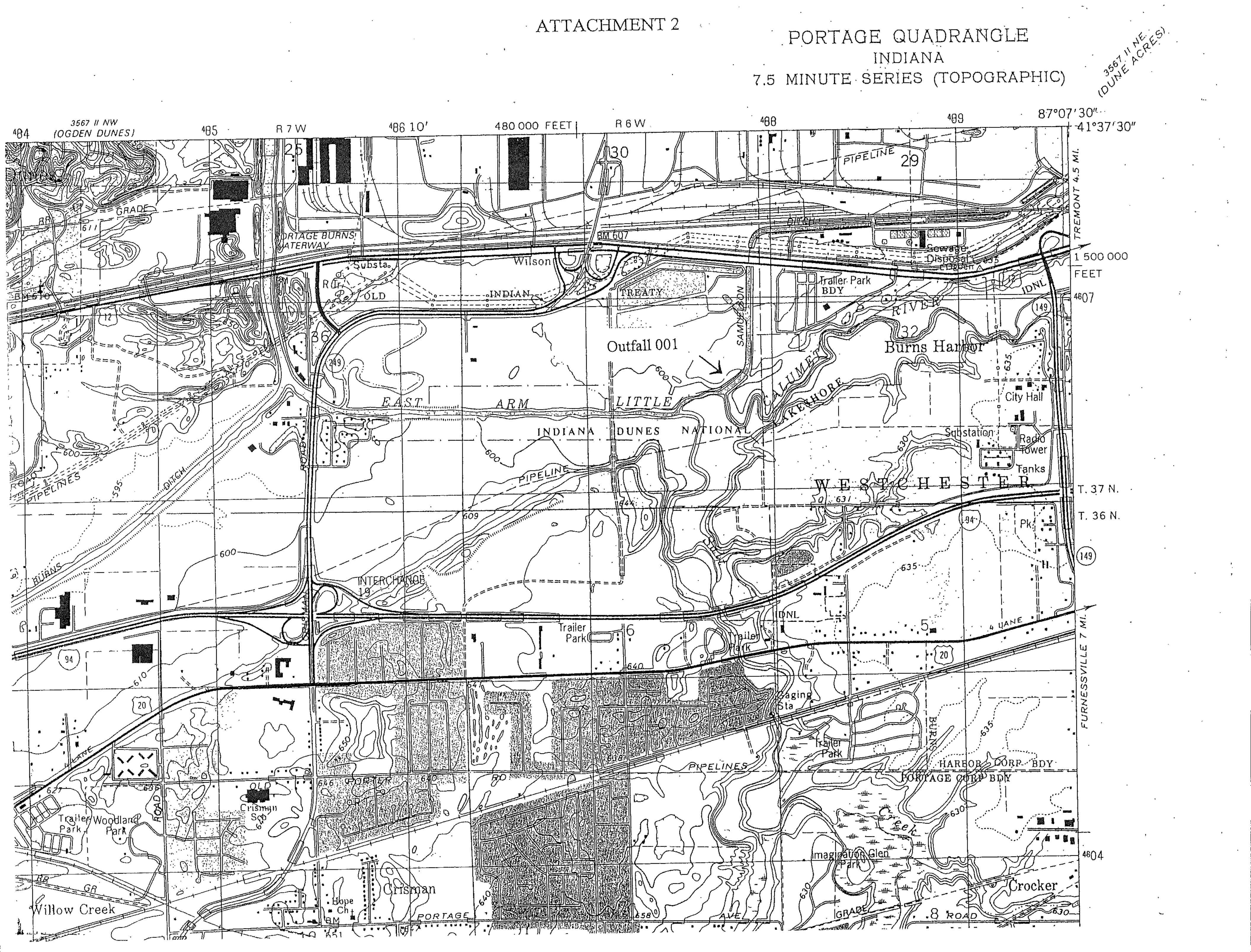
List of Attachments
Attachment 1: Outfall 001 Flow Data
Attachment 2: Map of Outfall Location
Attachment 3: Calculation of Background Concentrations
Attachment 4: Calculation of Preliminary Effluent Limitations
Attachment 5: Effluent Data
Attachment 6: Reasonable Potential to Exceed Analysis
Attachment 7: Whole Effluent Toxicity Data

ATTACHMENT 1
ArcelorMittal Burns Harbor Monthly Average Flow

Month	Outfall 001 (mgd)
Mar-11	105.9
Apr-11	104.1
May-11	108.8
Jun-11	118.8
Jul-11	114
Aug-11	135.4
Sep-11	117.8
Oct-11	117.9
Nov-11	107.8
Dec-11	118.5
Jan-12	117.5
Feb-12	121.4
Mar-12	128.1
Apr-12	121.7
May-12	121.1
Jun-12	119.1
Jul-12	128.6
Aug-12	119.8
Sep-12	119.1
Oct-12	113.1
Nov-12	112.4
Dec-12	110.8
Jan-13	108.2
Feb-13	115.6
Mar-13	120.7
Apr-13	122.6
May-13	119.2
Jun-13	120.0
Jul-13	122.6
Aug-13	119.6
Sep-13	125.7
Oct-13	115.2
Nov-13	121.9
Dec-13	120.4
Jan-14	121.4
Feb-14	121.3
Mar-14	123.6
Apr-14	122.3
May-14	119.5
Jun-14	123.4
Jul-14	125.8
Aug-14	129.7
Sep-14	132.7
Oct-14	127.5
Nov-14	112.1
Dec-14	116.2
Jan-15	112
Feb-15	114.1
Mar-15	114.4
Apr-15	114.7
May-15	122.2
Jun-15	123.3
Jul-15	121.7
Aug-15	122.1
Sep-15	127.3
Oct-15	112.4
Maximum	
3-11 thru 10-15	**135.4**
Last 2 Years	**132.7**

ATTACHMENT 2

PORTAGE QUADRANGLE
INDIANA
7.5 MINUTE SERIES (TOPOGRAPHIC)



ATTACHMENT 3
Calculation of Background Concentrations
Data From Fixed Station LCR 39

Date	Total Cyanide (mg/l)	Adjusted Total Cyanide (mg/l)
1/5/2004	< 0.005	0.0025
2/23/2004	< 0.005	0.0025
3/15/2004	< 0.005	0.0025
4/12/2004	< 0.005	0.0025
5/17/2004	< 0.005	0.0025
6/2/2004	< 0.005	0.0025
7/6/2004	< 0.005	0.0025
8/9/2004	< 0.005	0.0025
9/1/2004	< 0.005	0.0025
10/4/2004	< 0.005	0.0025
11/3/2004	< 0.005	0.0025
12/15/2004	< 0.005	0.0025
1/3/2005	< 0.005	0.0025
2/2/2005	< 0.005	0.0025
3/28/2005	< 0.005	0.0025
4/11/2005	< 0.005	0.0025
5/9/2005	< 0.005	0.0025
6/13/2005	< 0.005	0.0025
7/11/2005	< 0.005	0.0025
8/3/2005	< 0.005	0.0025
9/12/2005	< 0.005	0.0025
10/11/2005	< 0.005	0.0025
11/15/2005	< 0.005	0.0025
12/19/2005	< 0.005	0.0025
1/30/2006	< 0.005	0.0025
3/13/2006	< 0.005	0.0025
4/5/2006	< 0.005	0.0025
5/15/2006	< 0.005	0.0025
Geomean		**0.0025**

ATTACHMENT 4
Calculation of Preliminary Effluent Limitations

12/21/2015
4:29 PM

Discharger Name:	ArcelorMittal Burns Harbor
Receiving Stream:	East Branch Little Calumet River

			Mixing Zone
Discharge Flow	=	135 mgd	
Q1,10 receiving stream (Outfall)	=	13 mgd	
Q7,10 receiving stream (Outfall)	=	14 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	mgd	25%
Harmonic Mean Flow (Outfall)	=	31 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	mgd	25%
Q90,10 receiving stream	=	mgd	25%
Dilution Factor (for acute mixing zone)	=		
Hardness (50th percentile)	=	mg/l	
Chloride (50th percentile)	=	mg/l	
Sulfate (50th percentile)	=	mg/l	
Stream pH (50th percentile)	=	s.u.	
Summer Stream Temperature (75th percentile)	=	C	
Summer Stream pH (75th percentile)	=	s.u.	
Winter Stream Temperature (75th percentile)	=	C	
Winter Stream pH (75th percentile)	=	s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum		
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	#NUM!	#NUM!
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron		
Lead	#NUM!	#NUM!
Manganese	1.000	1.000
Mercury	0.85	0.85
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium		0.922
Silver	0.85	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

														Indiana Water Quality Criteria for the Great Lakes System (ug/l)							Preliminary Effluent Limitations (calculated in accordance with 327 IAC 5-2-11.4 and 11.6)					
														A	B	C	D	E	F	G						
														Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Wildlife Criteria						
Source of Criteria [1]							Background	BCC	Add.	Samples/	CV	CAS		Acute	Chronic	Drinking	Nondrinking	Drinking	Nondrinking		Concentration (ug/l)[3]		Mass (lbs/day)		Criteria	
A	B	C	D	E	F	G	(ug/l)			Month		Number	Parameters[2]	(CMC)	(CCC)	(HNC-D)	(HNC-N)	(HCC-D)	(HCC-N)	(WC)	Average	Maximum	Average	Maximum	Type	Basis
1	1						0			4	0.6	57125	Cyanide, Free	22	5.2						4.4	8.8	5	9.9	Tier I	CCC
													Whole Effluent Toxicity (WET)													
1													Acute (TUa) without Mixing Zone	1.0								1.0				
	1												Chronic (TUc)		1.0						1.0					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5); 327 IAC 2-1.5-8(b)(6), Table 8-3; 327 IAC 2-1.5-8(b)(7), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The preliminary effluent limitations (PELs) for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

[8] The above noted substances have a criterion that is a function of an ambient downstream water quality characteristic.

[9] The ambient downstream water quality characteristic must be entered for both chloride and sulfate and it cannot exceed the applicable chronic aquatic life criterion for the substance.
Preliminary effluent limitations (PELs) for chloride and sulfate shall not be used to establish water quality-based effluent limitations that do not ensure the water quality criteria for both substances are achieved in the receiving waterbody.

Last revised: 25 July 2013

ATTACHMENT 5
Effluent Data for ArcelorMittal Burns Harbor Outfall 001

	Free Cyanide (mg/l)		
Date	**Daily**	**Adjusted Daily**	**Monthly Average**
5/5/2015	0.0537	0.0537	
5/6/2015	0.031	0.031	
5/13/2015	<0.002	0.002	
5/14/2015	<0.002	0.002	
5/18/2015	0.0096	0.0096	
5/19/2015	0.0107	0.0107	0.0182
7/14/2015	<0.002	0.002	
7/15/2015	<0.002	0.002	
7/21/2015	<0.002	0.002	
7/22/2015	<0.002	0.002	
7/28/2015	<0.002	0.002	
7/29/2015	<0.002	0.002	0.002
8/4/2015	<0.002	0.002	
8/5/2015	<0.002	0.002	0.002
Outlier Analysis	**mean**	**0.00893**	
	std	**0.0151**	
	mean + 3std	**0.0543**	
Reasonable Potential Analysis	**n**	**14**	**3**
	CV	**1.7**	**--**
	max	**0.0537**	**0.0182**

ATTACHMENT 6

Reasonable Potential Statistical Procedure

12/21/2015
4:33 PM

(calculated in accordance with 327 IAC 5-2-11.5)		Monthly Average Determination							Daily Maximum Determination						
Parameters	WQBELs Required*	Maximum Monthly Average (ug/l)	Number of Monthly Averages	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?	Maximum Daily Sample (ug/l)	Number of Daily Samples	CV	MF	PEQ (ug/l)	PEL (ug/l)	PEQ > PEL?
Cyanide, Free	Yes I	18.2	3	0.6	3.0	55	4.4	Yes	53.7	14	1.7	2.5	130	8.8	Yes

ATTACHMENT 7
ArcelorMIttal Burns Harbor Outfall 001
Whole Effluent Toxicity Data*

Species: ***Ceriodaphnia dubia*** [+]

Date	LC50 (%)	Acute (TU_a)	Adjusted Acute (TU_a)	NOEC (%)	IC25 (%)	Chronic (TU_c)	Adjusted Chronic (TU_c)
May-11	>100	<1.0	1.0	50	79.7	1.3	
Jun-11	>100	<1.0	1.0	50	65.1	1.5	
Jul-11	>100	<1.0	1.0	100	90.5	1.0	
Jul-11	>100	<1.0	1.0	50	60.8	1.6	
Aug-11	>100	<1.0	1.0	100	>100	<1.0	
Sep-11	>100	<1.0	1.0	50	63.5	1.6	
Jul-12	>100	<1.0	1.0	100	>100	<1.0	
Aug-12	>100	<1.0	1.0	100	>100	<1.0	
Sep-12	>100	<1.0	1.0	100	>100	<1.0	
Nov-12	>100	<1.0	1.0	100	>100	<1.0	
Feb-13	>100	<1.0	1.0	100	>100	<1.0	
Jun-13	>100	<1.0	1.0	50	85.2	1.2	
Jul-13	>100	<1.0	1.0	25	63.6	1.6	
Aug-13	>100	<1.0	1.0	100	>100	<1.0	
Sep-13	>100	<1.0	1.0	50	84.4	1.2	
Nov-13	>100	<1.0	1.0	12.5	39	2.6	
Dec-13	>100	<1.0	1.0	25	95.7	1.0	
Feb-14	>100	<1.0	1.0	100	>100	<1.0	
May-14	>100	<1.0	1.0	100	>100	<1.0	
Jun-14	>100	<1.0	1.0	50	>100	<1.0	
Aug-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Sep-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Oct-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Mar-15	>100	<1.0	1.0	100	>100	<1.0	1.0
Jun-15	>100	<1.0	1.0	25	48.96	2.0	2.0
Jul-15	>100	<1.0	1.0	100	>100	<1.0	1.0
Sep-15	>100	<1.0	1.0	100	84.78	1.0	1.0
Oct-15	>100	<1.0	1.0	100	>100	<1.0	1.0
n			**28**				**8**
CV			**0.0**				
Maximum			**1.0**				**2.0**

Species: **Fathead Minnow**

Date	LC50 (%)	Acute (TU_a)	Adjusted Acute (TU_a)	NOEC (%)	IC25 (%)	Chronic (TU_c)	Adjusted Chronic (TU_c)
May-11	>100	<1.0	1.0	100	>100	<1.0	1.0
Jun-11	>100	<1.0	1.0	100	>100	<1.0	1.0
Jul-11	>100	<1.0	1.0	100	>100	<1.0	1.0
Aug-11	>100	<1.0	1.0	100	>100	<1.0	1.0
Sep-11	>100	<1.0	1.0	100	>100	<1.0	1.0
Jul-12	>100	<1.0	1.0	100	>100	<1.0	1.0
Aug-12	>100	<1.0	1.0	100	>100	<1.0	1.0
Sep-12	>100	<1.0	1.0	100	>100	<1.0	1.0
Nov-12	>100	<1.0	1.0	100	>100	<1.0	1.0
Feb-13	>100	<1.0	1.0	100	>100	<1.0	1.0
Jun-13	>100	<1.0	1.0	100	>100	<1.0	1.0
Aug-13	>100	<1.0	1.0	100	>100	<1.0	1.0
Nov-13	>100	<1.0	1.0	100	>100	<1.0	1.0
Feb-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Jun-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Aug-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Oct-14	>100	<1.0	1.0	100	>100	<1.0	1.0
Mar-15	>100	<1.0	1.0	100	>100	<1.0	1.0
Jun-15	>100	<1.0	1.0	100	>100	<1.0	1.0
Sep-15	>100	<1.0	1.0	100	>100	<1.0	1.0
n			**20**				**20**
CV			**0.0**				**0.0**
Maximum			**1.0**				**1.0**

* The Permit issued February 7, 2011 required monthly sampling for three months and then quarterly monitoring for the duration of the permit. The facility conducted two toxicity reduction evaluations (TREs) during the term of the permit. Chronic data for *C. dubia* beginning August 2014 are considered representative data since completion of the last TRE.

[+] The data for this species were used in the reasonable potential analysis.

12/21/2015

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO. 20211214 – IN0000175 – F
DATE OF NOTICE: DECEMBER 14, 2021

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MAJOR - RENEWAL

CLEVELAND-CLIFFS BURNS HARBOR LLC (formerly ArcelorMittal Burns Harbor LLC), Permit No. IN0000175, LAKE COUNTY, 250 West U.S. Highway 12, Burns Harbor, IN. This major industrial facility is a steel mill that manufactures intermediate and final products consisting of coke and coke making byproducts, sinter, molten iron, raw steel, steel slabs, hot rolled strip, plate, cold rolled strip and hot dip galvanized strip. The facility discharges 341 million gallons daily to the East Branch of the Little Calumet River, Burns Waterway Harbor, and Lake Michigan via existing permitted outfalls. The discharges consist of sanitary wastewater, treated process and non-process wastewaters, and storm water. The facility withdraws its water from Lake Michigan. Permit Manager: Trisha Williams, 317/234-8210, twilliam@idem.in.gov.

Notice of Right to Administrative Review [Permits]

If you wish to challenge this Permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA) and serve a copy of the Petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

Director
Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue - Room N103
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue - Room 1301
Indianapolis, Indiana 46204

The Petition must contain the following information:

1. The name, address and telephone number of each petitioner.
2. A description of each petitioner's interest in the Permit.
3. A statement of facts demonstrating that each petitioner is:
    a. a person to whom the order is directed;
    b. aggrieved or adversely affected by the Permit;
    c. entitled to administrative review under any law.
4. The reasons for the request for administrative review.
5. The particular legal issues proposed for review.
6. The alleged environmental concerns or technical deficiencies of the Permit.
7. The Permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
8. The identity of any persons represented by the petitioner.
9. The identity of the person against whom administrative review is sought.
10. A copy of the Permit that is the basis of the petition.
11. A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the Permit. Examples are:

1. Failure to file a Petition by the applicable deadline;
2. Failure to serve a copy of the Petition upon IDEM when it is filed; or
3. Failure to include the information required by law.

If you seek to have a Permit stayed during the Administrative Review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.
Pursuant to IC 4-21.5-3-17, OEA will provide all parties with Notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to Notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above.
More information on the appeal review process is available on the website for the Office of Environmental Adjudication at http://www.in.gov/oea.