National Pollutant Discharge Elimination System
for
ARCELORMITTAL USA LLC – INDIANA HARBOR EAST
Draft: April 2017

Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
www.idem.IN.gov

Permittee:	ArcelorMittal Steel USA LLC – Indiana Harbor East 3210 Watling Street East Chicago, IN 46312
Existing Permit Information:	Permit Number: IN0000094 Administratively Extended Since: 11/30/16
Facility Contact:	Thomas Barnett (219)399-2380 or Thomas.Barnett@arcelormittal.com
Facility Location:	3210 Watling Street East Chicago, IN 46312 Lake County
Receiving Stream:	Indiana Harbor and Indiana Harbor Ship Canal
GLI/Non-GLI:	GLI
Proposed Permit Action:	Permit Renewal
Date Application Received:	June 3, 2016
Source Category	NPDES Major – Integrated Iron and Steel Manufacturing Facility 40 CFR 420 Iron and Steel Manufacturing Point Source
Permit Writer:	Richard Hamblin (317)232-8696 or rhamblin@idem.in.gov

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1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM) received a National Pollutant Discharge Elimination System (NPDES) Permit application from ArcelorMittal Steel USA Inc. on June 3, 2016. A five year permit is proposed in accordance with 327 IAC 5-2-6(a). The current five year permit was issued with an effective date of December 1, 2011, and was modified August 1, 2014, and on September 16, 2016 which addressed the SMV request at 014 and 018 in accordance with 327 IAC 5-2-6(a). The expiration date remains November 30, 2016.

The Federal Water Pollution Control Act of 1972 and subsequent amendments require a NPDES permit for the discharge of wastewater to surface waters. Furthermore, Indiana Code (IC) 13-15-1-2 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 both 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 Indiana Administrative Code (IAC) 327 Article 5, development of a Fact Sheet is required for NPDES permits. This document fulfills the requirements established in those 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, and wasteload allocations to meet Indiana Water Quality Standards. Decisions to award variances to Water Quality Standards or promulgated effluent guidelines are justified in the Fact Sheet where necessary.

2.0 FACILITY DESCRIPTION

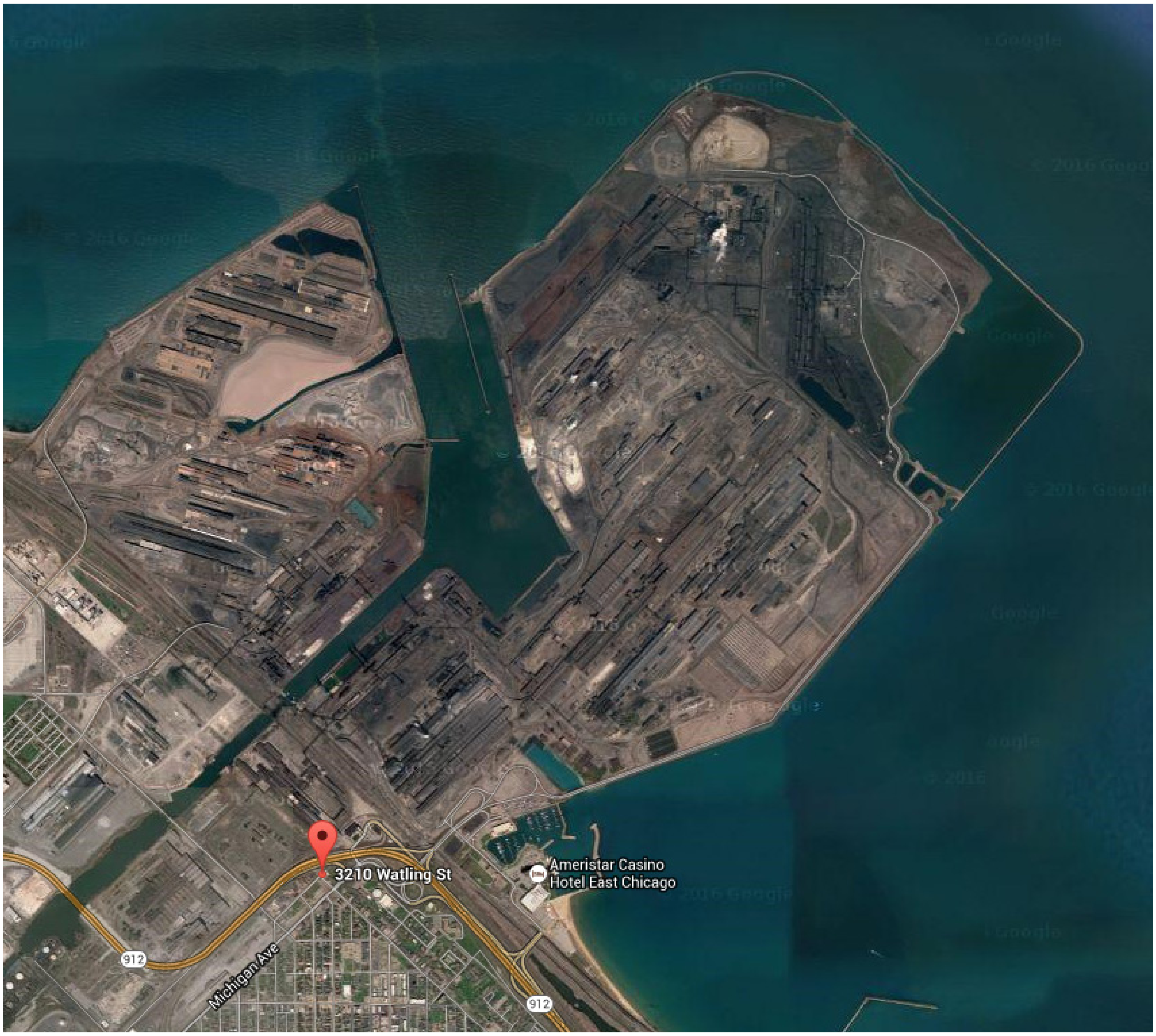
2.1 General

ArcelorMittal Steel USA LLC – Indiana Harbor East is classified under Standard Industrial Classification (SIC) Code 3312 – Steel Mill.

ArcelorMittal USA LLC – Indiana Harbor East is an integrated steel mill. Intermediate and final products include sinter, molten iron, crude steel, cast steel slabs, flat-rolled hot strip, cold rolled steels, and hot dip galvanized steel. Intermediate steel products produced at other ArcelorMittal facilities may be processed at Indiana Harbor East.

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

Figure 1: Facility Location



2.2 Outfall Locations, Receiving Stream, Flows, and Sources of Wastestreams

Outfall	Latitude			Longitude			Water Body	Avg. Flow MGD	Operation
011	41˚	39'	50"	-87˚	26'	23"	Indiana Harbor Turning Basin	28.9	NCCW and boiler blowdown from the No. 2 AC Power Station, and stormwater
014	41˚	40'	02"	-87˚	26'	23"	Indiana Harbor Turning Basin	7.28	Blowdown from the Main Plant Recycle System and stormwater
018	41˚	40'	29"	-87˚	26'	08"	Indiana Harbor Turning Basin	14.5	NCCW, Outfall 518, 618, cooling tower blowdown, low volume wastes from Boiler House, stormwater
518	41˚	40'	50"	-87˚	87'	25"	Indiana Harbor Turning Basin via 018	0.087	No. 7 Blast Furnace Scrubber System, Blowdown Treatment Plant
618	41˚	40'	32"	-87˚	25'	52"	Indiana Harbor Turning Basin via 018	0.637	No. 4 Steel Plant Treatment and Recycling System

*Outfalls 613, 003, 007, 008, and 013 have been removed.

Figure 2: Outfall Location

Outfall Descriptions

A simplified water schematic is located in the Appendix, Figure 2-01.

OUTFALL 003 - Removed

Outfall 003 had been an intermittent discharge from the Outfall 003 Scale Pit, which received some low-volume contact cooling water from the Main Machine Shop, storm water from roadways and parking areas adjacent to the Main Machine shop, groundwater, and miscellaneous non-process wastewaters. Outfall 003 normally discharged to the Master Recycle System, but during periods of heavy rainfall could overflow to the Indiana Harbor Ship Canal. The facility has stated that Outfall 003 no longer is a point source and has requested that this outfall be removed. Outfall 003 has been removed from this permit.

OUTFALL 007 – Removed

Outfall 007 was a storm water outfall that discharged to the Indiana Harbor Ship Canal. The outfall was sealed in June 2014 thus it has been removed from the permit.

OUTFALL 008 - Removed

Outfall 008 was comprised of intermittent discharge of non-contact cooling water, boiler blowdown from the No. 2 AC Power Station, groundwater, and miscellaneous non-process wastewaters. No discharges have occurred for several years. The No. 2 AC Power Station is down, and the facility has stated that there is no possibility of a discharge. Therefore, at the permittee’s request, Outfall 008 is being removed from this permit.

OUTFALL 011

Outfall 011 is comprised of non-contact cooling water (NCCW), boiler blowdown from the No. 2 AC Power Station, storm water runoff, groundwater, and miscellaneous non-process wastewaters. There is no wastewater treatment associated with Outfall 011. The NCCW is chlorinated for zebra mussel control, and dechlorinated prior to discharge. The Wasteload Allocation was based on a flow of 30.3 MGD.

OUTFALL 013 - Removed

Outfall 013 was an intermittent discharge from the Terminal Treatment Plant – West. Terminal Treatment Plant – West is part of the Main Plant Recycle System tributary to Outfall 014. Outfall 013 has only discharged 5 days from January 2013 to December 2015. However, the facility has redesigned Outfall 013 to continute to discharge through Outfall 014 per normal operations. Therefore, Outfall 013 has been removed per the permittee’s request.

OUTFALL 014

Outfall 014 is the main discharge from the Terminal Treatment Plant – West. The discharge from Outfall 014 is comprised of the blowdown from the Main Plant Recycle System. The system includes process and cooling water from hot forming operations (80" hot strip mill); pickling operations (No.5 pickle line, continuous anneal line); cold rolling mills (80" tandem mills; Nos. 27, 28 and 29 temper mills); alkaline cleaning lines; hot coating lines (No.5 hot dip galvanizing line); the No. 2 Steel Plant (i.e. BOF); the Nos. 2 & 3 Continuous Casters; treated sanitary wastewaters (No. 1, No. 2 and No. 3 sewage treatment plants); storm water, groundwater, and miscellaneous non-process wastewaters. The NCCW is chlorinated for zebra mussel control, the dechlorinated prior to discharge. Applicable effluent guidelines for the associated discharge from 014 are regulated under 40 CFR 420. Schematics may be found in Figure 2-01, 2-04, 2-05, 2-06, 2-14. The Wasteload Allocation was based on a flow of 7.7 MGD.

In an amendment to the permit renewal application, the permittee provided the following information and request: Final treatment of process water from the Master Recycle System includes sedimentation in two large settling basins prior to discharge to Outfall 014.

OUTFALL 613 – REMOVED

Outfall 613 was comprised of low-volume blowdown from No. 5 and No.6 Blast Furnace gas cleaning and cooling water treatment and recycle system that discharged to the Terminal Treatment Plant – West. Nos. 5 and 6 Blast Furnaces were permanently shut down in 2013. There is no longer a discharge from Outfall 613 thus it has been removed from the permit.

OUTFALL 018

Outfall 018 is comprised of non-contact cooling water; treated effluents from the No. 4 Steel Plant (BOF), Vacuum Degasser (RHOB), and No. 1 Continuous Caster (internal Outfall 618); treated effluents from the No. 7 Blast Furnace gas scrubber system (internal Outfall 518); cooling tower blowdown and low-volume waste from the No. 5 Boiler House, cooling tower blowdown from the CokEnergy co-generating facility, storm water run-off and non-contact cooling water and storm water run-off from the Indiana Harbor Coke Company, groundwater, and miscellaneous non-process wastewaters. The NCCW is chlorinated for zebra mussel control, the dechlorinated prior to discharge. Applicable effluent guidelines for the associated discharge from 014 are regulated under 40 CFR 420. Schematics may be found in Figure 2-02, 2-03, 2-07, 2-08 and 2-09. The Wasteload Allocation was based on a flow of 16.4 MGD.

The term *low volume waste sources,* from the No. 5 Boiler House, as defined in 40 CFR 423.11(b), and include primarily water softener regeneration and rinse water and boiler blowdown.

Process water and blowdown treatment for the No. 4 Steel Plant (BOF), the Vacuum Degasser (RHOB) and No. 1 Continuous Caster are described under Outfall 618.

Process water and blowdown treatment for the No. 7 Blast Furnace is described under 518.

OUTFALL 518

Outfall 518 is the internal outfall for the No. 7 Blast Furnace gas scrubbing system. Groundwater and miscellaneous non-process wastewaters may also be present. Treated wastewaters are limited and monitored prior to mixing with non-contact cooling water and storm water for discharge through Outfall 018. Applicable effluent guidelines for the discharge associated with the blast furnace are regulated under 40 CFR 420.34(a). Additional Schematics may be found in the Appendix Figure 2-02, 2-03.

The gas cleaning system for the No. 7 Blast Furnace is a high rate process water recycle system that supplies water to clean the blast furnace off-gas through a high energy wet scrubber. Dirty water from the Bishoff gas scrubber is treated through two large diameter thickeners and a cooling tower and then recycled back to the scrubber. Blowdown from the scrubber system is sent to the No. 7 Blast Furnace Lafarge slag granulation system. The thickener underflow is dewatered in a recessed chamber filter press. Filtration is returned to the thickener and dry cake is sent off site for disposal.

Excess water from the No. 7 Lafarge slag granulation system is sent to the No. 7 blast furnace blowdown treatment plant, which consists of pH adjustment, cyanide precipitation and alkaline chlorination. The discharge from the No. 7 Blast Furnace blowdown treatment system constitutes Outfall 518.

OUTFALL 618

Outfall 618 is the internal outfall for the No. 4 Steel Plant (BOF), the Vacuum Degasser (RHOB) and the No. 1 continuous caster process water systems. Groundwater and miscellaneous non-process wastewaters may also be present. Treated wastewater is limited and monitored prior to mixing with non-contact cooling water and discharge to Indiana Harbor via Outfall 018. Applicable effluent guidelines for the associated discharge from Outfall 618 are regulated under 40 CFR 420; schematics may be found in the Appendix Figure 2-07, 2-08, 2-09.

The gas cleaning system for No. 4 Steel Plant (BOF) is a high rate process water recycle system that suppliers water to clean BOF off-gas through four venturi scrubbers. Gas cleaning water is treated in large diameter thickeners for solids removal and most of the water is returned directly back to the venturi scrubbers. The remainder of the water is blown down to the No. 4 Steel Plant blowdown filtration facility for treatment prior to discharge to Outfall 618. The thickener underflow is dewatered in a recessed chamber filter press. Filtrate is returned to the thickeners and dry cake is returned to the steel making process via the briquetting plant or disposed of off-site.

The RHOB water system is a high rate process water recycle system that supplies contact cooling water to the (vacuum degasser) barometric condensers. Discharge from the condensers returns to a cooling tower and is then recycled back to the condensers. A side stream of water is treated through two inclined plate separators (Lamella clarifiers) for solids removal and then returned to the system. The underflow from the separators is discharged to the No. 4 Steel Plant Grit Boxes (thickeners). This discharge is the only blowdown from the RHOB water treatment system.

The No. 1 Continuous Caster water system is a high rate recycle system that supplies water to the No. 1 Slab Caster and scarfer for machine cooling sprays, roll cooling, scale breaking and flume flushing. A separate system for machine and mold cooling consisting of non-contact cooling tower and heat exchangers blows down to the caster system. Treatment consists of a scale pit with oil and scale recovery, a cooling tower, and high rate multi-media filtration. A small amount of water is blown down from the caster system to the No. 4 Steel Plant Treatment and Recycle System.

The No. 4 Steel Plant Treatment and Recycle System treats the combined blowdown from the No. 4 Steel Plant (BOF) and the No. 1 Continuous Caster and RHOB through high rate multi-media filters prior to discharge at Outfall 618. Blowdown from the filtration facility is from the overflow of the No. 4 Steel Plant thickeners.

Description Treatment Plants – West, North and East

Terminal Treatment Plant – West (TTPW) Figure 2-04, 2-05, 2-06

TTPW consists of two scalping tanks and two settling basins and a cooling tower. Most of the effluent from the TTPW is discharged to the No. 6 Pump House and is then recycled back to the mills as process and cooling water. The remaining water is the only blowdown from the Main Plant Recycle System and constitutes the discharge from Outfall 014.

Gas cleaning waters from the No. 2 Steel Plant (BOF) are treated in thickeners for solids removal and recycled back to the No. 2 Steel Plant scrubbers. A small blowdown from the scrubber system is treated in a blowdown clarifier prior to discharge to the TTPW.

The No. 2 and No. 3 Continuous Casters have closed loop cooling water systems for mold and machine cooling and a separate treatment and recycle system for spray water consisting of a roughing pit, scale pit with oil removal and high rate multi-media filtration followed by a cooling tower. Filter backwash is solidified using lime fines or other appropriate material for off-site disposal. The caster recycle system blows down a small amount of filtered water to TTWP.

Clamshell buckets are used to remove mill scale from scale pits and accumulated solids from wastewater treatment basins. Mill scale is passively dewatered and recycled through the sinter plant. Solids collected from settling basins are landfilled.

Terminal Treatment Plant – North (TTPN), Figure 2-13, 2-14, 2-15, 2-16

TTPN is composed of settling basins (scalping tanks) and a cooling tower located at the north end of the cold strip mill. The discharge from TTPN is recycled directly back to the mill as process and cooling water. TTPN receives process and cooling water from the finishing end of the No. 3 Cold Strip Mill Complex. Overflow from the TTPN is directed to a storm water retention basin from which there is no discharge.

Terminal Treatment Plant – East (TTPE); Figure 2-12, 2-13, 2-15

TTPE consists of two scalping tanks and three settling tanks and three settling basins and a cooling tower. All the effluent from TTPE is discharge to the No. 6 Pump house and is then recycled back to the mills as process and cooling water. The following operations discharge to TTPE:

- The 80" hot strip mill is equipped with four scalping tanks and four large diameter clarifiers for preliminary removal of heavy solids and oil prior to discharge to the TTPE scale pits. (Figure 2-10)
- No. 3 Cold Strip Mill process wastewaters (cold rolling, alkaline cleaning and hot coating lines) are treated in a clarifier and dissolved air floatation to remove emulsified oils and then are combined with 80" hot strip mill wastewater for additional treatment in large diameter clarifiers prior to discharge to the TTPE scalping tanks. (Figure 2-12)
- Pickling rinse water from the No. 5 Pickle Line is neutralized with caustic at the No. 3 Cold Strip Mill neutralization facility prior to discharge to the TTPE scalping tanks. Rinse water from the CAL line discharges directly to the TTPE scalping tanks. (Figure 2-11)

Solids from the scale pits and settling basins are removed by either drag outs or clam shell buckets. They are passively dewatered and most are returned to the process via the sinter plant. Solids (scale) that cannot be used in the sinter plant are solidified using lime fines or other appropriate material for off-site disposal. Underflow from the clarifiers is solidified using lime fines or other appropriate material for off-site disposal.

2.3 Wastewater Treatment

Outfall	Treatment
011	Chlorination, dechlorination,
014	Sedimentation, coagulation, dechlorination, rapid sand filtration, trickling filtration, sludge lagoons, pressure filtration, gravity thickening, Recycle or Treated Effluent
018	Chlorination, dechlorination,
518	Flocculation, Rapid Sand Filtration, Sedimentation, carbon absorption, chemical oxidation, Chemical precipitation, Chlorination, Dechlorination, Pressure Filtration
618	Rapid Sand Filtration, Multimedia Filtration, Sedimentation, Flotation thickening, Gravity Thickening, Pressure Filtration

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

Removal of Outfall 613

The No. 5 and No. 6 Blast Furnaces were shut down in June 2013. Operations will not resume, thus Outfall 613 has been removed from the permit.

Changes effecting Production Based Limits

- Production operations at the 56" Tandem Mill and No. 4 Pickling Line terminated in February 2006. Operations will not resume.
- No. 27 Tandem Mill idled in February 2006, it is not known if production will resume.
- No. 28 Tandem Mill idled in October of 2015 but is expected to resume operations.

Removal of the Monitoring Program for Total and Free Cyanide and Fluoride

Sampling was required for Cyanide and Fluoride to determine if the discharge of these pollutants required water quality based limits. Based on the sampling data the discharge did not exhibit a reasonable potential to exceed (RPE) for Total and Free Cyanide and Fluoride, thus the monitoring requirements that were required in the permit modification that became effective on August 1, 2014 on page 79 of 83 will not be required in the permit renewal.

Removal of Outfalls 003, 007, 008, and 013

For the reasons identified in Section 2.2, the above mentioned outfalls are not included in this NPDES permit.

2.5 Facility Storm Water

Outfall	Latitude			Longitude			Water Body
SW14	41	40	962	87	26	783	Indiana Harbor Turning Basin
SW13	41	40	822	87	24	485	Indiana Harbor Turning Basin
SW12	41	39	827	87	24	987	Indiana Harbor Turning Basin
SW11	41	39	532	87	25	355	Indiana Harbor Turning Basin
SW10	41	39	500	87	27	400	Indiana Harbor Ship Canal
SW9	41	39	617	87	27	72	Indiana Harbor Turning Basin
SW8	41	39	719	87	26	915	Indiana Harbor Ship Canal

SW7	41	39	945	87	26	393	Indiana Harbor Turning Basin
SW6	41	39	878	87	26	305	Indiana Harbor Turning Basin
SW5	41	40	168	87	26	075	Indiana Harbor Turning Basin
SW4	41	40	280	87	26	128	Indiana Harbor Turning Basin
SW3	41	40	387	87	26	200	Indiana Harbor Turning Basin
SW2	41	40	458	87	26	268	Indiana Harbor Turning Basin
SW1	41	40	658	87	26	299	Indiana Harbor Turning Basin

SW1 – SW14 have not discharged in the term of the current permit.

3.0 PERMIT HISTORY

3.1 Compliance history

A review of this facility's discharge monitoring data was conducted for compliance verification. There are no pending or current enforcement actions regarding this NPDES permit.

4.0 PERMIT LIMITATIONS

Two categories of effluent limitations exist for NPDES permits: Technology-Based Effluent Limits (TBELs) and Water Quality-Based Effluent Limits (WQBELs).

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 USEPA for specific industrial categories. Technology based treatment requirements under section 301(b) of the CWA represent the minimum level of control/treatment using available technology that must be imposed in a section 402 permit (40 CFR 125.3(a)).

In the absence of ELGs, TBELs can also be based upon Best Professional Judgment (BPJ) under 40 CFR 122.43, 122.44, 125.3, and Section 402(a)(1) of the Clean Water Act (CWA).

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 under the procedures described in 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16 and implementation procedures in 327 IAC 5. Limitations and/or monitoring are required for parameters identified by applications of the reasonable potential to exceed WQBEL under 327 IAC 5-2-11.5.

According to 40 CFR 122.44 and 327 IAC 5, NPDES permit limits are based on either TBELs, where applicable, BPJ, 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. In addition, when performing a permit renewal, existing permit limits must be considered. These may be TBELs, WQBELs, or limits based on BPJ. When renewing a permit, the antibacksliding provisions identified in 327 IAC 5-2-10(11) are taken into consideration.

4.1 Existing Permit Limits

Table 4.1: Outfall 003 and 013

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
TSS	Report	Report	lbs/day	Report	Report	mg/l
Oil and Grease	Report	Report	lbs/day	Report	Report	mg/l
Lead	Report	Report	lbs/day	Report	Report	ug/l
Zinc	Report	Report	lbs/day	Report	Report	ug/l
Ammonia	Report	Report	lbs/day	Report	Report	mg/l
Phenols	Report	Report	lbs/day	Report	Report	mg/l
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l
Parameter	Monthly Average	Daily Maximum	Units			
pH	6.0	9.0	s.u.			

Table 4.2: Outfall 008

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
Oil and Grease	Report	Report	lbs/day	Report	Report	mg/l
Ammonia	Report	Report	lbs/day	Report	Report	mg/l
Lead	Report	Report	lbs/day	Report	Report	ug/l
Zinc	Report	Report	lbs/day	Report	Report	ug/l
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l
Phenols	Report	Report	lbs/day	Report	Report	mg/l
Temp						
Effluent				Report	Report	ºF
Influent				Report	Report	ºF
TRC	Report	Report	lbs/day	Report	Report	mg/l
Parameter	**Monthly Average**	**Daily Maximum**	**Units**			
pH	6.0	9.0	s.u.			

Table 4.3 Outfall 011

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
Oil and grease		Report	lbs/day		Report	mg/l
Ammonia		Report	lbs/day		Report	mg/l
Lead		Report	lbs/day		Report	ug/l
Zinc		Report	lbs/day		Report	ug/l
Phenols		Report	lbs/day		Report	mg/l
Mercury	0.00092	0.0023	lbs/day	1.3	3.2	ng/l
Temp	See Attachment A, Thermal Requirements					
Effluent				Report	Report	ºF
Influent				Report	Report	ºF
TRC	8.5	19	lbs/day	12	27	ug/l
Parameter	**Monthly Average**	**Daily Maximum**	**Units**			
pH	6.0	9.0	s.u.			

Table 4.4 Outfall 014

	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
TSS	6620	17092	lbs/day	Report	Report	mg/l
Oil and Grease	1553	4568	lbs/day	10	15	mg/l
Ammonia	Report	Report	lbs/day	Report	Report	mg/l
T. Cyanide	7.38	17.41	lbs/day	Report	Report	mg/l
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l
Phenols	Report	Report	lbs/day	Report	Report	mg/l
T Lead	5.9	12	lbs/day	61	120	ug/l
T Zinc	14.91	35	lbs/day	Report	Report	ug/l
*Naphthalene		1.8	lbs/day		Report	mg/l
*Tetrachloroethylene (PERC)		2.69	lbs/day		Report	mg/l
Mercury	0.00012	0.00031	lbs/day	1.3	3.2	ng/l
TRC	1.2	2.9	lbs/day	13	30	ug/l
Temperature	See Attachment A, Thermal Requirements					
Effluent				Report	Report	ºF
Influent				Report	Report	ºF
Hex Chrome	Report	Report	lbs/day	Report	Report	mg/l
Biomonitoring	See Section A, Whole Effluent Toxicity Testing					
Parameter	Monthly Average	Daily Maximum	Units			
pH	6.0	9.0	s.u.			

*a monitoring waiver for Naphthalene and PERC was granted based on data provided from 12/31/2011 – 7/31/2014.

Table 4.5: Internal Outfall 613
The outfall has been removed from this renewed permit; there is no longer a discharge associated with 613.

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
TSS	Report	Report	lbs/day	Report	Report	mg/l
Ammonia	100	300	lbs/day	Report	Report	mg/l
T. Cyanide	8.73	17.41	lbs/day	Report	Report	mg/l
Phenols	0.32	0.64	lbs/day	Report	Report	mg/l
T. Lead	Report	Report	lbs/day	Report	Report	ug/l
T. Zinc	Report	Report	lbs/day	Report	Report	ug/l

Table 4.6 Outfall 018

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
Oil and Grease					Report	mg/l
Free Cyanide	Report	Report	lbs/day	Report	Report	mg/l
Ammonia	Report	Report	lbs/day	Report	Report	mg/l
Phenols	Report	Report	lbs/day	Report	Report	mg/l
T. Lead	5.0	10	lbs/day	38	77	ug/l
T. Zinc	24	48	lbs/day	180	360	ug/l
Mercury	0.00017	0.00042	lbs/day	1.3	3.2	ng/l
TRC	1.7	4.0	lbs/day	13	30	ug/l
Temperature	See Attachment A, Thermal Requirements					
Effluent				Report	Report	ºF
Influent				Report	Report	ºF
Selenium	Report	Report	lbs/day	Report	Report	mg/l
Biomonitoring	See Section A, Whole Effluent Toxicity Testing					
Parameter	Monthly Average	Daily Maximum	Units			
pH	6.0	9.0	s.u.			

Table 4.7: Internal Outfall 518

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
TSS	91.24	243.71	lbs/day	Report	Report	mg/l
Oil and Grease		60.82	lbs/day		Report	mg/l
Ammonia	60.82	182.47	lbs/day	Report	Report	mg/l
T Cyanide	6.08	12.16	lbs/day	Report	Report	mg/l
Phenols	0.61	1.22	lbs/day	Report	Report	mg/l
T Lead	1.32	2.28	lbs/day	Report	Report	ug/l
T Zinc	2.73	8.21	lbs/day	Report	Report	ug/l
TRC		3.04	lbs/day		Report	mg/l
Selenium	Report	Report	lbs/day	Report	Report	mg/l

Table 4.8: Internal Outfall 618

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units
Flow	Report	Report	MGD			
TSS	360	720	lbs/day	Report	Report	mg/l
Oil and Grease	102	216	lbs/day	Report	Report	mg/l
T Lead	2.16	6.48	lbs/day	Report	Report	ug/l
T Zinc	3.5	10.5	lbs/day	Report	Report	ug/l

4.2 Technology-Based Effluent Limits (TBEL)

The federal effluent guidelines contained in 40 CFR 433; Metal Finishing, are not applicable to discharges from this facility. The ArcelorMittal Steel USA LLC – Indiana Harbor East utilizes a process called "hot dip galvanizing". On the one hot dip galvanizing line at Indiana Harbor East, cold rolled steel sheet is cleaned with a mild sulfuric acid solution, followed by alkaline cleaning to remove residual acid and iron salts. A fluxing agent is applied to the cleaned sheet and then it is immersed in a molten zinc bath where the sheet surface is coated with zinc. The thickness of the zinc coating is controlled by "air knives" that apply high pressure air to the sheet surface as it leaves molten zinc bath. The sheet is then air dried.

Certain automotive customers require that the galvanized sheet be passivated with a chromate solution to prevent light oxidation of the zinc coating. The chromate solution is not applied on all galvanized coils. The solution is contained in two, 55 gallon drums located near the end of the line. Each drum is equipped with sprays to apply solution. The small amount of excess chromate solution (overspray) is collected in drip pans that are positioned under the sprays and is disposed of off-site when a sufficient quantity is collected. There is no process water application in this part of the process and there is no process wastewater generated.

The chromate passivation step is not a coating or plating operation in the sense of the effluent limitations guidelines for metal finishing (i.e., chromium plating) because the chromate solution in the hot dip galvanizing process is not applied to or chemically bound to the base metal (steel).

The hot dip galvanizing process is regulated by 40 CFR Part 420, Subpart L - Hot Coating Category (see 420.120 for applicability). Footnote 1 to the BAT effluent limitations guidelines states that the ELGs for hexavalent chromium shall be applicable only to hot dip galvanizing operations that discharge wastewaters from the chromate rinse step. Thus, a permit limit for hexavalent chromium is not necessary in the case of the hot dip galvanizing line at Indiana Harbor East. However, for the purpose of confirmation, 2 X Year monitoring for Hexavalent Chromium has been included at Outfall 014.

40 CFR 423 Steam Electric Power Generating Point Source Category:

The federal effluent guidelines contained in 40 CRF 423; Steam Electric Power Plants, are not applicable to discharges from this facility. The provisions of 40 CFR 423 are applicable only to discharges resulting from the operation of a generating unit by an establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas). ArcelorMittal generates power solely for use at ArcelorMittal Indiana Harbor facilities; East and Long Carbon.

40 CFR 420 Iron and Steel Manufacturing Point Source Category:

Attachment C presents the derivation of the applicable technology-based effluent limitations guidelines and standards for the permittee for each process wastewater outfall. For each of the basic steelmaking and steel finishing operations, the NPDES production rates developed by the permittee were used in combination with the BPT, BAT or BCT effluent limitations guidelines or NSPS from 40 CFR Part 420 to compute the allowable federal technology based discharges of the regulated pollutants.

The effluent limitations guidelines and standards applicable to the permittee are found in 40 CFR Part 420 for ironmaking, steelmaking, vacuum degassing, continuous casting, hot forming, acid pickling, cold forming, alkaline cleaning and hot coating operations.

OUTFALL	Operation	Applicable ELGs	Production (tons/day)
518	No 7 Blast Furnace	420.34(a)	12,000
014	No. 2 BOF	420.42/43(b)	5342
014	NO. 3 BOF Casters	420.64	5278
618	No. 4 BOF	420.42/4(c)	8505
618	RHOB(Degasser)	420.54	5967
618	No. 1 Caster	420.62/63	8101
014	80" Hot Strip Mill	420.72/77(c)(1)	16871
014	80" Tandem Mill	420.102/103(a)(2)	9955
014	No. 27 Temper Mill	420.102/103(a)(5)	0**
014	No. 28 Temper Mill	420.102/103(a)(5)	4752
014	No. 29 Temper Mill	420.102/103(a)(4)	5421
014	No.5 Pickling Line	420.92/93(b)(2	7853
014	Pickling Fume Scrubbers	420.92/93(b)(4)	1 scrubber
014	No. 5 Galvanizing Line	420.122/123(a)(1)	1173
014	No. 3 CAL Alkaline Cleaning	420.112(b)	1117

*Production operations at the 56" Tandem and the No 4 Pickle Line were terminated in February of 2006 and will not be resuming, they were not included in the table.

**The No. 27 Temper Mill was idled in February of 2006, it is not known if production at the No. 27 Temper Mill will resume, thus remain in the applicable ELGs table. The proposed technology based limits are reflective of the current status of the operations at the facility.

Monitoring Waivers for Naphthalene and Tetrachlorothylene

In accordance with 40 CFR 122.44(a)(2), a discharger subject to technology-based effluent limitation guidelines and standards in a NPDES permit may be authorized to forego

sampling of a pollutant found in 40 CFR Subchapter N if the discharger has demonstrated through sampling and other technical factors that the pollutant is not present in the discharge or present only at the background level from the intake water and without any increase in the pollutant due to activities of the discharger. This waiver is good only for the term of the permit. Any request must demonstrate through sampling or other technical information, including information generated during an earlier permit term that the pollutant is not present in the discharge or is present only at background levels from intake water and without any increase in the pollutant due to activities of the discharger. The monitoring waiver must be included in the permit as an express permit condition and the reason supporting the waiver must be documented in the permit's fact sheer or statement of basis. This provision does not supersede certification processes and requirements already established in existing effluent limitation guidelines and standards.
The permittee has requested to continue the monitoring waiver for Naphthalene and Tetrachlorothylene and based on the sampling data submitted in 2014 the request to waiver has been approved.

4.3 Water Quality Based Limits (follow link for detailed information)

The water quality-based effluent limitations for this facility are based on water quality criteria in 327 IAC 2-1.5-8 or under the procedures described in 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16 and implementation procedures in 327 IAC 5. The need for WQBELs was determined using the Great Lakes system reasonable potential procedures contained in 327 IAC 5-2-11.5. Water quality-based effluent limitations were calculated using the surface water criteria for the Great Lakes system contained in 327 IAC2-1.5 and the following implementation procedures contained in 327 IAC 5-2-11.4 and the procedures for calculating WQBELs from the wasteload allocations contained in 327 IAC 5-2-11.6.

In addition to establishing WQBELs based on the reasonable potential statistical procedure contained in 327 IAC 5-2-11.5(b), IDEM is also required to established WQBELs under 327 IAC 5-2-11.5(a) "If the commissioner determines that a pollutant or pollutant parameter (either conventional or nonconventional, toxic substance, or whole effluent toxicity (WET) is or may be discharged into the Great Lakes system at a level that will cause, or have the reasonable potential to cause, or contribute to an excursion above any applicable narrative criteria or numeric water quality criterion or value under 327 IAC 2-1.5."

Once a determination is made using the reasonable potential provisions under 5-2-11.5 that WQBELs must be included in the permit, the WQBELs are calculated in accordance with 5-2-11.5(d). Under this provision, in the absence of an EPA-approved TMDL, WLAs are calculated for the protection of acute and chronic aquatic life, wildlife, and human health in accordance with the WLA provisions under 5-2-11.4. The WLAs are then converted into WQBELs in accordance with the WQBEL provisions under 5-2-11.6. In accordance with 5-2-11.5(e), IDEM may still include monitoring requirements for a pollutant in the permit if the reasonable potential analysis does not show the need for WQBELs for the pollutant.

Narrative Water Quality Based Limits

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

Numeric Water Quality Based Limits

The numeric water quality criteria and values contained in this permit have been calculated using the tables of water quality criteria under 327 IAC 2-1.5-8(b) & (c).

4.4 Permit Limits Narrative By Parameter

The proposed final effluent limitations are based on the more stringent of the Indiana WQBELs, TBELS, or approved TMDLs and NPDES regulations as appropriate for each regulated outfall.

Flow

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

pH

Limitations for pH in the proposed permit are taken from 327 IAC 2-1.5-8(c)(2).

TSS

Effluent limitations for Total Suspended Solids have been retained from the previous permit at final outfall 014 and were developed in accordance with the 40 CFR 420 and the applicable subparts.

TSS limits have been calculated using current production values for internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

TSS limits have been retained from the previous permit at internal outfall 618. These limits were developed in accordance with 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Oil and Grease (O & G)

O & G limitations at Outfall 014 and 018 have been retained from the previous permit. The limits are 15.0 mg/l Daily Maximum and 10.0 mg/l Monthly Average. Although Indiana does not have a numeric water quality criterion for Oil and Grease, these limits are considered sufficient to ensure 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 other conditions in such a degree to create a nuisance.

O & G limits have been calculated using current production values for internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

O & G limits have been retained from the previous permit at internal outfall 618. These limits were developed in accordance with 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Total Residual Chlorine (TRC)

Outfall 008, 011, 014, and 018
The facility adds chlorine to the intake water, for zebra and quagga mussel control. The monitoring is required on a daily basis when the facility is chlorinating and for an additional three days after chlorination has ceased.

In accordance with 327 IAC 5-2-11.6(h)(3), compliance with the daily maximum limit will be demonstrated when effluent concentrations for total residual chlorine are less than the LOQ. The permittee must comply with the monthly average limit, but may consider daily values that are less than the LOQ to be zero for purposes of calculating a monthly average value. In accordance with 327 IAC 5-2-11.6(g)(1), mass limits and a mass-based compliance value for TRC are included in the permit.

Water quality-based effluent limitations (WQBELs) for total residual chlorine were calculated for ArcelorMittal Outfalls 011, 014 and 018 as part of the multi-discharger model. The multi-discharger model results in a net lowering of TRC.

Outfall 518: TRC limits have been calculated using current production values for internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Lead

Water quality based effluent limits for total lead were re-calculated using updated flow data at Outfall 014 and 018. Water quality-based effluent limitations (WQBELs) for lead was calculated for ArcelorMittal Outfalls 014 and 018 as part of the multi-discharger model.

The discharge from Outfall 014 exhibits a reasonable potential to exceed water quality based effluent limitations for Lead. WQBELs were recalculated taking into account the updated flow data (7.7 MGD). The limits from the previous permit are not appropriate to carry over because they are less stringent than the currently calculated water quality based effluent limits.

The discharge from Outfall 018 exhibits a reasonable potential to exceed water quality based effluent limitations for Lead. WQBELs were recalculated taking into account the updated flow data (16.4 MGD). The limits from the previous permit are not appropriate to carry over because they are less stringent than the currently calculated water quality based effluent limits.

Outfall 518: Lead limits have been calculated using current production values for internal outfall 518. These limits were developed in accordance with 40 CFR 420.34

Outfall 618: Lead limits have been calculated using current production values for internal outfall 618. These limits were developed in accordance with 40 CFR 420.40, 420.50, and 420.60.

Zinc

Water quality-based effluent limitations (WQBELs) for zinc was calculated for ArcelorMittal Outfalls 014 and 018 as part of the multi-discharger model.

Outfall 014: The discharge from outfall 014 exhibits a reasonable potential to exceed water quality based effluent limitations (WQBELs). Thus, the WQBELs were calculated and applied at outfall 014 resulting in a new monthly average and daily maximum mass limits as well as including concentration limits at this outfall. The limits from the previous permit are not appropriate to carry over because they are less stringent than the currently calculated water quality based effluent limits.

The discharge from Outfall 018 exhibits a reasonable potential to exceed water quality based effluent limitations for Zinc. WQBELs were recalculated taking into account the updated flow data (16.4 MGD). The limits from the previous permit are not appropriate to carry over because they are less stringent than the currently calculated water quality based effluent limits.

Technology based effluent limits for Zinc have been calculated using current production values for internal outfall 518. Technology based effluent limits for Zinc have been retained from the previous permit for Internal Outfall 618. These limits were developed in accordance with 40 CFR 420.34 and 40 CFR 420.42/43(c), 40 CFR 420.62/63, and 40 CFR 420.54.

Ammonia

Water quality-based effluent limitations (WQBELs) for ammonia-N were calculated for ArcelorMittal Outfalls 011, 014 and 018 as part of the multi-discharger model. The discharge at Outfalls 011, 014 and 018 did not exhibit a reasonable potential to exceed water quality, but due to the nature of the discharge the monitoring requirement shall remain in the permit. The permittee requested that ammonia reporting be removed from Outfal 011 because the Nos. 5 and 6 blast furnances have been shut down. IDEM proposes to reduce sampling frequency rather than removing the monitoring requirement at this time.

Technology based effluent limits for Ammonia have been developed in accordance with 40 CFR 420.32/33 and 40 CFR 420.34. In an amendment to the permit renewal application, the permittee provided the following information and request:

*The No. 7 blast furnace underwent a reline that was completed during mid-2014. Blast furnace relines are conducted from time to time for purposes of replacing and repairing refractory linings and, when possible, to increase the productive capacity of the furnace. The Title V air permit for IH East sets the allowable annual maximum production for the No. 7 furnace at 4,417,000 tons, which is equivalent to an average daily rate of 12,101 tons, assuming 365 operating days per year. ArcelorMittal's business plan calls for maximizing iron (hot metal) production from the No. 7 blast furnace such that the annual production ceiling from the Title V air permit can be approached as market conditions may allow.

Although blast furnaces are operated more or less continuously, there are short term outages for maintenance and to balance production with downstream production units. Consequently, the No. 7 furnace is operated at production rates higher than 12,101 tons/day for sustained periods of time. This is illustrated in Attachment A which is a chart of No. 7 furnace hot metal production for the period August 2014 to December 2016. As shown, daily production often exceeds 12,101 tons and there are a number of days when hot metal production between 13,000 and 14,000 tons occurred. Based on this assessment, ArcelorMittal requests that monthly average and daily maximum technology-based effluent limits for the No. 7 blast furnace that apply at Outfall 518 be calculated with an average value of 12,000 tons and a maximum value of 13,000 tons. Attachment B shows ArcelorMittal calculation of Outfall 518 technology based effluent limits on this basis.

Permittees Proposed Ammonia-N Effluent Limits at Outfall 518

The current IH East NPDES permit contains effluent limits for ammonia-N at Outfalls 518 (No. 7 blast furnace) and at Outfall 613 (Nos. 5 & 6 blast furnaces). Outfall 613 is tributary to the Outfall 014 master treatment and recycle system. The Nos. 5 & 6 blast furnace are no longer operable and ArcelorMittal has not applied for authorization to discharge process wastewaters through Outfall 613 for the renewal NPDES permit. ArcelorMittal is requesting to transfer the Outfall 613 ammonia-N effluent limits to Outfall 518 in the renewal NPDES permit as follows:

Outfall	Monthly Average (lbs/day)	Daily Maximum (lbs/day)	Basis
518	70.1	227.8	Attachment B – updated No. 7 BF TBELs
613	100	300	Current NPDES permit
518	170.1	527.8	Proposed renewal permit Outfall 518 limits

> The current NPDES permit Outfall 613 ammonia-N effluent limits were based on a prior Section 301(g) variance. The combination of Outfall 518 and Outfall 613 ammonia-N effluent limits are far below any water quality based effluent limits that could apply to Outfall 018. Consequently, there should be no water quality-related issues with this request.

IDEM has determined that this request can't be granted because the limits from Outfall 518 must be based on New Source Performance Standards (NSPS). Technology based effluent limits for ammonia-N have been calculated using current production values for internal outfall 518.

Although the internal outfall 613 where the technology based limits were applied has been removed, reporting for ammonia at Outfall 014 shall be retained from the previous permit.

Phenols

The calculated NSPS limits at Outfall 518, which are the main source of Phenols at the final Outfall 018, will be limited at the internal outfall 518. These limits were developed in accordance with 40 CFR 420.34.

Free Cyanide

Based on the presence of Free Cyanide on the 2010 303(d) list for the Indiana Harbor, monitoring for Free Cyanide is being included at Outfall 018 because it is the outfall that contains process (Outfall 518) wastewater.

Based on the updated wasteload allocation, the requirement to report free cyanide has been removed from outfall 008.

T. Cyanide

Numeric limits at Outfall 014 were removed based on the revised WLA which took into account that the discharge from internal 613 has been eliminated. The update waste load indicated that there was no longer a Reasonable Potential to Exceed water quality for T. Cyanide at 014. Monitoring for T. Cyanide is required to when wastewater from No.7 Blast Furnace treatment and recycle system may be present.
Outfall 012 has been removed, thus the numeric limit has been removed but the reporting requirement shall continue to monitor for T. Cyanide.

Total Cyanide limits have been calculated using current production values for internal outfall 518. These limits were developed in accordance with 40 CPR 420.34.

Fluoride

The previous permit application identified Fluoride as potentially present in the discharge. The previous permit required the permittee to sample fluoride to establish a data based at 011, 014 and 018. A RPE analysis was done using the discharge data taken during the monitoring program and there was not an RPE for fluoride at these outfalls. Thus, Fluoride has been removed from the permit.

Temperature

Outfalls 008, 011, 014, and 018
Effluent Limitations for temperature are based on 327 IAC 2-1.5-8(b) and shall be monitored at Outfalls 008, 011, 014, and 018. Temperature is discussed in depth in Attachment A, Thermal Requirements of this fact sheet.

Selenium

Monitoring for selenium at Outfall 018 shall be retained from the previous permit. The requirement was based on data reported for this pollutant at Internal Outfall 518 and, as shown on the April 2011 Form 2C update, the potential that the flow at Internal Outfall 518 may increase above current levels.

Mercury

The discharge from Outfalls 014 and 018 exhibits a reasonable potential to exceed water quality based effluent limits for mercury, therefore limits had been placed in the permit.

Outfall 014 and 018
IDEM's reviewed the data submitted for these two outfalls; the review supported the SMV and the interim discharge limitations of 2.4 mg/l (Outfall 014) and 2.5 ng/l (Outfall 018). The limits were approved in the modification dated September 1, 2016.

Outfall 011
Mercury limitations were previously included at Outfall 011. However, a review of the most recent three (3) years data indicates that there is no Reasonable Potential to Exceed (RPE) Indiana Water Quality Standards at this Outfall. Therefore, the limitations have been removed from this permit. Reporting requirements are still included to ensure the discharge from this outfall does not exhibit an RPE in the future.

Naphthalene/TCE

Naphthalene and TCE limits have been are more stringent than the WQBEL and have been retained from the previous permit at Outfall 014. These limits were developed in accordance with 40 CPR 420.102/103. In accordance with 40 CFR 122.44(a)(2), the facility has been granted a monitoring waiver of these pollutants.

Blast Furnace Monitoring at Outfall 014, Ammonia, total and free cyanide, and phenols (4AAP)

Monitoring for ammonia-N, total and free cyanide, and phenols (4AAP) is required only when wastewater from No. 7 blast furnace treatment and recycle system may be present. Analysis of samples for free cyanide is not required when the corresponding sample analytical result for total cyanide is not detected at <0.005 mg/l.

4.5 Discharge Limitations by Outfall, Monitoring Conditions and Rationale

Analytical and sampling methods used shall conform to the version of 40 CFR 136 as referenced in 327 IAC 5-2-13(d)(1). The monitoring frequencies proposed are comparable to the monitoring frequencies included in permits regulating similar types of discharges.

Outfall 011

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Monitoring frequency	Sample Type
Flow	[redacted]			Report	Report	MGD	1 x Daily	24 Hr Total
Oil and Grease	---	Report	lbs/day	---	Report	mg/l	1 x Weekly	Grab
Lead	---	Report	lbs/day	[redacted]	Report	ug/l	1 x Monthly	24 Hr Comp
Zinc	---	Report	lbs/day	[redacted]	Report	ug/l	1 x Monthly	24 Hr Comp
Phenols	---	Report	lbs/day	[redacted]	Report	mg/l	1 x Monthly	24 Hr Comp
Mercury	Report	Report	lbs/day	Report	Report	ng/l	6 x Yearly	Grab
Temperature Influent/Effluent	---	---	---	Report	Report	ºF	2 x Weekly	Grab
TRC	3.5	8.3	lbs/day	14	33	ug/l	5 x Weekly	Grab
Ammonia (asN)	Report	Report	lbs/day	Report	Report	mg/l	1 x Quarter	Grab

Parameter	Daily Min	Daily Maximum	Units	Monitoring frequency	Sample Type
pH	6.0	9.0	s.u.	1 x Weekly	Grab

Outfall 014

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Monitoring frequency	Sample Type
Flow				Report	Report	MGD	1 x Daily	24 Hr Total
TSS	6620	17092	lbs/day	Report	Report	mg/l	3 x weekly	24 Hr Comp
Oil and Grease	1553	4568	lbs/day	10	15	mg/l	3 x weekly	2 Grab/ 24 Hr
Ammonia*	Report	Report	lbs/day	Report	Report	mg/l	3 x weekly	24 Hr Comp
T. Cyanide*	Report	Report	lbs/day	Report	Report	mg/l	3 x weekly	Grab
Cyanide, Free*	Report	Report	lbs/day	Report	Report	mg/l	3 x weekly	Grab
Phenols*	Report	Report	lbs/day	Report	Report	mg/l	3 x weekly	24 Hr Comp
Lead	3.1	6.2	lbs/day	48	96	ug/l	3 x weekly	24 Hr Comp
Zinc	11	22	lbs/day	170	340	ug/l	3 x weekly	24 Hr Comp
Naphthalene**		1.8	lbs/day		Report	mg/l	[3]	Grab
Tetrachloroethylene**		2.69	lbs/day		Report	mg/l	[3]	Grab
Mercury	0.00084	0.00021	lbs/day	1.3	3.2	ng/l	6 x yearly	Grab
Intermin Limit				2.4	Report	ng/l	6 x yearly	Grab
TRC	0.84	2.0	lbs/day	13	31	ug/l	5 x weekly	Grab
Temperature Influent/Effluent	----	----	----	Report	Report	ºF	2 x weekly	Grab
Hex. Chrome	Report	Report	lbs/day	Report	Report	mg/l	2 x Yearly	Grab
Biomonitoring	See Attachment A					TU_c		

Parameter	Daily Min	Daily Maximum	Units	Monitoring frequency	Sample Type
pH	6.0	9.0	s.u.	2 x weekly	Grab

*Sampling is required when wastewater from blast furnace No. 7 is being discharged.
**Naphthalene and TCE limits have been are more stringent than the WQBEL and have been retained from the previous permit at Outfall 014. These limits were developed in accordance with 40 CPR 420.102/103. In accordance with 40 CFR 122.44(a)(2), the facility has been granted a monitoring waiver of these pollutants.

Outfall 018

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Monitoring frequency	Sample Type
Flow				Report	Report	MGD	Daily	24 Hr Total
Oil and Grease	----	----	----	----	Report	mg/l	1 x weekly	Grab
Cyanide, Free	Report	Report	lbs/day	Report	Report	mg/l	2 x monthly	Grab
Ammonia	Report	Report	lbs/day	Report	Report	mg/l	2 x weekly	24 Hr. Comp.
Phenols	Report	Report	lbs/day	Report	Report	mg/l	2 x weekly	Grab
Lead	3.1	6.3	lbs/day	23	46	ug/l	2 x weekly	24 Hr. Comp.
Zinc	23	45	lbs/day	170	330	ug/l	2 x weekly	24 Hr. Comp.
Mercury**	0.0017	0.0042	lbs/day	1.3	3.2	ng/l	6 x yearly	Grab
Interim Limit				2.5		ng/l	6 x yearly	Grab
TRC	1.8	4.2	lbs/day	13	31	ug/l	5 x weekly	Grab
Temperature Influent/Effluent	----	----	----	Report	Report	ºF	2 x weekly	Grab
Selenium	Report	Report	lbs/day	Report	Report	mg/l	2 x monthly	24 Hr. Comp
Biomonitoring	See Attachment A					TU_c		

Parameter	Daily Min	Daily Maximum	Units	Monitoring frequency	Sample Type
pH	6.0	9.0	s.u.	1 x Daily	Continuous

Outfall 518

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Monitoring frequency	Sample Type
Flow				Report	Report	MGD	Daily	Continuous
TSS	105	281	lbs/day	Report	Report	mg/l	2 x weekly	24 Hr Comp
Oil and Grease		70.1	lbs/day	----	Report	mg/l	2 x weekly	Grab
Ammonia (as N)	70.1	210	lbs/day	Report	Report	mg/l	2 x weekly	24 Hr Comp
T. Cyanide	7.01	14.0	lbs/day	Report	Report	mg/l	2 x weekly	Grab
Phenols (4AAP)	0.70	1.40	lbs/day	Report	Report	mg/l	2 x weekly	Grab
Lead	2.10	6.31	lbs/day	Report	Report	ug/l	2 x weekly	24 Hr Comp
Zinc	3.14	9.46	lbs/day	Report	Report	ug/l	2 x weekly	24 Hr Comp
TRC		3.50	lbs/day		Report	mg/l	2 x weekly	Grab
Selenium	Report	Report	lbs/day	Report	Report	mg/l	2 x monthly	24 Hr Comp

Outfall 618

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Monitoring frequency	Sample Type
Flow				Report	Report	MGD	2 x weekly	24 Hr Total
TSS	360	720	lbs/day	Report	Report	mg/l	2 x weekly	24 Hr Comp
Oil and Grease	102	216	lbs/day	Report	Report	mg/l	2 x weekly	2 Grabs/ 24 Hr
Lead	2.16	6.48	lbs/day	Report	Report	ug/l	2 x weekly	24 Hr Comp
Zinc	3.50	10.5	lbs/day	Report	Report	ug/l	2 x weekly	24 Hr Comp

4.6 Antibacksliding

None of the limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(11), therefore, backsliding is not an issue.

4.7 Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, the existing uses and level of water quality necessary to protect those existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices (BMPs) for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to each of the designated uses are achieved in the water and any designated uses of the downstream water are maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6 or 327 IAC 2-1.5. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1-6 or 327 IAC 2-1.5 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6. According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act (CWA), including a change in process or operation that will result in a significant lowering of water quality.

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.

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.

4.8 Storm Water

According to 40 CFR 122.26(b)(14)(ii) and 327 IAC 5-4-6(b)(1) facilities classified under 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 storm water discharges associated with industrial activity permitted. Treatment for storm water 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 storm water associated with industrial activity.

Storm water associated with industrial activity must be assessed to determine compliance with all water quality standards. The non-numeric storm water conditions and effluent limits contain the technology-based effluent limitations. Effluent limitations, as defined in the CWA, are restrictions on quantities, rates, and concentrations of constituents which are discharged. Effective implementation of these requirements should meet the applicable water quality based effluent limitations. 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 storm water 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 storm water discharge is in compliance with Antidegradation Standards and Implementation Procedures found in 327 IAC 2-1.3 and an Antidegradation Demonstration is not required.

The 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 storm water discharges, (3) minimize the potential for leaks, spills and other releases that may be exposed to storm water 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 storm water 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 storm water, 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 effluent limitations and other terms and conditions in this permit will meet this effluent limitation. 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.

“Terms and Conditions” to Provide Information in a Storm Water 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 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 it must be immediately available, at the time of an onsite inspection or upon request, to IDEM. Additionally, interested persons can request a copy of the SWPPP through IDEM. By requiring members of the public to request a copy of the SWPPP through IDEM, the Agency is able to provide the permittees with assurance that any Confidential Business Information contained within the permitted facility's SWPPP is not released to the public.

4.9 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 Outfalls, the permittee shall notify the IDEM as required in Part II.C.1 of the permit. The use of any new or changed water treatment additives/chemicals or dosage rates shall not cause the discharge from any permitted outfall to exhibit chronic or acute toxicity. Acute and chronic aquatic toxicity information must be provided with any notification regarding any new or changed water treatment additives or dosage rates.

5.0 SPECIAL CONDITIONS AND OTHER PERMIT REQUIREMENTS

5.1 Schedule of Compliance

The circumstances in this NPDES permit do not qualify for a schedule of compliance.

5.2 Reporting Requirements for Solvents, Degreasing Agents, Rolling Oils, Water Treatment Chemical, and Biocides

The permittee will maintain the following information on site, and report to IDEM if requested; the total quantity (lbs/year) of each solvent, degreasing agent, rolling oil, water treatment chemical, and biocide that was purchased for that year and which can be present in any outfall regulated by this permit. This requirement includes all surfactants, anionic, cationic, and non- ionic, which may be used in part or wholly as a constituent in these compounds.

5.3 Groundwater Remediation Projects

"Compatible Treated Wastewater from Groundwater Remediation Project" for purposes of this permit means groundwaters that are contaminated with pollutants that are limited at the respective wastewater treatment facilities. Other groundwaters shall be pretreated prior to introduction to the respective wastewater treatment facilities to remove or treat those pollutants that are not limited or that cannot be effectively removed or treated at the respective wastewater treatment facilities.

The permittee shall notify IDEM prior to the date it desires to introduce compatible or pretreated groundwaters from any groundwater remediation project to wastewater treatment facilities at ArcelorMittal Steel USA, Inc.- Indiana Harbor East. Such notification shall include the volume of groundwater to be treated and discharged; a description of any groundwater pretreatment facilities; the identity of the receiving wastewater treatment facility and permitted outfall; identification, concentrations and mass loadings of containments in the untreated groundwater; identification, and expected concentrations and mass loadings of containments in the pretreated groundwater prior to introduction of groundwater to the wastewater treatment facilities; and, identification and expected concentrations and mass loadings of groundwater contaminants to be discharged from the wastewater treatment facilities. IDEM shall evaluate the information submitted to determine if a permit modification is required under 327 IAC 5-2-16. Discharge of this waste stream shall not commence until ArcelorMittal Steel USA, Inc. has received written approval from IDEM. This condition has been retained from the previous permit.

5.4 No. 7 Blast Furnace

The permittee is in the process of designing scrubbers to control emissions of sulfur dioxide (SO,) as additions to each of the two No. 7 blast furnace cast house emission control systems. Each scrubber will treat a portion of the exhaust gas from the existing bag houses that are used for control of cast house particulate emissions. The S02 scrubbers will be designed with recirculating alkaline scrubbing systems, and each is expected to have a long term average scrubber water recirculating system blowdown flow rate of approximately 8 gpm. The permittee anticipates that the scrubbers will be installed sometime within the first two years of the renewal NPDES permit term. There are no federal categorical effluent limitations guidelines that apply to the scrubber water blowdown streams.

These will be the first such scrubbers installed at any blast furnace located in the United States, so there are no available data to characterize scrubber water blowdown quality for purposes of an NPDES permit application. Upon installation and startup of the scrubbers, the permittee plans to discharge the scrubber recycle system blowdowns to the City of East Chicago sewerage system on an interim basis. An application to the City for these discharges has been submitted. Once the quality of the scrubber water has been characterized, with respect to the magnitude and variability of flow and pollutants that may be present, the permittee may request authorization to discharge the scrubber water under NPDES permit IN0000094. This would be accomplished through a future permit modification request made to IDEM.

5.5 Pollutant Minimization Program

This permit contains water quality-based effluent limits for Total Residual Chlorine at Outfalls 011, 014, and 018. The permittee is required to develop and conduct a pollutant minimization program (PMP) for each pollutant with a WQBEL below the LOQ.

5.6 Biocides Concentration

The permittee must receive written permission from the IDEM if they desire to use any biocide or molluscicide other than chlorine in once through cooling water. The use of any biocide containing tributyl tin oxide in any closed or open cooling system is prohibited.

5.7 Clean Water Act Section 316(b) Cooling Water Intake Structure(s) (CWIS)

<u>Introduction</u>

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

The EPA promulgated a Clean Water Act (CWA) section 316(b) regulation on August 15, 2014, that establishes standards for cooling water intake structures. 79 Fed. Reg. 48300-439 (August 15, 2014). The regulation establishes best technology available standards to reduce impingement and entrainment of aquatic organisms at existing power generation and manufacturing facilities and it became effective on October 14, 2014.

For permits expiring prior to July 2018, the permittee can (1) negotiate an alternative schedule for submitting required information with the Director (IDEM) after demonstrating need, or (2) request waiver(s) for submitting required information. The permittee requested and was granted an alterative schedule for submitting the required information. The request was submitted in a letter dated August 23, 2016. Until the time the required information/reports are submitted and the permit is renewed or modified following public notice, the IDEM is required to make a BTA determination using Best Professional Judgment (BPJ) to comply with CWA Section 316(b) based on existing information. The BTA determination is subject to change after the required information is submitted in accordance with the federal regulations.

Conclusions

A copy of the Arcelor Mittal USA LLC – Indiana Harbor East permit renewal application was sent to U.S. Fish and Wildlife on May 5, 2016. No comments were received.

ArcelorMittal submitted the facility specific information 40 CFR 122.21(r) (2) through (r) (8) through a series of submittals, as required by Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326). IDEM has made a Best Technology Available (BTA) determination that the existing cooling water intake structures represent best technology available to minimize adverse environmental impact in accordance with Section 316(b) of the federal Clean Water Act (33 U.S.C. section 1326) based on information available at this time. This determination is based on Best Professional Judgment (BPJ) and 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).

Permit Conditions

In accordance with 40 CFR 125.95(a)(1), the permittee must submit to the IDEM the information required in the applicable provisions of 40 CFR 122.21(r) when applying for a subsequent permit (consistent with the permittee's duty to reapply pursuant to 40 CFR 122.21(d)). Per 40 CFR 125.95(c), after the initial submission of the 40 CFR 122.21(r) permit application studies the permittee may, in subsequent permit applications, 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 current source water, intake structure, cooling water system, and operating conditions. The permittee must submit its request for reduced cooling water intake structure and waterbody application information to the IDEM

at least two years and six months prior to the expiration of its NPDES permit. The permittee's request must identify each element of the application requirements 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. The permittee shall comply with
requirements below:

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. At all times properly operate and maintain the intake equipment and incorporate management practices and operational measures necessary to ensure proper operation of the CWIS.

3. Provide advance notice to 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. There shall 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. All required reports shall be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch.

6. Submit the information required to be considered by the Director per 40 C.F.R. 122.21(r)(2) through (13) to assist IDEM with the fact sheet or statement of basis for entrainment BTA, as soon as practicable, but no later than with the application fro the next permit renewal.

5.8 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

5.9 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.

5.10 Permit Processing/Public Comment

Pursuant to IC 13-15-5-1, IDEM will publish a general notice in the newspaper with the largest general circulation within the above county. A 30-day comment period is available in order to solicit input from interested parties, including the general public. Comments concerning the draft permit should be submitted in accordance with the procedure outlined in the enclosed public notice form.

Appendix I
Figure 2-01

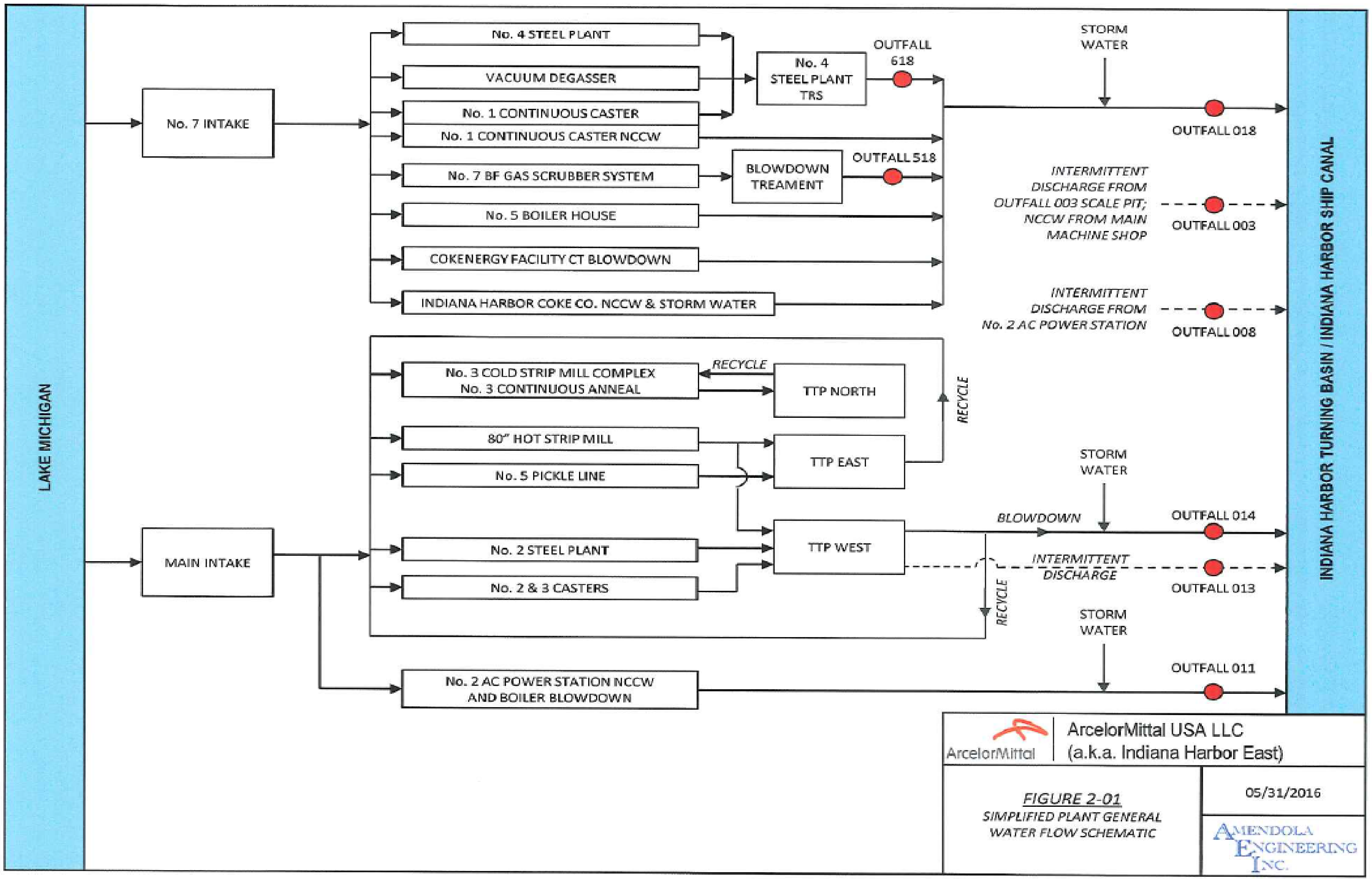
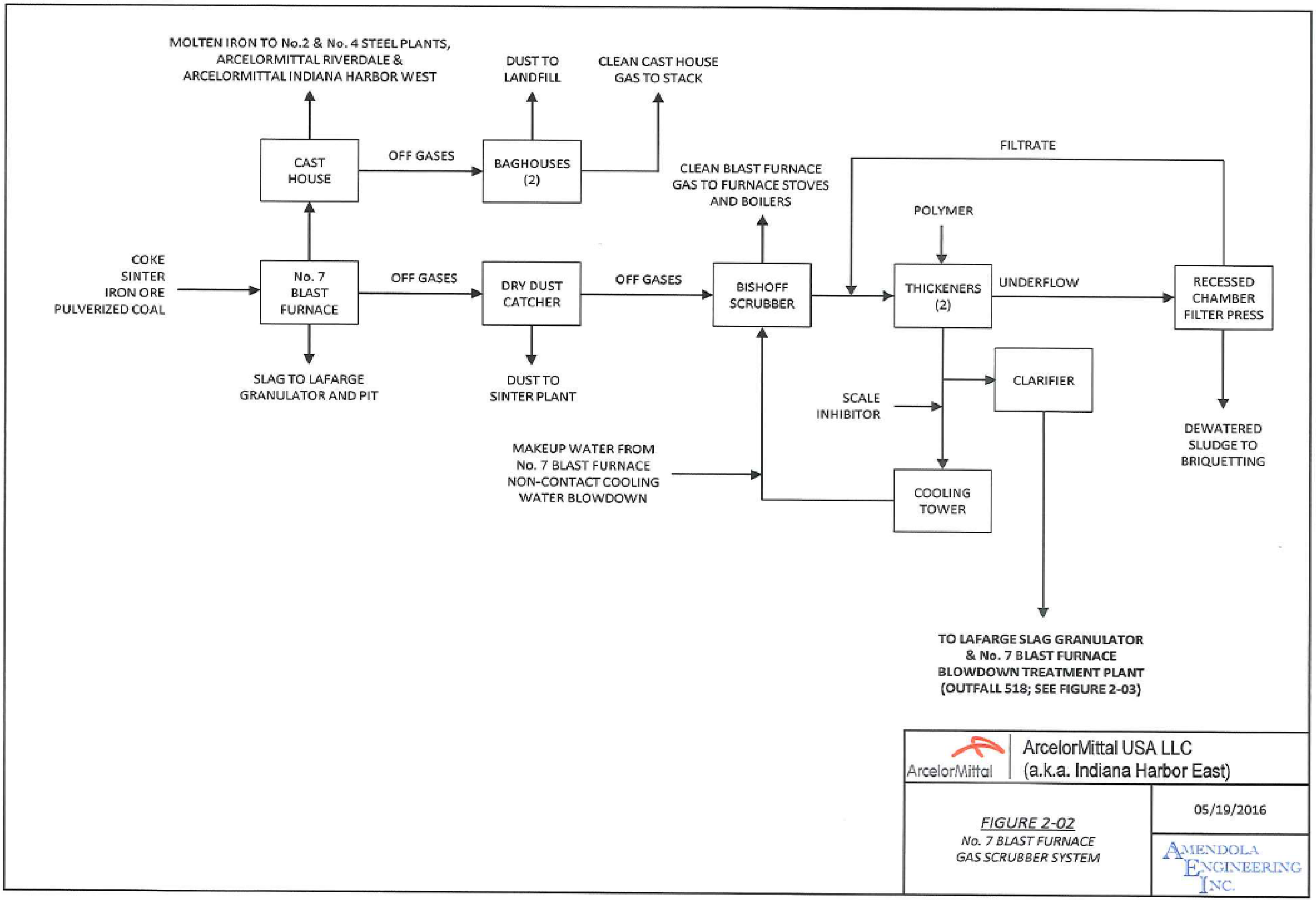


Figure 2-02



MOLTEN IRON TO No.2 & No. 4 STEEL PLANTS, ARCELORMITTAL RIVERDALE & ARCELORMITTAL INDIANA HARBOR WEST
DUST TO LANDFILL
CLEAN CAST HOUSE GAS TO STACK
CAST HOUSE
OFF GASES
BAGHOUSES (2)
FILTRATE
CLEAN BLAST FURNACE GAS TO FURNACE STOVES AND BOILERS
POLYMER
COKE
SINTER
IRON ORE
PULVERIZED COAL
No. 7 BLAST FURNACE
OFF GASES
DRY DUST CATCHER
OFF GASES
BISHOFF SCRUBBER
THICKENERS (2)
UNDERFLOW
RECESSED CHAMBER FILTER PRESS
SLAG TO LAFARGE GRANULATOR AND PIT
DUST TO SINTER PLANT
CLARIFIER
SCALE INHIBITOR
DEWATERED SLUDGE TO BRIQUETTING
MAKEUP WATER FROM No. 7 BLAST FURNACE NON-CONTACT COOLING WATER BLOWDOWN
COOLING TOWER
TO LAFARGE SLAG GRANULATOR & No. 7 BLAST FURNACE BLOWDOWN TREATMENT PLANT (OUTFALL 518; SEE FIGURE 2-03)
ArcelorMittal
ArcelorMittal USA LLC (a.k.a. Indiana Harbor East)
FIGURE 2-02
No. 7 BLAST FURNACE GAS SCRUBBER SYSTEM
05/19/2016
AMENDOLA ENGINEERING INC.

Figure 2-03

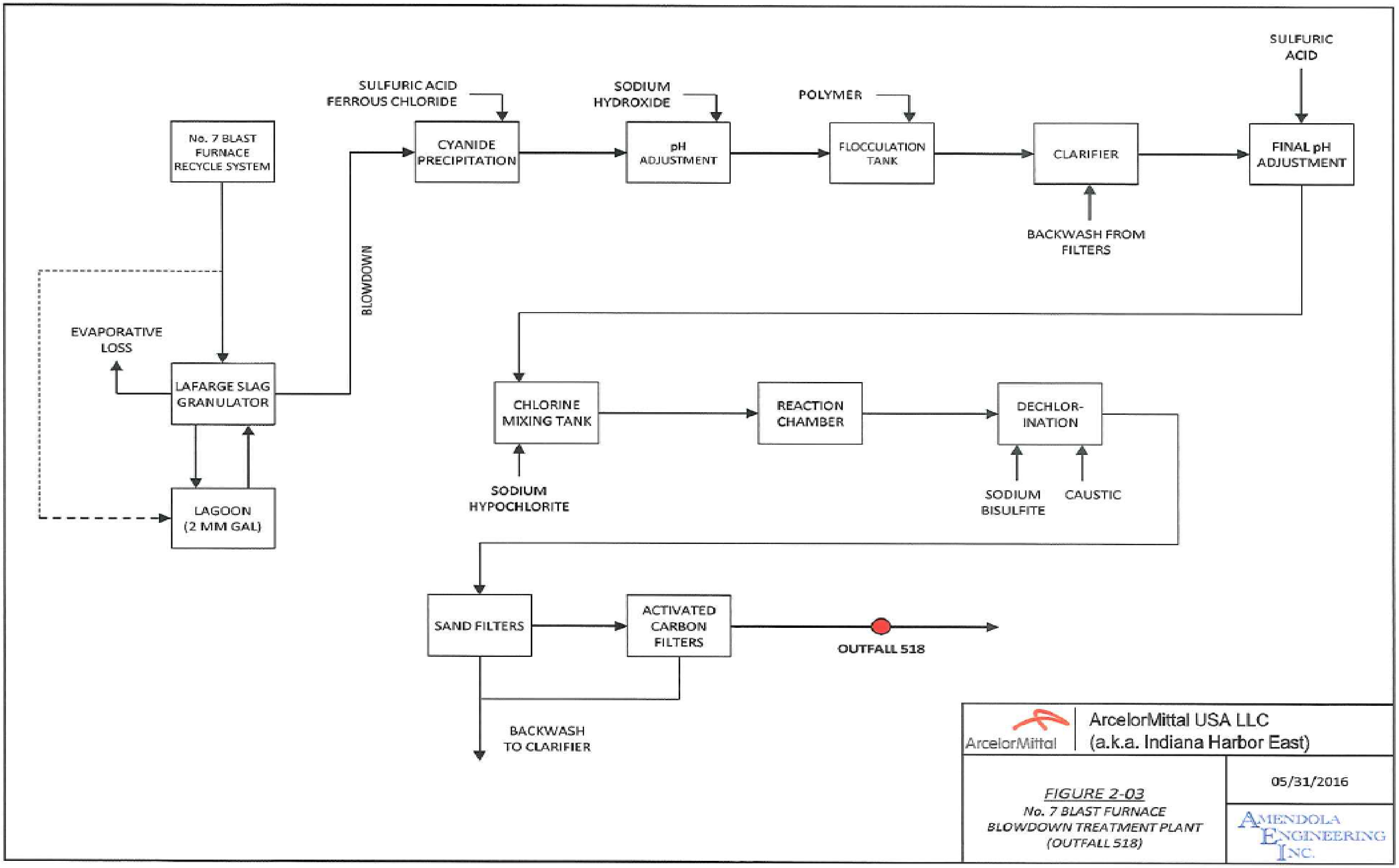

SULFURIC ACID
FERROUS CHLORIDE
SODIUM HYDROXIDE
POLYMER
SULFURIC ACID
No. 7 BLAST FURNACE RECYCLE SYSTEM
CYANIDE PRECIPITATION
pH ADJUSTMENT
FLOCCULATION TANK
CLARIFIER
FINAL pH ADJUSTMENT
BACKWASH FROM FILTERS
BLOWDOWN
EVAPORATIVE LOSS
LAFARGE SLAG GRANULATOR
LAGOON (2 MM GAL)
CHLORINE MIXING TANK
REACTION CHAMBER
DECHLOR-INATION
SODIUM HYPOCHLORITE
SODIUM BISULFITE
CAUSTIC
SAND FILTERS
ACTIVATED CARBON FILTERS
OUTFALL 518
BACKWASH TO CLARIFIER
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-03
No. 7 BLAST FURNACE
BLOWDOWN TREATMENT PLANT
(OUTFALL 518)
05/31/2016
AMENDOLA ENGINEERING INC.

Figure 2-04

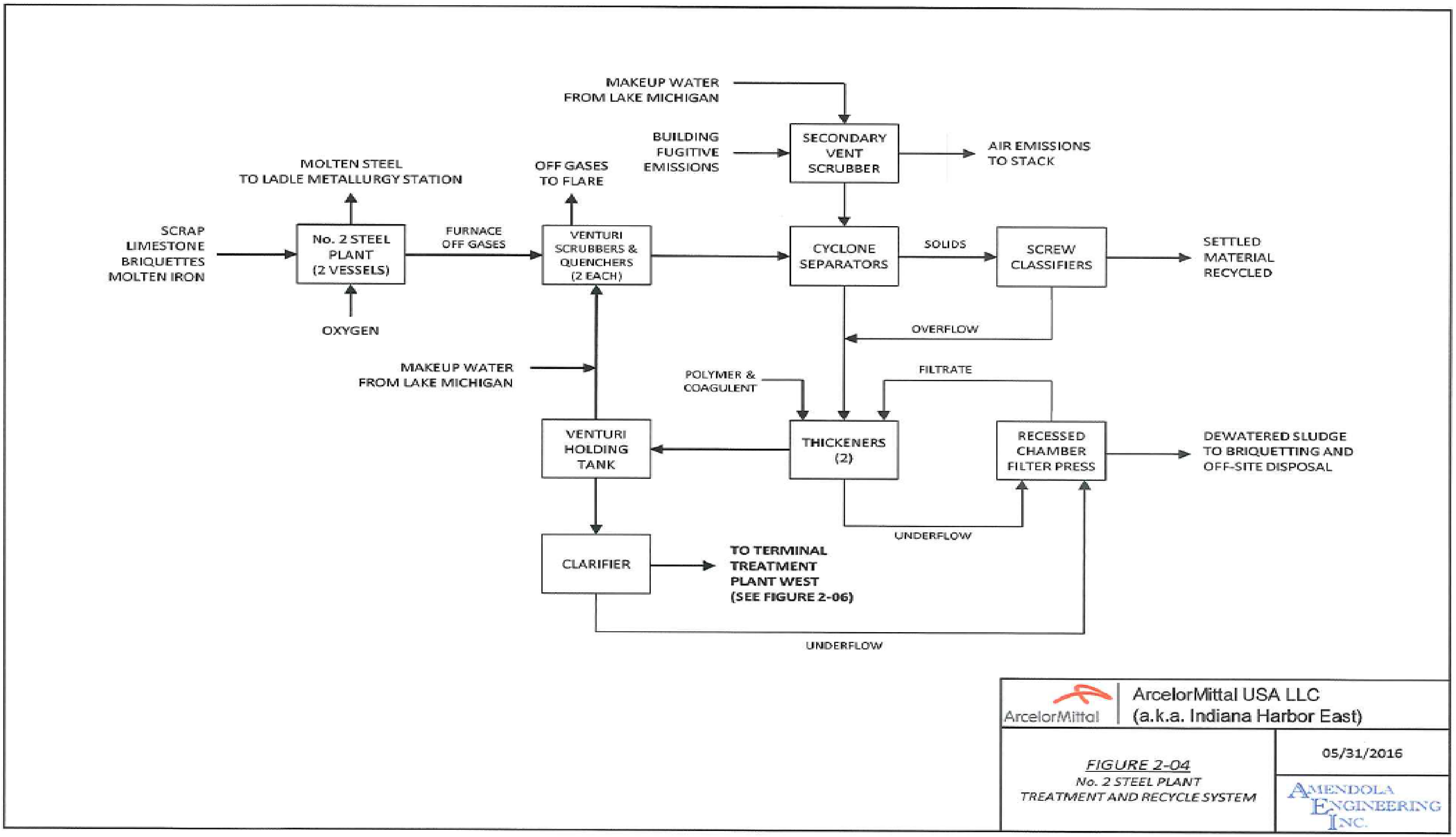

MAKEUP WATER
FROM LAKE MICHIGAN
BUILDING
FUGITIVE
EMISSIONS
SECONDARY
VENT
SCRUBBER
AIR EMISSIONS
TO STACK
MOLTEN STEEL
TO LADLE METALLURGY STATION
OFF GASES
TO FLARE
SCRAP
LIMESTONE
BRIQUETTES
MOLTEN IRON
No. 2 STEEL
PLANT
(2 VESSELS)
FURNACE
OFF GASES
VENTURI
SCRUBBERS &
QUENCHERS
(2 EACH)
CYCLONE
SEPARATORS
SOLIDS
SCREW
CLASSIFIERS
SETTLED
MATERIAL
RECYCLED
OXYGEN
OVERFLOW
MAKEUP WATER
FROM LAKE MICHIGAN
POLYMER &
COAGULENT
FILTRATE
VENTURI
HOLDING
TANK
THICKENERS
(2)
RECESSED
CHAMBER
FILTER PRESS
DEWATERED SLUDGE
TO BRIQUETTING AND
OFF-SITE DISPOSAL
UNDERFLOW
CLARIFIER
TO TERMINAL
TREATMENT
PLANT WEST
(SEE FIGURE 2-06)
UNDERFLOW
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-04
No. 2 STEEL PLANT
TREATMENT AND RECYCLE SYSTEM
05/31/2016
AMENDOLA
ENGINEERING
INC.

Figure 2-05

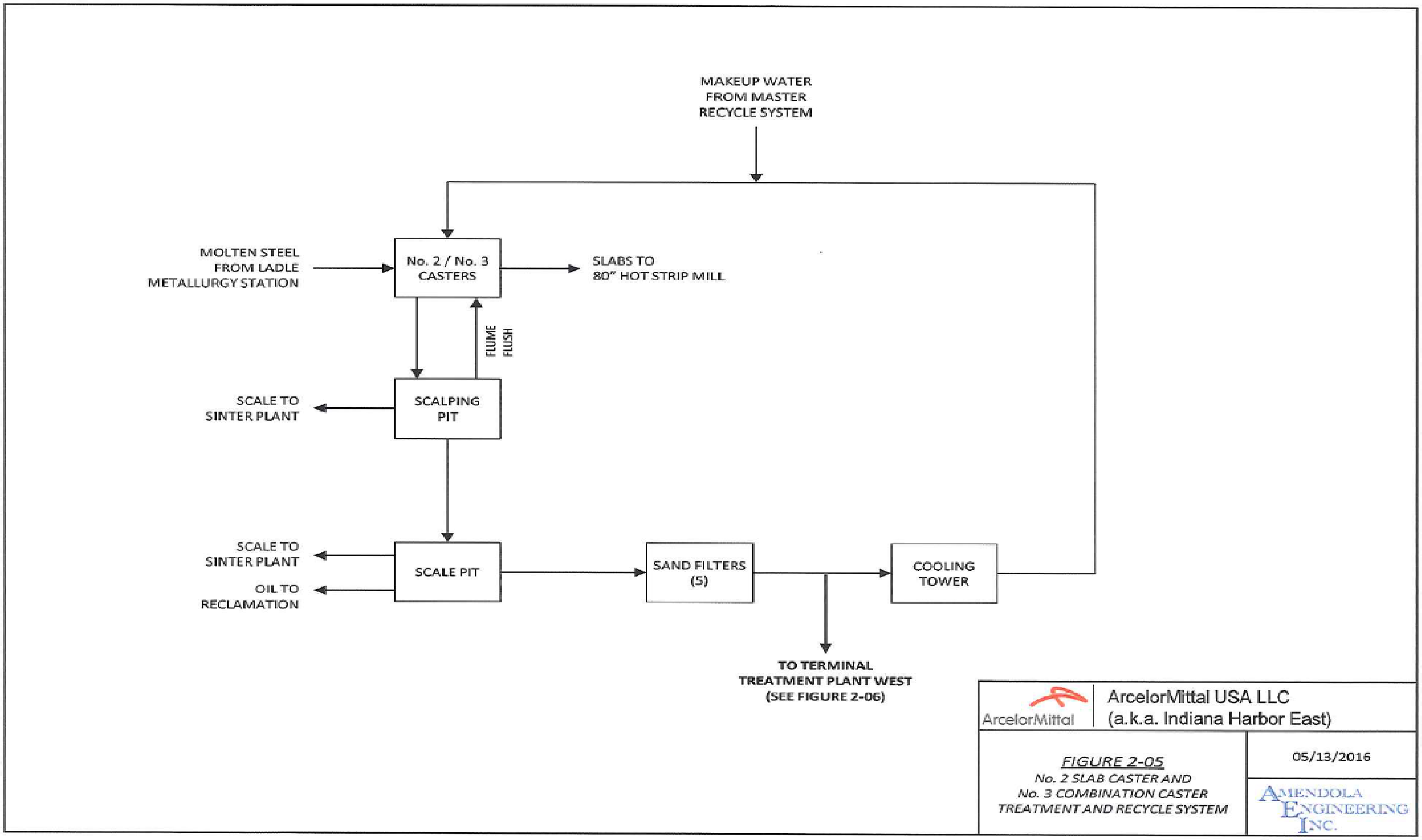

MAKEUP WATER
FROM MASTER
RECYCLE SYSTEM
MOLTEN STEEL
FROM LADLE
METALLURGY STATION
No. 2 / No. 3
CASTERS
SLABS TO
80" HOT STRIP MILL
FLUME
FLUSH
SCALE TO
SINTER PLANT
SCALPING
PIT
SCALE TO
SINTER PLANT
OIL TO
RECLAMATION
SCALE PIT
SAND FILTERS
(5)
COOLING
TOWER
TO TERMINAL
TREATMENT PLANT WEST
(SEE FIGURE 2-06)
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-05
No. 2 SLAB CASTER AND
No. 3 COMBINATION CASTER
TREATMENT AND RECYCLE SYSTEM
05/13/2016
AMENDOLA
ENGINEERING
INC.

Figure 2-06

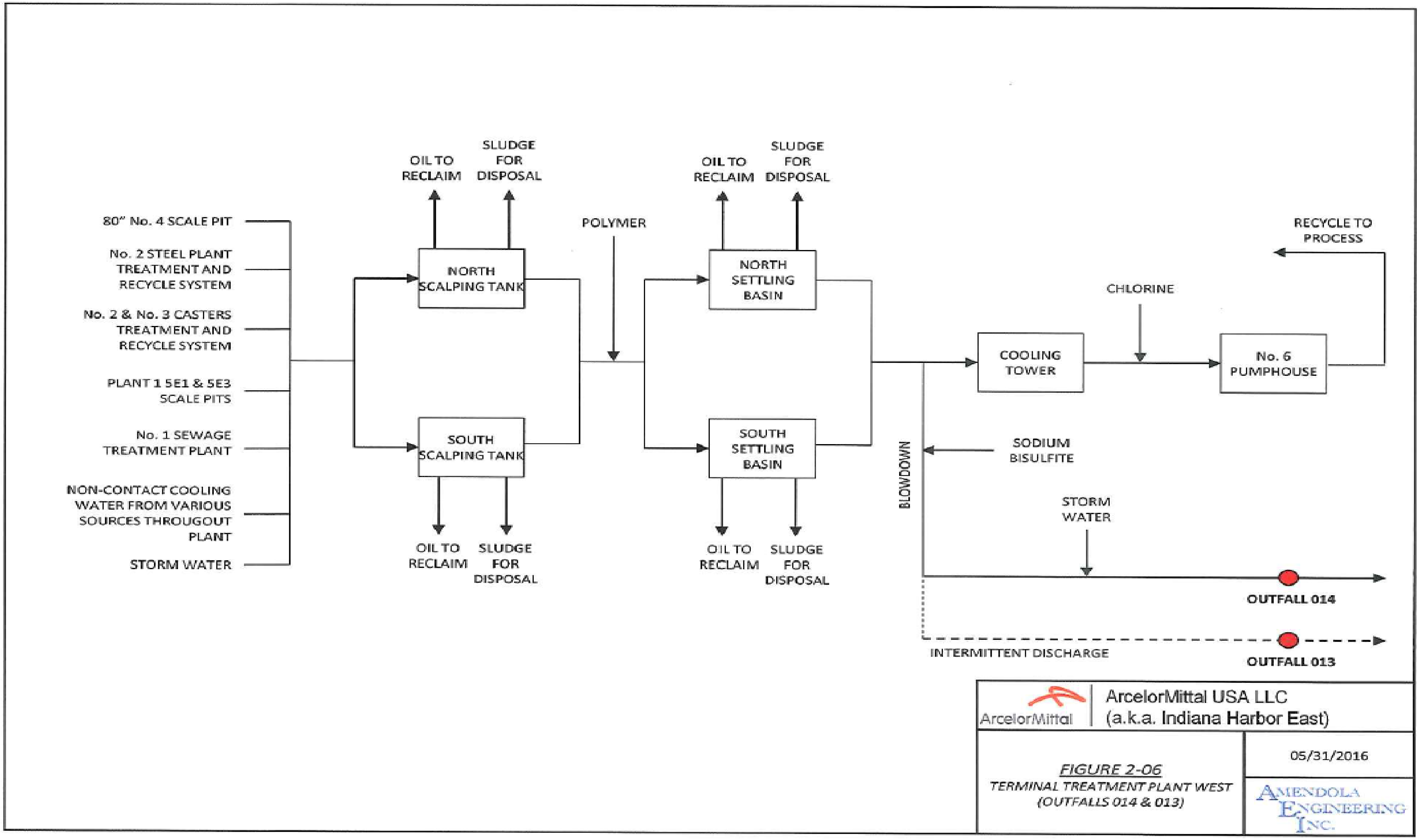

80" No. 4 SCALE PIT
No. 2 STEEL PLANT TREATMENT AND RECYCLE SYSTEM
No. 2 & No. 3 CASTERS TREATMENT AND RECYCLE SYSTEM
PLANT 1 5E1 & 5E3 SCALE PITS
No. 1 SEWAGE TREATMENT PLANT
NON-CONTACT COOLING WATER FROM VARIOUS SOURCES THROUGOUT PLANT
STORM WATER
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
NORTH SCALPING TANK
SOUTH SCALPING TANK
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
POLYMER
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
NORTH SETTLING BASIN
SOUTH SETTLING BASIN
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
BLOWDOWN
COOLING TOWER
CHLORINE
No. 6 PUMPHOUSE
RECYCLE TO PROCESS
SODIUM BISULFITE
STORM WATER
OUTFALL 014
INTERMITTENT DISCHARGE
OUTFALL 013
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-06
TERMINAL TREATMENT PLANT WEST
(OUTFALLS 014 & 013)
05/31/2016
AMENDOLA ENGINEERING INC.

Figure 2-07

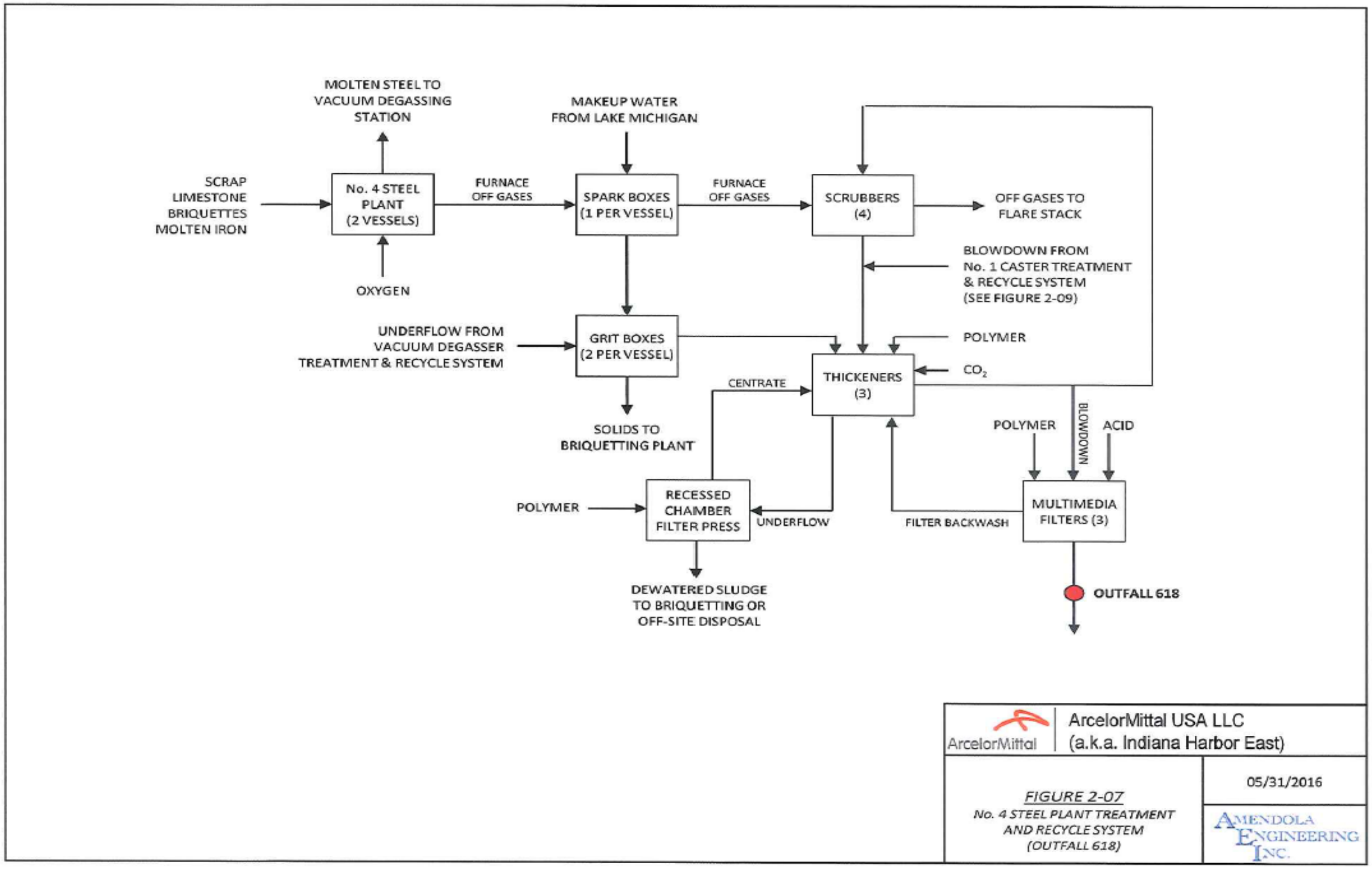


Figure 2-08

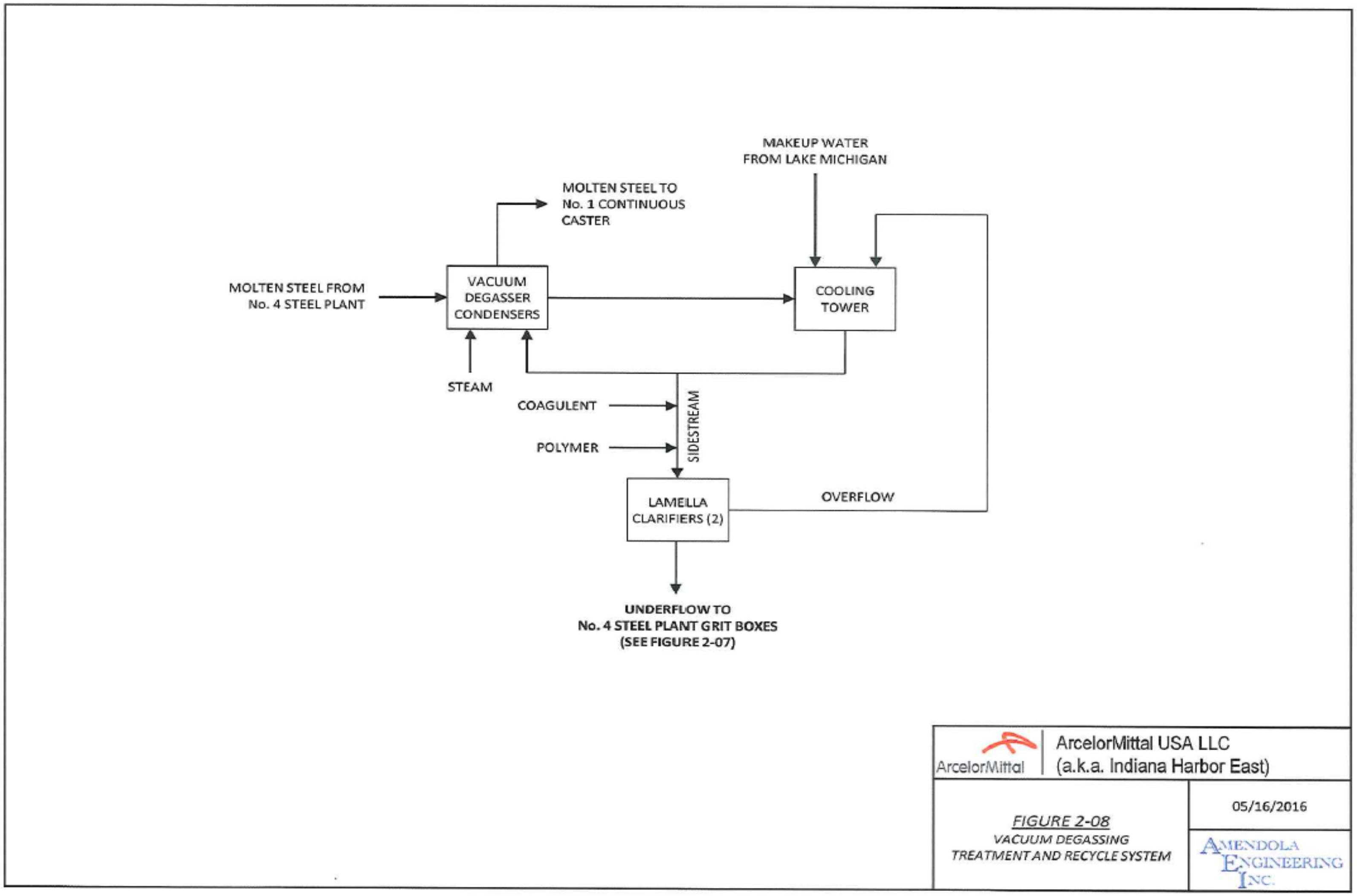

MAKEUP WATER
FROM LAKE MICHIGAN
MOLTEN STEEL TO
No. 1 CONTINUOUS
CASTER
MOLTEN STEEL FROM
No. 4 STEEL PLANT
VACUUM
DEGASSER
CONDENSERS
COOLING
TOWER
STEAM
COAGULENT
POLYMER
SIDESTREAM
LAMELLA
CLARIFIERS (2)
OVERFLOW
UNDERFLOW TO
No. 4 STEEL PLANT GRIT BOXES
(SEE FIGURE 2-07)
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-08
VACUUM DEGASSING
TREATMENT AND RECYCLE SYSTEM
05/16/2016
AMENDOLA
ENGINEERING
INC.

Figure 2-09

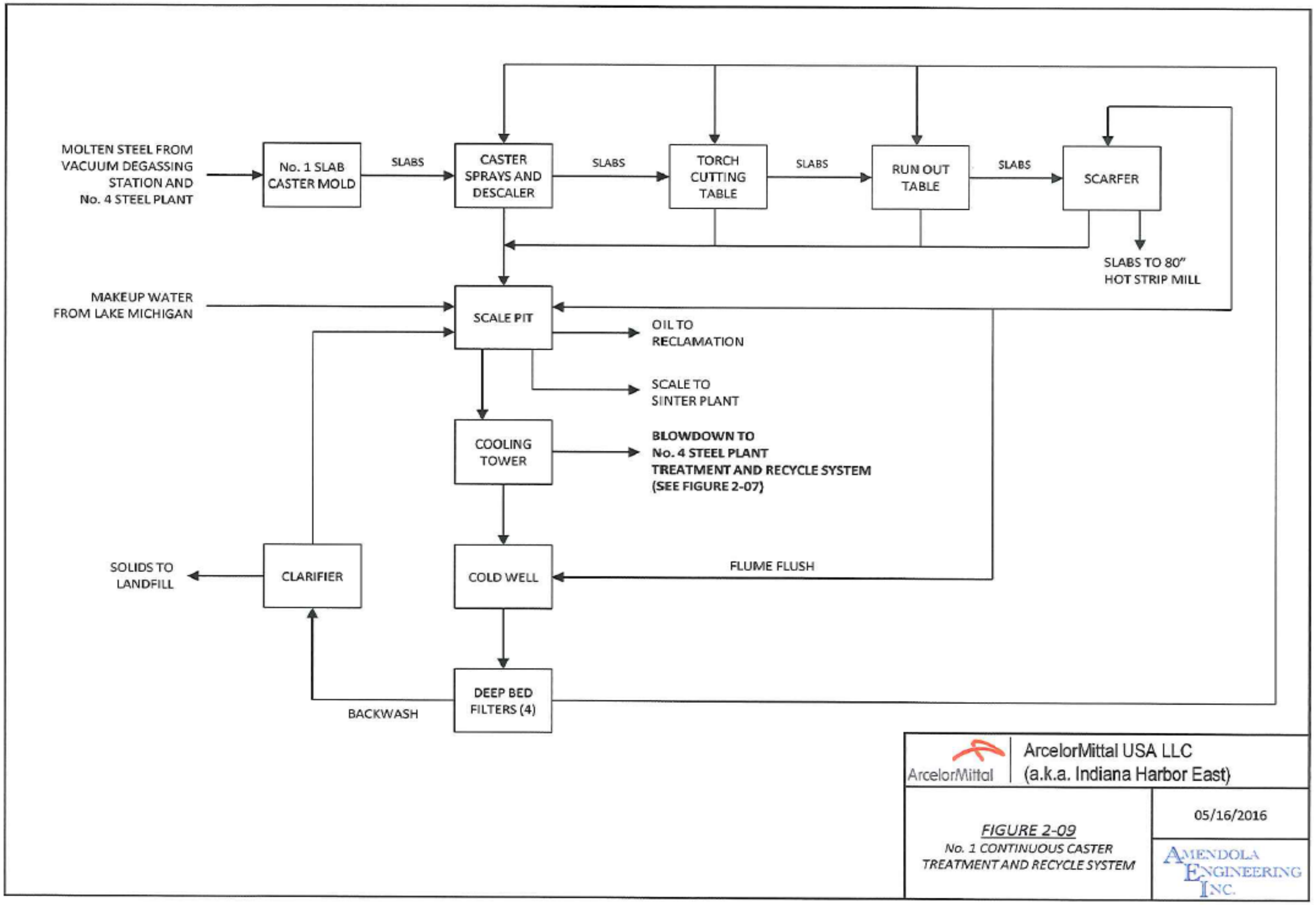

MOLTEN STEEL FROM VACUUM DEGASSING STATION AND No. 4 STEEL PLANT
No. 1 SLAB CASTER MOLD
SLABS
CASTER SPRAYS AND DESCALER
SLABS
TORCH CUTTING TABLE
SLABS
RUN OUT TABLE
SLABS
SCARFER
SLABS TO 80" HOT STRIP MILL
MAKEUP WATER FROM LAKE MICHIGAN
SCALE PIT
OIL TO RECLAMATION
SCALE TO SINTER PLANT
COOLING TOWER
BLOWDOWN TO No. 4 STEEL PLANT TREATMENT AND RECYCLE SYSTEM (SEE FIGURE 2-07)
SOLIDS TO LANDFILL
CLARIFIER
COLD WELL
FLUME FLUSH
DEEP BED FILTERS (4)
BACKWASH
ArcelorMittal
ArcelorMittal USA LLC (a.k.a. Indiana Harbor East)
FIGURE 2-09
No. 1 CONTINUOUS CASTER TREATMENT AND RECYCLE SYSTEM
05/16/2016
AMENDOLA ENGINEERING INC.

Figure 2-10

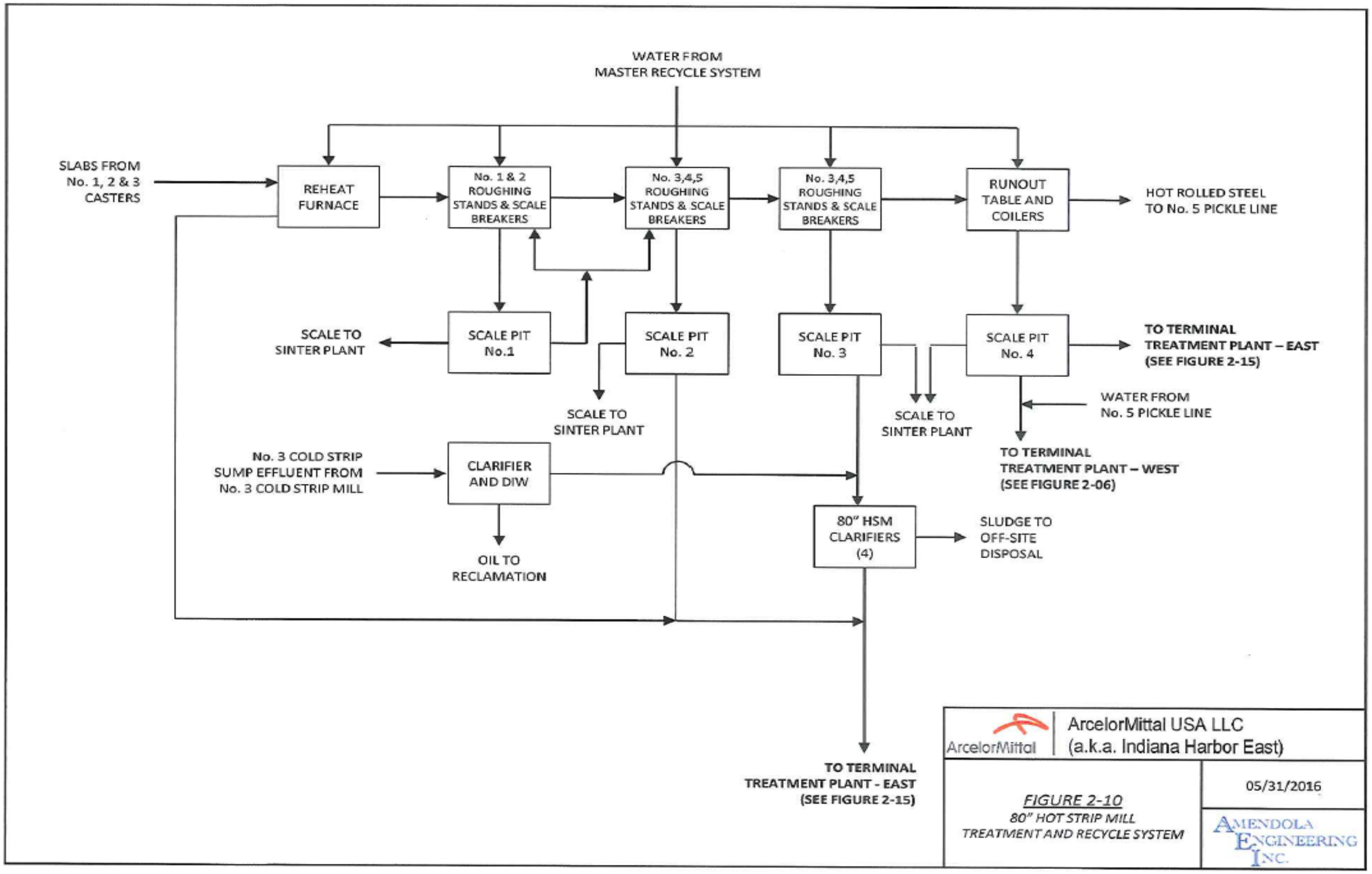

WATER FROM
MASTER RECYCLE SYSTEM
SLABS FROM
No. 1, 2 & 3
CASTERS
REHEAT
FURNACE
No. 1 & 2
ROUGHING
STANDS & SCALE
BREAKERS
No. 3,4,5
ROUGHING
STANDS & SCALE
BREAKERS
No. 3,4,5
ROUGHING
STANDS & SCALE
BREAKERS
RUNOUT
TABLE AND
COILERS
HOT ROLLED STEEL
TO No. 5 PICKLE LINE
SCALE TO
SINTER PLANT
SCALE PIT
No.1
SCALE PIT
No. 2
SCALE PIT
No. 3
SCALE PIT
No. 4
TO TERMINAL
TREATMENT PLANT – EAST
(SEE FIGURE 2-15)
WATER FROM
No. 5 PICKLE LINE
SCALE TO
SINTER PLANT
SCALE TO
SINTER PLANT
TO TERMINAL
TREATMENT PLANT – WEST
(SEE FIGURE 2-06)
No. 3 COLD STRIP
SUMP EFFLUENT FROM
No. 3 COLD STRIP MILL
CLARIFIER
AND DIW
80" HSM
CLARIFIERS
(4)
SLUDGE TO
OFF-SITE
DISPOSAL
OIL TO
RECLAMATION
TO TERMINAL
TREATMENT PLANT - EAST
(SEE FIGURE 2-15)
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-10
80" HOT STRIP MILL
TREATMENT AND RECYCLE SYSTEM
05/31/2016
AMENDOLA
ENGINEERING
INC.

Figure 2-11

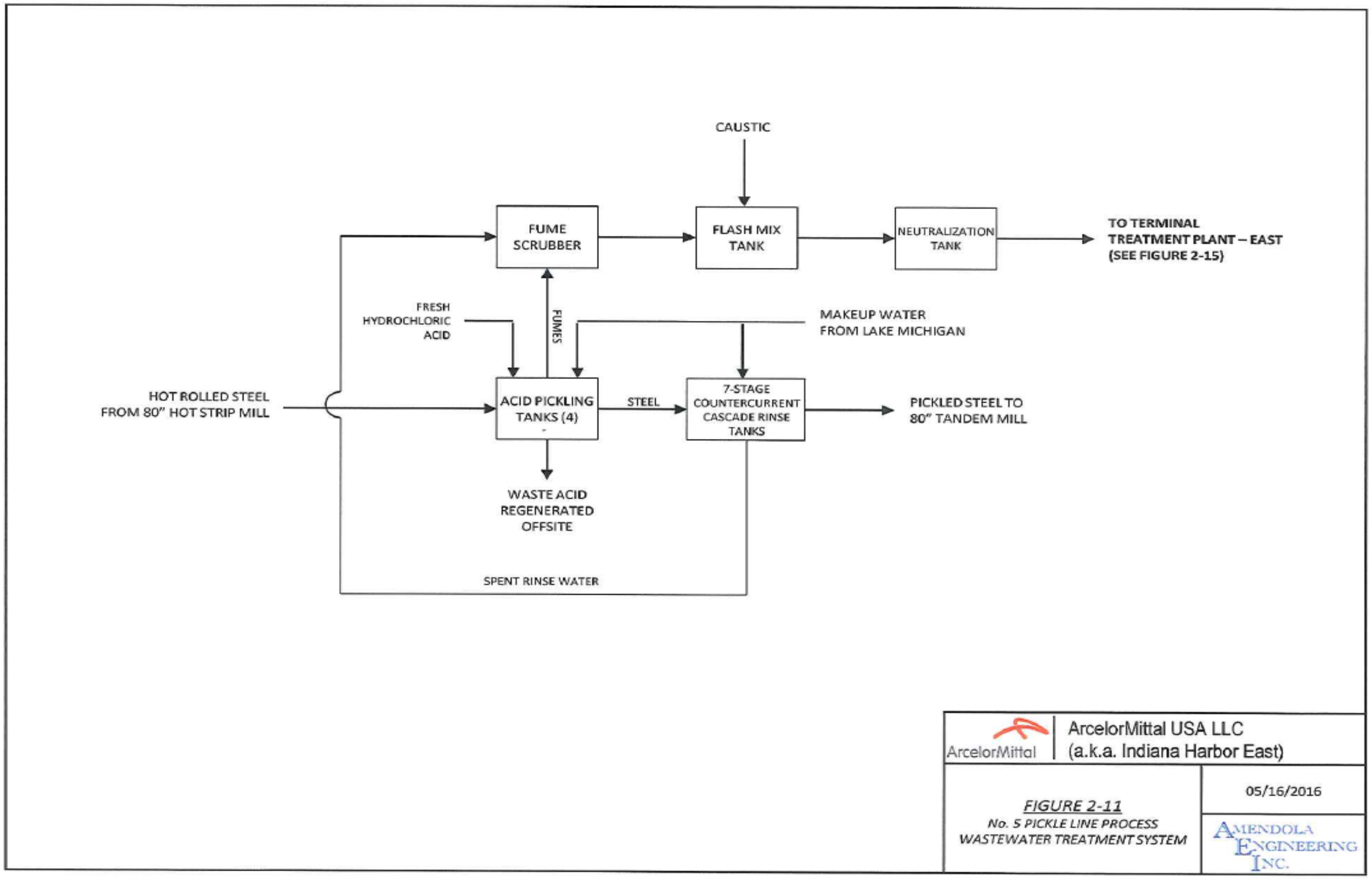
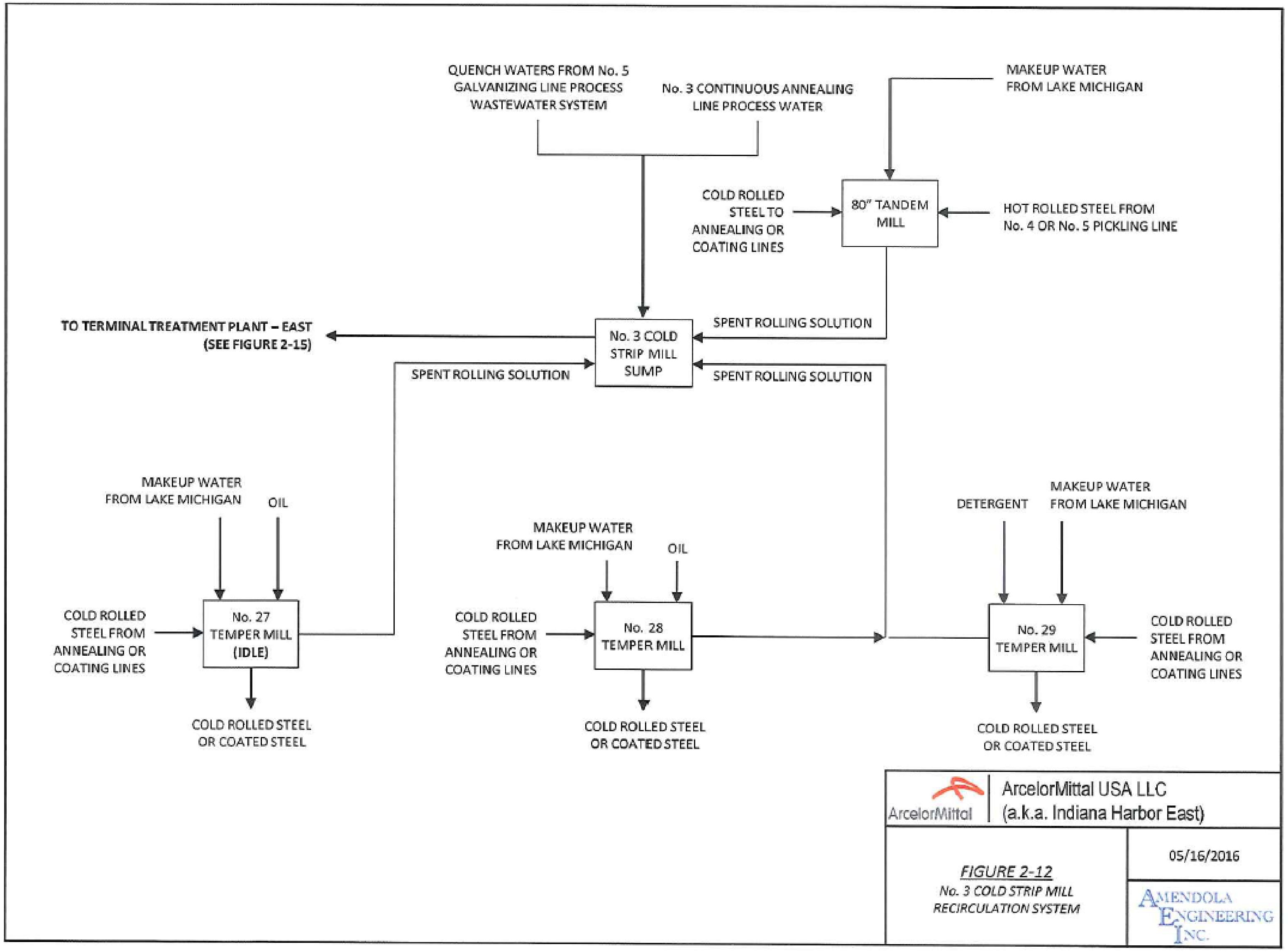
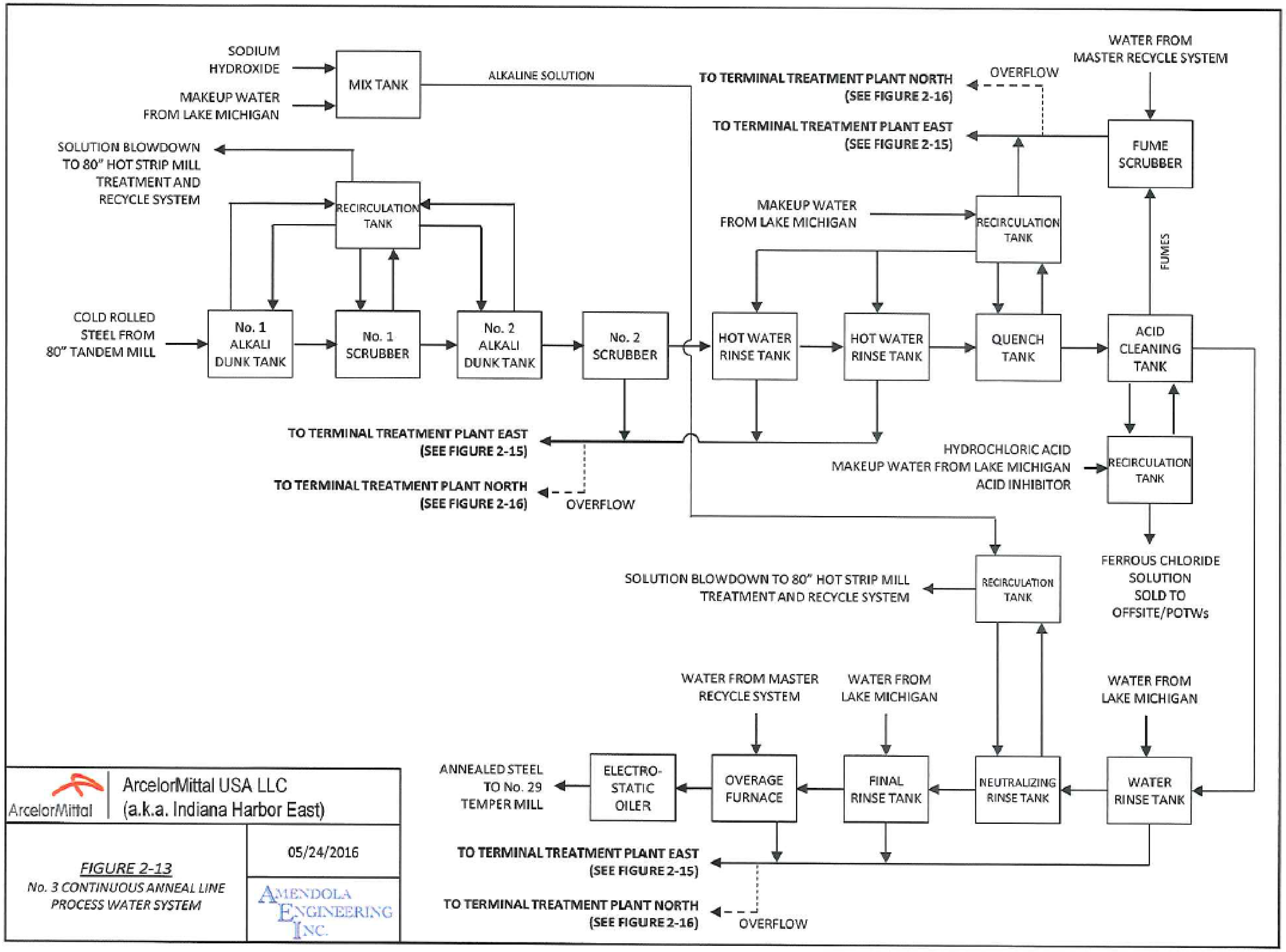

CAUSTIC
FUME SCRUBBER
FLASH MIX TANK
NEUTRALIZATION TANK
TO TERMINAL TREATMENT PLANT – EAST (SEE FIGURE 2-15)
FRESH HYDROCHLORIC ACID
FUMES
MAKEUP WATER FROM LAKE MICHIGAN
HOT ROLLED STEEL FROM 80" HOT STRIP MILL
ACID PICKLING TANKS (4)
STEEL
7-STAGE COUNTERCURRENT CASCADE RINSE TANKS
PICKLED STEEL TO 80" TANDEM MILL
WASTE ACID REGENERATED OFFSITE
SPENT RINSE WATER
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-11
No. 5 PICKLE LINE PROCESS WASTEWATER TREATMENT SYSTEM
05/16/2016
AMENDOLA ENGINEERING INC.

Figure 2-12



QUENCH WATERS FROM No. 5 GALVANIZING LINE PROCESS WASTEWATER SYSTEM
No. 3 CONTINUOUS ANNEALING LINE PROCESS WATER
MAKEUP WATER FROM LAKE MICHIGAN
COLD ROLLED STEEL TO ANNEALING OR COATING LINES
80" TANDEM MILL
HOT ROLLED STEEL FROM No. 4 OR No. 5 PICKLING LINE
TO TERMINAL TREATMENT PLANT – EAST (SEE FIGURE 2-15)
No. 3 COLD STRIP MILL SUMP
SPENT ROLLING SOLUTION
SPENT ROLLING SOLUTION
SPENT ROLLING SOLUTION
MAKEUP WATER FROM LAKE MICHIGAN
OIL
COLD ROLLED STEEL FROM ANNEALING OR COATING LINES
No. 27 TEMPER MILL (IDLE)
COLD ROLLED STEEL OR COATED STEEL
MAKEUP WATER FROM LAKE MICHIGAN
OIL
COLD ROLLED STEEL FROM ANNEALING OR COATING LINES
No. 28 TEMPER MILL
COLD ROLLED STEEL OR COATED STEEL
DETERGENT
MAKEUP WATER FROM LAKE MICHIGAN
No. 29 TEMPER MILL
COLD ROLLED STEEL FROM ANNEALING OR COATING LINES
COLD ROLLED STEEL OR COATED STEEL
ArcelorMittal
ArcelorMittal USA LLC (a.k.a. Indiana Harbor East)
FIGURE 2-12
No. 3 COLD STRIP MILL RECIRCULATION SYSTEM
05/16/2016
AMENDOLA ENGINEERING INC.

Figure 2-13



SODIUM HYDROXIDE
MAKEUP WATER FROM LAKE MICHIGAN
MIX TANK
ALKALINE SOLUTION
TO TERMINAL TREATMENT PLANT NORTH (SEE FIGURE 2-16)
OVERFLOW
WATER FROM MASTER RECYCLE SYSTEM
TO TERMINAL TREATMENT PLANT EAST (SEE FIGURE 2-15)
FUME SCRUBBER
SOLUTION BLOWDOWN TO 80" HOT STRIP MILL TREATMENT AND RECYCLE SYSTEM
RECIRCULATION TANK
MAKEUP WATER FROM LAKE MICHIGAN
RECIRCULATION TANK
FUMES
COLD ROLLED STEEL FROM 80" TANDEM MILL
No. 1 ALKALI DUNK TANK
No. 1 SCRUBBER
No. 2 ALKALI DUNK TANK
No. 2 SCRUBBER
HOT WATER RINSE TANK
HOT WATER RINSE TANK
QUENCH TANK
ACID CLEANING TANK
TO TERMINAL TREATMENT PLANT EAST (SEE FIGURE 2-15)
TO TERMINAL TREATMENT PLANT NORTH (SEE FIGURE 2-16)
OVERFLOW
HYDROCHLORIC ACID
MAKEUP WATER FROM LAKE MICHIGAN
ACID INHIBITOR
RECIRCULATION TANK
FERROUS CHLORIDE SOLUTION SOLD TO OFFSITE/POTWs
SOLUTION BLOWDOWN TO 80" HOT STRIP MILL TREATMENT AND RECYCLE SYSTEM
RECIRCULATION TANK
WATER FROM MASTER RECYCLE SYSTEM
WATER FROM LAKE MICHIGAN
WATER FROM LAKE MICHIGAN
ANNEALED STEEL TO No. 29 TEMPER MILL
ELECTRO-STATIC OILER
OVERAGE FURNACE
FINAL RINSE TANK
NEUTRALIZING RINSE TANK
WATER RINSE TANK
TO TERMINAL TREATMENT PLANT EAST (SEE FIGURE 2-15)
TO TERMINAL TREATMENT PLANT NORTH (SEE FIGURE 2-16)
OVERFLOW
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-13
No. 3 CONTINUOUS ANNEAL LINE PROCESS WATER SYSTEM
05/24/2016
AMENDOLA ENGINEERING INC.

Figure 2-14

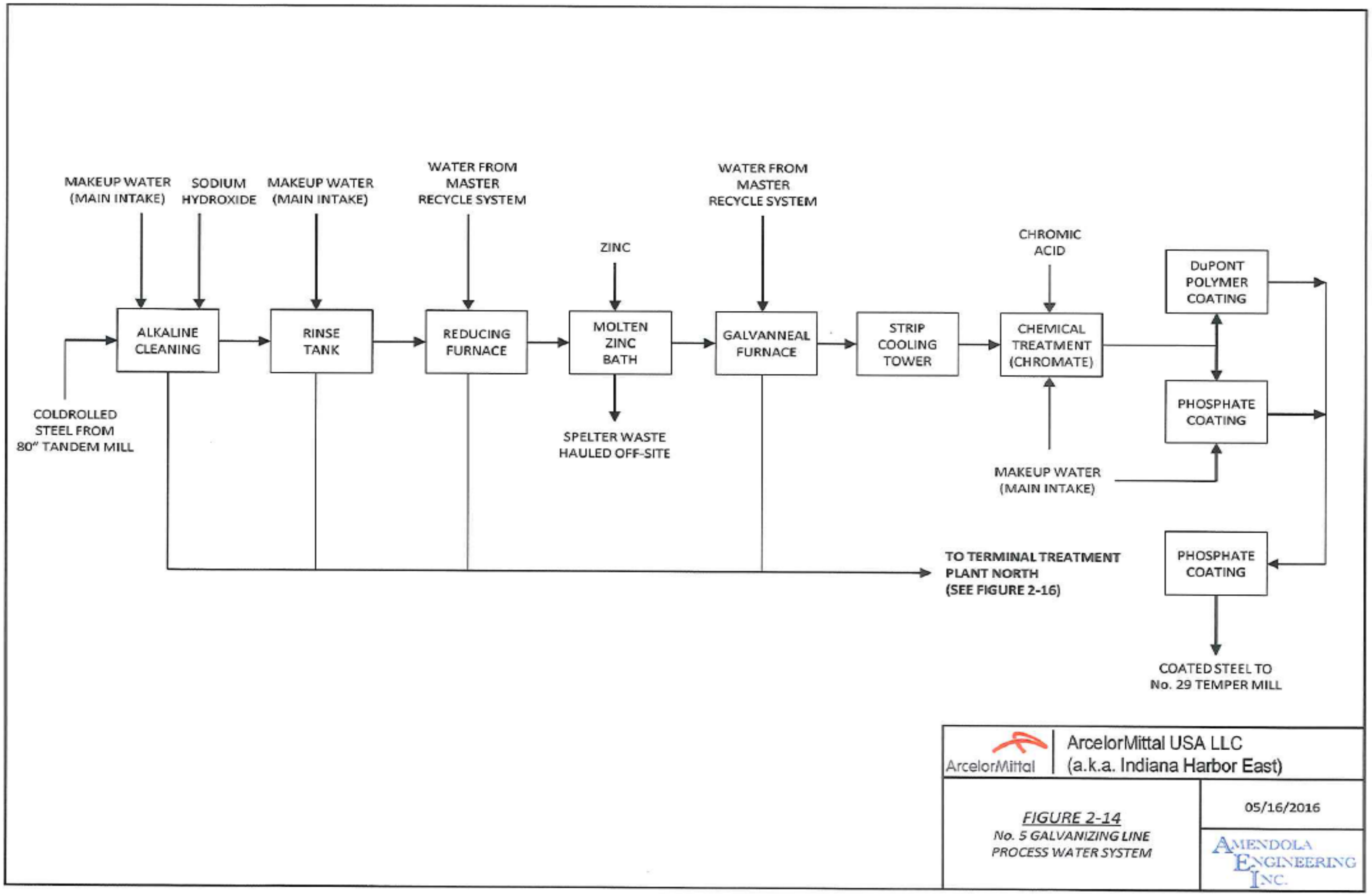

MAKEUP WATER (MAIN INTAKE)
SODIUM HYDROXIDE
MAKEUP WATER (MAIN INTAKE)
WATER FROM MASTER RECYCLE SYSTEM
WATER FROM MASTER RECYCLE SYSTEM
ZINC
CHROMIC ACID
DuPONT POLYMER COATING
ALKALINE CLEANING
RINSE TANK
REDUCING FURNACE
MOLTEN ZINC BATH
GALVANNEAL FURNACE
STRIP COOLING TOWER
CHEMICAL TREATMENT (CHROMATE)
PHOSPHATE COATING
COLDROLLED STEEL FROM 80" TANDEM MILL
SPELTER WASTE HAULED OFF-SITE
MAKEUP WATER (MAIN INTAKE)
TO TERMINAL TREATMENT PLANT NORTH (SEE FIGURE 2-16)
PHOSPHATE COATING
COATED STEEL TO No. 29 TEMPER MILL
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-14
No. 5 GALVANIZING LINE
PROCESS WATER SYSTEM
05/16/2016
AMENDOLA ENGINEERING INC.

Figure 2-15

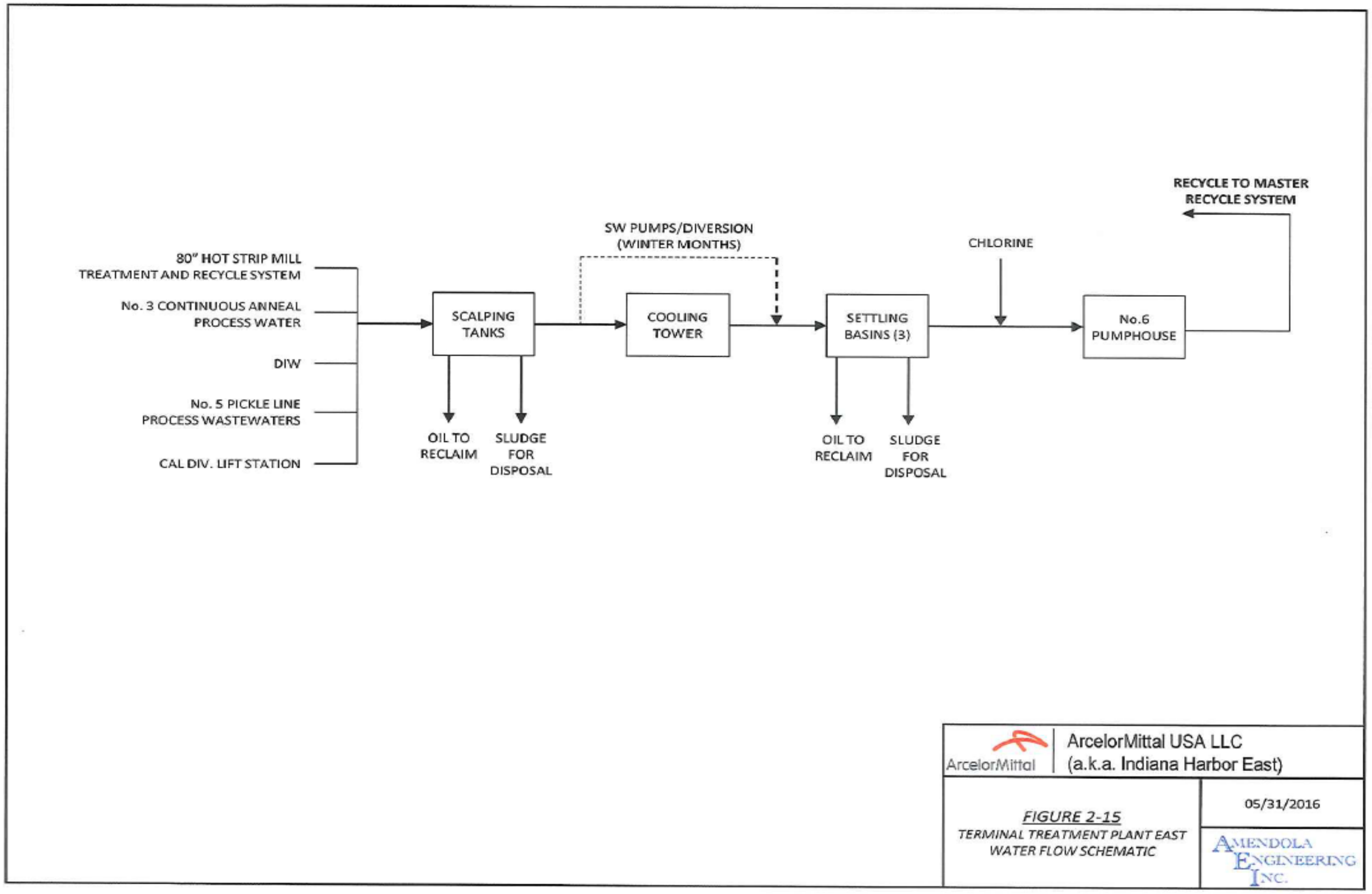
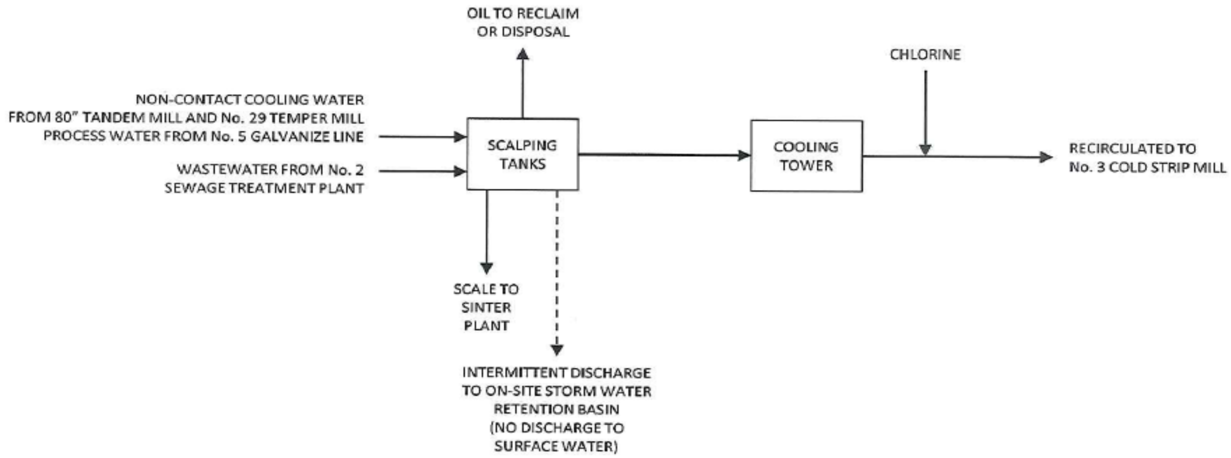

80" HOT STRIP MILL TREATMENT AND RECYCLE SYSTEM
No. 3 CONTINUOUS ANNEAL PROCESS WATER
DIW
No. 5 PICKLE LINE PROCESS WASTEWATERS
CAL DIV. LIFT STATION
SCALPING TANKS
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
SW PUMPS/DIVERSION (WINTER MONTHS)
COOLING TOWER
SETTLING BASINS (3)
OIL TO RECLAIM
SLUDGE FOR DISPOSAL
CHLORINE
No.6 PUMPHOUSE
RECYCLE TO MASTER RECYCLE SYSTEM
ArcelorMittal
ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)
FIGURE 2-15
TERMINAL TREATMENT PLANT EAST WATER FLOW SCHEMATIC
05/31/2016
AMENDOLA ENGINEERING INC.

Figure 2-16



ArcelorMittal USA LLC
(a.k.a. Indiana Harbor East)

FIGURE 2-16
TERMINAL TREATMENT PLANT NORTH WATER FLOW SCHEMATIC

05/31/16

AMENDOLA ENGINEERING INC.

Appendix II
Water Quality Assessment

Use Classifications

The Indiana Harbor Canal and Indiana Harbor are designated for full-body contact recreation and shall be capable of supporting a well-balanced, warm water aquatic community. The Indiana Harbor is designated as an industrial water supply. The Indiana portion of the open waters of Lake Michigan is designated for full-body contact recreation; shall be capable of supporting a well-balanced, warm water aquatic community; is designated as salmonid waters and shall be capable of supporting a salmonid fishery; is designated as a public water supply; is designated as an industrial water supply; and, is classified as an outstanding state resource water. These waterbodies are identified as waters of the state within the Great Lakes system. As such, they are subject to the water quality standards and associated implementation procedures specific to Great Lakes system dischargers as found in 327 IAC 2-1.5, 327 IAC 5-1.5, and 327 IAC 5-2.

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 2014 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 2014 Cycle. As of the 2014 303(d) List of Impaired Waters, the following impairments were listed for waters to which the permittee discharges:

Table 1

Assessment Unit	Waterbody	Impairments	ArcelorMittal East Outfalls
INC0163_T1001	Indiana Harbor Canal	Impaired Biotic Communities, Oil and Grease, *E. coli* and PCBs in Fish Tissue	None
INC0163G_G1078	Indiana Harbor	Free Cyanide, Mercury in Fish Tissue and PCBs in Fish Tissue	011, 014 and 018
INM00G1000_00	Lake Michigan	Mercury in Fish Tissue and PCBs in Fish Tissue	None

Water Quality Based Effluent Limitations

The water quality-based effluent limitations included in the 2011 permit and documented in the Fact Sheet were developed as part of a wasteload allocation analysis for the Indiana Harbor Canal presented in the report “Supplemental Information for the Wasteload Allocation Analysis for the ArcelorMittal Indiana

Harbor 2011 Draft Permits" dated August 19, 2011. The wasteload allocation included a multi-discharger model that was limited to the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed. Pollutants selected for the multi-discharger model were based on water quality concerns and the application of technology-based effluent limitations at multiple outfalls. Water quality-based effluent limitations (WQBELs) for ammonia-N, lead, zinc and total residual chlorine were calculated for ArcelorMittal Outfalls 014 and 018 as part of the multi-discharger model. The 2011 wasteload allocation (WLA) also included WQBELs for specific pollutants calculated on an individual outfall basis.

The 2011 WLA was developed using Indiana water quality regulations for discharges to waters within the Great Lakes system that include water quality criteria and methodologies for developing water quality criteria (327 IAC 2-1.5), procedures for calculating WLAs (327 IAC 5-2-11.4), making reasonable potential to exceed determinations (5-2-11.5) and developing WQBELs (5-2-11.6). These regulations are applicable to individual pollutants and to whole effluent toxicity (WET). These regulations are still applicable and were used in the current WLA analysis for the Indiana Harbor Canal presented in the report "Supplemental Information for the Wasteload Allocation Analysis for the ArcelorMittal Indiana Harbor 2016 Draft Permits" dated November 16, 2016. The application of WET requirements to ArcelorMittal is included in a later section.

The current subwatershed model for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor included the ArcelorMittal East facility which has three active outfalls to the Indiana Harbor. The other major dischargers included in the subwatershed model are as follows in relation to the ArcelorMittal East facility: ArcelorMittal Indiana Harbor – Central Wastewater Treatment Plant (IN0063711) has one active outfall upstream to the Indiana Harbor Canal, and ArcelorMittal Indiana Harbor – Indiana Harbor West (IN0000205) has three active outfalls upstream to the Indiana Harbor Canal, one active outfall downstream to the Indiana Harbor, and one water intake in the Indiana Harbor near the mouth of the Indiana Harbor Canal. The discharges from these two facilities were taken into consideration in determining the need for and establishing WQBELs for the discharges from the ArcelorMittal East outfalls.

A review of the 2014 303(d) list shows that there is only one pollutant on the list that has the potential to impact wasteload allocation analyses conducted for the renewal of NPDES permits for dischargers in the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed. The Indiana Harbor was first listed for free cyanide on the 2010 303(d) list. The listing was based on free cyanide data collected during the years 2000 and 2001 at IDEM fixed station IHC-0 in the Indiana Harbor. This station is located just upstream of ArcelorMittal West Outfall 011 and, due to the potential for reverse flows in the Indiana Harbor, could be impacted by the outfall. It is also located downstream of ArcelorMittal East Outfalls 011, 014 and 018. The aquatic life criteria for cyanide were changed from total cyanide to free cyanide in the 1997 Great Lakes rulemaking. It is IDEM current practice to monitor for total cyanide at fixed stations and analyze samples for free cyanide only when total cyanide data show a reportable concentration ($\geq$ 5 ug/l). After 2001, data collected at fixed station IHC-0 no longer showed any reportable values for total cyanide so free cyanide data have not been collected. ArcelorMittal West has also installed additional treatment and redirected cyanide containing process wastewater away from Outfall 011.

The Indiana Harbor Canal has not been included on the 303(d) list for free cyanide due to the two IDEM fixed stations in the Indiana Harbor Canal (located upstream of fixed station IHC-0 at Columbus Avenue (IHC-3S) and Dickey Road (IHC-2)) not showing impairment for free cyanide. There has not been a value for total cyanide above 5 ug/l reported at IHC-3S since February 2007 and at IHC-2 since January 2005. Prior to the 2011 permit renewal, total cyanide had been reported at many of the ArcelorMittal outfalls due to technology-based limits for this parameter, but little data for free cyanide was available. Therefore, in the 2011 permit renewal, monitoring was required for free cyanide at ArcelorMittal outfalls that have process wastewater for use in an assessment of reasonable potential.

A TMDL is not currently planned for the subwatershed, and, based on current IDEM monitoring data, may not be required. Therefore, as was done in the 2011 WLA, the procedures for calculating WLAs under 5-2-11.4 were used to develop preliminary WLAs and WLAs in the absence of a TMDL. Wasteload allocations in the absence of TMDLs are developed to establish water quality-based effluent limitations under 5-2-11.6 and preliminary wasteload allocations are developed to make reasonable potential determinations under 5-2-11.5. The reasonable potential procedures under 5-2-11.5 include provisions for making reasonable potential determinations using best professional judgment (5-2-11.5(a)) and using a statistical procedure (5-2-11.5(b)). The statistical procedure is a screening process in which a projected effluent quality (PEQ) based on effluent data is calculated and compared to a preliminary effluent limitation (PEL) based on the preliminary wasteload allocation. Both the best professional judgment and statistical procedures were used to establish the need for WQBELs to protect the designated uses of the Indiana Harbor Canal, Indiana Harbor, and Lake Michigan.

To develop WLAs and conduct reasonable potential to exceed analyses, IDEM utilized the following effluent data collected and submitted by ArcelorMittal for the East facility: data collected during the period December 2011 through June 2016 in accordance with the current permit and reported on monthly monitoring reports (MMRs); data for fluoride and cyanide collected from November 2014 through October 2015 as part of a special reporting requirement included in the 2011 permit renewal; and, additional data collected for the 2016 permit renewal application. To develop WLAs, IDEM utilized the following sources of water quality data for the Indiana Harbor Canal and Indiana Harbor: IDEM fixed water quality monitoring station IHC-3S at Columbus Drive (Indiana Harbor Canal upstream of Lake George Canal and all ArcelorMittal outfalls); IDEM fixed station IHC-2 at Dickey Road (Indiana Harbor Canal); and, IDEM fixed station IHC-0 at the mouth of the Indiana Harbor. To develop WLAs, IDEM utilized the following sources of data for Lake Michigan: IDEM fixed station LM-H at the public water supply intake for the City of Hammond and IDEM fixed station LM-DSP at Dunes State Park. After a review of effluent and in-stream data, it was decided to conduct a multi-discharger WLA for ammonia-N, free cyanide, fluoride, lead, zinc and total residual chlorine. Other pollutants of concern, including mercury, were considered on an outfall by outfall basis.

In the 2011 multi-discharger model, the Indiana Harbor Canal was divided into sixteen complete mix segments and the Indiana Harbor into five complete mix segments. The Lake George Canal was incorporated as an input to the Indiana Harbor Canal. The intrusion of lake water was accounted for in the model by adding a portion of the total lake intrusion flow to the surface layer of each of nine affected segments in the Indiana Harbor and Indiana Harbor Canal. A total lake intrusion flow of 138 cfs was used based on a measurement made by the USGS in October 2002 during a normal lake level condition. The procedures in 5-2-11.4 require the more stringent of the FAV or the acute WLA calculated using up to a one-to-one dilution to be applied to individual outfalls. They also limit the dilution available for each outfall (the mixing zone) to twenty-five percent (25%) of the stream design flow. Because of the potential for overlapping mixing zones within a segment, the combined discharges in a segment were also limited collectively to twenty-five percent (25%) of the stream design flow. This was done in accordance with 5-

2-11.4(b)(3)(D) which requires the combined effect of overlapping mixing zones to be evaluated to ensure that applicable criteria and values are met in the area where the mixing zones overlap.

Based on the reasonable potential statistical procedure at 5-2-11.5(b)(1)(iii) and (iv), the procedures under 5-2-11.4(c) are used as the basis for determining preliminary WLAs and the preliminary WLAs are then used to develop monthly and daily PELs in accordance with the procedure for converting WLAs into WQBELs under 5-2-11.6. Three critical inputs to the procedure under 5-2-11.4(c) include the background concentration, the effluent flow and the stream flow. The background concentration is determined under 5-2-11.4(a)(8). Under this rule, background concentrations can be determined using actual in-stream data or in-stream concentrations estimated using actual or projected pollutant loading data. In the multi-discharger WLA, in-stream data were used to establish the background concentration for the first segment of the model and then either actual or projected pollutant loading data were used. For pollutants not included in the multi-discharger WLA, in-stream data were used.

In the 2011 multi-discharger model, the flow assigned to each outfall was the long-term average flow using data from January 2006 through December 2007. This period was considered by ArcelorMittal to be the most representative of full operating conditions. Based on a review of flow data for the period January 2013 thru December 2015, it was determined that the flows used in the 2011 permit renewal are not representative of conditions expected during the term of the renewal permit. The termination of production at ArcelorMittal USA – Indiana Harbor Long Carbon (IN0063355) has resulted in the elimination of one significant discharge to the Indiana Harbor Canal. There has also been a significant reduction in the discharge flows from ArcelorMittal West Outfall 009 and ArcelorMittal East Outfall 011. The flow assigned to each outfall for ArcelorMittal Central WWTP and ArcelorMittal West was the long-term average flow calculated using data from the period January 2013 through December 2014. This period represents production prior to the idling in 2015 of operations contributing flow to ArcelorMittal Central WWTP and ArcelorMittal West. The flow assigned to each outfall for ArcelorMittal East was the long-term average flow calculated using data from the period January 2014 through December 2015. This period represents production after the permanent shutdown of the Nos. 5 and 6 blast furnaces in June 2013.

The stream design flow used to develop wasteload allocations is determined under 5-2-11.4(b)(3). For the pollutants considered in this analysis, the aquatic life criteria are limiting and the stream design flow for chronic aquatic life criteria is the Q7,10. As was done in the 2011 WLA, since the Q7,10 is the appropriate flow for the water quality criteria being considered, the Q7,10 was used as the upstream flow for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor WLA. Therefore, the stream design flow was set equal to the Q7,10 flow in the first segment of the multi-discharger model and then the long-term average flow of each discharger was added to become the stream design flow for downstream dischargers. The lake intrusion flow was added to the stream design flow at the end of each applicable segment. The Q7,10 was calculated using data from USGS gauging station 04092750 which is located in the Indiana Harbor Canal at Canal Street. The data used in the calculation consisted of continuous daily mean flow data approved by the USGS for the period 10-1-1994 through 3-31-2012. The Q7,10 based on the climatic year (April 1 through March 31) is 358 cfs.

At each applicable outfall, PELs were calculated for each pollutant of concern using an outfall specific spreadsheet that calculates PELs using the procedures under 5-2-11.4(c) to calculate WLAs and the procedures under 5-2-11.6 to convert WLAs into PELs. The spreadsheet considers all water quality criteria (acute and chronic aquatic life, human health and wildlife) and associated stream design flows and mixing zones. The stream design flow for each water quality criterion was set equal to the same value in the outfall specific spreadsheet. This value was the Q7,10 flow plus the accumulation of long-term average effluent flow and any lake intrusion flow, minus any intake flow. For Mercury, which is a bioaccumulative chemical of concern (BCC), a mixing zone was not allowed in the development of PELs for any outfall in accordance with 5-2-11.4(b)(1). For those pollutants included in a multi-discharger WLA, the multi-discharger model was used to ensure that the most stringent water quality criterion is met at the edge of the mixing zone for each segment. This was the 4-day average chronic criterion. The multi-discharger model was also used to ensure that Lake Michigan criteria are met at the end of the last segment in the Indiana Harbor. The preliminary WLA was included as an input in the multi-discharger model and PELs were calculated from the preliminary WLA.

In the multi-discharger model, preliminary WLAs for each outfall were established, if possible, so that the monthly and daily PEQs did not exceed the PELs calculated from the preliminary WLAs. If TBELs were included for the parameter at a final outfall or an internal outfall, then the preliminary WLA was increased to the extent possible to allow the mass-based PELs to exceed the TBELs. The preliminary WLAs were adjusted as necessary so that the calculated PELs did not exceed the PELs calculated using the outfall specific spreadsheets and so that the water quality criterion was not exceeded at the edge of the mixing zone for each segment as determined using the multi-discharger model. For some outfalls, the discharge of one or more pollutants for which a multi-discharger WLA was conducted was not considered significant, so a preliminary WLA was established based on the reported effluent concentration, or if sufficient data were available, reported effluent loading data, but PELs were not calculated as allowed under 5-2-11.5(b)(1).

After assigning a preliminary WLA to each outfall in a segment and entering the WLA into the multi-discharger model, the model calculates the PELs for each outfall, the concentration at the edge of the mixing zone for the segment and the concentration at the end of each segment after complete mixing. The concentration after complete mixing then becomes the background concentration for the next segment. To calculate PELs using the outfall specific spreadsheets, the background concentration for each outfall was calculated assuming complete mixing between outfalls. This was done by entering the WLAs for each outfall into a separate spreadsheet that calculated the background concentration upstream of each outfall. By conducting a multi-discharger WLA in this manner, the background concentration for each outfall was based on the accumulated WLAs for the prior outfalls. Since the WLAs were based in some cases on projected effluent quality, the background concentrations were based on projected loading data. This provided a conservative means of determining the cumulative impact of the outfalls. For those pollutants not included in a multi-discharger WLA, the background concentration for each outfall was based on in-stream data.

The results of the reasonable potential statistical procedure are included in Tables 2-3. The results show that the discharge from ArcelorMittal Indiana Harbor East Outfall 014 has a reasonable potential to exceed a water quality criterion for zinc and the discharge from Outfall 018 has a reasonable potential to exceed a water quality criterion for lead.

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 and quagga mussel control at concentrations exceeding water quality criteria. Therefore, chlorine may be discharged from Outfalls 011, 014, and 018 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 011, 014, and 018.

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 were calculated at the final outfall. The WQBELs were set equal to the applicable PELs from the multi-discharger model or the outfall specific spreadsheet. This was done for ArcelorMittal East Outfall 014 (lead, zinc, naphthalene and tetrachloroethylene at the final outfall), and Outfall 018 (lead and zinc at internal Outfalls 518 and 618 and ammonia-N at internal Outfall 518). The mass-based WQBELs at the final outfall were compared to the mass-based TBELs. Since the facility is authorized to discharge up to the mass-based TBELs, if the mass-based TBELs 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 2-1.5 and WQBELs are required for the pollutant at the final outfall. This was the case for lead and zinc at Outfall 014 and lead at Outfall 018. Therefore, WQBELs are required for these pollutants regardless of the results of the reasonable potential statistical procedure. However, the results of the reasonable potential statistical procedure were used to help establish the monitoring frequency.

Once a determination is made using the reasonable potential provisions under 5-2-11.5 that WQBELs must be included in the permit, the WQBELs are calculated in accordance with 5-2-11.5(d). Under this provision, in the absence of an EPA-approved TMDL, WLAs are calculated for the protection of acute and chronic aquatic life, wildlife, and human health in accordance with the WLA provisions under 5-2-11.4. The WLAs are then converted into WQBELs in accordance with the WQBEL provisions under 5-2-11.6. The WQBELs are included in Table 5 and were set equal to the PELs calculated for each pollutant.

Whole Effluent Toxicity Testing Requirements

The 1997 Indiana Great Lakes regulations included 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)) whole effluent toxicity (WET) and a procedure for conducting reasonable potential for WET (5-2-11.5(c)(1)). U.S. EPA did not approve the reasonable potential procedure for WET so Indiana is now required by 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 except that the equation was rearranged so that it is similar to the equation that IDEM uses for other pollutants and pollutant parameters.

The 2011 permit required ArcelorMittal to conduct monthly chronic toxicity testing for three months at Outfalls 014 and 018 for *Ceriodaphnia dubia* and Fathead Minnow. Thereafter, testing was required quarterly for the most sensitive species. The permit modification issued June 19, 2014 reduced the testing frequency to once per year and only required testing for *Ceriodaphnia dubia*. The representative dataset for the reasonable potential analysis was considered to begin with the first test under the 2011 permit conducted in January 2012. The results of the reasonable potential analysis are shown in Table 4. The results show that the discharges from Outfalls 014 and 018 do not have a reasonable potential to exceed the numeric interpretation of the narrative criterion for acute or chronic WET.

The permittee will be required to conduct whole effluent toxicity testing of its effluent discharge from Outfalls 014 and 018 using *Ceriodaphnia dubia*. The terms and conditions of the WET testing are contained in Part I.D. of the NPDES permit. Part I.D.1.c.(2) of the permit states that chemical analysis must accompany each effluent sample taken for bioassay test. The analysis detailed under Part I.A.4., and Part I.A.5. should be conducted for each effluent sample. The effluent should be sampled using the sample type requirements specified in Part I.A.4. and Part I.A.5. Questions regarding the WET testing procedures should be addressed to the Office of Water Quality, NPDES Permits Branch.

Acute toxicity is to be derived from chronic toxicity tests and toxicity is to be reported in terms of acute and chronic toxic units and compared to calculated toxicity reduction evaluation (TRE) triggers. The TRE triggers are set equal to the acute and chronic WLAs for WET in accordance with 327 IAC 5-2-11.6(d). If either an acute or chronic TRE trigger is exceeded, another chronic WET test must be conducted within two weeks. If the results of any two consecutive tests exceed the applicable TRE trigger, ArcelorMittal must conduct a TRE. The TRE triggers are shown in Table 5.

Thermal Requirements

The Indiana Harbor Canal and Indiana Harbor shall be capable of supporting a well-balanced, warm water aquatic community. The water quality criteria for temperature applicable to these waterbodies are included in 327 IAC 2-1.5-8(c). Indiana regulations state that the temperature criteria apply outside a mixing zone, but the allowable mixing zone is not established in the rules. IDEM current practice is to allow fifty percent (50%) of the stream flow for mixing to meet temperature criteria. The implementation procedures under 327 IAC 5-2-11.4 for developing wasteload allocations for point source discharges address temperature under 5-2-11.4(d)(3). This provision states that temperature shall be addressed using a model, approved by the commissioner, that ensures compliance with the water quality criteria for temperature.

There is also no specific procedure in the rules for determining whether a discharger is required to have water quality-based effluent limits (WQBELs) for temperature. Therefore, the general provision for making reasonable potential determinations in 5-2-11.5(a) is applicable. This provision establishes that if the commissioner determines that a pollutant or pollutant parameter 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 or numeric water quality criterion under 2-1.5, the commissioner shall incorporate WQBELs in an NPDES permit that will ensure compliance with the criterion. In making this determination, the commissioner shall exercise best professional judgment, taking into account the source and nature of the discharge, existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, and, where appropriate, the dilution of the effluent in the receiving water. The commissioner shall use any valid, relevant, representative information pertaining to the discharge of the pollutant.

The multi-discharger model for the Indiana Harbor Canal/Lake George Canal/Indiana Harbor subwatershed discussed above included four active outfalls discharging to the Indiana Harbor Canal and four active outfalls discharging to the Indiana Harbor that contain a thermal component such as noncontact cooling water or boiler blowdown as a source of wastewater. ArcelorMittal East Outfall 011 has a flow of 30.3 mgd consisting mostly of noncontact cooling water and boiler blowdown; Outfall 014 has a flow of 7.7 mgd consisting of blowdown from the Main Plant Recycle System which includes process and cooling water; and, Outfall 018 has a flow of 16.4 mgd with Internal Outfall 518 having a flow of 0.089 mgd and Internal Outfall 618 having a flow of 0.58 mgd with the remaining discharge including various thermal discharges such as noncontact cooling water and cooling tower blowdown. The ArcelorMittal East 2011 permit includes temperature monitoring for Outfalls 011, 014 and 018 on the intake and outfall. The source of cooling water for Outfalls 011 and 014 is the Main Intake on Lake Michigan and the source of cooling water for Outfall 018 is the No. 7 Pump House on Lake Michigan. Effluent temperature data reported for the period January 1998 through December 2015 were reviewed. The data for Outfall 011 follow a seasonal pattern with a maximum recorded temperature of 89.2 °F in September 1998. However, the data show a significant reduction in temperature after this time with the reduction of thermal sources. Therefore, only data collected since January 2012 were used in the analysis. The maximum recorded temperature during this period was 79.5 °F in July 2012. The data for Outfall 014 follow a seasonal pattern, but with relatively higher temperatures than the other ArcelorMittal East outfalls, with a maximum recorded temperature of 90.6 °F in July 2006. The data for Outfall 018 follow a seasonal pattern with a maximum recorded temperature, after the shutdown of the No. 4 AC power station around May 1999, of 86.5 °F in July 2012.

The multi-discharger model accounted for the intrusion of lake water into the Indiana Harbor and Indiana Harbor Canal. The intrusion of lake water produces thermal stratification that ends at the railroad bridge about 0.7 miles upstream of the mouth of the Indiana Harbor Canal. The outfalls that discharge upstream of the railroad bridge are ArcelorMittal Central WWTP Outfall 001 and ArcelorMittal West Outfall 002 on the west side of the canal. ArcelorMittal West Outfalls 009 and 010, which are two large sources of non-contact cooling water, are the first two discharges downstream of the railroad bridge. A review of historical instream temperature data at IDEM fixed stations on the Indiana Harbor Canal and Indiana Harbor from January 1990 through December 2015 and IDEM fixed station LM-DSP on Lake Michigan at Dunes State Park from January 1997 through December 2015 shows that the maximum temperature values were recorded in July 1999 and July 2012. The average stream flow during the July 1999 and July 2012 temperature monitoring as recorded at USGS gaging station 04092750 in the Indiana Harbor Canal at Canal Street was 485 cfs in July 1999 and 521 cfs in July 2012 which are greater than the Q7,10 of 358 cfs, but less than the harmonic mean flow of 548 cfs.

In addition to the instream sampling, a multi-discharger model was used to assist in the reasonable potential analysis. The multi-discharger model for toxics discussed above was modified to account for temperature. The mixing zone was set at fifty percent (50%) of the stream flow to be consistent with current IDEM practice for mixing zones for temperature. The model does not account for heat dissipation so it represents a conservative, dilution only analysis. A Q7,10 flow of 358 cfs, long-term average effluent flows and background temperatures from fixed station IHC-3S were used in the multi-discharger thermal model as were used in the multi-discharger toxics model. The effluent temperature input to the model was set equal to the maximum temperature reported for the month during the period of representative data collection. For the ArcelorMittal Central WWTP outfall and ArcelorMittal West outfalls, this period was January 2012 through December 2015 since temperature monitoring was reinstated in their 2011 permits. For ArcelorMittal East Outfall 011, the representative period was also January 2012 through December 2015. For ArcelorMittal East Outfall 014, the period was January 1998 through December 2015 and for ArcelorMittal East Outfall 018 the period was June 1999 through December 2015 if it was considered representative data. The maximum temperature for May for ArcelorMittal East Outfall 018 was reported in 2010, but it was not considered representative due to low discharge flows at the plant. The maximum temperature for November for Outfall 018 was reported in 2009, but it was not considered representative due to low discharge flows at the plant. In addition, the January and February data for both 2009 and 2010 were not considered representative due to low discharge flows. The critical peak temperature months of June through September were included as one period since the same maximum criterion of 90°F applies each month.

The results of the conservative, dilution only modeling show that the discharges from ArcelorMittal East Outfalls 011, 014 and 018 do not have a reasonable potential to cause or contribute to an excursion of the water quality criterion for temperature in the Indiana Harbor from January through December. Based on the results of the instream sampling and multi-discharger thermal model, the discharges from ArcelorMittal East Outfalls 011, 014 and 018 do not have a reasonable potential to exceed a water quality criterion for temperature. Under 5-2-11.5(e), the commissioner may require monitoring for a pollutant of concern even if it is determined that a WQBEL is not required based on a reasonable potential determination. Monitoring for temperature was continued in the renewal permit.

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TABLE 2 **REASONABLE POTENTIAL TO EXCEED** **ARCELORMITTAL USA - INDIANA HARBOR EAST OUTFALL 014 (7.7 mgd)**

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Free Cyanide (ug/l) *	12	44	0.3	1.0	**12**	12	468	0.3	0.9	**11**	**12**	**25**	No	No
Hexavalent Chromium (mg/l) *	0.0070	15	0.8	1.7	**0.012**	0.0095	48	0.9	1.1	**0.010**	**0.016**	**0.032**	No	No
Fluoride (mg/l) **	2.2	12	0.3	1.3	**2.9**	2.5	24	0.3	1.1	**2.8**	**3.3**	**6.6**	No	No
Lead (ug/l) *	3.3	55	0.5	1.0	**3.3**	30	755	1.3	0.8	**24**	**48**	**96**	No	No
Zinc (ug/l) *	177	55	0.9	1.0	**180**	750	753	1.5	0.8	**600**	**170**	**340**	Yes	Yes
Ammonia-N (mg/l) *	0.57	33	0.5	1.1	**0.63**	1.1	449	0.8	0.8	**0.88**	**1.1**	**2.1**	No	No

* Effluent data were obtained from MMRs for the period December 2011 through June 2016. The free cyanide sample collected 1-14-2013 was removed from the dataset as an outlier. The factors considered in making this determination were the following: the source of the discharge is a recycle system, Internal Outfall 613 was not discharging at the time, samples collected the week prior and the following two days showed levels below detection, and the large number of sampling events for this outfall.

** Effluent data were obtained from a 12-month sampling effort required under the 2011 permit and conducted from November 2014 thru October 2015.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

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TABLE 3 **REASONABLE POTENTIAL TO EXCEED** **ARCELORMITTAL USA - INDIANA HARBOR EAST OUTFALL 018 (16.4 mgd)**

PARAMETER	MONTHLY AVERAGE					DAILY MAXIMUM					PEL		PEQ > PEL	
	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	Monthly Average@	Daily Maximum	Monthly Average	Daily Maximum
Free Cyanide (ug/l) *	21	55	0.6	1.0	**21**	41	372	0.9	0.8	**33**	**21**	**42**	No	No
Fluoride (mg/l) **	0.84	12	0.3	1.3	**1.1**	0.98	25	0.4	1.2	**1.2**	**1.6**	**3.3**	No	No
Lead (ug/l) *	6.4	55	0.8	1.0	**6.4**	67	563	2.7	0.7	**47**	**23**	**46**	No	Yes
Selenium (mg/l) *	0.0048	55	0.6	1.0	**0.0048**	0.0055	140	0.7	0.9	**0.0050**	**0.023**	**0.047**	No	No
Zinc (ug/l) *	33	55	0.4	1.0	**33**	170	565	0.8	0.8	**140**	**170**	**330**	No	No
Ammonia-N (mg/l) *	0.63	55	0.5	1.0	**0.63**	0.94	562	0.7	0.9	**0.85**	**1.1**	**2.1**	No	No

* Effluent data were obtained from MMRs for the period December 2011 through June 2016.

** Effluent data were obtained from a 12-month sampling effort required under the 2011 permit and conducted from November 2014 thru October 2015.

@ Monthly average PELs were calculated based on the applicable sampling frequency in a month.

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TABLE 4 **REASONABLE POTENTIAL TO EXCEED FOR WHOLE EFFLUENT TOXICITY**
ARCELORMITTAL USA - INDIANA HARBOR EAST

Outfall 014*

Parameter	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL Monthly Average	WQBEL Daily Maximum
Acute WET (TUa)	<1.0	13	0.0	1.0	<1.0	1.0	NO	--	Not Required
Chronic WET (TUc)	2.0	13	0.3	1.3	2.6	12	NO	Not Required	--

Outfall 018*

Parameter	Maximum Effluent Value	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL Monthly Average	WQBEL Daily Maximum
Acute WET (TUa)	<1.0	13	0.0	1.0	<1.0	1.0	NO	--	Not Required
Chronic WET (TUc)	1.1	13	0.0	1.0	1.1	6.4	NO	Not Required	--

* The data used in the analysis were those collected from January 2012 to August 2016 for *Ceriodaphnia dubia* in accordance with the October 2011 permit renewal and June 2014 permit modification.

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TABLE 5
WATER QUALITY-BASED EFFLUENT LIMITATIONS
FOR ARCELORMITTAL USA - INDIANA HARBOR EAST

Parameter	Quantity or Loading Monthly Average	Quantity or Loading Daily Maximum	Units	Quality or Concentration Monthly Average @	Quality or Concentration Daily Maximum	Units
Outfall 011 (30.3 mgd)						
Mercury	0.00033	0.00081	lbs/day	1.3	3.2	ng/l
Total Residual Chlorine	3.5	8.3	lbs/day	14	33	ug/l
Outfall 014 (7.7 mgd)						
Lead	3.1	6.2	lbs/day	48	96	ug/l
Mercury	0.000084	0.00021	lbs/day	1.3	3.2	ng/l
Zinc	11	22	lbs/day	170	340	ug/l
Naphthalene	13	26	lbs/day	200	400	ug/l
Tetrachloroethylene	31	62	lbs/day	480	960	ug/l
Total Residual Chlorine	0.84	2.0	lbs/day	13	31	ug/l
Whole Effluent Toxicity (WET)						
Acute #					1.0	TUa
Chronic &				12		TUc
Outfall 018 (16.4 mgd)						
Lead	3.1	6.3	lbs/day	23	46	ug/l
Mercury	0.00018	0.00044	lbs/day	1.3	3.2	ng/l
Zinc	23	45	lbs/day	170	330	ug/l
Ammonia (as N)						
Summer +	150	290	lbs/day	1,100	2,100	ug/l
Winter +	150	290	lbs/day	1,100	2,100	ug/l
Total Residual Chlorine	1.8	4.2	lbs/day	13	31	ug/l
Whole Effluent Toxicity (WET)						
Acute #					1.0	TUa
Chronic &				6.4		TUc

@ Monthly average WQBELs were calculated based on the applicable sampling frequency in a month.
\+ Summer months are July through September, and Winter months are October through June.
\# This value is the Toxicity Reduction Evaluation (TRE) trigger for acute WET testing.
& This value is the Toxicity Reduction Evaluation (TRE) trigger for chronic WET testing.

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Appendix III
Technology Based Effluent Limits

US Steel Midwest	IN000094	2016	Outfall 518					
** Facility provided production in tons; converted to lbs by *2								
	Technology-based Effluent Limitations - TSS							
Parameter	40 CFR	Production in 1,000 lbs/day **flow(MGD)	Multiplication factor:(40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day) production * EGL = limit(lbs/day)		Previous Production Limits	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
TSS	420.34	24000	0.0117	0.00438	280.80	105.12	243.71	91.24
O & G	420.34	24000	0.00292		70.08		60.82	
Ammonia - N	420.34	24000	0.00876	0.00292	210.24	70.08	182.47	60.82
Cyanide	420.34	24000	0.000584	0.000292	14.02	7.01	12.16	6.08
Phenols	420.34	24000	0.0000584	0.0000292	1.40	0.70	1.22	0.61
TRC*	420.34	24000	0.000146		3.50		3.04	
Lead	420.34	24000	0.000263	0.0000876	6.31	2.10	2.28	1.32
Zinc	420.34	24000	0.000394	0.000131	9.46	3.14	8.21	2.73
*TRC shall apply when chlorination of ironmaking wsewater is procticed								
**Internal outfall - WQBEL do not apply								

US Steel Midwest	IN000094	2016	Outfall 618			
Parameter	40 CFR	Production in 1,000 lbs/day **flow(MGD)	Multiplication factor:(40 CFR 420 = lbs/1,000 lbs of product)(40 CFR 433 = mg/l)		Effluent Limitations (lbs/day) production * EGL = limit(lbs/day)	
			Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
TSS	420.42	17010	0.0687	0.0229	1168.59	389.53
Lead	420.43 (c)	17010	0.000413	0.000138	7.03	2.35
Zinc	420.43 (c)	17010	0.00062	0.000207	10.55	3.52
TSS	420.62	16202	0.078	0.026	1263.76	421.25
Oil and Grease	420.62	16202	0.0234	0.0078	379.13	126.38
Lead	420.63	16202	0.0000939	0.0000313	1.52	0.51
Zinc	420.63	16202	0.000141	0.0000469	2.28	0.76
TSS	420.54	11934	0.0073	0.00261	87.12	31.15
Lead	420.54	11934	0.0000939	0.0000313	1.12	0.37
Zin	420.54	11934	0.000141	0.0000469	1.68	0.56

	Total limits for each ELG		Previous Production	
Final Limits @ 618	**Daily Maximum**	**Monthly Average**	**Daily Maximum**	**Monthly Average**
TSS	2519.46	841.93	720	360
Oil and Grease	379.13	126.38	216	102
Lead	9.67	3.23	6.48	2.16
Zinc	14.51	4.84	10.5	3.5

018 - ELG's applied at internal outfall 518 and 618, limits at 018 are water quality

Compare TBEL mass to WQBEL mass to see if it triggers limit at final

	Current Production		Previous Prod Limits		WATER QUALITY Previous Permit		Current Water Quality	
Final Limits @ 618	**Daily Maximum**	**Monthly Average**	**Daily Maximum**	**Monthly Average**	**Daily Maximum**	**Monthly Average**	**Daily Maximum**	**Monthly Average**
TSS	2763.17	31.15	720	360				
Oil and Grease	439.95	126.38	216	102				
Lead	11.95	0.37	6.48	2.16	10	5	6.3	3.1
Zinc	20.38	0.56	10.5	3.5	48	24	45	23
Ammonia	195.42	65.14	182.47	60.82	Report	Report	290*	150*
Phenols	1.30	0.65	1.22	0.61	Report	Report	no RPE	no RPE
Cyanide	13.03	6.51	12.16	6.08	Report	Report	no RPE	no RPE
TRC	3.26		3.04		4	1.7	4.2	1.8
Selinium	No ELGs				Report	Report	no RPE	no RPE

* No RPR