ArcelorMittal USA LLC
Indiana Harbor East

ArcelorMittal

Mr. Richard L. Nagle
Assistant Regional Counsel
U. S. Environmental Protection Agency
Region V, C-14J
77 West Jackson Boulevard
Chicago, Illinois 60604

RECEIVED
FEB 7 2017
AIR ENFORCEMENT BRANCH
U.S. EPA REGION 5

January 27th, 2017

Subject: ArcelorMittal USA LLC - (Formerly known as Ispat Inland Inc.)
Civil Action H90-0328 – Required Reports

Dear Mr. Nagle:

Enclosed is one copy of the Fourth Quarter 2016 Report required by the June 10, 1993 Consent Decree. The individual reports concerning each section of the order are being sent to the technical contact(s) as follows:

SECTION	TOPIC	CONTACT
V	Clean Water	Sangsook Choi
VI	Clean Air	Brent Marable
VII	RCRA	Brandon Pursel
VIII	SEP, Section A	Sangsook Choi
VIII	SEP, Section B	Completed: No longer required.

Additionally, a copy of these reports is being sent to IDEM's Mr. Bruno Pigott, Commissioner. The former Ispat Inland Inc. facility subject to the June 10, 1993 Consent Decree is currently split into two divisions with separate management: ArcelorMittal USA LLC Flat Products and ArcelorMittal USA LLC Long Carbon. ArcelorMittal Indiana Harbor Long Carbon has been idled since April 2015 due to business conditions. The portions of the above reports that are under the control of ArcelorMittal Indiana Harbor Long Carbon, i.e. the former Plant 4 facilities include the Electric Arc Furnace, 12" Bar Mill and Outfalls 001 and 602.

RECEIVED
FEB 08 2017
WATER ENFORCEMENT & COMPLIANCE
ASSURANCE BRANCH, EPA, REGION 5

ArcelorMittal USA LLC.
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I certify under penalty of law that this document and any attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my directions and my inquiry of the person(s) who manage the system, or the person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete.

Sincerely,

Wendell Carter
Vice President ArcelorMittal USA & General Manager - Indiana Harbor

WC/KAD/nmc
Attachments

Cc: S. Choi (EPA)
B. Pursel (EPA)
B. Marable (EPA)
B. Pigott (IDEM)

N: EAFFAIRS\Quarterly Reports\Consent Decree Cover Letter/WC

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ArcelorMittal

Mr. Richard L. Nagle
Assistant Regional Counsel
U. S. Environmental Protection Agency
Region V, C-14J
77 West Jackson Boulevard
Chicago, Illinois 60604

January 27th, 2017

Subject: ArcelorMittal Indiana Harbor Long Carbon (Formerly known as Ispat Inland Inc. Plant 4) Civil Action H90-0328 – Required Reports

Dear Mr. Nagel:

Enclosed is one copy of the Fourth Quarter 2016 Report required by the June 10, 1993 Consent Decree. The individual reports concerning each section of the order are being sent to the technical contact(s) as follows:

SECTION	TOPIC	CONTACT
V	Clean Water	Sangsook Choi
VI	Clean Air	Brent Marable
VII	RCRA	Jonathan Adenuga
VIII	SEP, Section A	Sangsook Choi
VIII	SEP, Section B Completed: No longer required.	

ArcelorMittal Indiana Harbor Long Carbon has been idled since April 2015 due to business conditions.

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Sincerely,

Tom Barnett
Oversight of Plant 4 Operations
Consent Decree
Environmental

TRB/nmc
Attachments

Cc: S. Choi
J. Adenuga
B. Marable

N: EAFFAIRS\Quarterly Reports\Consent Decree Cover Letter DT

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ArcelorMittal USA LLC
Indiana Harbor East

ArcelorMittal

Ms. Sangsook Choi
U. S. EPA – Region V (WC-15J)
77 West Jackson Boulevard
Chicago, Illinois 60604

January 27, 2017

Subject: ArcelorMittal USA LLC – (Formerly known as Ispat Inland Inc.)
Civil Action H90-0328
Quarterly Status Report – Clean Water Act Compliance Program
Section V

Dear Ms. Choi:

As required by Section X of the Consent Decree, enclosed please find the Quarterly Status Report for the Clean Water Act Compliance Program for the Fourth quarter of 2016.

If you have any questions concerning this Status report, please call Simonne Benoit of my staff at (219) 399-2109.

Sincerely,

Kevin A. Doyle
Manager, Environmental
ArcelorMittal USA LLC

Enclosure

KAD:nmc
N:EAFFAIRS\Quarterly Reports\Consent Decree Water

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ArcelorMittal USA LLC., Indiana Harbor East (Formerly Ispat Inland Inc.)

Quarterly Progress Report
Civil Action H90-0328
Section V
Clean Water Act Compliance Program
Fourth Quarter, 2016

Sampling and Laboratory Quality Control/quality Assurance Program

ArcelorMittal USA has not received EPA's review of the Sampling and Laboratory Program, submitted on August 31, 1993. Work has been completed on the Sampling and Laboratory Program anticipating EPA's review and approval. A progress report on implementation of the program and the report, required by Sec. V.8, identifying each exceedence of an effluent limitation caused or suspected to be caused by a sampling error is enclosed. The ArcelorMittal USA laboratory continues to be accredited through the American Association of Laboratory Accreditation (A2LA).

Outfall 014 Corrective Measures Plan

ArcelorMittal USA submitted a revised Corrective Measures Plan (CMP) for Outfall 014 on March 7, 1994. The revised CMP corrects deficiencies noted in EPA's January 21, 1994 review of the CMP.

ArcelorMittal USA has not received EPA's review and approval of the revised plan. Enclosed is a progress report of the CMP implementation.

Upon review of the Outfall 014 Corrective Measures Plan, the following changes are being made:

1. Scalping Tank sounding will be conducted 2 times per year rather than quarterly. (Due to the length of time required to conduct cleaning and the time required to coordinate equipment availability annual cleanings have been adequate. Based on experience Quarterly soundings is excessive.) (TTP East, TTP West, TTP North, Plant 1 Scalping Tanks)

2. TTP North Scalping Tanks – Exercise Sluice Gates – Sluice Gates will be exercised annually on a preventative maintenance basis rather than Quarterly. The Scalping Tanks have not been cleaned more frequently than annually historically. Therefore the sluice gates will be exercised only on an annual basis.

3. Monitor Oil on Plant 1 Scalping Tanks – Monitoring and recovers of oil on the Plant 1 Scalping Tanks will be conducted weekly rather than "daily" (Monday – Friday). Flow through these pits has decreased significantly since the initial evaluations.

4. Pump Stations Inspections – Pump Station inspections will be conducted every 2 years instead of annually. Pump Station cleaning has been conducted not more frequently than three years inspecting every two years would provide adequate information to determine the need to clean.

Outfall 012 Corrective Actions

A permanent bulkhead was installed in the discharge flume at Outfall 012 on February 16, 1994, eliminating all discharge from the Outfall. Because there is no longer any discharge from Outfall 012, no further actions are necessary to meet the requirements Sec. V.20, Sec. V.30, Sec. V.31, Sec. V.32, and Sec V.39.

No. 11 Coke Battery Biological Treatment Plant
Cyanide and Ammonia Nitrogen Management Plan

The Plant No. 2 Coke Plant was shut down in December 1993 and the No. 11 Battery Biological Treatment plant was shut down on March 10, 1994. Therefore, no further actions are necessary to meet the requirements of Sec. V.42, Sec. V.47, and Sec. V.48.

Intake Water Study and
Phenol and Ammonia-Nitrogen Management Plan

ArcelorMittal USA has met the requirements of Sec. V.51, demonstrating that there is no significant increase in the concentrations of ammonia-N or phenol (4AAP) between No. 7 Pumphouse and Outfall 018. Therefore no further actions are necessary to meet the requirements of Sec. V.53, Sec. V.57, Sec. 58, Sec. 59, and Sec. 60.

Sanitary Waste Compliance Measures

ArcelorMittal USA has met the requirements of Sec. V.65, demonstrating continuous compliance with NPDES Permit limits for the discharge of BOD at Outfall 015 from May 1, 1993 through June 30, 1993. Therefore no further actions are necessary to meet the requirements of Sec. V.65, Sec. V.66, Sec. V.70, and Sec. V.71.

Environmental Communications Program

ArcelorMittal USA has not received EPA's review of the Environmental Communications Program (ECP) submitted on May 27, 1993. ArcelorMittal USA has implemented selected sections of the program anticipating EPA's review and approval.

Corrosion Inhibitor Control Program

Enclosed is the yearly certification required by Sec.V.12 that no heavy metal corrosion inhibitors are being used or have been used in the preceding year in once-through or open-re-circulating water systems.

Plant-wide Visible Oil Corrective Action and Monitoring Plan

ArcelorMittal USA has not received EPA's review of the Plant-wide Visible Oil Corrective Action and Monitoring Plan (VOCAAMP). ArcelorMittal USA has implemented the VOCAAMP anticipating EPA's review and approval.

Enclosed is the report required by Sec. V.84 identifying each observation (including trace amounts) of visible oil in the effluent discharged from any external outfall and any corrective measures that are required.

SAMPLING AND LABORATORY

QUALITY CONTROL \ QUALITY ASSURANCE PROGRAM

ArcelorMittal

Inter-Communication

January 25, 2017

To: Michael Shimerdla
Engineer
Environmental

From: Scott Schuldt
Process Manager
QA, Lab Services

D. Scott Schuldt

CC: Anita Phelps Simonne Benoit

Subject:
Fourth Quarter, 2016 Progress Report for Environmental Laboratory QA/QC

I have reviewed the Sampling and Laboratory QA/QC Program and find that it is adequate.

SAMPLING ERRORS CAUSING EFFLUENT EXCEEDENCES

FOURTH QUARTER 2016

There were no sampling errors causing an exceedence of an NPDES permit limit during the fourth quarter of 2016.

OUTFALL 014 CORRECTIVE MEASURES PLAN

PROGRESS REPORT FOR THE FOURTH QUARTER 2016

Signatory Page

I have reviewed the attached information associated with the ***Quarterly Progress Report*** for the ***Corrective Measures Plan for Outfall 014***. All information found within is true, accurate, and complete to the best of my knowledge. This document is submitted in lieu of individual signatures on each sheet.

Manager: Utilities _____ Date: 1/17/17

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

No. 2 BOF

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Install sample taps on both thickeners to monitor sludge depth.	12/01/93	COMPLETE 12/1/93	WSK/PB

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	REQUIREMENT MET YES/NO	RESPONSIBLE (Initials)
Monitor sludge density in each thickener, monitor rake torque, adjust sludge removal rate accordingly.	Once every 8 hour shift ***Rake torque Daily (modified 1/2001)***	***YES, DAILY MOBILE OPERATOR REPORTS***	***J.S.***
Remove sludge from the blowdown clarifier.	Twice per week	***YES, DAILY MOBILE OPERATOR REPORTS***	***J.S.***

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

80" MILL TREATMENT PLANT

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Repair clarifier sludge removal system.	06/30/93	COMPLETE 6/30/93	WSK/HP
Complete engineering evaluation of the oily waste treatment system (DAF) and prepare corrective measures with timetable for completion.	09/03/94	COMPLETE 9/29/94 *(PER MEMO TO BOB JOHNSTON, EH &S, THE DAF UNIT IS NOW OPERATED AS AN API SEPARATOR AS ORIGINAL DESIGN.)*	WSK

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

PLANT No.1 SCALE PITS

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Inspect and clean scale pits.	09/30/94	COMPLETE 5/6/94	WSK/HP
Inspect and repair scale pit inlet gates.	06/30/94	COMPLETE 8/31/94	WSK/HP
Inspect and clean scale pit overflow weirs.	09/30/94	COMPLETE 5/6/94	WSK/HP

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	*REQUIREMENT MET YES/NO	RESPONSIBLE (Initial)
Monitor scale pit sludge depths, clean as required.	5E1 *Every Three years* 5E3 *Every Three years*	***Sounded 4/23/2015*** ***Sounded 4/23/2015*** ***Not cleaned***	***MTD/R.O.*** RgO
Monitor scale pits for oil, clean as required.	WEEKLY	***Yes, Daily Route Report***	***R.O.*** RgO
Inspect and calibrate level control and flow monitoring systems.	ANNUALLY	***Yes, Reported: 09/06/2016***	***MTD/R.O.*** RgO

* For tasks with a frequency of less than once per month, record date of last activity.

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT EAST

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Inspect and clean scalping tank.	06/30/94	COMPLETE 6/1/94	WSK/HP
Inspect and clean pump station.	9/30/94	COMPLETE 10/21/94	WSK/HP
Inspect and clean settling basins.	11/30/94	COMPLETE 10/1/94	WSK/HP
Inspect and repair scalping tank inlet gates or develop alternate method of isolation.	06/30/94	COMPLETE 5/27/94	WSK/HP
Realign Scalping Tank "C" skimmers or replace with alternate means of oil collection.	09/30/94	COMPLETED 10/24/94 REALIGNMENT IS NOT REQUIRED	WSK/HP
Repair settling basin oil skimming gates	09/30/94	ALL GATES ARE FUNCTIONAL 9/30/94	WSK/HP
Repair one 38,000 gpm fixed speed pump and one 22,000 gpm variable speed pump.	12/31/94 RESCHEDULED TO 9/30/95	COMPLETED 7/9/95	WSK/HP
Restore TTPE level control system to control surge well level as originally designed	09/30/93	COMPLETE 9/22/93	WSK/HP

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT EAST

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	*REQUIREMENTS MET YES/NO	RESPONSIBLE (Initials)
Monitor scalping tank sludge depth, clean as required.	Annually	***Soundings: Completed 8/3/2016 Cleaned 04/13-18, 2016***	***MTD/R.O.*** rgo
Monitor scalping tank oil, remove as required.	Daily	***Yes, Daily Route Report***	***R.O.*** rgo
Monitor oil sump, empty when full.	Weekly	***Yes, Daily Route Report***	***R.O.*** rgo
Monitor settling basin sludge depth, clean as required.	Annually	***Sounding Completed: 8/03/2016***	***MTD/R.O.*** rgo
Monitor settling basin oil, adjust skimming gates as needed.	Daily	***Yes, Daily Route Report***	***R.O.*** rgo
Monitor pump station for oil, empty when full.	Weekly	***Yes, Daily Route Report***	***R.O.*** rgo
Inspect pump station and clean for solids.	EVERY 2 YEARS	***Completed 4/24/2015***	***MTD/R.O.*** rgo
Inspect scalping tank launders, clean as required.	Every Other Year	***Inspected 06/08/2016***	***MTD/R.O.*** rgo
Monitor settling basin effluent basin for oil, remove as necessary.	Monthly	***Yes, Daily Route Report***	***R.O.*** rgo
Clean debris from bar screens, scalping tanks, and pump station.	As Required	***Yes, Daily Route Report***	***R.O.*** rgo
Inspect and calibrate pump station level control system.	ANNUALLY	***Yes, Reported: 09/06/2016***	***MTD/R.O.*** rgo
Inspect and calibrate surge well level control system.	ANNUALLY	***Yes, Reported: 09/06/2016***	***MTD/R.O.*** rgo

* For tasks with a frequency of less than once per month, record date of last activity.

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT NORTH

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Clean inlet chamber, inlet flumes, and settling cells.	11/15/94	COMPLETED 11/10/94	WSK/HP
Inspect and clean hot well and cold well.	09/30/94	COMPLETE 9/28/94	WSK/HP
Inspect and repair or replace inlet chamber sluice gates.	09/30/94	COMPLETE 4/14/94	WSK/HP
Investigate and correct the problem with frequent pump cycling and flow reversal.	09/30/93	COMPLETE 9/30/93	WSK/HP

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT NORTH

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	*REQUIREMENT MET YES/NO	RESPONSIBLE (Initials)
Monitor lagoons for sludge depth, clean as required.	Annually	***Soundings:*** ***Completed: 7/05/2016*** ***Cleaned scalping pits August 12-16, 2016***	***MTD/R.O.*** rgo
Monitor oil collection box, empty when full.	Weekly	***Yes, Daily Route Reports***	***R.O.*** rgo
Clean large debris from oil collection box as necessary.	Monitor Monthly clean as necessary	***Yes, Daily Route Reports***	***R.O.*** rgo
Monitor pump station for oil and clean as necessary.	Monthly	***Yes, Daily Route Reports***	***R.O.*** rgo
Clean debris from bar screens, oil lagoons, oil collection tank, and pump station.	Monitor Monthly clean as necessary	***Yes, Daily Route Reports***	***R.O.*** rgo
Skim oil with Vacuum Truck as necessary.	Weekly	***Yes, Daily Route Reports***	***R.O.*** rgo
Exercise sluice gates.	ANNUALLY	***Completed: 09/02/2016***	***MTD/R.O.*** rgo
Inspect and calibrate wet well level control system.	ANNUALLY	***Yes, Reported: 09/06/2016***	***MTD/R.O.*** rgo

* For tasks with a frequency of less than once per month, record date of last activity.

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT WEST

REPAIR AND RESTORATION

TASK	DUE DATE	COMPLETION DATE	RESPONSIBLE (Initials)
Clean scalping tanks and equalization flume	Third Quarter 1993	COMPLETE 11/5/93	WSK/HP
Clean low lift pump station	11/15/93	INSPECTED 11/15/93	WSK/HP
Clean settling basin influent flume.	06/30/94	COMPLETE 4/20/94	WSK/HP
Clean settling basins.	11/18/93	SOUNDED 11/18/93 'NOT REQUIRED'	WSK/HP
Clean cooling tower pump well	06/30/93	COMPLETE 6/30/93	WSK/HP
Repair inlet chamber bar screen.	09/30/94	COMPLETE 9/23/94	WSK/HP
Repair leaking oil sump.	09/30/93	COMPLETE 9/30/93	WSK/HP
Repair and recalibrate control system to operate pumps and blowback valve as designed.	09/30/94	COMPLETE 5/19/94	WSK/HP
Repair and put in service the blowback valve and 15,000 gpm pump.	12/31/94	COMPLETE 9/23/94	WSK/HP
Level the effluent weir in the south settling basin.	09/30/94	COMPLETE 9/2/94	WSK/HP
Return the settling basin oil skimming troughs to service.	09/30/93	COMPLETE 9/30/93	WSK/HP

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR ***QUARTER 4, 2016***

TERMINAL TREATMENT PLANT WEST

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	*REQUIREMENT MET YES/NO	RESPONSIBLE (Initials)
Monitor scalping tank sludge depths, clean as required.	Annually	***Soundings: Completed 8/05/16 Cleaned August 02-05/2016***	***MTD/R.O.*** rgo
Monitor scalping tank oil sump, empty as required.	Weekly	***Yes, Daily Route Report***	***R.O.*** rgo
Monitor settling basin sludge depths, clean as required.	Annually	***Soundings: Completed 08/04/16***	***MTD/R.O.*** rgo
Monitor and clean settling basin influent flume if required.	Every Three Years	***Sounding: 08/04/2016 Cleaned: 8/02-05/2016***	***MTD/R.O.*** rgo
Remove oil from low lift pump station, settling basin effluent flume, and cooling tower pump station.	Monthly	***Yes, Daily Route Report***	***R.O.*** rgo
Clean bar screen and scalping tank oil troughs.	As required	***Yes, Daily Route Report***	***R.O.*** rgo
Remove debris in the scalping tanks and pump station when observed.	As required	***Yes, Daily Route Report***	***R.O.*** rgo
Inspect and calibrate the level control system.	Annual	***Yes, Reported: 09/06/2016***	***MTD/R.O.*** rgo

*For tasks with a frequency of less than once per month, record date of last activity.

OUTFALL 014 CORRECTIVE MEASURES PLAN
PROGRESS REPORT FOR FOURTH QUARTER, 2016

80" HOT STRIP MILL

ON-GOING CLEANING AND MAINTENANCE

TASK	REQUIRED FREQUENCY	*REQUIREMENT MET YES/NO	RESPONSIBLE (Initials)
Clean solids from #1 scale pit.	Weekly	Y	CT
Inspect #1 scale pit for oil, clean as required.	Weekly	Y	CT
Inspect #1 scale pit pump well, clean as required.	Monthly	Y	CT
Inspect #2 scale pit for oil and solids, clean as required.	Weekly	Y	CT
Clean solids from #3 scale pit.	On Down Turns	Y	CT
Monitor #3 scale pit for oil, clean as required.	Daily	Y	CT
Monitor #3 scale pit pump station for solids and oil, clean as required.	Monthly	Y	CT
Inspect #4 scale pit for oil and solids, clean as required.	Quarterly	1/20/17	JV

* For tasks with a frequency of less than once per month, record date of last activity.

Manager: [signature] Date: 1/23/17

:nmc
MSW80RPT
October 27, 2006

VISIBLE OIL CORRECTIVE ACTION AND MONITORING PLAN

SECTION V.84 REPORT

FOURTH QUARTER 2016

Visible Oil Monitoring Report
Fourth Quarter, 2016

Outfall 001

No corrective measures are required at Outfall 001.

Outfall 011

No corrective measures are required at Outfall 011.

Outfall 014

No corrective measures are required at Outfall 014.

Outfall 018

No corrective measures are required at Outfall 018.

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ArcelorMittal USA LLC
Indiana Harbor East

ArcelorMittal

Mr. Brent Marable
Air Compliance Branch Chief AE-17J
U. S. Environmental Protection Agency, Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

January 27th, 2017

Subject: ArcelorMittal USA LLC – (Formerly known as Ispat Inland Inc.)
Progress Report – Air Issues - Order No. H90-0328; H81-216, H79-75
Section VI.

Dear Mr. Marable:

The purpose of this letter is to provide a report of progress in complying with the requirements for the Clean Air Compliance Program

PART 1

No. 4 AC was permanently shut down on November 26, 2003. Therefore, this section has been eliminated.

PART II

ArcelorMittal USA, LLC. - Indiana Harbor East's last operating coke battery was permanently shutdown December 14, 1993. Therefore, this section has been eliminated.

PART III

In regards to No. 4 BOF, required instrumentation has been installed and is functional with data being retained on file. Observation frequencies are being adjusted as mandated. Attachment "B" presents related compliance performance.

Plant 2 Blast Furnaces: No. 5 and 6 Blast Furnaces were permanently shut down in 2010.

No. 4 BOF Scrubber Limitations: There were no periods when scrubber water fell under 600 gpm or scrubber dP was less than 25" of water during O_2 "blow" as specified in the original decree. The scrubber has been

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modernized as of May 18, 2007 to comply with the Iron and Steel NESHAP. New limits have been set based on a compliance demonstration with 2 and 3 scrubbers in operation. Any deviations from the new limits will be reported to the Agency in the Semiannual MACT Compliance Report.

The above information has been submitted to comply with the reporting requirements of Section VI of the subject Order.

Sincerely,

Kevin A. Doyle
Manager, Environmental
ArcelorMittal USA LLC

Attachment

KAD:TBM:nmc
N:Eaffairs\Quarterly Reports\Consent Decree Air
October 28th, 2016

ArcelorMittal USA LLC.
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ATTACHMENT "B"
FOURTH QUARTER, 2016
USEPA

PROCESS EMISSION OBSERVATIONS

10/01/16 – 12/31/16

PROCESS LOCATIONS	PERIODS OF READINGS	EXCURSIONS	PERCENT IN COMPLIANCE	READING PERIOD (MINUTES)	AVERAGE OPACITY FOR MAX PERIODS
Electric Furnace Roof Monitor	0	0	NA, idle	6"	0.00
No. 4 BOF Roof Monitor	184	0	100%	3"	0.00

mps:nmc
N:Eaffair:\Quarterly Reports\Consent Decree\Attachment B
July 29th, 2016

ArcelorMittal USA
Indiana Harbor

ArcelorMittal

Mr. Brandon Pursel
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Mail Code LU-9J
Chicago, Illinois 60604-3507

January 26, 2017

Subject: **December 2016 Monthly and Fourth Quarter 2016 Progress Report**
ArcelorMittal USA LLC - Indiana Harbor East
EPA ID No. IND 005 159 199

Dear Mr. Pursel,

Attached is the December 2016 Monthly and Fourth Quarter 2016 Progress Report for RCRA Corrective Action Activities at ArcelorMittal USA LLC - Indiana Harbor East in East Chicago, Indiana. Per our previous agreement with USEPA, the monthly report has been combined with the quarterly report for the month ending a quarter. This report was prepared in general accordance with Section X and Attachment I, Section E of the Consent Decree.

If you have any questions regarding this Quarterly Progress Report, please call me at (219) 399-2380 or Kenneth Hill of AECOM at (219) 399-1349.

Sincerely,

Tom Barnett
Manager, Environmental Technology
ArcelorMittal Indiana Harbor

cc: Chris Myer, IDEM
Kenneth R. Hill, AECOM
Keith Nagel, AMUSA

Attachment

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January 26, 2017

Mr. Tom Barnett
Manager, Environmental Technology
ArcelorMittal Indiana Harbor
3001 Dickey Road MC-001
East Chicago, IN 46312

Subject: **December 2016 Monthly and Fourth Quarter 2016 Progress Report**
ArcelorMittal USA LLC – Indiana Harbor East
AECOM Project 60319863
EPA I.D. NO. IND 005 159 199

Dear Tom:

Attached is the December 2016 Monthly and Fourth Quarter 2016 Progress Report for RCRA Corrective Action Activities at ArcelorMittal USA LLC - Indiana Harbor East in East Chicago, Indiana. Per our previous agreement with USEPA, the monthly report has been combined with the quarterly report for the month ending a quarter. This report was prepared in general accordance with Section X and Attachment I, Section E of the Consent Decree.

If you have any questions or comments in regards to this report or any other issue, please call.

Sincerely,

AECOM

Anna M. Moomaw, P.E.
Senior Engineer

Michael J. Ficco, P.G.
Senior Geologist

Kenneth R. Hill, P.E.
Project Manager

cc: File/DCN 5076

ARCELORMITTAL USA LLC - INDIANA HARBOR EAST
EPA ID No. IND 005 159 199
CORRECTIVE ACTION PROGRAM DECEMBER MONTHLY AND 4TH QUARTER 2016 REPORT

1.0 INTRODUCTION

The following text and attached figures summarize the current status of the Corrective Action Program (CAP) at **ArcelorMittal USA LLC (ArcelorMittal)** Indiana Harbor East (IHE). The text of this report presents a brief description of the CAP strategy, new/changed work items for the current quarter, CAP status for each of the voluntary Stabilization Measures, each of the Facility Perimeter Areas (FPAs), Interior Source Areas (ISAs), and Facility Interior Areas (FIAs) identified for the Phase II RFI, and key regulatory/public contacts for the current quarter. **Note that changes to text in Sections 4.0 through 6.0 of this report as compared to the previous quarter's report are indicated through bold text, making it easier to find updates in CAP activities.** The figures are introduced in Section 4.0 (Corrective Action Program Status) and graphically summarize the assessment and Stabilization Measures activities conducted at IHE to date.

2.0 CORRECTIVE ACTION PROGRAM STRATEGY

Following the approval of the RFI Workplan in 1996, corrective action at IHE focused on: (1) Phase I RFI activities to delineate potential sources and source areas and the presence and lateral extent of contaminants (screening parameters) in ground water and (2) investigations for and selective implementation of Stabilization Measures, in areas of separate phase. With Phase I RFI activities completed in 2002, activities then shifted to address site conditions relative to Environmental Indicators, specifically EI (CA725), "Current Human Exposures Under Control", and EI (CA750), "Migration of Contaminated Groundwater Under Control". The elements required to address these Environmental Indicators (additional empirical data and risk determination) are expected to be satisfied as part of Phase II RFI activities. The designation "Yes, Current Human Exposures Under Control" has been verified for CA725 by the U.S. EPA, effective September 2005.

The objectives of the Phase II RFI are to confirm and refine the Phase I results and to fill data gaps associated with the overall objectives of the RFI (i.e., Characterize the Environmental Setting, Source Characterization, Contamination Characterization, and Receptor Identification) as defined in the Consent Decree. The Phase II RFI Technical Approach and associated revisions to the RFI Workplan were submitted in February 2003. Briefly, Phase II RFI activities consist of a risk-based evaluation of potential impacts to on-site and off-site media, including ground water and receiving surface waters (i.e. Indiana Harbor Ship Canal and Lake Michigan). This evaluation is being implemented from the perimeter of the facility inward, with the primary focus on those portions of the facility perimeter that are believed to pose the greatest potential risk to environmental receptors. Interior portions of the facility, including identified source areas, are also being evaluated.

3.0 NEW/CHANGED WORK ITEMS

The following are significant work items currently in progress:

- Preparation of Phase II RFI Supplemental Study Report for FPA 1
- Supplemental Assessment Field Activities for Chromium Speciation in On-Site Ground Water
- Preparation of Revised Phase II RFI Facility Perimeter Area (FPA) Report
- Preparation of Phase II RFI Interior Source Area (ISA) Report Response to Comments
- Preparation of Current Conditions Report for Indiana Harbor Long Carbon (IHLC), which includes Solid Waste Management Area (SWMA) 2 and the southern portion of SWMA 3

4.0 CORRECTIVE ACTION PROGRAM STATUS

This section summarizes the current status of the Corrective Action Program. The description of activities in terms of Solid Waste Management Areas (SWMAs) is used for geographic reference only. Additionally, Section 4.4 "Sitewide Corrective Action Activities" discusses those activities that may influence the overall corrective action process at IHE. All orientation references (i.e., North, South, East, and West) in this report are stated relative to the IHE plant coordinate system (e.g., Plant North). The figures included in this quarterly report, which summarize the information presented in this section, are as follows:

- **Figure 1 - Identified Areas of Separate Phase and Summary of Stabilization Measures:** Presents areas of identified separate phase, locations and status of Investigation for Potential Stabilization Measure (IPSM) assessments, locations of ongoing and completed Stabilization Measures (SMs), and pertinent information such as recovery system type and volume/mass of contaminants removed. A summary of volume/mass of contaminants recovered and ground water treated on a USEPA fiscal year and project total basis is also presented.
- **Figure 2 - Total Volume Of Organic Constituents Removed From Soil And/Or Ground Water By Stabilization Measures Activities:** Indicates the volume and mass of coking by-product light non-aqueous phase liquid (LNAPL) and dense non-aqueous phase liquid (DNAPL), gasoline, diesel fuel, and number 6 fuel oil removed from the subsurface, and volatile organic constituents (VOCs) and semi-volatile organic constituents (SVOCs) removed from the ground water under voluntary Stabilization Measures activities to date.
- **Figure 3 - Potentiometric Surface Map:** Presents a representative sitewide potentiometric surface map and ground-water flow directions (data from 2nd Quarter 2014). This figure will be updated as additional data warrants changes.
- **Figure 4 - Summary of Phase II RFI Assessment Activities:** Illustrates FPAs, ISAs, and FIAs where Phase II RFI assessments are planned, ongoing, or have been completed. This figure also identifies areas associated with Phase I RFI "first water" sampling locations where one or more of the organic screening parameters were detected at concentrations exceeding Phase II RFI default Tier IB screening criteria. These potential source areas for

off-site ground-water contamination served as the basis for placement of FPA ground-water monitoring wells.

4.1 Summary of Phase I RFI Status and Results

The focus of the Phase I investigations was to evaluate the general horizontal extent of contamination. This evaluation included: 1) characterizing the 14 SWMAs, 2) defining source areas, and 3) defining the degree and extent of contamination at the facility. The Phase I investigation consisted of the collection of ground-water data from over 500 sampling locations. These locations were spaced on an approximate 600-foot by 600-foot grid across the site with locations biased towards suspected source areas as determined through review of available facility data. Additional sampling locations were added in an iterative manner to provide additional resolution of suspected source areas. The shallow ground water at each of these locations was collected and analyzed for seven indicator parameters (benzene, ethylbenzene, toluene, xylene, trichloroethene, tetrachloroethene and naphthalene). In addition, metals analyses were performed on ground-water samples located in non-fill areas of the site.

Field activities for the Phase I RFI commenced in June of 1996. Since that time, Phase I field investigations have been completed for all 14 SWMAs, all Phase I SWMA Reports have been submitted, and the last of the Phase I RFI Reports was approved by U.S. EPA in October of 2002. The investigative activities at IHE have resulted in the identification and initial characterization of several significant source areas as well as several areas of elevated concentrations of Phase I screening parameters. Table 1, organized by SWMA, summarizes the Phase I RFI activities. For a more complete summary of activities and results, please refer to the 2nd Quarter 2003 Corrective Action Progress Report and/or the approved Phase I RFI SWMA reports.

4.2 Summary of Voluntary Stabilization Measures Status

Stabilization Measures and/or IPSMs are being conducted as necessary, concurrent with RFI activities. As indicated in Figure 1, thirteen IPSMs have been conducted at suspected source areas located across the site. The IPSMs were focused investigations, intended to determine the magnitude and extent of suspected source impacts and the potential for remedial/SM activities. Aquifer Tests were conducted in 1997 at the Former C Battery By-Products Recovery Area and the Former Coal Tar Plant to derive aquifer parameters to 1) generate a flow model for design of a potential remediation system and 2) support ground-water modeling studies for a fate and transport evaluation, respectively.

Based upon information obtained from the RFI, IPSMs and Aquifer Tests, eight separate Stabilization Measures have been implemented voluntarily across the site to address coking by-product LNAPL, gasoline, diesel fuel and oil/grease/animal fat present at suspected source areas. In addition, three areas are being regularly monitored to address remnants of higher viscosity dense non-aqueous phase liquid (DNAPL) and No. 6 fuel oil present at suspected source areas.

As indicated on Figure 2, 105 tons (210,274 pounds) of coking by-product LNAPL, gasoline, diesel fuel, No. 6 fuel oil, DNAPL, and VOC and SVOC ground-water constituents have been recovered through implementation of these voluntary Stabilization Measures through the end of the 4th Quarter 2016. This represents a total energy recovery of 4.035×10^9 BTU.

Approximately 93.1 million gallons of ground water have been treated as part of the Stabilization Measure implemented at the Former C Battery By-Products Recovery Area.

As indicated on Figure 1, 14 gallons of LNAPL (including coking by-product LNAPL, gasoline, diesel fuel, and No. 6 fuel oil) and 12 gallons of DNAPL have been recovered to date this fiscal year (October 1, 2016 to September 30, 2017), and 1,282,880 gallons of ground-water have been treated. Approximately 93.2 million gallons of ground water have been recovered and treated on site to date.

Additionally, for the purpose of monitoring the potential migration of dissolved organic constituents in ground water associated with the suspected source areas, ground-water monitoring wells have been installed downgradient of these suspected sources in SWMAs 3, 5 and 14. These monitoring wells generally consist of two-well clusters (one shallow and one deep) in SWMAs 3 and 5, and three-well clusters (one shallow, one intermediate, and one deep) in SWMA 14, and are monitored on an annual basis for volatile and semi-volatile organic constituents. **The most recent annual sampling event was completed in September-October 2016.**

4.2.1 Former C Battery By-Products Recovery Area (SWMA 3)

Based on the assessments conducted to date, the only significant source/source area identified in SWMA 3 is the area of coking by-product LNAPL identified at the western end of the former C Battery By-Products Recovery Area. ArcelorMittal initiated recovery of the coking by-product LNAPL in 1996, initially utilizing Hydro-Skimmers followed by installation of a Petropore automated recovery system in 1997. Approximately 284 gallons of LNAPL were recovered using these passive recovery systems.

An enhanced separate phase recovery system, designed to actively remove coking by-product LNAPL at the former C Battery By-Products Recovery Area, is currently in operation. The sump and trench system operates in a ground-water depression mode to enhance recovery of the separate phase. The recovered ground water is treated by carbon filtration and discharged to IHE's NPDES-permitted wastewater treatment system as authorized by Indiana Department of Environmental Management (IDEM). The Separate Phase Liquid Removal Plan submitted to U.S. EPA in November 1998 outlines the design and construction details. Construction activities were initiated in April 1999 and were completed in May 2000. System start-up was initiated on May 30, 2000.

A total of 5 gallons of LNAPL were recovered during the 4th Quarter (to be taken off-site for fuels blending), for a total of 16,586 gallons of LNAPL removed to date. A total of 1.3 million gallons of ground water were recovered and treated during the 4th Quarter, and approximately 93.1 million gallons of ground water have been recovered and treated since system start-up.

Information relative to the recovery efforts and extent of the separate phase are shown on Figure 1. **This figure reflects the reduced horizontal extent of separate phase in SWMA 3 as it is currently understood based on effectiveness monitoring data.** The monitoring plan for the system, including effectiveness monitoring for the trench and sampling and analysis for the treatment system, is being implemented as part of the ongoing system operations and maintenance. Effectiveness monitoring activities include semi-annual sampling at the treatment system and at nine (or more) observation wells in the dissolved phase plume area, as well as monthly observation

well gauging. The frequency of dissolved phase plume sampling was reduced from quarterly to semi-annually in 2007 based on observed plume stability and consistency of analytical results.

4.2.2 Pattern Storage Area (SWMA 3)

The only other identified potential source/source area in SWMA 3 is the area of separate phase at the northwest corner of SWMA 3, near the Pattern Storage Building. Based on known operational information and physical properties of the separate phase product, the material has been identified as No. 6 fuel oil. During the Phase I RFI, screening parameters were not detected at concentrations above their reporting limits near the area of separate phase. Information relative to the horizontal extent of the No. 6 fuel oil, as presented in the IPSM Report (May 1998), is shown on Figure 1. **No separate phase migration has been observed since monitoring began.** Based on these data and the limited migration potential of No. 6 fuel oil due to its heavy viscosity, ArcelorMittal has decided not to initiate a SM at this time. Monitoring for the potential migration toward the Indiana Harbor Ship Canal (IHSC) has been conducted since December 1996, **and continues**. Based on the lack of migration of the separate phase plume observed during these monitoring events, ArcelorMittal reduced the monitoring frequency to semi-annually in 1999, and to annually in 2009.

4.2.3 B Yard Area (SWMA 5)

The largest separate phase area in SWMA 5 (located in the B Yard Area) has been identified as No. 6 fuel oil believed to have been released from a ruptured fuel oil line no longer in use. Due to the location of this separate phase area internal to the plant and the limited migration potential of No. 6 fuel oil, ArcelorMittal has elected not to initiate a SM.

4.2.4 Former Plant 2 By-Products Recovery Area (SWMA 5)

To the north of the No. 6 fuel oil release is a separate phase area identified as coking by-product LNAPL originating from releases during the former operation of the Plant 2 Coke By-Products Recovery Plant, which was shut down in 1993. The No. 6 fuel oil and coking by-product LNAPL areas have merged and form a commingled area of separate phase at the south end of the former Plant 2 By-Products Recovery Area. Due to the location of this separate phase area internal to the plant and the limited migration potential of No. 6 fuel oil, ArcelorMittal has elected not to initiate a SM for the commingled area.

Based on the potential for higher mobility, solubility and toxicity of the coking by-product LNAPL, ArcelorMittal initiated recovery of the coking by-product LNAPL (northern end of the plume) in 1997 utilizing Hydro-Skimmers in selected monitoring wells.

A separate phase recovery system, designed to remove coking by-product LNAPL at the former Plant 2 By-Products Recovery Area, is currently in operation. The Separate Phase Liquid Removal Plan submitted to U.S. EPA in May 2006 outlines the design and construction details of the system, which incorporates over 900 feet of recovery trenches and eight recovery sumps and LNAPL recovery pumps. Pre-construction activities were initiated in May 2006, construction activities began in October 2006, and construction was completed in June 2007. System start-up was initiated on August 28, 2007, and observation well installation was completed in September 2007.

A total of 6 gallons of LNAPL were recovered during the 4th Quarter (to be taken off-site for fuels blending), for a total of 1,066 gallons of LNAPL removed to date.

Information relative to the recovery efforts to date is shown on Figure 1. **This figure reflects the horizontal extent of separate phase in SWMA 5 as it is currently understood based on effectiveness monitoring data.** The effectiveness monitoring plan is being implemented as part of the ongoing system operations and maintenance. Effectiveness monitoring activities include weekly system inspections/O&M, bi-annual sampling of observation wells in the dissolved phase plume area (**next scheduled for 3rd Quarter 2018**), as well as monthly observation well gauging.

The remaining three identified areas of separate phase in SWMA 5, at the Plant 2 Coal/Coke Storage Area and the D Yard Locomotive Fueling Station Area, are small in comparison to the separate phase identified at the former Plant 2 By-Products Recovery Area. Additionally, dissolved phase constituents associated with these separate phase plumes have not migrated significantly beyond the plumes' boundaries. As a result, ArcelorMittal has decided to focus separate phase recovery efforts on the larger area of separate phase located at the former Plant 2 By-Products Recovery Area. In the future, ArcelorMittal may implement SMs at one or more of the three smaller areas of separate phase present in SWMA 5 should conditions warrant. As indicated on Figure 1, annual sitewide ground-water monitoring has been conducted at locations situated hydrologically down-gradient of these areas since October 1999.

An IPSM was completed in March 1996 at an Underground Storage Tank (UST) previously located at the No. 2 Basic Oxygen Furnace in SWMA 5 (See Figure 1). No significant amounts of separate phase were detected, and no further action is planned at this time.

4.2.5 Blast Furnace Blowdown Treatment Plant Area (SWMA 6)

Results from the Phase II RFI FPA Report indicate that dissolved phase constituents associated with the small area of separate phase noted in SWMA 6 have not migrated significantly beyond the plume boundary. As a result, ArcelorMittal has decided to focus separate phase recovery efforts on the larger area of separate phase located upgradient at the former Plant 2 By-Products Recovery Area. In the future, ArcelorMittal may implement SMs at this area should conditions warrant. As indicated on Figure 1, annual sitewide ground-water monitoring at a location situated hydrologically down-gradient of this area was initiated in September 2013 to regularly monitor downgradient concentrations.

4.2.6 Main Garage Repair Shop (SWMA 7)

An IPSM was completed in SWMA 7 in March 1996 for a UST previously located at the Main Garage Repair Shop. No significant separate phase was detected, and no further action is planned at this time.

4.2.7 No. 7 Blast Furnace Emergency Cooling Water Fueling Station (SWMA 9)

The first IPSM in SWMA 9 was an investigation of a diesel fuel spill located at the No. 7 Blast Furnace Emergency Cooling Water Fueling Station. Separate phase diesel fuel was identified on the ground-water surface, and a Skim-Rite automated recovery system was installed in 1993. The

recovery system was upgraded with the installation of a Petropore system in 1996. Approximately 2,974 gallons of LNAPL were recovered using these recovery systems.

Due to low recovery rates, the Petropore system was deactivated in the 2nd Quarter of 2006, and separate phase liquid recovery utilizing hydrophobic filters was initiated. Information relative to the recovery efforts and extent of the separate phase are shown on Figure 1. **A total of 2,989 gallons of LNAPL have been removed to date. Figure 1 reflects the reduced horizontal extent of separate phase, as it is currently understood based on periodic monitoring data.** The hydrophobic filters are inspected at least quarterly and replaced as needed. Based on the observed lack of migration (contraction) of the separate phase plume, ArcelorMittal reduced the monitoring frequency from monthly to quarterly in early 2014.

4.2.8 No. 7 Blast Furnace Locomotive Fueling Station (SWMA 9)

The second IPSM in SWMA 9 was conducted at the former No. 7 Blast Furnace Locomotive Fueling Station UST in 1996. Small amounts of separate phase diesel were identified in two temporary monitoring wells. Separate phase recovery was initiated using Hydro-Skimmers. Due to the absence of a significant separate phase layer at this location, a low volume (less than 1 gallon) of separate phase was recovered over a period of approximately two years. Due to the low recovery rates, the Hydro-Skimmers were removed in April 1998 and the recovery wells are currently monitored annually for the potential return of separate phase. Between April 1998 and September 2005, separate phase was only detected sporadically (less than 5% of gauging events) in 3 area wells During that time, separate phase thicknesses greater than 0.02 feet were only noted on three occasions. On each of these three occasions, the separate phase was recovered. From September 2005 to the present, trace quantities (less than 0.01 feet) were detected only once at one well in April 2007. **Figure 1 reflects the reduced horizontal extent of separate phase, as it is currently understood based on periodic monitoring data.** Based on the observed lack of migration (contraction) of the separate phase plume, ArcelorMittal reduced the monitoring frequency from monthly to quarterly in 1998, quarterly to semi-annually in 1999, and semi-annually to annually in 2014. **No separate phase has been detected in area monitoring wells since April 2007.**

4.2.9 Satellite Garage Area (SWMA 11)

The first IPSM in SWMA 11 was an investigation at the former UST system located at the Satellite Garage. Separate phase gasoline was identified on the ground-water surface in the area. In September 1992, an investigation was initiated at the Satellite Garage area. An LNAPL recovery system was subsequently installed, resulting in the recovery of approximately 7,300 gallons of gasoline. Separate phase recovery was completed in 1995.

Analytical data collected at the Satellite Garage area indicated detections of tetrachloroethene (PCE) in ground-water and separate phase samples. The PCE is suspected to have been released from a former aboveground PCE tank located at the north end of the nearby Electric Repair Shop (ERS). Separate phase recovery was initiated in 1992 using a Skim-Rite recovery system and, subsequently, using Hydro-Skimmers as product thickness decreased. Due to low recovery rates, the Hydro-Skimmers were removed in April 1998 and wells are currently monitored for the potential return of separate phase. **Figure 1 reflects the maximum horizontal extent of separate**

phase gasoline as it is currently understood based on periodic monitoring data. There are currently no accessible wells within the originally defined horizontal extent. However, migration of separate phase to adjacent wells has not been detected. Based on the observed lack of migration of the separate phase plume, ArcelorMittal reduced the monitoring frequency from monthly to quarterly in 1998, quarterly to semi-annually in 1999, and from semi-annually to annually in 2014.

A sub-slab depressurization system was installed at the ERS in 1993 to vent BTEX and PCE soil gas vapors from beneath the ERS building. The system remains in operation, and is inspected at least monthly and sampled annually to track soil gas concentrations and constituent mass removal rates. **Both soil gas concentrations and mass removal rates have decreased approximately 100 fold since the system was installed in 1993.**

4.2.10 E Yard Locomotive Fueling Station (SWMA 11)

The second IPSM in SWMA 11 addressed an aboveground storage tank (AST) located at the E Yard Locomotive Fueling Station. Small amounts of separate phase diesel fuel were identified in five temporary monitoring wells. Separate phase recovery was initiated using Hydro-Skimmers. Due to the lack of a significant separate phase layer at this location, a low volume (a total of 1.2 gallons) of separate phase was recovered over a period of approximately two years. Due to the low recovery rates, the Hydro-Skimmers were removed in April 1998. The wells are currently monitored at least semi-annually. In August 2006, separate phase liquid recovery was resumed utilizing hydrophobic filters. **A total of 3 gallons of diesel fuel was recovered during the 4th Quarter, for a total of 33 gallons removed to date. Information relative to the recovery efforts and extent of the separate phase are shown on Figure 1. This figure reflects the horizontal extent of separate phase as it is currently understood based on effectiveness monitoring data.**

4.2.11 Former 80" Hot Strip Mill Lagoon (SWMA 12)

An IPSM was completed at the 80" Hot Strip Mill (HSM) Lagoon area in SWMA 12. No significant separate phase was detected, and no further separate phase removal stabilization measure action is planned at this time.

ArcelorMittal completed closure of the 80" HSM Lagoon in early 2003 in accordance with IDEM regulations. The lagoon was used historically as a holding/settling basin for wastewater sludge generated from the 80" HSM Treatment Facility clarifiers. The process wastewater collected scale and incidental lubricating oils/grease (including animal fats and/or vegetable oils) that washed off rolling and finishing equipment. A Closure Plan for the 80" HSM Lagoon was submitted to IDEM on July 12, 2001, with revisions submitted on November 12, 2001. The Closure Plan was approved by IDEM in correspondence dated September 12, 2002. Accumulated oil/grease and water was pumped out of the lagoon from mid-July to early November 2000 and again beginning in early April 2001. A total of approximately 303,200 gallons of oil and 4.7 million gallons of water were removed in 2000 to 2001. Sludge solidification began on July 17, 2001, and was completed on December 20, 2001. Construction of a cover over the solidified waste, consisting of 3 feet of compacted clay and one foot of slag armor cover was completed on June 28, 2002. Installation of downgradient observation wells within 50 feet of the east side of the closed lagoon was completed in December 2002. Post-closure monitoring, with semi-annual reporting, will be

conducted for 30 years from the date of Closure Certification Report submittal (April 30, 2003). **The most recent Post-Closure Report (#27 of 60) was submitted to IDEM on November 28, 2016. Comments received from IDEM on June 21, 2016 will be addressed following monitoring well repair, expected to be completed in Spring, 2017.**

4.2.12 Former Coal Tar Plant Area (SWMA 14)

Based on the investigations conducted to date, the only significant potential sources/source area identified in SWMA 14 is a discontinuous area of DNAPL located at the former Coal Tar Plant Area. To assess the potential for off-site migration associated with the identified DNAPL, a downgradient monitoring well cluster (one deep and one shallow) was installed in the surficial aquifer during the IPSM and sampled for VOC and SVOC analyses by U.S. EPA Methods 8260 and 8270, respectively. Analytical results of this sampling indicated that VOC and SVOC constituents were not detected. Additionally, analytical results for ground-water samples collected during the Phase I RFI did not indicate the presence of significant ground-water contamination associated with the identified separate phase.

These data, along with Aquifer Test results and knowledge of the lack of coal tar migration and solubility at other sites, have been considered and ArcelorMittal has decided not to initiate automated separate phase recovery at the former Coal Tar Plant at this time. The separate phase thickness and lack of off-site DNAPL migration are currently being monitored on a semi-annual basis. As part of investigative/monitoring activities, periodic manual recovery of accumulated DNAPL from area monitoring wells via specialized peristaltic pump was initiated in Fall 2014. Recovery efforts have been conducted to reduce the mass of organic source material feeding the dissolved phase groundwater plume and to monitor the results, as well as to evaluate DNAPL recharge rates. **A total of 207 gallons of DNAPL have been removed to date. Recovery efforts will continue in the 2nd Quarter 2017.**

The monitoring well network in the eastern portion of SWMA 14 was expanded in July 2000, with the installation of three additional monitoring well clusters. These three-well clusters (shallow, intermediate and deep) are situated approximately downgradient of the separate phase plume in the former Coal Tar Plant area, and are intended to aid in the characterization of the groundwater in the surficial aquifer. The entire monitoring well network in the eastern portion of SWMA 14 was sampled in October 2000 and again in July 2001, July 2002, July 2003, October 2004, September 2005, July 2006, June 2007, November 2007, October 2008, September 2009, November 2010, October 2011, October 2012, October 2013, October 2014, October 2015, **and October 2016.** Beginning in the 4th Quarter 2009, a quarterly sampling schedule was implemented for the two off-site well clusters IMW-14-00010 and IMW-14-00011, and the well cluster nearest the site boundary IMW-14-00009.

In response to temporary construction dewatering activities being conducted at the adjacent City of East Chicago property, beginning in January 2011, a monthly sampling schedule was implemented for the two off-site well clusters IMW-14-00010 and IMW-14-00011, and the well cluster nearest the site boundary IMW-14-00009, in order to closely monitor dissolved phase ground-water concentrations at the perimeter. Monthly perimeter sampling and area ground-water potentiometric surface monitoring were conducted for the duration of the City's construction dewatering activities, and for several months beyond, until the ground-water table rebounded and ground-water concentrations stabilized. Results for the two off-site well clusters indicated no detections at or above Phase II RFI Tier 1A risk screening criteria for the 53 VOC and 112 SVOC analytes during

that period. Construction dewatering activities ended on May 13, 2011, and the monthly area potentiometric surface monitoring and perimeter sampling continued through the end of the 3rd Quarter 2012.

Review of monitoring well gauging data, investigative field records, and land ownership documents in August 2013 resulted in a revised understanding of the discontinuous DNAPL plume extent and its relationship to adjoining properties. This revised understanding was presented in detail in the 3rd Quarter 2013 Quarterly Report. As detailed in that Report, the discontinuous DNAPL plume appears to be restricted primarily to the IH East property, is likely present at the very western end of the current Aldis Avenue right-of-way, and is otherwise terminating close to the boundary with adjacent industrial/commercial properties. **Additional right-of-way areas were established in Fall 2016 in association with the planned Aldis Avenue Roundabout Construction Project. The proposed right-of-way areas were presented on Figure 1-1 of the 1st Quarter 2016 Quarterly Report, and do not differ significantly from the finalized right-of-way areas. As shown on this figure, a portion of the discontinuous plume underlies a small portion of the new right-of-way, to the south of Aldis Avenue.**

Separate phase has not been detected outside of the SWMA 14 boundaries and there has been no indication of significant DNAPL plume migration during the extended course of monitoring at the Former Coal Tar Plant Area (1996 through present). Considering that the source of the plume has been absent for **approximately 51** years, it can be expected that much of the DNAPL migration that has occurred to date likely occurred during the Coal Tar Plant operational timeframe and/or shortly thereafter, when the DNAPL was still "fresh" and therefore more mobile. Monitoring of wells for the presence and accumulation of DNAPL will continue, such that plume migration, while unlikely, does not go undetected.

Annual sampling of dissolved phase ground-water constituents for the entire monitoring network continues, as does the off-site quarterly monitoring. Results for the two off-site well clusters continue to indicate that, based on the site-specific dilution/attenuation methodologies presented in the FPA Report, constituent concentrations for the 53 VOC and 112 SVOC analytes at these wells are unlikely to cause exceedance of applicable screening criteria in the adjacent surface water, and are not present at or above the Phase II RFI Tier 1B human health risk screening criteria. It is anticipated that the data collected from these wells, along with results of previous investigations (former Coal Tar Plant IPSM, Phase I RFI, aquifer test) will be used to support ground-water modeling studies to facilitate a fate and transport evaluation. **Six proposed additional downgradient/side-gradient wells are expected to be installed in Spring 2017 to further support this evaluation. A Sampling and Analysis Plan for the proposed wells was submitted on September 7, 2016 and approved on October 13, 2016. While data continues to indicate that the ground-water dissolved phase plume is stable, per discussions with USEPA on July 19, 2016, remedial alternatives to address potential offsite migration are also being evaluated.**

4.3 Summary of Phase II RFI Status

With the completion of Phase I RFI activities, Corrective Action efforts at IHE shifted to address the Government Performance and Results Act (GPRA) Environmental Indicators (CA 725 and CA 750) and Phase II of the RFI. These efforts are intended to confirm and refine the Phase I results and fill data gaps associated with the overall objectives of the RFI as defined in the Consent Decree (i.e., Characterize the Environmental Setting, Source Characterization, Contamination

Characterization, and Receptor Identification). The Phase II activities consist of a risk-based evaluation of potential impacts to environmental receptors present on and adjacent to IHE resulting from exposure to site-related contaminants. This evaluation is being implemented from the perimeter of the facility inward, with the primary focus on those portions of the facility perimeter that are believed to pose the greatest potential risk to off-site environmental receptors. Interior portions of the facility, including identified source areas, are also being further evaluated in the Phase II RFI.

The Phase II RFI includes three major study elements that differ from the Phase I RFI and continue to further the overall objectives of RCRA Corrective Action at the site. These study elements are:

- An expanded constituent list; Appendix IX or subset thereof,
- Investigation of vertical degree and extent of contamination, and
- Risk-based implementation.

Based on results of the Phase I RFI and the corrective action approach embodied in the requirements for completion of the GPRA Environmental Indicators report, the facility is being subjected to Phase II RFI activities in the following investigative areas and order:

- Facility Perimeter Areas (FPAs),
- Interior Source Areas (ISAs), and
- Facility Interior Areas (FIAs).

4.3.1 Facility Perimeter Area Investigations

Because off-site migration of ground water is associated with the most significant potential exposure scenarios at IHE, perimeter investigations are being implemented ahead of, or concurrently with, the other components of the RFI (i.e., ISAs and FIAs). The facility perimeter area is designated as that area of the facility lying between the property boundary and a line drawn 300-feet interior and parallel to the property boundary. The facility perimeter area has been subdivided into prioritized sub-areas, hereafter referred to as FPAs, as indicated on Figure 4.

The Phase II RFI Facility Perimeter Area Report for FPA 1, FPA 2, FPA 3, FPA 4, FPA 5, FPA 6, FPA7, and FPA 8 was submitted on October 7, 2009. Comments on the Phase II RFI Facility Perimeter Area Report were received on September 23, 2011. The Response to Comments and Revised Conceptual Site Model were submitted on April 4, 2013. U.S. EPA Review of the Response to Comments was received on August 29, 2013. ArcelorMittal submitted the Response to this latest U.S. EPA review on March 12, 2015, and U.S. EPA's approval of this Response was received on June 2, 2015.

Additionally, four submittals addressing specific comments from this review have also been transmitted to date, including the Phase II RFI Sampling and Analysis Plan for Supplemental Assessment Activities in FPA 1 (submitted December 11, 2013, revised February 13, 2014, and approved February 28, 2014), the October 2013 potentiometric surface map (submitted January 31, 2014), the April 2014 potentiometric surface map (submitted July 28, 2014), and the Draft Revised Text for Section 2.5.3 of the Phase II RFI FPA Report (submitted September 17, 2014). U.S. EPA review comments on the draft revised text were received on June 2, 2015. **A Response to Comments was submitted on August 24, 2015 and was approved May 24, 2016.**

4.3.1.1 FPA 1

FPA 1 consists of the perimeter portions of SWMAs 7 and 8. Both SWMAs have areas of increased apparent ground-water discharge at discrete locations, controlled by the orientation of revetment structures. Relatively high concentrations of Phase I RFI constituents and their close proximity to the site boundary make these areas a priority. The Sampling and Analysis Plan for FPA 1 was submitted in July 2003 and was approved by the U.S. EPA in September 2003. Investigative activities (well installation, developing, and sampling) in FPA 1 were initiated in September 2003 and are now complete. Two rounds of sampling have been conducted in FPA 1 to date (December, 2003 and May, 2004). Additional high-resolution pesticide sampling was conducted at selected FPA 1 wells in October, 2005 and March, 2006. Evaluation of the 2005 and 2006 results indicated significantly lower concentrations of previously detected constituents. Data evaluation has been completed and results have been submitted.

At the end of 2009, the FPA 1 IMW-07-00003 well cluster was added to the annual sitewide dissolved phase ground-water sampling program described in Section 4.2. Samples were collected in January 2010, and then as part of the annual sampling events in October 2010, October 2011, and October 2012. The sample collected at IMW-07-00003D during the October 2012 sampling event exhibited an increased concentration of benzene compared to earlier sampling events. Therefore quarterly sampling was initiated at this location and two other upgradient FIA 1 well clusters, IMW-07-00004 and IMW-07-00005. **Quarterly samples were collected at these three well clusters from November 2012 to August 2016. Quarterly samples at the IMW-07-00003 three-well cluster (only) was completed in November 2016 and will continue. The results from sampling activities through the end of 2015 were presented in Attachment 2 of the 1st Quarter 2016 Quarterly Report. Results from the 21 additional sampling events discussed above continue to indicate that, based on the site-specific dilution/attenuation methodologies presented in the FPA Report, constituent concentrations for the 53 VOC and 112 SVOC analytes at these wells are unlikely to cause exceedance of applicable screening criteria in the adjacent surface water. The next quarterly sampling of the IMW-07-00003 well cluster is planned for February 2017.** Assessment activities are ongoing.

A Phase II RFI Sampling and Analysis Plan (SAP) for Supplemental Assessment Activities in FPA 1 was submitted in December 2013. This SAP was submitted in response to General Comment No. 5 of U.S. EPA's August 29, 2013 correspondence, and provides the requested clarification and discussion of the planned extent of additional investigation at FPA 1. A revised SAP was submitted and U.S. EPA approval was received in February 2014. Field work and drilling activities were initiated in the 4th Quarter 2014. Due to facility operational needs (continued frequent shipments of limestone delivered throughout the Fall in the immediate vicinity which precluded access for drilling), activities at the IMW-07-00003 cluster were delayed until Spring, 2015, with limestone removal in March and April, well installation the last week of April, and well development in early May. The first full round of ground-water sampling for the Phase II RFI FPA 1 Supplemental Study followed in June 2015. The second full round of ground-water sampling for the Supplemental Study was completed in November 2015. **Supplemental Study Report preparation is in progress.**

4.3.1.2 FPA 2

FPA 2 consists of the perimeter portions of SWMAs 11 and 12. Phase I RFI data suggests that there is a widespread distribution of constituents in the ground water, likely associated with fill materials; significantly higher concentrations appear to be associated with "fill cells" situated near the eastern perimeter areas. The Sampling and Analysis Plan for FPA 2 was submitted in September 2003, and was approved by the U.S. EPA in September 2003. Investigative activities (well installation, developing, and sampling) in FPA 2 were initiated in September 2003 and are now complete. Two rounds of sampling have been conducted in FPA 2 to date (October-November, 2003 and May, 2004). Data evaluation has been completed and results have been submitted.

4.3.1.3 FPA 3

FPA 3 consists of the perimeter portions of SWMAs 13 and 14 and the eastern perimeter of SWMA 4. Phase I RFI and supplemental investigation data suggest that potential impacts to ground water are associated with discrete operational releases (miscellaneous spills) and/or source areas (former coal tar plant), rather than non-point sources (e.g., fill materials). Investigative activities (well installation, development, and sampling) in FPA 3 were initiated in June 2004 and are ongoing. Two rounds of sampling for the FPA Assessment were conducted in October-November, 2004 and April-May, 2005. As discussed in Section 4.2.12, annual ground-water sampling in this area continues to the present.

In September 2004, an accumulation of separate phase organic hydrocarbons was observed in a ground water monitoring well (IMW-14-000081) installed as part of the Phase II RFI. U.S. EPA was informed of this discovery during the quarterly update meeting and was also informed of ArcelorMittal's intent to perform further delineation of this observed organic hydrocarbon. ArcelorMittal then reviewed available data to determine the scope of this additional investigation. This review included analysis of historical aerial photography, historical plant operations, utility maps, data from previous investigations and the most recent available ground-water flow data.

In December 2004, ArcelorMittal installed a series of seven additional soil borings in the vicinity of monitoring well IMW-14-000081. Initial interpretation of these results suggested that the observed organic hydrocarbon may have extended east, beyond the ArcelorMittal property, to the adjacent City of East Chicago Water Department property.

In February and March of 2005, ArcelorMittal secured access to adjacent City of East Chicago properties, and performed additional soil boring and well installation activities in these areas. The purpose of these activities, situated hydraulically downgradient of the Former Coal Tar Plant Area, was to further delineate the horizontal and vertical extent of separate phase hydrocarbons, and to establish additional downgradient ground-water monitoring locations.

A total of four additional soil borings and three additional monitoring well clusters were installed. The four soil borings and two of the monitoring well clusters were situated on adjacent City of East Chicago properties. One of the additional monitoring well clusters was situated on ArcelorMittal property.

The results of the soil borings suggest that the discontinuous DNAPL plume is restricted primarily to the IH East property, is likely present at the very western end of the Aldis Avenue right-of-way, and is otherwise terminating close to the boundary with adjacent industrial/commercial properties.

Forty-eight rounds of ground-water sampling for VOCs and SVOCs have been conducted for the three supplemental FPA 3 well clusters to date, **beginning in May 2005, with the latest sampling in October 2016. Separate phase hydrocarbon has not been detected outside of the SWMA 14 boundaries and there has been no indication of significant DNAPL plume migration during the extended course of monitoring at the Former Coal Tar Plant Area (1996 through present).** Assessment activities are ongoing. As indicated in Section 4.2.12 data evaluation for annual and quarterly sampling events at this location is ongoing. Data evaluation for the FPA Report has been completed and FPA results have been submitted.

Anticipated future assessment activities include:

1. Continuing to sample monitoring wells to determine extent and migration potential/plume stability of dissolved phase constituents,
2. Assessing potential risks to human health and the environment, and
3. Implementing corrective measures, as necessary.

ArcelorMittal and the City of East Chicago have signed an agreement which has enabled the City to acquire additional property within SWMA 14 as needed for right-of-ways for the construction of a planned exit ramp/roundabout. This roundabout construction project is expected to be completed in 2017.

4.3.1.4 FPA 4

FPA 4 consists of the perimeter portions of SWMA 6. Phase I RFI data suggest that the chemical constituents detected in the ground water are associated with fill materials placed along the perimeter portions of the SWMA, west of the complex of revetments and the former dock face. Investigative activities (well installation, development, and sampling) in FPA 4 were initiated in June 2004 and are now complete. Two rounds of sampling have been conducted in FPA 4 to date (November, 2004 and April, 2005). Data evaluation has been completed and results have been submitted.

4.3.1.5 FPA 5

FPA 5 consists of the perimeter portions of SWMA 5. The majority of the perimeter area is characterized by ground water discharging towards the west to the IHSC through/around a sheet pile revetment and dock face. Approximately 1/5 of the perimeter area is characterized by ground water discharging towards the north through a riprap-covered shoreline, to the Indiana Harbor Turning Basin. Investigative activities (well installation, development, and sampling) in FPA 5 were initiated in June 2004 and are now complete. Two rounds of sampling have been conducted in FPA 5 to date (November, 2004 and April 2005). Data evaluation has been completed and results have been submitted.

4.3.1.6 FPA 6

FPA 6 consists of the perimeter portions of SWMAs 2 and 3, and the western perimeter portion of SWMA 4. Phase I RFI data does not suggest any significant impacts to ground water within the perimeter areas. Investigative activities (well installation, development, and sampling) in FPA 6 were initiated in June 2004 and are now complete. Two rounds of sampling have been conducted

in FPA 6 to date (November, 2004 and April 2005). Data evaluation has been completed and results have been submitted.

4.3.1.7 FPA 7

FPA 7 consists of the perimeter portions of SWMAs 9 and 10. The Phase I RFI did not identify any significant impacts to the ground water in these areas. Results suggest that low concentrations of chemical constituents are distributed broadly throughout the SWMAs, likely associated with fill materials. Investigative activities (well installation, development, and sampling) in FPA 7 were initiated in April 2006 and are now complete. Two rounds of sampling have been conducted for the FPA 7 wells to date (June and November, 2006). Data evaluation has been completed and results have been submitted.

4.3.1.8 FPA 8

FPA 8 consists of the perimeter portions of SWMA 1. The Phase I RFI did not identify any significant source areas or significant impacts to ground water. Investigative activities (well installation, development, and sampling) in FPA 8 were initiated in April 2006 and are now complete. Two rounds of sampling have been conducted for the FPA 8 wells to date (June and November, 2006). Data evaluation has been completed and results have been submitted.

4.3.2 Interior Source Area Investigations

For the purpose of implementing the Phase II RFI, three ISAs have been identified, which ArcelorMittal believes, based on Phase I RFI data and available information, to be the most significant potential sources of organic compounds in the subsurface at IHE. Each of these areas includes significant volumes of Non-Aqueous Phase Liquids (NAPLs), either in the form of continuous plumes or as discontinuous masses. As indicated in Section 4.2, one or more IPSMs have been conducted in each of the ISAs, and Voluntary Stabilization Measures have been implemented in two of the areas (ISA 1 and ISA 3). Additionally, beginning in 1999, ArcelorMittal has conducted annual monitoring of wells installed hydraulically downgradient of the significant NAPL "plumes". The purpose of this annual sampling program has been to monitor the ground-water conditions downgradient of the NAPL "plumes" to verify that dissolved constituents potentially associated with the "plumes" are not significantly migrating beyond their present boundaries. This existing monitoring well network is being utilized as part of the ISA evaluations. The ISAs are situated interior to the FPAs. Therefore, the ISA investigations will focus on characterization of the significant source areas relative to fate and transport mechanisms and source removal/stabilization/attenuation, and will address risk only as it relates to migration towards perimeter areas. The ISA Sampling and Analysis Plan for ISA 1, ISA 2, and ISA 3 was submitted on March 9, 2007 and approved March 26, 2007. Investigative activities were initiated in April 2007. The Phase II RFI Interior Source Area Report for ISA 1, ISA 2, and ISA 3 was submitted on January 4, 2012. **Comments on the Phase II RFI Interior Source Area Report were received on June 7, 2012. Preparation of the Response to Comments is under way.**

4.3.2.1 ISA 1

ISA 1 includes all of the non-perimeter portions of SWMA 5, and contains the former Plant 2 By-Products Recovery Area LNAPL plume as well as the B-Yard Fueling Station LNAPL plume.

Investigative activities (well installation, development, and sampling) in ISA 1 were initiated in April 2007 and are currently in progress. Soil sampling was completed at ISA 1 in September, 2007. Two rounds of sampling have been conducted for the ISA 1 wells to date (October - November, 2007 and April 2008). Data evaluation for the ISA Report has been completed and results have been submitted. **As discussed in Section 4.2.4, biannual ground-water sampling in this area continues to the present. In addition, as indicated in Section 4.2, annual long-term ground-water sampling downgradient of the LNAPL plume continues to the present.**

4.3.2.2 ISA 2

ISA 2 includes the eastern two thirds (approximately) of the non-perimeter portions of SWMA 14 and contains the discontinuous DNAPL "plume" within the former Coal Tar Plant Area. Investigative activities (sampling) in ISA 2 were initiated in May 2007 and are currently in progress. Soil sampling was completed at ISA 2 in August, 2007. Two rounds of ground-water sampling have been conducted for the ISA 2 assessment (May - June, 2007 and November, 2007). Data evaluation for the ISA Report has been completed and results have been submitted. **As discussed in Sections 4.2 and 4.2.12, annual ground-water sampling in this area continues to the present. Quarterly ground-water sampling at three well clusters downgradient of the discontinuous DNAPL plume also continues to the present.**

4.3.2.3 ISA 3

ISA 3 includes all of the non-perimeter portions of SWMA 3 and contains the former C Battery By-Products Recovery Area LNAPL plume. Investigative activities (well installation, development, and sampling) in ISA 3 were initiated in April 2007 and are currently in progress. Soil sampling was completed at ISA 3 in August, 2007. Two rounds of ground-water sampling have been conducted for the ISA 3 wells to date (June, 2007 and November, 2007). Data evaluation for the ISA Report has been completed and results have been submitted. **As discussed in Section 4.2.1, semi-annual ground-water sampling in this area continues to the present. In addition, as indicated in Section 4.2, annual long-term ground-water sampling downgradient of the LNAPL plume continues to the present.**

4.3.3 Facility Interior Area Investigations

While the FPA and (to a lesser extent) the ISA evaluations are intended to address the current potential excess risk to environmental receptors resulting from contaminant releases at IHE, the seven FIA evaluations are only intended to address future potential excess risk associated with contaminant releases. The Facility Interior Area has been subdivided based on expected scope and similarity of conditions. The FIA Sampling and Analysis Plan for FIA 1, FIA 2, FIA 3, FIA 4, FIA 5, FIA 6, and FIA 7 was submitted on March 28, 2008 and approved on April 29, 2008. Investigative activities began in May 2008, following approval of the FIA Sampling and Analysis Plan (SAP). The Summary of Planned Phase II RFI FIA High Resolution Confirmation Sampling Activities was submitted on February 26, 2010, and approved by the U.S. EPA on May 13, 2010. Field work was completed in November 2010.

Because ArcelorMittal anticipated that submittal of a number of other documents would take precedence over submittal of the Phase II RFI FIA Report (including those listed in Section 3.0), analytical data tables for the FIA sampling were presented in the 3rd Quarter 2013 Quarterly Report

in advance of the full Phase II RFI FIA Report. A full discussion of these analytical results along with the risk analysis and conclusions will be presented in the FIA Report.

4.3.3.1 FIA 1

FIA 1 includes the contiguous interior portions of SWMAs 6, 7, 8, and western portions of SWMAs 11 and 12. Ground water flows primarily into FPAs 1 and 4, with ultimate discharges to the IHSC, Turning Basin, and Lake Michigan. Ground-water flow is significantly controlled by revetment structures. Phase I RFI screening parameters were detected at relatively high concentrations, particularly in SWMAs 7 and 8. Investigative activities (well installation, development, and sampling) in FIA 1 began in May, 2008. Two rounds of sampling have been conducted for the FIA 1 wells to date (December, 2008 and June 2009), and data evaluation is in progress. Additional high-resolution pesticide and polychlorinated biphenyl (PCB) sampling was conducted at selected FIA 1 wells in May 2010 and November 2010.

4.3.3.2 FIA 2

FIA 2 includes the contiguous interior eastern portions of SWMAs 11 and 12. Ground water flows primarily into FPA 2, with ultimate discharge to Lake Michigan. The hydraulic gradient is minimal, resulting in correspondingly low ground-water flow velocities. Phase I RFI data suggests that there is a widespread distribution of constituents in the ground water throughout the area, likely associated with fill materials; higher concentrations appear to be associated with "fill cells" situated near or within FPA 2 (eastern perimeter). Investigative activities (well installation, development, and sampling) in FIA 2 began in May, 2008. Two rounds of sampling have been conducted for the FIA 2 wells to date (November, 2008 and June 2009), and data evaluation is in progress. Additional high-resolution PCB sampling was conducted at selected FIA 2 wells in May 2010 and November 2010.

4.3.3.3 FIA 3

FIA 3 includes contiguous interior portions of SWMAs 13 and 14, excluding that portion of SWMA 14 that is identified as ISA 2 (Former Coal Tar Plant Area). Ground water primarily flows into FPA 3, ultimately migrating to adjacent off-site locations and, to a lesser extent, discharging to ArcelorMittal's Main Water Intake Channel. Phase I RFI and supplemental investigation data suggest that chemical constituents in the ground water are generally present at low concentrations, and are associated with discrete operational releases (miscellaneous spills) and/or ISAs (Former Coal Tar Plant), rather than non-point sources (e.g., fill materials). Investigative activities (well installation, development, and sampling) in FIA 3 began in May, 2008. Two rounds of sampling have been conducted for the FIA 3 wells to date (November, 2008 and June 2009), and data evaluation is in progress. Additional high-resolution PCB sampling was conducted at selected FIA 3 wells in May 2010 and November 2010.

4.3.3.4 FIA 4

FIA 4 includes the contiguous interior portions of SWMAs 9 and 10. Ground water primarily flows into FPA 7, ultimately discharging to Lake Michigan and the Lake Michigan Impoundment. The Phase I RFI did not identify any significant impacts to the ground water in this area. Results suggest that low concentrations of chemical constituents are distributed broadly throughout the

area, likely associated with fill materials. Investigative activities (well installation, development, and sampling) in FIA 4 began in May, 2008. Two rounds of sampling have been conducted for the FIA 4 wells to date (December, 2008 and June 2009).

4.3.3.5 FIA 5

FIA 5 includes the interior portion of SWMA 4. Ground water primarily flows into FPA 6, ultimately discharging to the IHSC. A smaller component of ground-water flow is towards FPA 3, ultimately migrating to adjacent off-site locations. The Phase I RFI did not identify any potentially significant sources in this area. Investigative activities (well installation, development, and sampling) in FIA 5 began in May, 2008. Two rounds of sampling have been conducted for the FIA 5 wells to date (November, 2008 and June 2009).

4.3.3.6 FIA 6

FIA 6 includes the interior portion of SWMA 2. Ground water primarily flows towards the west into FPA 6, ultimately discharging to the IHSC. The Phase I RFI did not identify any potentially significant sources in this area. Investigative activities (well installation, development, and sampling) in FIA 6 began in May, 2008. Two rounds of sampling have been conducted for the FIA 6 wells to date (November, 2008 and June 2009).

4.3.3.7 FIA 7

FIA 7 includes the interior portion of SWMA 1. Ground water primarily flows towards the east into FPA 8, ultimately discharging to the IHSC, and to a lesser extent migrating to adjacent off-site locations. The Phase I RFI did not identify any potentially significant source areas or significant impacts to ground water. Investigative activities (well installation, development, and sampling) in FIA 7 began in May, 2008. Two rounds of sampling have been conducted for the FIA 7 wells to date (November, 2008 and June 2009).

4.4 Sitewide Corrective Action Program Activities

CAMU Stabilization Measure Activities – In October, 2001, ArcelorMittal received approval to temporarily stage and treat three remediation waste streams generated during the demolition of the Plant 2 Coke Plant to reduce their toxicity. The staging and treatment of these wastes has been completed in accordance with the approved Corrective Actions Management Unit (CAMU) Stabilization Measure Work Plans, which were prepared in accordance with the January 1998 Application for CAMUs. The approved work plans addressed remediation of approximately 15 cubic yards of low-pH debris (ammonium sulfate residual materials and rubble), approximately 450 cubic yards of benzene-contaminated debris (wooden packing material from the three disassembled counter-current towers), and approximately 40 cubic yards of benzene-contaminated soil debris, respectively, which were encountered during demolition activities. The low-pH debris was treated and subsequently disposed in accordance with the approved work plan in the 3rd Quarter, 2003. The benzene-contaminated debris was treated and subsequently disposed at an off-site disposal facility as a "special waste" in accordance with the approved work plan in the 2nd Quarter, 2005. The benzene-contaminated soil debris was relocated to the Former C Battery By-Products Recovery Area CAMU, where a lined landfarming treatment cell was constructed. The soil debris was placed in the treatment cell, which was constructed in the 4th Quarter, 2001. The soil debris

was treated and subsequently disposed at an off-site disposal facility as a "special waste" in accordance with the approved work plan in the 4th Quarter, 2007.

ArcelorMittal procedure ENV-P-021 "Permitting Framework for Soil Excavation and De-Watering, and General Requirements" has been implemented at IHE. The principal objective of this procedure, which is considered an institutional control, is to protect the health of site workers by limiting their exposure to potential contaminants. This procedure is used in conjunction with required pre-job health and safety meetings to communicate potential environmental and health and safety issues with workers. On June 29, 2010, a presentation was given by AECOM at the weekly Indiana Harbor Maintenance Managers meeting entitled "Environmental Legacy and Excavation Permit Issues". **During the 4th Quarter, Soil Excavation Permit numbers IHE-2016-028 through IHE-2016-033 were issued in accordance with this procedure.**

Double-blind Performance Evaluation (PE) samples were prepared by Environmental Resource Associates of Arvada, Colorado, and were submitted for analysis from ArcelorMittal to Severn Trent Laboratories (STL) of North Canton, Ohio on October 21, 2003. Samples were submitted for analysis of metals in soil, PCBs in soil, SVOCs in soil, and VOCs in water. Sample results and the associated expanded QC package were received on November 24, 2003. Data validation and final results tabulation were completed in the 1st Quarter of 2004. A separate data package to the U.S. EPA including the data, results, data validation, and conclusions was submitted April 23, 2004. In correspondence dated November 16, 2004, the U.S. EPA approved STL - North Canton for Phase II RFI analytical work conducted at ArcelorMittal. In June, 2007, ArcelorMittal was notified that STL – North Canton officially changed its name to "Test America – North Canton".

On February 24, 2016 an external ISO 14001 audit of the Environmental Management System for the facility was conducted by Brown and Caldwell, which included an audit of the project files for ArcelorMittal's procedure ENV-P-021 "Permitting Framework for Soil Excavation and De-Watering, and General Requirements". No non-conformances and/or related Corrective Action Requirements were identified by this audit.

On September 24, 2015 an external ISO 14001 audit was conducted by Deloitte and Touche LLP, ArcelorMittal's external auditing contractor, on the Environmental Liabilities Management Program for the facility. One of the subjects of this audit was the IHE Corrective Action program, including project activities. No non-conformances and/or related Corrective Action Requirements were identified by this audit.

On June 20, 2005, the Supplemental Surface-Soil Sampling and Data Evaluation Plan was submitted to U.S. EPA, and subsequently approved on June 23, 2005. While surface-soil sampling is not specifically referenced in the Phase II technical approach, and the Conceptual Site Model indicates that there is an incomplete exposure pathway for worker exposure to potentially contaminated soils, ArcelorMittal agreed to collect on-site surface-soil samples from select locations in order to facilitate U.S. EPA's completion of the Environmental Indicators CA725 evaluation. Based upon the results of this supplemental sampling, three limited areas within former coke by-products recovery areas ("C" Battery located in SWMA 3, Plant 2 By-Products located in SWMA 5, and 11 Battery located in SWMA 9) were covered with clean slag and/or enclosed with fencing at the request of the U.S. EPA, thereby reducing exposure potential and reinforcing the exposure controls previously in place. As specified in the June 23, 2005 U.S. EPA approval letter for the original surface-soil sampling activities, ArcelorMittal collected additional samples in those SWMAs where previous analytical results exceeded the IDEM default Closure Levels for industrial/commercial receptors using the direct contact exposure scenario, such that a total of six

samples have now been collected from each of those SWMAs. The additional samples were collected in accordance with the Addendum to Supplemental Surface Soil Sampling and Data Evaluation Plan submitted on February 9, 2010 and approved by the U.S. EPA on May 13, 2010. **The Phase II RFI Supplemental Surface Soil Sampling Report was submitted on July 31, 2015. U.S. EPA Review is in progress.**

U.S. EPA determined that "Current Human Exposures Are Under Control" at ArcelorMittal and assigned a "Yes" status designation for Environmental Indicators CA725 on September 1, 2005.

The "Documentation of Environmental Indicator Determination RCRIS Code CA725 Current Human Exposures Under Control and Rationale" was submitted to U.S. EPA on August 30, 2005. In addition, the "Documentation of Environmental Indicator Determination RCRIS Code CA750 Migration of Contaminated Groundwater Under Control" was submitted on September 28, 2005. Resubmittal of the CA750, to include complete data sets for FPA 7, FPA 8 and supplemental FPA 1 sampling was completed on April 11, 2007.

During the 4th Quarter 2008, ArcelorMittal initiated a siting study in accordance with IDEM regulations as part of the Type I Restricted Waste Landfill Permit Application process for the potential disposal of wastewater treatment plant sludge and other non-hazardous and non-putrescible iron and steelmaking by-products. This proposed Type I restricted waste landfill is currently planned to be located on approximately 69 acres of property in SWMAs 3 and 4. A detailed Hydrogeologic and Geotechnical Site Investigation Report was submitted to IDEM in April 2016 for their comment and as a basis of design for the conceptual Type I restricted waste landfill. **A copy of this site investigation report will be provided to U.S. EPA for informational purposes.**

As part of Supplemental Environmental Projects (SEPs) established by the 1993 Consent Decree, ArcelorMittal has begun dredging working dock face sediments. The remainder of the Indiana Harbor Ship Canal (IHSC) and Turning Basin will be dredged by the United States Army Corps of Engineers (USACE) or other contractor with funds supplied by ArcelorMittal and others. The dredging of the IHSC under this program began in November 2012 **and continues to present.** Consistent with the approach presented in the approved Phase II RFI Work Plan, sampling and evaluation of sediments was excluded from evaluation during the RFI. This approach was discussed with, and approved by U.S. EPA.

During the course of resolving conversion factors for a set of September 2010 vertical elevation survey results at IHE with a new surveyor, it was noted that for previous RCRA Corrective Action Project submittals to U.S. EPA (dating back as early as the 1990s, up to and including the Phase II RFI FPA Report and December 2010 Quarterly Report) the footnotes on various tables and figures incorrectly cite the reference units as "feet North American Vertical Datum (NAVD)". The actual units for these previously submitted elevation data are "feet Inland Steel Plant Datum (ISPD)", which is equivalent to "feet Mean Low Tide New York (MTNY)". These footnotes will be corrected for future submittals.

As a result of an internal review of ArcelorMittal property descriptions and County tax maps, several small adjustments to the IHE property boundary were made along the eastern side of the property. These adjustments, depicted on Figure 4, did not result in any significant net change in the facility's footprint, nor does it have any effect on the Phase II RFI investigation. These changes are described herein solely for the purpose of avoiding confusion in the event of close comparison to previously submitted maps of the facility.

An audit of November 2015 RCRA Corrective Action ground-water sampling efforts was conducted for Phase II RFI Supplemental Studies activities in FPA 1. The audit covered field data collection, field instrument calibration, sample collection, preservation and storage, sample labeling, chain of custody and shipping paperwork, sample handling, packing, sealing and shipping, general work and test procedures, and general health and safety precautions. Results of the audit indicated general compliance with the procedures presented in the Project QAPP, HASP, SAP, and Work Plan SOPs.

Sitewide ground-water elevation gauging activities for preparation of an updated potentiometric surface map were completed in May 2014. Activities were conducted approximately six months from the prior sitewide gauging activities (October 2013). The updated potentiometric surface map is attached as Figure 3. These activities were conducted in response to General Comment No. 1f of U.S. EPA's September 13, 2011 review comments on the FPA Report. In General Comment No. 1f, presentation of a seasonally-adjusted potentiometric groundwater surface map was requested. Plans for development of updated potentiometric maps using available wells/piezometers were accepted by U.S. EPA in correspondence dated August 29, 2013 (Review of FPA Response to Comments). The updated potentiometric surface maps will be included in the Final RFI Report.

In the course of collecting site-wide ground-water elevation data in October 2013, small quantities of LNAPL were noted at three locations not associated with ongoing Stabilization Measures areas. Follow-up activities, including additional monitoring and LNAPL removal, have been implemented at these locations. **Information collected from these activities will be included in an upcoming report.**

The Revised RCRA Facility Investigation Workplan Master Health and Safety Plan was submitted for a complimentary review in December 2014.

On October 6, 2015, U.S. EPA requested a subset of project data be provided electronically in Excel spreadsheet format for use in GIS applications. The requested data was submitted on November 2, 2015, and included the following: 1) ground-water elevation data for the most recent "Sitewide" gauging event (as presented in Figure 3); 2) VOC & SVOC data for the Phase II RFI (FPAs, ISAs and FIAs) and Sitewide ground-water dissolved phase monitoring wells; and 3) ground-water well coordinates (northings and eastings) and corresponding top of clay elevations for the wells in items 1 and 2.

4.4.1 Summary of Corrective Action Program Monitoring Wells

To illustrate the progression and extent of Corrective Action program ground-water monitoring activities at the facility, a series of figures was submitted in the June 2013 Monthly and 2nd Quarter Report. These figures indicated the number and locations of monitoring wells installed, the dates (by year) of installation, and a brief general description of monitoring and sampling activities conducted. A summary of each Figure follows:

- Pre-RFI/DCC Monitoring Well Locations: Presented the 64 Description of Current Conditions (DCC) wells installed from 1990 to 1992 and 22 other pre-RFI wells installed from 1992 to 1997.

- IPSM & Stabilization Measures Monitoring Well Locations: Presented the 202 IPSM and SM wells installed from 1992 to 2008 plus other existing wells used for SMs.
- Phase I RFI Monitoring Well Locations: Presented the 569 wells installed from 1995 to 2000 for the Phase I RFI.
- Phase II RFI Monitoring Well Locations: Presented the 59 existing wells and 97 new wells installed from 2003 to 2008 for the Phase II RFI.
- Locations of All Corrective Action Monitoring Wells to Date: Presented the 954 Corrective Action program monitoring wells installed from 1992 to 2013, and highlighted the wells that have been designated as long-term dissolved phase monitoring wells.

4.4.2 Summary of Long-Term Dissolved Phase Monitoring Results

As discussed in Section 4.2, long-term monitoring of the three major source area dissolved phase plumes was initiated in the late 1990s, and has continued to the present. More recently, long-term monitoring has also been initiated for two other locations within/near Facility Perimeter Areas. The data from these long-term ("sitewide") monitoring activities through March 2013 were submitted in the 2nd Quarter 2013 Quarterly Report. Subsequent updates through the end of 2014 and the end of 2015 were submitted in the 4th Quarter 2014 and 1st Quarter 2016 Quarterly Reports, respectively. Data was summarized in a series of figures and was also presented in tabular format on CD. **Periodic updates to this information in future Quarterly Reports are planned.** Data presented included/will include the following:

Sitewide results for SWMA 3 – Two sitewide monitoring well clusters positioned hydrologically down-gradient of the LNAPL plume at the Former C Battery Coking By-Products Recovery Area (ISA 3) serve as sentinel wells and have been sampled annually since their installation, beginning in 1998 (shallow) and 1999 (deep). In 2001, annual monitoring of a sentinel well immediately downgradient of the No. 6 fuel oil plume at the Former Pattern Storage Area in SWMA 3 (FPA 6) was initiated to demonstrate the long-term stability of the LNAPL plume and lack of dissolved phase constituents.

Sitewide results for SWMA 5 – Annual sitewide ground-water monitoring has been conducted at locations situated hydrologically down-gradient of the Former Plant 2 By-Products Recovery Area and B-Yard LNAPL plumes (ISA 1) since October 1999. The purpose of the monitoring program is to assess the concentrations of dissolved organic constituents in ground-water emanating from/passing through the source areas, in an effort to detect increasing or decreasing trends in concentrations over time. One additional downgradient well cluster, located in the southwest corner of SWMA 6 (IMW-06-00001S and IMW-06-00001D), was added to the annual sitewide sampling in September 2013 to regularly monitor downgradient concentrations at the facility perimeter (FPA 4).

Sitewide results for SWMA 7, upgradient of Outfall #018 (FPA 1 and FIA 1) – As discussed in Section 4.3.1.1, the FPA 1 IMW-07-00003 well cluster was added to the annual sitewide dissolved phase ground-water sampling program at the end of 2009. From the end of 2012 to August 2016, quarterly sampling was conducted at this location and two other upgradient FIA 1 well clusters, IMW-07-00004 and IMW-07-00005. **Beginning with the November 2016 sampling event, quarterly sampling is being conducted at the IMW-07-00003 well cluster only.** The purpose of this monitoring program is to confirm that concentrations of dissolved organic constituents in ground-water remain stable over time. **Assessment activities are ongoing.**

As indicated in the 2nd Quarter 2013 Quarterly Report, well IMW-07-00003D was believed to have been damaged in late 2011 when the well was nearly buried by encroaching crushed limestone loading/unloading/storage activities. The soil boring and well installation logs indicated that a layer of oily sediments, in which elevated headspace readings were recorded, was present approximately five feet above the screened section of this well. It was believed that the suspected damage to the well had caused sufficient lateral displacement of well materials to disrupt the bentonite seal and grout column, thereby providing a pathway for chemical constituents to migrate down to the well screen from the oily sediments situated stratigraphically above the seal. The well cluster was last sampled on August 20, 2014, prior to being completely buried and destroyed by the encroaching crushed limestone storage activities. As indicated in Section 4.3.1.1, limestone removal activities were completed in April 2015, followed by replacement of the shallow and deep wells. Because it is believed that the source for the benzene detections at this location is the overlying layer of oily sediments, installation of an "intermediate" well was also completed at this location. **Phase II RFI FPA 1 Supplemental Study sampling activities have been completed and preparation of the Supplemental Study Report is under way.**

Sitewide results for SWMA 14 (FPA 3, ISA 2) – Sitewide monitoring activities were initiated at the Former Coal Tar Plant beginning in June 1999 to monitor plume stability. The majority of the wells for this program were installed hydrologically down-gradient of the Former Coal Tar Plant and discontinuous DNAPL plume, and consisted of three-well clusters of varying well depth. The monitoring network was expanded in 2005 as a result of additional DNAPL plume delineation. As indicated in Sections 4.2.12 and 4.3.1.3, the three clusters nearest the perimeter have been sampled with greater frequency than the other SWMA 14 wells since the last quarter of 2009.

It is anticipated that long-term ground-water sampling for plume stability monitoring for the areas detailed above will continue for the foreseeable future, and will be reported via regular meetings with and/or reports to U.S. EPA. **The most recent annual sitewide sampling event was completed in October, 2016.**

5.0 REGULATORY/PUBLIC CONTACTS

E-mail communications were made to representatives of U.S. EPA during the 4th Quarter to further update the agency on the progress of Corrective Action activities. Topics discussed included the status of the Phase II RFI Supplemental Assessment Activities in FPA 1, Supplemental Surface Soil Sampling Report review, most recent Phase II RFI Facility Perimeter Area Report Response to Comments approval, Indiana Harbor Long Carbon parceling, Off-Site Vapor Intrusion Screening Evaluation, planned well installations at the Former Coal Tar Plant Area, and chromium speciation sampling.

6.0 ARCELORMITTAL SUBMITTALS AND AGENCY APPROVALS

Scheduled Submittals - **During the 1st Quarter of 2017, ArcelorMittal anticipates submittal of the following documents to Region 5 U.S. EPA.**

- **Results of Facility Perimeter Area (FPA) 1 Supplemental Assessment Activities**

In addition, ArcelorMittal anticipates scheduling a meeting with Region 5 U.S. EPA to discuss the Off-Site Vapor Intrusion Screening Evaluation, status of additional wells at the Former Coal Tar Plant Area, initial results of the chromium speciation ground-water sampling, and the Facility Perimeter Area (FPA) 1 Supplemental Assessment Activities Report.

Approvals – U.S. EPA Approval for the Phase II RFI Sampling and Analysis Plan for Supplemental Assessment Activities at the Former Coal Tar Plant Area was received on October 13, 2016.

Previous Submittals - See the attached table (Table 2) listing documents previously submitted to Region 5 U.S. EPA by ArcelorMittal during work associated with the CAP. Bold text indicates additions or changes made to the table this quarter and submittals awaiting U.S. EPA review/approval.

TABLE 1
SUMMARY OF PHASE I RFI ACTIVITIES

Solid Waste Management Area (SWMA)	Phase I RFI Field Activities		Phase I RFI Screening Reports		Number of Phase I RFI first water sampling locations where organic screening parameters were detected at concentrations above their respective reporting limits. (1)	Significant source areas identified in this SWMA. (2)	Associated Facility Perimeter Area (FPA) for Phase II RFI	Associated Facility Interior Area (FIA) for Phase II RFI	Associated Interior Source Area (ISA) for Phase II RFI
	Initiated	Completed	Submitted	Approved					
SWMA 1	Aug-99	Aug-99	Nov-00	Apr-02	1 of 21 sampling locations.	None	FPA 8	FIA 7	Not Applicable
SWMA 2	Apr-98	Sep-98	Oct-99	Mar-00	3 of 21 sampling locations.	None	FPA 6	FIA 6	Not Applicable
SWMA 3	Jun-96	Sep-96	Mar-99	May-99	9 of 39 sampling locations.	Coking by-product LNAPL identified in the Former C Battery By-Products Recovery Area.	FPA 6	Not Applicable	ISA 3
SWMA 4	Apr-00	Jun-00	Sep-01	Jul-02	0 of 27 sampling locations.	None	FPA 6 and FPA 3	FIA 5	Not Applicable
SWMA 5	May-97	Sep-97	Dec-99	Nov-00	33 of 67 sampling locations.	Coking by-product LNAPL identified in the Former Plant No. 2 By-Products Recovery Area.	FPA 5	Not Applicable	ISA 1
SWMA 6	Aug-97	Nov-97	May-00	Jul-01	14 of 32 sampling locations.	None	FPA 4	FIA 1	Not Applicable
SWMA 7	Apr-00	Oct-00	May-02	Jun-02	37 of 50 sampling locations.	None	FPA 1	FIA 1	Not Applicable
SWMA 8	Jul-98	Sep-99	Mar-02	Jul-02	28 of 34 sampling locations.	None	FPA 1	FIA 1	Not Applicable
SWMA 9	Jun-98	Aug-98	Nov-99	Mar-00	24 of 54 sampling locations.	None	FPA 7	FIA 4	Not Applicable
SWMA 10	May-99	Jun-99	Apr-00	Jul-01	13 of 27 sampling locations.	None	FPA 7	FIA 4	Not Applicable
SWMA 11	Oct-97	Nov-98	May-01	Apr-02	46 of 62 sampling locations.	None	FPA 2	FIA 2	Not Applicable
SWMA 12	May-00	Aug-00	Sep-02	Oct-02	20 of 35 sampling locations.	None	FPA 2	FIA 2	Not Applicable
SWMA 13	Jun-00	Aug-00	Jun-02	Jul-02	5 of 15 sampling locations.	None	FPA 3	FIA 3	Not Applicable
SWMA 14	Apr-97	Jun-97	Apr-99	Jun-99	18 of 41 sampling locations.	Dense non-aqueous phase liquid (DNAPL) identified in the Former Coal Tar Plant Area.	FPA 3	FIA 3	ISA 2

Notes:
(1) The Phase I RFI also included sampling for metals in selected areas of the facility. The results of these analyses did not indicate any significant impact to ground water from facility operations.
(2) Refer to Section 4.2 for further discussion of source areas and Stabilization Measure (SM) activities. Locations, extents, and SM activities are summarized on Figure 1.

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
Site Wide Activities --			
Consent Decree - Signed March 8, 1993	----	N/A	N/A
Pre-Investigation Evaluation of Corrective Measures Technologies Applicable to Remediation of Contamination Facility Wide	Official Review	12/3/1993	N/A
Description of Current Conditions	Official Review	12/3/1993	N/A
RCRA Facility Investigation Work Plan	Official Review/Approval	12/5/1996[1]	5/17/1996[2]
Corrective Action Management Unit Application	Official Review/Approval	1/21/1998	8/12/1998
Preliminary Ecological Risk Assessment Report	Official Review/Approval	3/4/1998	11/1/1998
Laboratory Audit and QAPjD Approval Request	Official Review/Approval	4/9/1999	5/13/2000
Concurring Response to U.S. EPA Letter of Clarification Sampling of On-site Soils	Official Review	6/12/2003	N/A
Revised Phase II RFI Workplan and Response to EPA Comments	Official Review/Approval	6/16/2003	9/4/2003
Double-Blind Performance Evaluation Sample Results Analyzed at STL-North Canton Laboratory	Official Review/Approval	4/23/2004	11/16/2004
Supplemental Surface Soil Sampling and Data Evaluation Plan	Official Review/Approval	6/20/2005	6/23/2005
Results of Historical Sampling of On-Site Soils	Official Review	4/28/2005	N/A
Environmental Indicator CA 725 Determination	Official Review	8/30/2005	N/A
Environmental Indicator CA 750 Determination	Official Review	9/28/2005	N/A
Revised Documentation of Environmental Indicator CA 750 Determination	Official Review	4/11/2007	N/A
Addendum to Supplemental Surface Soil Sampling and Data Evaluation Plan	Official Review	2/9/2010	5/13/2010
Long-Term ("Sitewide") Dissolved Phase Sampling Results (Quarterly Report Attachment 2)	Complimentary Review	7/26/2013	N/A
Revised RCRA Facility Investigation Workplan Master Health and Safety Plan	Complimentary Review	12/19/2014	N/A
Phase II RFI Supplemental Surface Soil Sampling Report	**Official Review**	**7/31/2015**	
Electronic Data Submittal [VOC & SVOC Data for Phase II RFI (FPA, ISA & FIA) and "Sitewide" ground-water dissolved phase monitoring wells; April 2014 Site Wide Gauging Event Elevation Data, Well Coordinates, and Top of Clay Elevations]	Complimentary Review	11/2/2015	N/A
Phase II RFI Sampling and Analysis Plan - Chromium Speciation in On-Site Ground Water - Supplemental Assessment Activities	Official Review/Approval	8/25/2016	9/9/2016
FPA 1			
Phase II RFI Sampling and Analysis Plan	Official Review/Approval	7/23/2003	9/15/2003
Phase II RFI Sampling and Analysis Plan for Supplemental Assessment Activities in FPA 1	Official Review/Approval	12/11/2013	2/28/2014
FPA 2			
Phase II Sampling and Analysis Plan	Official Review/Approval	7/23/2003	9/15/2003
Results of Phase II RFI Sampling of On-Site Soils at FPA 2	Official Review	4/28/2005	N/A
FPA 3			
Phase II RFI Sampling and Analysis Plan	Official Review/Approval	4/3/2004	5/26/2004

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
FPA 4			
Phase II Sampling and Analysis Plan	Official Review/Approval	4/3/2004	5/26/2004
FPA 5			
Phase II RFI Sampling and Analysis Plan	Official Review/Approval	4/3/2004	5/26/2004
FPA 6			
Phase II Sampling and Analysis Plan	Official Review/Approval	4/3/2004	5/26/2004
FPA 7			
Phase II Sampling and Analysis Plan	Official Review/Approval	1/17/2006	1/24/2006
FPA 8			
Phase II RFI Sampling and Analysis Plan	Official Review/Approval	1/17/2006	1/24/2006
FPA 1, FPA 2, FPA 3, FPA 4, FPA 5, FPA 6, FPA 7, and FPA 8			
Phase II RFI Facility Perimeter Area Report	Official Review/Approval	10/7/2009	Comments Received 9/13/2011
Response to Phase II RFI Facility Perimeter Area Report Review Comments (9/13/2011), with Revised Conceptual Site Model	Official Review/Approval	4/4/2013	Comments Received 8/29/2013
Phase II RCRA Facility Investigation - October 2013 Site Wide Potentiometric Surface Map	Complimentary Review	1/31/2014	N/A
Phase II RCRA Facility Investigation - April 2014 Site Wide Potentiometric Surface Map	Complimentary Review	7/28/2014	N/A
Draft Revised Text for Section 2.5.3 of the Phase II RCRA Facility Investigation (RFI) Facility Perimeter Area (FPA) Report	Official Review/Approval	9/17/2014	Comments Received 6/2/2015
Phase II RCRA Facility Investigation - Revised Response to Facility Perimeter Area Report Review Comments (8/29/2013)	Official Review/Approval	3/12/2015	6/2/2015
Responses to Comments on the Draft Revised Text for Section 2.5.3 of the Phase II RCRA Facility Investigation Facility Perimeter Area Report	Official Review/Approval	8/24/2015	5/24/2016
ISA 1			
Phase II Sampling and Analysis Plan	Official Review/Approval	3/9/2007	3/26/2007
ISA 2			
Phase II Sampling and Analysis Plan	Official Review/Approval	3/9/2007	3/26/2007
Phase II RFI Sampling and Analysis Plan - Former Coal Tar Plant Area - Supplemental Assessment Activities	**Official Review/Approval**	**9/7/2016**	**10/13/2016**
ISA 3			
Phase II Sampling and Analysis Plan	Official Review/Approval	3/9/2007	3/26/2007

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
ISA 1, ISA 2, and ISA 3			
Phase II RFI Interior Source Area Report	Official Review/Approval	1/4/2012	Comments Received 6/7/2012
FIA 1, FIA 2, FIA 3, FIA 4, FIA 5, FIA 6, and FIA 7			
Phase II RFI Sampling and Analysis Plan	Official Review/Approval	3/28/2000	4/29/2008
Phase II RFI Facility Interior Area High Resolution Confirmation Sampling and Analysis Plan	Official Review/Approval	2/26/2010	5/13/2010
Phase II RFI Facility Interior Area Analytical Data Summary Tables (Quarterly Report Attachment 2)	Complimentary Review	10/28/2013	N/A
SWMA 1			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	7/28/1999	8/24/1999
Phase I RFI (Screening) Report	Official Review/Approval	11/14/2000	4/24/2002
SWMA 2			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	3/20/1998	4/8/1998
Phase I RFI (Screening) Report	Official Review/Approval	10/8/1999	6/6/2000
SWMA 3			
Phase I RFI Sampling and Analysis Plan (Appendix H of RFI Work Plan)	Official Review/Approval	12/5/1996[1]	5/17/1996[2]
Phase I RFI (Screening) Report	Official Review/Approval	3/24/1999	5/12/1999
Extent of Separate Phase Work Plan - C Battery Coke By-Products Recovery Area	Official Review	2/26/1996	N/A
Separate Phase Investigation Work Plan - Pattern Storage Building Area	Official Review	10/18/1996	N/A
Report of Investigation for Potential Stabilization Measure - Pattern Storage Building Area	Official Review	5/13/1998	N/A
Report of Investigation for Potential Stabilization Measure - C Battery Coke By-Products Recovery Area	Official Review	5/29/1998	N/A
Aquifer Test Report - Former C Battery By-Products Recovery Area	Complimentary Review	7/31/1998	N/A
Separate Phase Liquid Removal Plan for Stabilization Measures - Former C Battery By-Products Recovery Area	Official Review	11/19/1998	N/A
SWMA 4			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	3/3/2000	4/13/2000
Phase I RFI (Screening) Report	Official Review/Approval	9/28/2001	7/16/2002

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
SWMA 5			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	12/5/1996	2/25/1997
Phase I RFI (Screening) Report	Official Review/Approval	12/20/1999	11/21/2000
Separate Phase Investigation Work Plan - No. 2 Basic Oxygen Furnace (UST)	Official Review	9/7/1995	N/A
Separate Phase Investigation Work Plan - B Yard Locomotive Fueling Station	Official Review	9/7/1995	N/A
Report of Investigation for Potential Stabilization Measure - B Yard Locomotive Fueling Station	Official Review	3/3/2000	N/A
Separate Phase Investigation Work Plan - Plant 2 Coke Plant By-Products Recovery Area	Official Review	8/15/1996	N/A
Report of Investigation for Potential Stabilization Measure - Plant 2 Coke Plant By-Products Recovery Area	Official Review	2/18/2000	N/A
CAMU Stabilization Measures Work Plan for Soil Debris Remediation Activities under Plant 2 By-Products and C Battery By-Products CAMUs	Official Review/Approval	8/31/2001	10/17/2001
CAMU Stabilization Measures Work Plan for Demolition Debris Remediation Activities under Plant 2 By-Products CAMU	Official Review/Approval	8/31/2001	10/17/2001
CAMU Stabilization Measures Work Plan for Low-pH Demolition Debris Remediation Activities under Plant 2 By-Products CAMU	Official Review/Approval	8/31/2001	10/17/2001
Separate Phase Liquid Removal Plan for Stabilization Measures - Former Plant 2 By-Products Recovery Area	Official Review	5/25/2006	N/A
SWMA 6			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	7/30/1997	8/5/1997
Phase I RFI (Screening) Report	Official Review/Approval	5/31/2000	7/3/2001
SWMA 7			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	3/1/2000	3/23/2000
Separate Phase Investigation Work Plan - Main Garage Repair Shop (UST)	Official Review	9/7/1995	N/A
Phase I RFI (Screening) Report	Official Review/Approval	5/31/2002	6/11/2002
SWMA 8			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	6/5/1998	6/15/1998
Phase I RFI (Screening) Report	Official Review/Approval	3/22/2002	7/19/2002

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
SWMA 9			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	4/17/1998	4/22/1998
Phase I RFI (Screening) Report	Official Review/Approval	11/12/1999	6/6/2000
Stabilization Measures Work Plan - No. 7 Blast Furnace Emergency Cooling Water Station	Official Review	4/25/1994	N/A
Extent of Separate Phase Work Plan - No. 7 Blast Furnace Locomotive Fueling Station	Official Review	2/26/1996	N/A
Report of Investigation for Potential Stabilization Measure - No. 7 Blast Furnace Locomotive Fueling Station	Official Review	11/19/1999	N/A
SWMA 10			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	4/9/1999	5/3/1999
Phase I RFI (Screening) Report	Official Review/Approval	4/21/2000	7/9/2001
SWMA 11			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	10/3/1997	10/16/1997
Stabilization Measures Work Plan - Satellite Garage	Official Review	4/25/1994	N/A
Extent of Separate Phase Work Plan - E Yard Locomotive Fueling Station	Official Review	2/26/1996	N/A
Report of Investigation for Potential Stabilization Measure - E Yard Locomotive Fueling Station	Official Review	5/31/2000	N/A
Phase I RFI (Screening) Report	Official Review/Approval	5/30/2001	4/24/2002
SWMA 12			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	4/26/2000	5/11/2000
Separate Phase Investigation Work Plan - 80" Hot Strip Lagoons	Official Review	10/14/1994	N/A
Lagoon Closure Plan - 80" Hot Strip Mill Lagoon	Complimentary Review	7/12/2001	N/A
Response to IDEM Request for Additional Information - Lagoon Closure Plan - 80" Hot Strip Mill Lagoon	Complimentary Review	11/12/2001	N/A
Phase I RFI (Screening) Report	Official Review/Approval	9/27/2002	10/17/2002
Lagoon Closure Certification Report - 80" Hot Strip Lagoon	Complimentary Review	4/3/2003	N/A
SWMA 13			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	5/8/2000	5/18/2000
Phase I RFI (Screening) Report	Official Review/Approval	6/28/2002	7/23/2002

TABLE 2
ARCELORMITTAL USA LLC SUBMITTALS TO USEPA
CORRECTIVE ACTION PROGRAM AT THE INDIANA HARBOR EAST

Submittal to USEPA	Review/Action Required by Agency	Date Submitted	Date Approved
SWMA 14			
Phase I RFI Sampling and Analysis Plan	Official Review/Approval	12/13/1996	2/25/1997
Phase I RFI (Screening) Report	Official Review/Approval	4/16/1999	6/2/1999
Separate Phase Investigation Work Plan - Former Creosote Plant Area	Official Review	9/13/1996	N/A
Report of Investigation for Potential Stabilization Measure - Former Coal Tar Plant Area	Official Review	7/8/1998	N/A
Aquifer Test Report - Former Coal Tar Plant Area	Complimentary Review	11/11/1999	N/A

Prepared by: REP **1/13/2017**
Checked by: AMM/KRH **1/16/2017**

Notes:

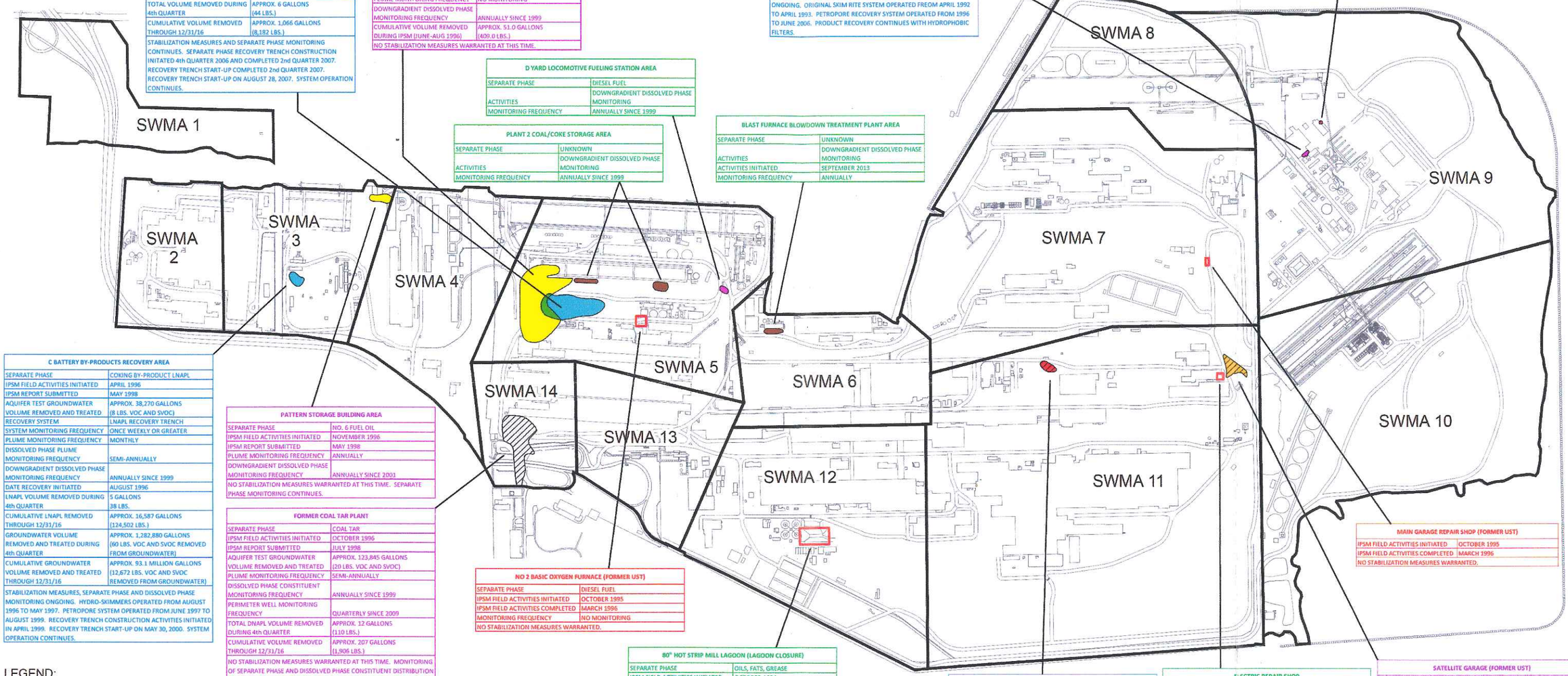
[1] Most recent submittal; addressed USEPA comments required for conditional approval.

[2] Conditionally Approved: Phase I activities fully approved, Phase II approval pending resolution of laboratory QAPjD-related issues, lab approved May 2, 2000.

Unless otherwise noted, submittal dates listed are for the original/first submittal where multiple submittals/responses to comments were transmitted.

N/A = Not Applicable

Bold text indicates additions or changes made to the table this quarter, and items awaiting USEPA approval.



PLANT 2 COKE BY-PRODUCTS RECOVERY AREA	
SEPARATE PHASE	COKING BY-PRODUCT LNAPL
IPSM FIELD ACTIVITIES INITIATED	SEPTEMBER 1996
IPSM REPORT SUBMITTED	FEBRUARY 2000
PLUME MONITORING FREQUENCY	MONTHLY
DISSOLVED PHASE PLUME MONITORING FREQUENCY	EVERY 2 YEARS SINCE 2008
DOWNGRADIENT DISSOLVED PHASE MONITORING FREQUENCY	ANNUALLY SINCE 1999
RECOVERY SYSTEM	LNAPL RECOVERY TRENCH
DATE RECOVERY INITIATED	AUGUST 2007
TOTAL VOLUME REMOVED DURING 4th QUARTER	APPROX. 6 GALLONS (44 LBS.)
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 1,066 GALLONS (8,182 LBS.)
STABILIZATION MEASURES AND SEPARATE PHASE MONITORING CONTINUES. SEPARATE PHASE RECOVERY TRENCH CONSTRUCTION INITATED 4th QUARTER 2006 AND COMPLETED 2nd QUARTER 2007. RECOVERY TRENCH START-UP COMPLETED 2nd QUARTER 2007. RECOVERY TRENCH START-UP ON AUGUST 28, 2007. SYSTEM OPERATION CONTINUES.	

B YARD LOCOMOTIVE FUELING STATION	
SEPARATE PHASE	NO. 6 FUEL OIL
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1995
IPSM REPORT SUBMITTED	MARCH 2000
PLUME MONITORING FREQUENCY	NO MONITORING
DOWNGRADIENT DISSOLVED PHASE MONITORING FREQUENCY	ANNUALLY SINCE 1999
CUMULATIVE VOLUME REMOVED DURING IPSM (JUNE-AUG 1996)	APPROX. 51.0 GALLONS (409.0 LBS.)
NO STABILIZATION MEASURES WARRANTED AT THIS TIME.	

D YARD LOCOMOTIVE FUELING STATION AREA	
SEPARATE PHASE	DIESEL FUEL
ACTIVITIES	DOWNGRADIENT DISSOLVED PHASE MONITORING
MONITORING FREQUENCY	ANNUALLY SINCE 1999

PLANT 2 COAL/COKE STORAGE AREA	
SEPARATE PHASE	UNKNOWN
ACTIVITIES	DOWNGRADIENT DISSOLVED PHASE MONITORING
MONITORING FREQUENCY	ANNUALLY SINCE 1999

BLAST FURNACE BLOWDOWN TREATMENT PLANT AREA	
SEPARATE PHASE	UNKNOWN
ACTIVITIES	DOWNGRADIENT DISSOLVED PHASE MONITORING
ACTIVITIES INITIATED	SEPTEMBER 2013
MONITORING FREQUENCY	ANNUALLY

NO. 7 BLAST FURNACE EMERGENCY COOLING WATER STATION	
SEPARATE PHASE	DIESEL FUEL
IPSM FIELD ACTIVITIES INITIATED	APRIL 1992
PLUME MONITORING FREQUENCY	QUARTERLY
RECOVERY SYSTEM	HYDROPHOBIC FILTERS
DATE RECOVERY INITIATED	JUNE 2006
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 2989 GALLONS (21,192 LBS.)
STABILIZATION MEASURES AND SEPARATE PHASE MONITORING ONGOING. ORIGINAL SKIM RITE SYSTEM OPERATED FREOM APRIL 1992 TO APRIL 1993. PETROPORE RECOVERY SYSTEM OPERATED FROM 1996 TO JUNE 2006. PRODUCT RECOVERY CONTINUES WITH HYDROPHOBIC FILTERS.	

NO. 7 BLAST FURNACE LOCOMOTIVE FUELING STATION	
SEPARATE PHASE	DIESEL FUEL
IPSM FIELD ACTIVITIES INITIATED	APRIL 1996
IPSM REPORT SUBMITTED	NOVEMBER 1999
PLUME MONITORING FREQUENCY	ANNUALLY
RECOVERY SYSTEM	HYDRO-SKIMMERS
DATE RECOVERY INITIATED	JULY 1996
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 1.6 GALLONS (11 LBS.)
HYDRO-SKIMMERS REMOVED IN APRIL 1998 DUE TO LOW RECOVERY RATES. SEPARATE PHASE MONITORING CONTINUES.	

C BATTERY BY-PRODUCTS RECOVERY AREA	
SEPARATE PHASE	COKING BY-PRODUCT LNAPL
IPSM FIELD ACTIVITIES INITIATED	APRIL 1996
IPSM REPORT SUBMITTED	MAY 1998
AQUIFER TEST GROUNDWATER VOLUME REMOVED AND TREATED	APPROX. 38,270 GALLONS (8 LBS. VOC AND SVOC)
RECOVERY SYSTEM	LNAPL RECOVERY TRENCH
SYSTEM MONITORING FREQUENCY	ONCE WEEKLY OR GREATER
PLUME MONITORING FREQUENCY	MONTHLY
DISSOLVED PHASE PLUME MONITORING FREQUENCY	SEMI-ANNUALLY
DOWNGRADIENT DISSOLVED PHASE MONITORING FREQUENCY	ANNUALLY SINCE 1999
DATE RECOVERY INITIATED	AUGUST 1996
LNAPL VOLUME REMOVED DURING 4th QUARTER	5 GALLONS 38 LBS.
CUMULATIVE LNAPL REMOVED THROUGH 12/31/16	APPROX. 16,587 GALLONS (124,502 LBS.)
GROUNDWATER VOLUME REMOVED AND TREATED DURING 4th QUARTER	APPROX. 1,282,880 GALLONS (60 LBS. VOC AND SVOC REMOVED FROM GROUNDWATER)
CUMULATIVE GROUNDWATER VOLUME REMOVED AND TREATED THROUGH 12/31/16	APPROX. 93.1 MILLION GALLONS (12,672 LBS. VOC AND SVOC REMOVED FROM GROUNDWATER)
STABILIZATION MEASURES, SEPARATE PHASE AND DISSOLVED PHASE MONITORING ONGOING. HYDRO-SKIMMERS OPERATED FROM AUGUST 1996 TO MAY 1997. PETROPORE SYSTEM OPERATED FROM JUNE 1997 TO AUGUST 1999. RECOVERY TRENCH CONSTRUCTION ACTIVITIES INITIATED IN APRIL 1999. RECOVERY TRENCH START-UP ON MAY 30, 2000. SYSTEM OPERATION CONTINUES.	

PATTERN STORAGE BUILDING AREA	
SEPARATE PHASE	NO. 6 FUEL OIL
IPSM FIELD ACTIVITIES INITIATED	NOVEMBER 1996
IPSM REPORT SUBMITTED	MAY 1998
PLUME MONITORING FREQUENCY	ANNUALLY
DOWNGRADIENT DISSOLVED PHASE MONITORING FREQUENCY	ANNUALLY SINCE 2001
NO STABILIZATION MEASURES WARRANTED AT THIS TIME. SEPARATE PHASE MONITORING CONTINUES.	

FORMER COAL TAR PLANT	
SEPARATE PHASE	COAL TAR
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1996
IPSM REPORT SUBMITTED	JULY 1998
AQUIFER TEST GROUNDWATER VOLUME REMOVED AND TREATED	APPROX. 123,845 GALLONS (20 LBS. VOC AND SVOC)
PLUME MONITORING FREQUENCY	SEMI-ANNUALLY
DISSOLVED PHASE CONSTITUENT MONITORING FREQUENCY	ANNUALLY SINCE 1999
PERIMETER WELL MONITORING FREQUENCY	QUARTERLY SINCE 2009
TOTAL DNAPL VOLUME REMOVED DURING 4th QUARTER	APPROX. 12 GALLONS (110 LBS.)
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 207 GALLONS (1,906 LBS.)
NO STABILIZATION MEASURES WARRANTED AT THIS TIME. MONITORING OF SEPARATE PHASE AND DISSOLVED PHASE CONSTITUENT DISTRIBUTION CONTINUES. MANUAL DNAPL RECOVERY WITH SPECIALIZED PERISTALTIC PUMP AT SELECT WELL LOCATIONS INITIATED AUGUST 2014 AS PART OF INVESTIGATIVE ACTIVITIES.	

NO 2 BASIC OXYGEN FURNACE (FORMER UST)	
SEPARATE PHASE	DIESEL FUEL
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1995
IPSM FIELD ACTIVITIES COMPLETED	MARCH 1996
MONITORING FREQUENCY	NO MONITORING
NO STABILIZATION MEASURES WARRANTED.	

MAIN GARAGE REPAIR SHOP (FORMER UST)	
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1995
IPSM FIELD ACTIVITIES COMPLETED	MARCH 1996
NO STABILIZATION MEASURES WARRANTED.	

80" HOT STRIP MILL LAGOON (LAGOON CLOSURE)	
SEPARATE PHASE	OILS, FATS, GREASE
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1994
IPSM FIELD ACTIVITIES COMPLETED	MARCH 1996
INSPECTION FREQUENCY	MONTHLY
POTENTIOMETRIC SURFACE MONITORING FREQUENCY	SEMI-ANNUALLY
DISSOLVED PHASE CONSTITUENT MONITORING FREQUENCY	ANNUALLY SINCE 2003
RECOVERY SYSTEM	SURFACE SKIMMERS
DATE RECOVERY INITIATED	JULY 2000
CUMULATIVE OIL VOLUME REMOVED PRIOR TO CLOSURE	303,200 GALLONS (1.77 MILLION LBS)
CUMULATIVE WATER VOLUME REMOVED AND TREATED PRIOR TO CLOSURE	APPROX. 4.7 MILLION GALLONS
LAGOON CLOSURE INITIATED 3rd QUARTER 2001. SURFACE WATER AND OIL REMOVED FROM LAGOON IN PREPARATION FOR LAGOON CLOSURE AS NON-MUNICIPAL SOLID WASTE LANDFILL. SLUDGE SOLIDIFICATION COMPLETED 4th QUARTER 2001. LAGOON CLOSURE COMPLETED 2nd QUARTER 2003.	

E YARD LOCOMOTIVE FUELING STATION	
SEPARATE PHASE	DIESEL FUEL
IPSM FIELD ACTIVITIES INITIATED	MARCH 1996
IPSM REPORT SUBMITTED	MAY 2000
PLUME MONITORING FREQUENCY	SEMI-ANNUALLY
RECOVERY SYSTEM	HYDRO-SKIMMERS
DATE INITIATED	JULY 1996
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 33 GALLONS (231 LBS.)
HYDRO-SKIMMERS REMOVED IN APRIL 1998 DUE TO LOW RECOVERY RATES. SEPARATE PHASE MONITORING AND PRODUCT RECOVERY WITH HYDROPHOBIC FILTERS CONTINUES.	

ELECTRIC REPAIR SHOP	
SEPARATE PHASE	GASOLINE
IPSM FIELD ACTIVITIES INITIATED	OCTOBER 1994
INSPECTION FREQUENCY	MONTHLY
AIR MONITORING FREQUENCY	ANNUALLY
SUB SLAB DEPRESSURIZATION SYSTEM IN OPERATION. MONTHLY AIR MONITORING CONDUCTED FROM OCTOBER 1994 THROUGH OCTOBER 1997. QUARTERLY AIR MONITORING CONDUCTED IN 1998. SEMI-ANNUAL AIR MONITORING CONDUCTED FROM 1999 THROUGH 2004. ANNUAL MONITORING CONDUCTED FROM 2005 TO PRESENT.	

SATELLITE GARAGE (FORMER UST)	
SEPARATE PHASE	GASOLINE
IPSM FIELD ACTIVITIES INITIATED	FEBRUARY 1992
PLUME MONITORING FREQUENCY	ANNUALLY
DATE INITIATED	AUGUST 1995
RECOVERY SYSTEM	HYDRO-SKIMMERS
CUMULATIVE VOLUME REMOVED THROUGH 12/31/16	APPROX. 7254 GALLONS (41,141 LBS.)
HYDRO-SKIMMERS REMOVED IN APRIL 1998 DUE TO LOW RECOVERY RATES. SEPARATE PHASE MONITORING CONTINUES.	

LEGEND:

- COKING BY-PRODUCT LNAPL
- NO. 6 FUEL OIL
- COMINGLED NO. 6 FUEL OIL AND COKING BY-PRODUCT LNAPL
- DISCONTINUOUS COAL TAR DNAPL
- GASOLINE (NO SIGNIFICANT SEPARATE PHASE LAYER REMAINING)
- DIESEL
- DIESEL (NO SIGNIFICANT SEPARATE PHASE LAYER REMAINING)
- UNKNOWN
- Text ONGOING IPSM WITH ONGOING PRODUCT RECOVERY EFFORTS
- Text ONGOING INVESTIGATION OF POTENTIAL STABILIZATION MEASURE (IPSM)
- Text COMPLETED IPSM
- Text OTHER ACTIVITIES

SUMMARY OF STABILIZATION MEASURES RECOVERY ACTIVITIES			
	UNITS	USEPA FISCAL YEAR TOTALS 10/1/16 - 9/30/17	PROJECT TOTALS
GW TREATED	GALLONS	1,282,880	93,212,405
ORGANICS REMOVED FROM GW	POUNDS	60	12,700
LNAPL RECOVERED	GALLONS	14	27,982
	POUNDS	104	195,667
DNAPL RECOVERED	GALLONS	12	207
	POUNDS	110	1,906

Prepared By: REP Date: 1/16/17
Checked By: AMM Date: 1/16/17

ArcelorMittal USA LLC
Indiana Harbor East - East Chicago, Indiana

AECOM

4th QUARTER 2016 QUARTERLY REPORT
IDENTIFIED AREAS OF SEPARATE PHASE AND SUMMARY OF STABILIZATION MEASURES

SCALE: SEE BAR SCALE
CONTRACT: 60319863
FIGURE: 1 of 4

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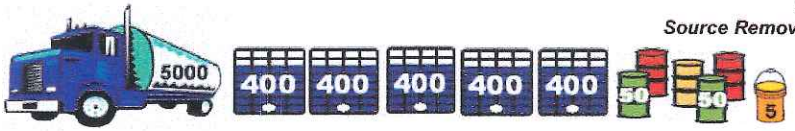
Path: O:\50000\0030\Qtrly-2016\4th Quarter 2016\QuartFig1_SM.mxd

Total Removed from Soil / Ground Water = 29,881 Gallons [598 Drums; 210,274 Pounds] Organic Constituents

Coking By-Product LNAPL (Former C Battery Coking By-Products Recovery Area)	**16,587 gallons** (331.7 drums) (124,502 pounds)		*Ground-water Removal with LNAPL Recovery Operating Since May 2000*
Coking By-Product LNAPL (Former Plant 2 Coking By-Products Recovery Area)	**1,066 gallons** (21.3 drums) (8,182 pounds)		*8 Passive LNAPL Recovery Pumps Operating Since September 2007*
VOCs & SVOCs (primarily BTEX & naphthalene) (C Battery Ground Water Treatment Plant, Aquifer Tests)	**1,692 gallons** (33.8 drums) (12,700 pounds)		*Ground-water Removal with LNAPL Recovery Operating Since May 2000* *162,115 gallons GW treated - Aquifer Tests* *93,50,290 gallons GW treated - Treatment Plant*
Gasoline (Satellite Garage Area)	**7,254 gallons** (145.1 drums) (41,141 pounds)		*Hydrophobic Filters in Observation Wells Source Removal & Passive LNAPL Skimmers 1995-1998*
Diesel Fuel (E Yard LFS, No. 7 Blast Furnace LFS, & No. 7 Blast Furnace ECWFS)	**3,024 gallons** (60.5 drums) (21,434 pounds)		*Hydrophobic Filters in Observation Wells Source Removal & Passive LNAPL Skimmers 1992-2006*
No. 6 Fuel Oil (B Yard investigation activities)	**51 gallons** (1 drum) (409 pounds)		*Field Activities Completed June 1996*
Coking By-Product DNAPL (Former Coal Tar Plant Area investigation activities)	**207 gallons** (4.1 drums) (1,906 pounds)		*Manual Recovery - Peristaltic Pump Since August 2014*

Volumes shown: Tanker truck (5000 gallons); Tote (400 gallons); Drum (50 gallons); Small Drum (21-25 gallons); bucket (<=5 gallons).
Abbreviations: BTEX = Benzene, Toluene, Ethylbenzene & Xylenes; DNAPL = Dense Non-Aqueous Phase Liquid; ECWFS - Emergency Cooling Water Fueling Station; GW = Ground Water; LFS = Locomotive Fueling Station; LNAPL = Light Non-Aqueous Phase Liquid; SVOCs = Semi-Volatile Organic Compounds; VOCs = Volatile Organic Compounds.

Completed By: REP 1/13/2017; Checked By: AMM 1/14/2017

ARCELORMITTAL USA LLC - INDIANA HARBOR EAST

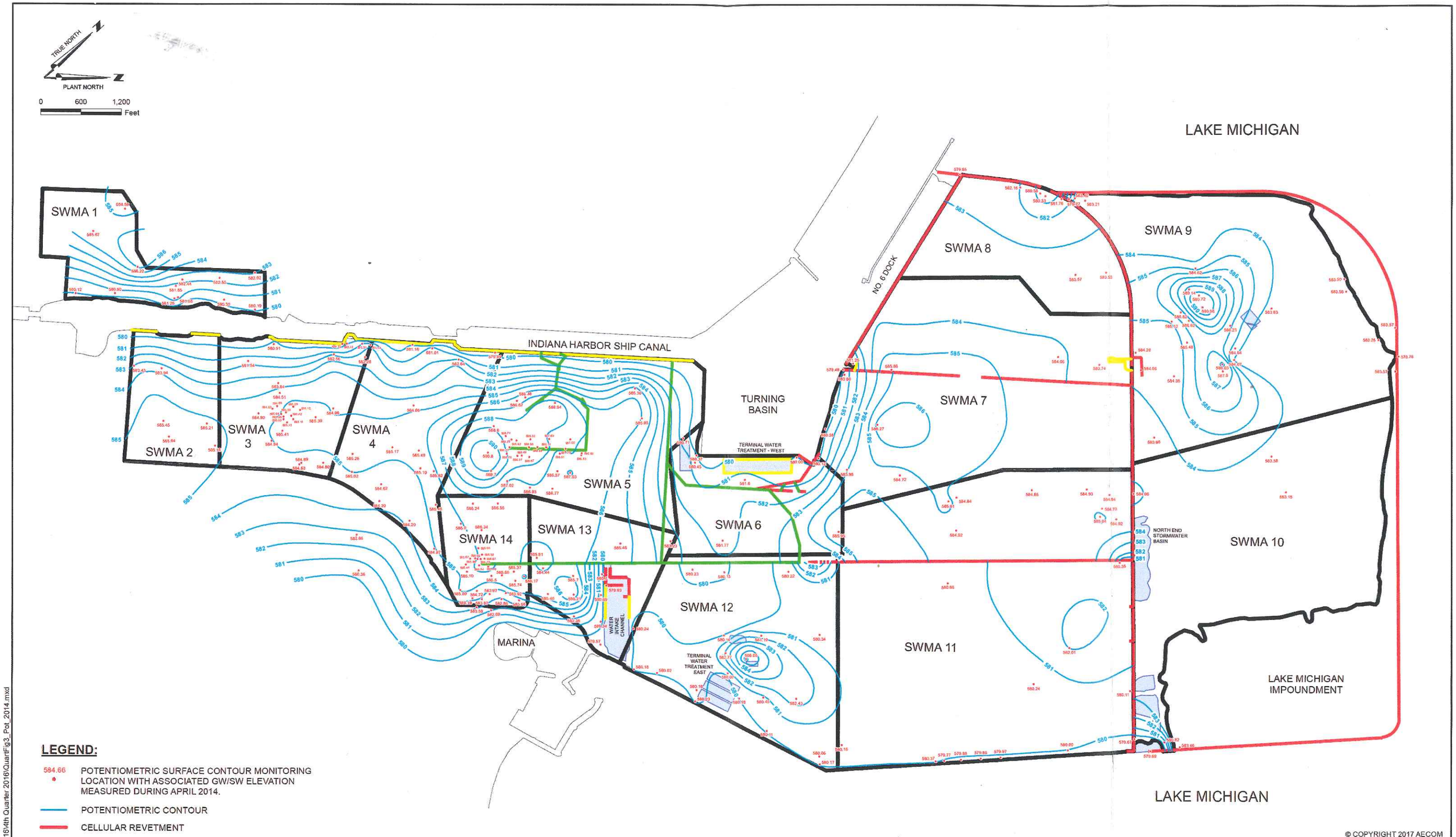
EAST CHICAGO, INDIANA

AECOM

TOTAL VOLUME OF ORGANIC CONSTITUENTS REMOVED FROM SOIL AND/OR GROUND WATER BY STABILIZATION MEASURES ACTIVITIES (1994 TO 4TH QUARTER 2016)

JOB NO. 60319863.5000.0030

FIGURE 2 of 4



LEGEND:

584.66 POTENTIOMETRIC SURFACE CONTOUR MONITORING LOCATION WITH ASSOCIATED GW/SW ELEVATION MEASURED DURING APRIL 2014.

POTENTIOMETRIC CONTOUR

CELLULAR REVETMENT

SHEET PILE REVETMENT

WOOD PILE REVETMENT

SWMA BOUNDARY

Note: Elevations shown in feet (Inland Steel Plant Datum)

Path: Q:\50000030\Qtrly-2016\4th Quarter 2016\QuartFig3_Pot_2014.mxd

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Prepared By: REP Date: 1/16/17
Checked By: MJF Date: 1/16/17

ArcelorMittal USA LLC
Indiana Harbor East - East Chicago, Indiana

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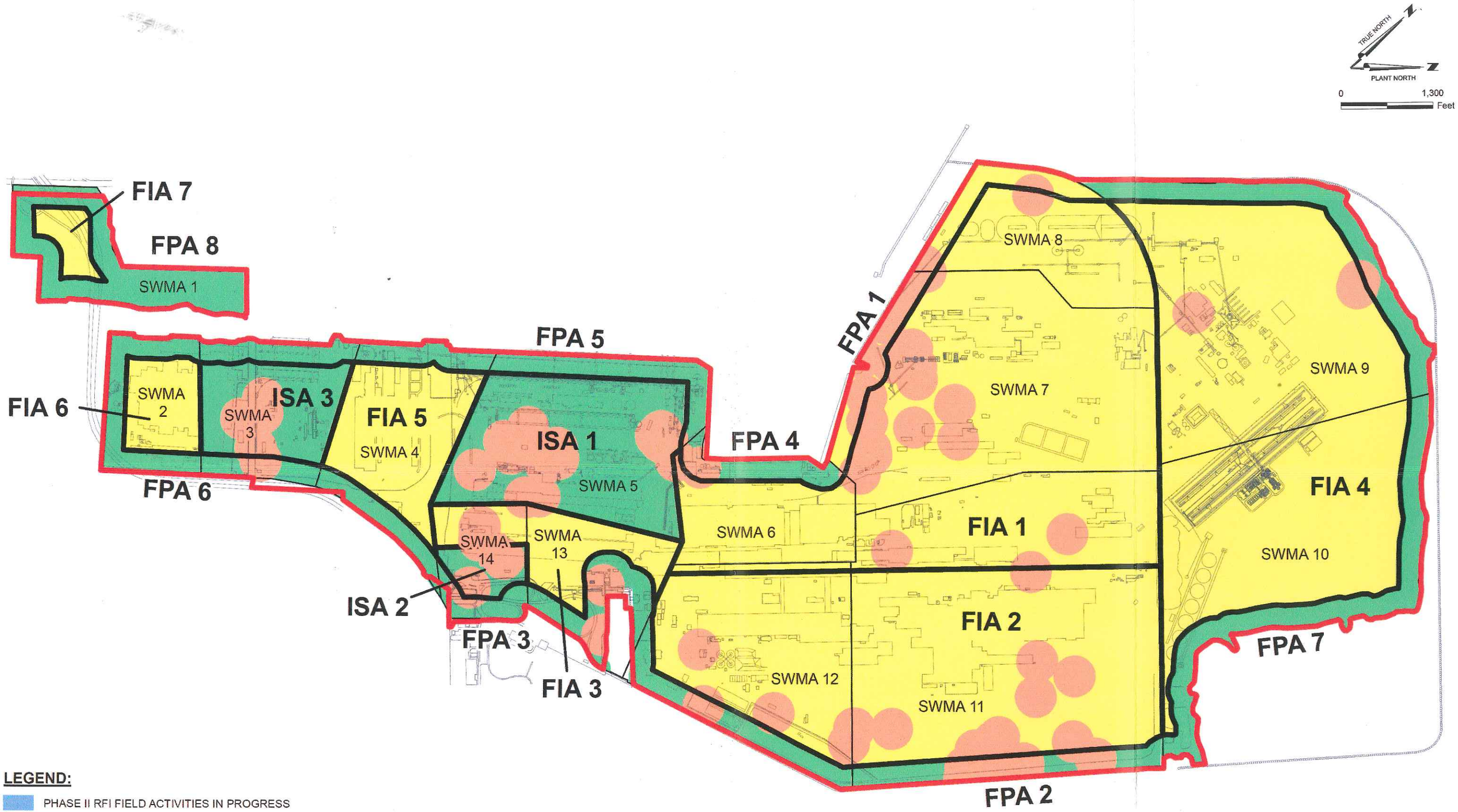
4th QUARTER 2016 QUARTERLY REPORT
SITE WIDE POTENTIOMETRIC SURFACE MAP
(APRIL, 2014)

SCALE: SEE BAR SCALE

CONTRACT: 60319863

FIGURE: 3 of 4



LEGEND:

- PHASE II RFI FIELD ACTIVITIES IN PROGRESS
- PHASE II RFI FIELD ACTIVITIES COMPLETED
- PHASE II RFI DATA ASSESSMENT COMPLETED
- POTENTIAL PHASE II SOURCE AREAS (AREAS ASSOCIATED WITH PHASE I RFI SAMPLE LOCATIONS WHERE ONE OF MORE SCREENING PARAMETERS EXCEED PHASE II RFI TIER 1B SCREENING CRITERIA)
- IHE PROPERTY BOUNDARY (2011)

Path: Q:\5000\0030\Qtrly-2016\4th Quarter 2016\QuartFig4_RFI.mxd

Prepared By: DSD Date: 1/16/17
Checked By: AMM Date: 1/16/17

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ArcelorMittal USA LLC Indiana Harbor East - East Chicago, Indiana AECOM	4th QUARTER 2016 QUARTERLY REPORT SUMMARY OF PHASE II RFI ASSESSMENT ACTIVITIES	SCALE: SEE BAR SCALE CONTRACT: 60319863 FIGURE: 4 of 4

ArcelorMittal USA LLC
Indiana Harbor East

ArcelorMittal

Ms. Sangsook Choi
U. S. Environmental Protection Agency
Region V, WC-15J
77 West Jackson Boulevard
Chicago, Illinois 60604

January 27th, 2017

Subject: ArcelorMittal USA LLC – (Formerly known as Ispat Inland Inc.)
Civil Action H90-0328 - Consent Decree Deliverables – Sediment
Quarterly Update – Fourth Quarter 2016
Section VIII.

Dear Ms. Choi:

In accordance with Section X of the Consent Decree, please find enclosed the Sediment Quarterly Status Report for the fourth Quarter 2016. Also attached is an annual accounting of costs associated with the Indiana Harbor Dredging Project.

Should you have any questions regarding this submittal, please contact me at (219) 399-2380.

Sincerely,

Thomas R. Barnett
Sediment Project Manager
Consent Decree, Environmental

TRB/nmc
Attachment
N:Eaffairs\Quarterly Reports\3Q16\Consent Decree-Sediment TRB

ArcelorMittal USA LLC.
Indiana Harbor East
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USEPA – ArcelorMittal USA 1993 Consent Decree
SEDIMENT CHARACTERIZATION & REMEDIATION
QUARTERLY REPORT FOR
OCTOBER 1, 2016 TO DECEMBER 31, 2016

This report provides items required by Section VIII, Supplemental Environmental Projects (SEP)

Sediment Characterization and Remediation SEP

1. **Progress Made:**

ArcelorMittal performed the following activities during this quarter:

- Discussed budgets and miscellaneous projects with the US Army Corps of Engineers (USACE) to plan for the continuing dredging USACE will do for ArcelorMittal.
- Tracked the progress of the Indiana Harbor and Canal Dredging Project activities by USACE and attended meetings of the local dredging project sponsor, the East Chicago Waterways Management District (ECWMD).
- ArcelorMittal deposited $710,000 into the Tipping Fee Escrow for disposal of sediment in 2016 as requested by USACE. The deposit was made on October 11, 2016.
- As requested by ArcelorMittal, the USACE dredged a Supplemental Environmental Project (SEP) area near 7 Dock in October 2016. The dredging of 20,000 cubic yards (CY) was planned, but only 9,672 CY was dredged. The remaining volume of approximately 10,000 CY will be added to the 2017 dredging.
- The unit cost for the SEP dredging by USACE in 2016 was $29.82/CY. The 2016 credit against 1993 CD funds for remediation in SEP areas is therefore $288,458.87.

2. **Projected Work for Next Six Months:**

- Continue to plan 2017 dredging with USACE and ECWMD.
- Make deposits into the Dredging Cost Escrow account for planned 2017 dredging.
- Monitor revisions to the Comprehensive Management Plan for the Indiana Harbor Canal Dredging.
- Attend ECWMD meetings.
- Review final soundings as well as volume and cost calculations to be provided by USACE. Work with USACE to resolve credits for 2015 and 2016 dredging costs so the costs and credits can be reflected in the USACE Annual Accounting Report for 2016.
- Prepare & submit the Annual Report.
- Gather appropriate documentation for the Completion Report that will be submitted when the SEP remediation is complete.

3. **Description and Percentage of Sediment Remediation Completed:**

The remediation is 60% complete, based on credited SEP spending.

4. **Summaries of Findings**: None.

5. **Summaries of all Changes to the SCS**: None this quarter.

6. **Summaries of Contacts with Local Groups or State Officials**:

   - ArcelorMittal attended meetings of the East Chicago Waterways Management District Board (ECWMD).
   - Attended USACE Information Session(s).
   - Other contacts are included above in Section 1, Progress Made.

7. **Summaries of Problems or Potential Problems**: NA

8. **Actions Being Taken to Rectify Problems**: NA

9. **Changes in Key Personnel**: None.

10. **Modification of Approved Work Plan(s)**: None

11. **Statement of Compliance**: ArcelorMittal is in compliance with the requirements of Section VIII.

12. **Financial Summary, Sediment Characterization and Remediation SEP**:

    1. Funds remaining: $10,940,681.
    2. Interest accrued: Interest began accumulating on January 1, 1997. The 13-Week T-Bill rate per the Wall Street Journal on the first business day of the quarter was 0.250%. The accrued interest for this quarter was calculated to be $7,154. The total interest accumulated to date is $9,250,637. Details of the interest calculation are provided on the following pages.
    3. Expenditures credited to the Consent Decree this quarter: $1,024,465.
    4. Financial Details are presented on the following pages.