
From: david.pate@aksteel.com
Sent: Friday, September 18, 2020 4:44 PM
To: EGLE-ROP
Subject: A8640 - ROP Renewal Application (Part 1 of 3)
Attachments: Transmittal Letter.pdf; ROP Application Form - Section 1.pdf; ROP Renewal Application Markup - Section 1.docx; ROP Renewal Application - Section 2.pdf; ROP Renewal Application Markup - Section 2.docx

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Email 2 will be the Section 1 Supplemental Data
Email 3 will be the Section 1 Plans Referenced in ROP.

I apologize for the inconvenience. If this needs to be submitted in another manner, please let me know.



David Pate
Senior Environmental Engineer, Dearborn Works
p 313.323.1261 m 248.251.3440
david.pate@aksteel.com

From: David Pate/AKSTEEL
To: EGLE-ROP@michigan.gov
Date: 09/18/2020 04:14 PM
Subject: A8640 - ROP Renewal Application

[attachment "Transmittal Letter.pdf" deleted by David Pate/AKSTEEL] [attachment "ROP Application Form - Section 1.pdf" deleted by David Pate/AKSTEEL] [attachment "ROP Renewal Application Markup - Section 1.docx" deleted by David Pate/AKSTEEL] [attachment "Supplemental Data - Section 1.pdf" deleted by David Pate/AKSTEEL] [attachment "Plans Referenced in ROP - Section 1.pdf" deleted by David Pate/AKSTEEL] [attachment "ROP Renewal Application - Section 2.pdf" deleted by David Pate/AKSTEEL] [attachment "ROP Renewal Application Markup - Section 2.docx" deleted by David Pate/AKSTEEL]

Please see attached ROP Renewal Application for AK Steel Dearborn Works (SRN A8640). Please feel free to call me with any questions.



David Pate

Senior Environmental Engineer, Dearborn Works

p 313.323.1261 m 248.251.3440

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From: david.pate@aksteel.com
Sent: Friday, September 18, 2020 4:45 PM
To: EGLE-ROP
Subject: A8640 - ROP Renewal Application (Part 2 of 3)
Attachments: Supplemental Data - Section 1.pdf

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From: david.pate@aksteel.com
Sent: Friday, September 18, 2020 4:46 PM
To: EGLE-ROP
Subject: A8640 - ROP Renewal Application (Part 3 of 3)
Attachments: Plans Referenced in ROP - Section 1.pdf

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Date: 09/18/2020 04:45 PM
Subject: A8640 - ROP Renewal Application (Part 2 of 3)

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AK Steel Corporation

9227 Centre Pointe Drive

West Chester, OH 45069

AK Steel

A CLEVELAND-CLIFFS COMPANY

September 18, 2020

Michigan Department of Environment, Great Lakes, and Energy
Air Quality Division, Detroit District
Cadillac Place, Suite 2-300
3058 West Grand Blvd.
Detroit, MI 48202-6058

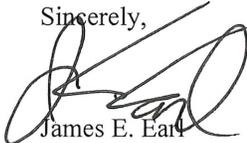
**RE: Renewable Operating Permit Renewal Application
AK Steel Corporation
State Registration Number A8640
ROP No. MI-ROP-A8640-2016a**

Dear Sir or Madam:

Pursuant to R 336.1210(7) (Rule 210) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) and Condition A.35 of MI-ROP-A8640-2016a, AK Steel Corporation (AK Steel) is submitting an application to renew the Renewable Operating Permit (ROP), for the iron and steel manufacturing facility located at 4001 Miller Road in Dearborn, Michigan (State Registration No. A8640). In accordance with Condition A.35, this application is being submitted in a timely manner at least six (6) months, but not more than eighteen (18) months prior to the permit's expiration date of April 22, 2021. This application is being submitted in accordance with EGLE's published guidance for renewing ROPs, *Renewal Application Instructions (April 2019)*.

If you have any questions or comments regarding section 1 of this renewal application, please feel free to call David Pate of AK Steel at (313) 323-1261 or Jim Donaldson of Trinity Consultants at (630) 495-1470. If you have any questions or comments regarding section 2 of this renewal application, please feel free to call Matthew Perko of Edw. C. Levy Co. at 313-820-4057 or Tom Green of Edw. C. Levy Co at 313-690-0139.

Sincerely,



James E. Earl
Environmental Affairs Manager, Dearborn Works

Attachments: AK Steel Dearborn Works (SN 8640) ROP Renewal Application Sections 1 and 2

cc: Mr. Jim Donaldson, Trinity Consultants

Summary of Attachments

A copy of the ROP renewal form that was electronically submitted to EGLE is attached as Attachment A. Pursuant to EGLE guidance, a redline/strikeout version of the current ROP with AK Steel's proposed changes to the ROP is included as Attachment B. Compliance Assurance Monitoring (CAM) calculations and a CAM plan for specific units at the Dearborn Facility are included as Attachment C. As required by Items 5 and 6 in Part C of the ROP renewal form, facility-wide potential to emit (PTE) calculations are included as Attachment D. Finally, per Item 9 of Part C of the ROP renewal form, the Operation, Maintenance, and Monitoring Plans for the Dearborn Facility and Startup, Shutdown and Malfunction Plans (along with all other plans referenced in the ROP) are included as Attachment E.

UPDATES TO EXEMPT/NON-EXEMPT UNITS

Several units have been installed or modified at the Dearborn Facility since the most recent issuance of the ROP on April 22, 2016¹. Additionally, several Permits to Install (PTIs) for new and/or modified units issued prior to the most recent issuance of the ROP were not rolled into this most recent issuance. As a result, multiple Permits to Install (PTI) will need to be included in the renewed ROP.

On August 15, 2011 PTI 84-11 was issued to AK Steel for the construction of a 1750 kW diesel-fueled emergency engine – EU-ENGSH. On that same date, PTI 8-08A was issued for a 1780 kW diesel-fueled emergency engine – EU-ENGINE1. Both emergency engines have been incorporated into the redlined version of MI-ROP-A8640-2016a.

PTI 8-08, issued February 4, 2008, authorized several new emission units. The permit conditions for these units were updated in PTI 120-16, issued on August 18, 2016. PTI 8-08 authorized a coil straightener and scale breaker (EUSCALEBREAKER) vented to a scale breaker baghouse and exhausted through stack SVCS_SBBH. The unit has an emission limit for PM. Also included in PTI 8-08 is a steel pickling line tank farm (EUNPKLTANKS). The unit has no emission or material limits and utilizes a packed column scrubber (SVNPKLTNKSCRUB) with water to control hydrogen chloride emissions. Another emission unit is the steel pickling process line (EUNPKLLINE). This unit uses similar pollution control equipment as the steel pickling line tank farm (SVNPKLINESCRUB) and contains an emission limit for hydrogen chloride. PTI 8-08 also authorized a tandem cold rolling mill (EUNTANDMILL) with an oil mist eliminator control device. This unit has an emission limit for PM₁₀ and VOC. PTI 8-08 authorized a hot dip galvanizing line (HDGL) pre-cleaning process (EUHDGLCLEANER) with a water scrubber control device and an emission limit for PM. PTI 120-16 addresses Flexible Group FGPLTCMHDGLHEAT which includes the emission units EUPKLTMBLDGHEAT, EUHDGLBLDGHEAT, and EUHDGLDRYER for gas fired heaters and climate control. These units have emission limits for PM and NO_x and a material limit for natural gas. Also included in PTI 8-08 is Flexible Group FGHDGLSCR which includes emission units

¹ PTI 114-16 was issued on December 16, 2016 for emission unit EUCHROME1, but this unit was never installed at the Dearborn Facility

EUHDGLH2OHEATER and EUHDGLANNEAL for a gas-fired annealing furnace and water heater. These units have emission limits for NO_x, PM, and ammonia. Lastly, PTI 8-08 includes Flexible Group FGDGLVOC which includes emission units EUHDGLCLEANER, EUHDGLSKINPASS, and EUHDGLES_OILING which encompass other sources of HDGL VOC emissions. All the units addressed in PTI 8-08 and 120-16 and the associated requirements have been included in the redlined ROP.

Several exempt emission units that were not previously addressed in the ROP have been added as well. Specifically, three units that are exempt pursuant to R 336.1290 (Rule 290) are included in the redline. EUBACKUPSKIM is the back-up slag skimming station at the desulfurization unit, which was installed in 1976. EUGRITSCRN is a grit screener at the Machine Scarfing Building, which was installed in 2014. Finally, EURAWMATSCRN includes the pile screening activities in the blast furnace laydown yard. These three units have been added to the ROP redline and are covered under the existing flexible group conditions for FGRULE290.

Another group of exempt units that have been included in the redline are 2 groups of exempt emergency diesel engines. The first group includes engines that were installed after June 12th, 2006, thus meeting the definition of a new emergency stationary reciprocating internal combustion engines (RICE) under the provisions of 40 CFR 63 Subpart ZZZZ. This includes EUPLTCM, a diesel fire pump at the PLTCM building. Pursuant to §63.6590(c)(6), as new stationary emergency engines at a major source of HAP, this engine meets the requirements for Subpart ZZZZ by meeting the requirements of 40 CFR Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. This regulation includes emission standards and fuel sulfur standards along with a limit of 100 hours per year of non-emergency operation.

The Dearborn Facility also has a second group of emergency engines that were manufactured prior to 2006, and thus meet the definition of an “existing” stationary RICE pursuant to 40 CFR 63 Subpart ZZZZ. These engines are EUMACHSCARFEN, an emergency engine installed at the Machine Scarfing building, EUY2KENGINE, an emergency generator at the greenhouse, EUTBRENGINE, an emergency fire pump engine at the turbo blower room and powerhouse, and EUENGGATE2, a generator for emergency lighting near Gate 2 at the facility. These engines were manufactured prior to the applicability date of June 12th, 2006, for NSPS and are exempt from these standards per 40 CFR 63.6590(c). Even though these engines are exempt from NSPS standards, there are requirements of Subpart ZZZZ that still apply. The engines must meet the operating requirements of 40 CFR 63.6640(f), which limits non-emergency operation to 100 hours per year.

These engines have been incorporated into the flexible groups FG-RICEMACT < 500 HP and FG-RICEMACT > 500 HP, which includes the 100 hour per year limit on non-emergency operation to ensure the engines will meet the definition of emergency engine thus not being subject to the more stringent requirement for nonemergency engines.

A full list of exempt and insignificant units at the Dearborn Facility including emission unit description and the applicable regulation for the exemption is attached to this letter.

Proposed Changes to ROP Conditions

As discussed in the section above, there are several permits and various emission units to be incorporated into the renewed ROP. In addition to these new items, there are old items that have been removed from the ROP. The emission unit EUHANDSCARFING has been shut down and removed in the redlined ROP. Additionally, the unit EUANNEALFURNACES is currently described as consisting of 52 annealing furnaces; however, 34 of these furnaces have been removed. The emission unit description has been updated to list 18 annealing furnaces. Finally, there are a number of changes offering clarification on regulatory requirements, emission unit descriptions, requirements with specified compliance dates that have since passed, and recordkeeping, monitoring, and testing requirements. A full list detailing these changes and the reasoning behind them is attached to this letter.

One specific change that requires additional discussion is the proposed update to the testing requirements in Condition V.1 of the Site-Wide Conditions. This condition currently requires a schedule of testing where 20 percent of units must be tested within the first year after issuance of the ROP, followed by 40 percent within the second year, 60 percent within the third year, and so on until 100 percent of the units at the facility have been tested.

The majority of testing within the ROP now has specific test date requirements (example: three years from previous test date) that must be adhered to. Because of this, this condition is now obsolete. In addition, AK Steel is seeking to address a situation where a source is idled at the time of the scheduled test which causes the test date to be missed (this becomes a problem with time-based testing, such as once every three years). This condition has been updated to address units that have been temporarily idled or shut down so that testing would not be possible. Rather than restarting a unit that has been shut down in order to meet the testing schedule or immediately being out of compliance at startup if the scheduled date for this test requirement, the condition requires testing to be performed within 60 days of startup which will allow time to schedule a test and bring the source back to steady state conditions before performing the next test.

Several federal regulations exist supporting this delayed testing schedule. This includes 40 CFR 63 Subpart ZZZZ, which allows delaying a test for a shut down engine until restarted and within 10 percent of 100 percent load, pursuant to 40 CFR 63.6620(b). This regulation does not specify a time period after startup during which the testing must be performed. Another regulation is 40 CFR 63 Subpart DDDDD, which allows a source that is not operating to perform the required compliance demonstration (performance testing, fuel analysis, or tune-up) within 180 days of startup, pursuant to 40 CFR 63.7515(g). Finally, 40 CFR 63 Subpart JJJJJ allows a source that is not operating to conduct performance testing within 180 days of startup, pursuant to 40 CFR 63.11220(e). Each of these standards have a performance testing window following startup that is less stringent than the schedule in the proposed condition.

Attachment A: ROP Renewal Form and Associated AI Forms

Attachment B: Redlined Current ROP

Attachment C: CAM Calculations / Plan

Attachment D: Facility Potential to Emit Calculations

Attachment E: Plans Referenced in ROP

Attachment F: Summary of ROP Redline Updates

Attachment G: Listing of Exempt Emission Units

Attachment H: Permits to Install That Have Not Been Incorporated Into Existing ROP

Attachment I: Consent Orders / Judgements That Have Not Been Incorporated Into Existing ROP

AK Steel Corporation

9227 Centre Pointe Drive

West Chester, OH 45069



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ATTACHMENT A – ROP RENEWAL FORM AND ASSOCIATED AI FORMS



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN A8640	SIC Code 3312	NAICS Code 331110	Existing ROP Number MI-ROP-A8640-2016a	Section Number (if applicable) 1
Source Name AK Steel – Dearborn Works				
Street Address 4001 Miller Road				
City Dearborn	State MI	ZIP Code 48120	County Wayne	
Section/Town/Range (if address not available)				
Source Description Integrated Iron and Steel Mill containing a Blast Furnace, 2 Basic Oxygen Vessels, 2 ladle metallurgical units, a continuous caster, Pickle Line and Tandem Mill, Hot dip galvanizing line, Hot Strip Mill, and Annealing Furnace facility				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name AK Steel Holding Corporation	Section Number (if applicable) 1			
Mailing address (<input type="checkbox"/> check if same as source address) 9227 Centre Pointe Drive				
City West Chester	State OH	ZIP Code 45069	County Butler	Country USA

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name James E. Earl		Title Environmental Affairs Manager – AK Steel Dearborn Works		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 313-845-3217		E-mail address Jim.earl@aksteel.com		

Contact 2 Name (optional) David Pate		Title Senior Environmental Engineer		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 313-323-1261		E-mail address David.pate@aksteel.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name LaDale Combs		Title General Manager – AK Steel Dearborn Works		
Company Name & Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number 313-317-8955		E-mail address Ladale.combs@aksteel.com		

Responsible Official 2 Name (optional)		Title		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input checked="" type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input checked="" type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input checked="" type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input checked="" type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input checked="" type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input type="checkbox"/> Other, explain:

Compliance Statement

This source is in compliance with **all** of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP. Yes No

This source will meet in a timely manner applicable requirements that become effective during the permit term. Yes No

The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.

If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.

Note: See AI-B-1

Name and Title of the Responsible Official (Print or Type)

LaDale Combs

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

LaDale Combs
Signature of Responsible Official

9/17/2020
Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead) emissions? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No , HAP potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to EGLE, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> <input type="checkbox"/>
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-C8-01	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 212(4) Citation [e.g. Rule 212(4)(c)]	Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]
EUPELLETORE	Unloading and movement of pellet ore to stockhouse	Rule 212(4)(i)	Rule 291
EU EEBHNGHEATE RS	Heaters at EE Building, Combined less than 50 mmBtu/hr	Rule 212(4)(c)	Rule 282(b)(i)
EUBOFSHOP	BOF Teeming Aisle dumping activities (Dumping Steel, Dumping Slag, Reladling)	Rule 212(4)(i)	Rule 291
EUCASTER1NG	Strand 1 and Strand 2 Natural Gas Sources – Includes Tundish Pre-heater, North Pre-heater, Strand 1 and Strand 2 Torches, Baumann Print Torch, 2 Tundish Dryers – All heaters less than or equal to 12.5 mmBtu/Hr	Rule 212(4)(c)	Rule 282(b)(i)
EUCASTER2NG	Strand 3 Natural Gas Sources – Includes Tundish Pre-heater, South Pre-heater, Strand 3 Torch, 2 Tundish Dryers - All heaters less than or equal to 12.5 mmBtu/Hr	Rule 212(4)(c)	Rule 282(b)(i)
EUGRITSCRN	Screeener for scarfing grit from Machine Scarfing operation	Rule 212(4)(h)	Rule 290
EURAWMATSCRN	Pile screening activities in BF laydown yard	Rule 212(4)(h)	Rule 290
EUENGGATE2	Emergency Natural Gas Engine providing for Gate 2 Security Building lighting	Rule 212(4)(e)	Rule 285(2)(g)
EUPLTCMENGINE	Emergency Diesel Engine for PLTCM	Rule 212(4)(e)	Rule 285(2)(g)
EUY2KENGINE	Emergency engine located near screenhouse	Rule 212(4)(e)	Rule 285(2)(g)
EUMACHSCARFEN	Emergency engine located near Machine Scarfing building	Rule 212(4)(e)	Rule 285(2)(g)
EUTBRENGINE	Emergency engine located near Turbo Blow Room and Powerhouse	Rule 212(4)(e)	Rule 285(2)(g)

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

<p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If <u>Yes</u>, identify changes and additions on Part F, Part G and/or Part H.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If <u>Yes</u>, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If <u>Yes</u>, complete Part F with the appropriate information.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E4. Have any emission units identified in the existing ROP been dismantled? If <u>Yes</u>, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>Comments: EUHANDSCARFING has been shut down. Dismantle Date was August 2016</p>	
<p><input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-</p>	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
If No, go to Part G.

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/ Modified/ Reconstructed
84-11	EU-ENGLISH	A 1,750 kilowatts (kW) diesel-fueled emergency engine manufactured in 2006, Hours of operation monitored	8-15-2011
8-08A	EU-ENGINE1	A 1780 kilowatts (kW) diesel-fueled emergency engine manufactured in 2010, Hours of operation monitored	2-2008
120-16	See AI-001 Form AI-F1-01		

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:
AK Steel is proposing changes to PTI 120-16, PTI 84-11, and PTI 8-08A before incorporation into the ROP. It is AK Steel's opinion that all changes proposed to the PTI either make testing terms consistent with other sources currently within the ROP (by changing requirements to test once per ROP renewal period to once every five years) or eliminate general conditions within the PTI that are not applicable to the source. The proposed changes are presented on forms AI-F6-01 through AI-F6-06. In addition, AK Steel has created new Flexible groups to cover all applicable requirements of 40 CFR 60 Subpart ZZZZ and 40 CFR 60 Subpart IIII as they apply to engines at AK Steel. PTI 84-11 and 8-08A both contained flexible group sections for 40 CFR 60 Subpart ZZZZ. AK Steel has created 3 separate Flexible Groups (FG-RICE MACT < 500 HP, FG-RICE MACT > 500 HP, and FG-IIII ENGINES) to incorporate the requirements for all stationary emergency engines onsite in addition to the engines covered under PTI 8-08A and 84-11.

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-F1-01** and AI-F6-01 through AI-F6-06

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – <i>Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices</i>	Date Emission Unit was Installed/Modified/Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input checked="" type="checkbox"/> Rule 290 process with limited emissions	EUBACKUPSKIM - Backup slag skimming station, tons throughput monitored EUGRTSCRN – Scarfing grit screener, tons throughput monitored EURAWMATSCRN – Blast Furnace Raw Material Portable Screening, Throughput monitored	1976 2014 2016

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP. See markup and AI-H2-01	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP. Civil Action No. 15-cv-11804, In attached markup as EUBOF VI.30 – VI.34, VII.8	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. See markup and AI-H6-01	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H8-01 through AI-H8-06

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H10-01 through AI-H10-05

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H11-01 and AI-H11-02

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H12-01 through AI-H12-13

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H13-01 through AI-H13-10

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H14-01 through AI-H14-05

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See markup and AI-H16-01 through AI-H16-09

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-AI-001 Forms referenced in answers to H1 through H17. Additional forms attached as AI-H18-01 and AI-H18-02 to propose changes to ROP Appendices 3.2-1 and 3.3-1.**



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

	SRN:	Section Number (if applicable):
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1. Additional Information ID AI-
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Additional Information

2. Is This Information Confidential?	<input type="checkbox"/> Yes <input type="checkbox"/> No
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RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-B-1

Additional Information

2. Is This Information Confidential?

Yes No

Current conditions in which the source is out of compliance are:

FGBOFSHOP I.10, Lead Emission limit from FGBOFSHOP Secondary Baghouse and ESP Stacks of 0.067 Lb/hr

FGBOFSHOP I.12, Manganese Emission limit from FGBOFSHOP Secondary Baghouse and ESP Stacks of 0.010 Lb/hr

AK Steel has conservatively noted "no" for two statements in the Compliance Statements section on Page 3 of 12 of the ROP application due to intermittent noncompliance with the Basic Oxygen Furnace (BOF) lead and manganese emission limits (FGBOFSHOP, Section I.10 and I.12), based on reference method tests. AK Steel is in discussions with EGLE and U.S. EPA on a Consent Decree Modification that will include a schedule of compliance for the rebuild of the BOF Electrostatic Precipitator (ESP). The intermittent noncompliance with the lead and manganese emission limits will be resolved through that ESP rebuild and a future compliant stack test or if necessary, an increase of the permitted emission limits through a Permit to Install application submitted after the ESP rebuild. AK Steel will submit an update to this ROP application with a schedule of compliance once that issue is resolved in conjunction with the Consent Decree Modification.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-C8-01**Additional Information**

2. Is This Information Confidential?

 Yes No

The following sources are subject to CAM. A CAM plan for all subject sources was submitted to EGLE on 5/31/17. The plan is included with the application for reference.

EUCFURNACE Baghouse – PM, PM10, PM2.5
 EUBOFDESULF Baghouse – PM, PM10, PM2.5
 EUBOF ESP – PM, PM10, PM2.5, Mn, Pb, Hg
 FGBOFSHOP Baghouse – PM, PM10, PM2.5
 EULADLEREFINE1 Baghouse – PM, PM10, PM2.5
 EULADLEREFINE2 Baghouse – PM, PM10, PM2.5
 EUVACUUMDEGASSER Flare - CO
 EUMACHSCARF Baghouse – PM, PM10, PM2.5
 EUSCALEBREAKER Baghouse - PM



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-F1-01**Additional Information**

2. Is This Information Confidential?

 Yes No**Emission units and descriptions for sources covered by PTI 120-16 are presented below:**

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUSCALEBREAKER	Coil straightener and scale breaker, Controlled by Baghouse, baghouse differential pressure monitored	2-4-08	NA
EUNPKLTANKS	Steel pickling line tank farm, controlled by scrubber, scrubber DP and water flow monitored	2-4-08	NA
EUNPKLLINE	Steel pickling process line, controlled by scrubber, scrubber DP, makeup water flow, and recirculation water flow monitored	2-4-08	NA
EUNTANDMILL	Tandem cold rolling mill, controlled by oil mist eliminator, differential pressure across each cell monitored	2-4-08	NA
EUPKLTMBLDGHEAT	Pickling line and tandem mill building heaters, Natural gas usage of flexible group monitored	2-4-08	FGPLTCMHDGLHEAT
EUHDGLBLDGHEAT	HDGL building heaters, Natural gas usage of flexible group monitored	2-4-08	FGPLTCMHDGLHEAT
EUHDGLDRYER	HDGL natural gas fired dryer, Natural gas usage of flexible group monitored	2-4-08	FGPLTCMHDGLHEAT
EUHDGLH2OHEATER	HDGL water heaters, controlled by SCR, abnormal functions of the automated urea feed injection system and amount of urea used per day monitored	2-4-08	FGHDGLSCR
EUHDGLANNEAL	HDGL annealing furnace, controlled by SCR, abnormal functions of the automated urea feed injection system and amount of urea used per day monitored	2-4-08	FGHDGLSCR
EUHDGLCLEANER	Hot dip galvanizing line (HDGL) pre-cleaning process, controlled by scrubber, differential pressure and water flow monitored	2-4-08	FGHDGLVOC
EUHDGLSKINPASS	HDGL skin pass process (temper rolling mill), usage and VOC content monitored	2-4-08	FGHDGLVOC
EUHDGLES-OILING	HDGL electro-static oiling process, usage and VOC content monitored	2-4-08	FGHDGLVOC



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-F6-01 (PTI 120-16)

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing/Sampling for EUSCALEBREAKER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUSCALEBREAKER V.1	At least once every ROP permit term the permittee shall verify PM10 emission rates from EUSCALEBREAKER by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-F6-02 (PTI 120-16)

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing/Sampling for EUPKLLINE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUPKLLINE V.1	At least once every two and a half years verification of the HCl emission rate from the EUNPKLLINE pickling line process water scrubber stack SVNPKLINESCRUB, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. (R 336.1225, 40 CFR 63.1161(a), 40 CFR 63.1162(a)(2))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Language added to confirm the applicability of the proposed S.C. Source-wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-F6-03 (PTI 120-16)

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing/Sampling for EUTANDMILL are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUTANDMILL V.1	At least once every ROP permit term verification of the PM10 emission rate from the EUNTANDMILL mist eliminator stack, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. (R 336.1205, R 336.1213, R 336.2001)	Change "once every ROP permit term" to "once every five years", Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources, Language added to confirm the applicability of the proposed S.C. Source-wide V.1.

The following changes to Testing/Sampling for EUHDGLCLEANER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUHDGLCLEANER V.1	At least once every ROP permit term the permittee shall conduct a particulate matter emission test from the EUHDGLCLEANER water scrubber stack, while in operation to control the caustic cleaning operation. No less than 30 days prior to testing, a complete stack test protocol must be submitted to the AQD District Office for approval. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years", Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources, Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID
AI-F6-04 (PTI 120-16)

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing/Sampling for FGHDGLSCR are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGHDGLSCR V.1	At least once every ROP permit term the permittee shall verify NOx and ammonia emission rates from SVHDGL_SCR when FGHDGLSCR SCR, EUHDGLANNEAL, and EUHDGLH2OHEATER are in operation by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID
AI-F6-05 (PTI 8-08A and 84-11)

Additional Information

2. Is This Information Confidential? Yes No

The following deletions to Other Requirements for EU-ENGINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EU-ENGINE1 IX.1	The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGINE1. (40 CFR Part 60 Subparts A & IIII)	Eliminate Permit Condition	The permit conditions for this source already specify the applicable provisions of IIII - Namely either demonstrating compliance by purchasing a certified engine or requiring testing. A "catch all" term at the end is unnecessary.

The following deletions to Other Requirements for EU-ENGSH are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EU-ENGSH IX.1	The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGSH. (40 CFR Part 60 Subparts A & IIII, 40 CFR 63.6590(c)(1))	Eliminate Permit Condition	The permit conditions for this source already specify the applicable provisions of IIII - Namely either demonstrating compliance by purchasing a certified engine or requiring testing. A "catch all" term at the end is unnecessary.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID
AI-F6-06 (PTI 8-08A and 84-11)

Additional Information

2. Is This Information Confidential? Yes No

The following deletions to the Flexible Groups presented in PTI 84-11 and PTI 8-08A are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
PTI 84-11 and 8-08A Flexible Groups	<p>Flexible groups contain the following requirements:</p> <p>Reporting: The permittee shall submit all applicable notifications specified in 40 CFR 63.7(b) and (c), 63.8 (e), (f)(4), and (f)(6), and 63.9(b) through (e), (g), and (h) by the dates specified. (40 CFR 63.6645(a)(3) and (f))</p> <p>Other: The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. (40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)</p>	Eliminate Flex Groups	The two conditions added by the Flex Group designations are irrelevant: AK Steel's analysis is that neither has any requirements specified by ZZZZ and neither has any notification requirements required by ZZZZ. As such, the inclusion of the flexible groups adds nothing.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID AI-H2-01

Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The following changes to the source description for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE Description	This emission unit consists of the "C" Blast Furnace, a group of 4 stoves with a common stack, the cast house emission control system (collection hoods followed by a baghouse and stack), a blast furnace gas dust collector and venturi scrubber for removal of particulate from blast furnace gas generated by the "C" Blast Furnace, a semi-clean bleeder, and two dirty gas bleeders.	change "a semi-clean bleeder and two dirty gas bleeders" to "three gas bleeders."	The detailed description of the bleeders is irrelevant.

The following changes to the source description for FGANNEALFURNACES are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGANNEALFURNACES Description	52 annealing furnaces (composed of 34 hydrogen nitrogen annealing furnaces and 18 hydrogen annealing furnaces) located in the Cold Mill Building.	Change to the following: 18 Hydrogen Annealing Furnaces located in the cold mill building.	Change being made to specify current operational configuration. The other furnaces have all been demolished.

The following changes to the source description for FGCOLDCLEANERS are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGCOLDCLEANERS Description	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	Delete "grandfathered"	AK Steel does not have any "grandfathered" cold cleaners onsite



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H6-01

Additional Information

2. Is This Information Confidential?

Yes No

AK proposes the following change to Source-wide Conditions V.1:

Permit Condition	Current ROP Language	Revision	Justification
Source-Wide Conditions V.1	At least 20% of the sources subject to testing requirements shall have been tested within one year of the effective date of the permit, at least 40% of the sources shall have been tested within two years of the effective date, at least 60% of the sources shall have been tested within three years of the effective date, at least 80% of the sources shall have been tested within four years of the effective date, and 100% of the sources shall have been tested within five years of the effective date. (R 336.1213(3))	Eliminate Permit Condition, replace with: "In the event that a source cannot be tested as scheduled due to a temporary shutdown, testing shall be conducted on that source with 60 days of startup."	The majority of testing within the ROP now has specific test date requirements (example: three years from previous test date) that must be adhered to. Because of this, this condition is now obsolete. In addition, AK Steel is seeking to address a situation where a source is idled at the time of the scheduled test which causes the test date to be missed (this becomes a problem with time-based testing – For example - Once every three years). Instead of immediately being out of compliance at startup, AK is seeking to allow some time to schedule a test and to get the source back up to steady state conditions before performing the next test.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H8-01

Additional Information

2. Is This Information Confidential? Yes No

The following additions and changes to emission limits for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE I.4	Visible Emissions limit of 20% opacity for EUCFURNACE "C" Furnace Bleeders	Add "except for 1 6-minute average per hour of not more than 27% opacity" to the limit description	The underlying rule includes the language in the proposed revision. The revision only adds clarity.
EUCFURNACE I.5	No citation for EUCFURNACE Stoves visible emissions limit	Add Visible Emissions limit of 20% opacity except for 1 6-minute average per hour of not more than 27% opacity for EUCFURNACE Stoves (R 336.1301(1)(a))	As visible emission readings are being conducted on the EUCFURNACE stoves on a regular basis, it makes sense to clarify the emissions limit in the table.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H8-02

Additional Information

2. Is This Information Confidential? Yes No

The following changes to emission limits for EUTREADWELLDRYOUT are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUTREADWELLDRYOUT I.1	Visible Emissions limit of 20% opacity for EUTREADWELLDRYOUT	Add "except for 1 6-minute average per hour of not more than 27% opacity" to the limit description	The underlying rule includes the language in the proposed revision. The revision only adds clarity.

The following deletion of emission limits to EURELADLINGBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EURELADLINGBOF I.2	Visible Emissions limit of 20% opacity for EURELADLINGBOF - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a), Table 1, Item 12	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EURELADLINGBOF. Note that AK Steel is not disputing the 20% limit imposed in S.C. I.1. It is only making the case that the cited MACT limit is not applicable.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H8-03

Additional Information

2. Is This Information Confidential?

Yes No

The following deletion of emission limits to EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF I.3	Visible Emissions limit of 20% opacity for EUBOFDESULF - Cites MACT Standard (40 CFR 63.7790(a), Table 1, Item 12	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EUBOFDESULF. Note that AK Steel is not disputing the 20% limit imposed in S.C. I.2. It is only making the case that the cited MACT limit is not applicable.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID AI-H8-04

Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The following additions and changes to emission limits for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF I.2	No citation for EUBOF ESP visible emissions limit	Add Visible Emissions limit of 20% opacity except for 1 6-minute average per hour of not more than 27% opacity for EUBOF ESP (R 336.1301(1)(a))	As visible emission readings are being conducted on the EUBOF ESP on a regular basis, it makes sense to clarify the emissions limit in the table.
EUBOF I.3	Visible emission limit of 20% opacity, 3-minute average, from BOF Shop Building	Added "Secondary Emissions" to Equipment	Clarification made to parallel the MACT requirement
EUBOF I.5	No citation for EUBOF Beaching visible emissions limit	Add Visible Emissions limit of 20% opacity, 3-minute average for EUBOF Outdoor Iron Beaching (Act 451 Section 324.5524(2))	As this section (VI.5) requires VE observations when beaching, it makes sense to including beaching in the table.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H8-05

Additional Information

2. Is This Information Confidential?

Yes No

The following deletion of emission limits to EULADLEREFINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE1 I.3	Visible Emissions limit of 20% opacity for EULADLEREFINE1 Roof Monitors - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a),	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EULADLEREFINE1. The cited MACT limit is not applicable.

The following deletion of emission limits to EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 I.3	Visible Emissions limit of 20% opacity for EULADLEREFINE2 Roof Monitors - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a),	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EULADLEREFINE2. The cited MACT limit is not applicable.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H8-06

Additional Information

2. Is This Information Confidential? Yes No

The following changes to emission limits for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP I.11	Manganese emission limit on secondary baghouse of 0.07 pph	Clarify limit as being on a PM10 basis	The limit is based on the PM10 ITSL and was derived as such. It should be applicable only to the PM10 fraction.
FGBOFSHOP I.12	Manganese combined emission limit on ESP and secondary baghouse of 0.10 pph	Clarify limit as being on a PM10 basis	The limit is based on the PM10 ITSL and was derived as such. It should be applicable only to the PM10 fraction.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H10-01

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to process/operational restrictions for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE III.2	The permittee shall develop and implement a written startup, shutdown and malfunction plan for EUCFURNACE. The plan shall include proper operating procedures to minimize bleeder emissions. ² (R 336.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.
EUCFURNACE III.3	The permittee shall not operate the stoves in EUCFURNACE unless a malfunction abatement plan (MAP) as described in Rule 911(2) has been submitted to the AQD District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the AQD District Supervisor. ² (R 336.1911, R 336.1912, R 336.2802)	Delete requirements concerning submittal of the MAP to AQD and replace with language to "maintain" the MAP and instructions on how to amend the MAP. See markup.	The MAP has been implemented and submitted to the AQD. The only requirement now is to maintain the MAP.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H10-02

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to process/operational restrictions for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE III.4	The permittee shall develop site-specific monitoring plans for "C" Blast Furnace Casthouse Emission Control Baghouse and make the plan available to the permitting authority upon request. The plan shall contain the following information: (40 CFR 63.7831(a))	Replace "develop" with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.

The following changes to process/operational restrictions for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF III.2	The permittee shall develop and implement a written startup, shutdown and malfunction plan for EUBOFDESULF and the associated emission control system and operate in accordance with the plan during periods of startup, shutdown, and malfunction. (40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H10-03

Additional Information

2. Is This Information Confidential? Yes No

The following changes to process/operational restrictions for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF III.3.a	a. The permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in §63.7790(b). Each plan must address the elements in paragraphs (a)(i.) through (v.):	Delete "prepare"	As the plans have been prepared, the only ongoing requirement is to operate in accordance with the plan.
EUBOF III.4	The permittee shall develop and implement a written startup, shutdown and malfunction plan (SSM) for the BOF vessels and the associated emission control system. The permittee shall also develop a malfunction abatement plan (MAP) pursuant to the requirements of Rule 911(2) for the operation of the ESP. The MAP may be a stand-alone plan or combined with the SSM.2 (R 336.1910, R 36.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.
EUBOF III.8	ESP dust shall be moved by covered belt conveyor to a storage bin and, if transported offsite, the ESP dust, including coarse dust collected in a drop chamber, shall be wetted and transported by a covered truck, or shall be transported by a pneumatic truck to a landfill or other approved facility for recycling and/or disposal. (SIP No. 30-1993, Exhibit A, Paragraph 5 (B)(5))	Change to "ESP dust shall be moved by covered belt conveyor to a storage bin and, if transported offsite, the ESP dust, including coarse dust collected in a drop chamber shall either be wetted or loaded into a truck via a snorkel prior to being covered and transported by a covered truck, or shall be transported by a pneumatic truck to a landfill or other approved facility for recycling and/or disposal. (SIP No. 30-1993, Exhibit A, Paragraph 5 (B)(5))"	The original SIP said nothing about ESP dust being wetted at the silo; it says it was wetted with steam in a miller then moved by conveyor to storage bin. The water as currently added does nothing. A retractable snorkel has been added that is far more important in keeping the dust down during the truck loading process



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H10-04

Additional Information

2. Is This Information Confidential?

Yes No

The following deletions to process/operational restrictions for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF III.9	<p>The permittee shall develop and make available for inspection upon request by the AQD a site-specific monitoring plan that addresses all of the following requirements for the BOF ESP: (40 CFR 63.7831(a))</p> <p>a. Installation of the CPMS sampling probe or other interface at a measurement location relative to each hooded emission point such that the measurement is representative of capture of the exhaust emissions; (40 CFR 63.7831(a)(1))</p> <p>b. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system; (40 CFR 63.7831(a)(2))</p> <p>c. Performance evaluation procedures and acceptance criteria; (40 CFR 63.7831(a)(3))</p> <p>d. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8); (40 CFR 63.7831(a)(4))</p> <p>e. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d); (40 CFR 63.7831(a)(5))</p> <p>f. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i). (40 CFR 63.7831(a)(6))</p> <p>g. Corrective action procedures that will be followed in the event an electrostatic precipitator exceeds the operating limit in 40 CFR 63.7790(b)(3). (40 CFR 63.7831(a)(8))</p>	Eliminate Permit Condition	The MACT requirement to maintain a site specific monitoring plan does not apply to an ESP. The citation 63.7831(a) references CPMS required by 63.7830. While that section is very specific about defining the monitoring systems for sinter plant discharge end, blast furnace casthouse, and secondary emissions as a CPMS, it does not use that language when speaking about an ESP. The specific requirements related to an ESP are covered in EUBOF VI.10 and EUBOF VI.16. The listed requirements for COMS are in place of the CPMS requirements, not in addition to the CPMS requirements.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H10-05

Additional Information

2. Is This Information Confidential? Yes No

The following additions to process/operational restrictions for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP III.2	New Requirement	Add: The permittee shall maintain an Emission Reduction Plan for the BOF Roof Monitor. The plan shall include a set of design and work practice standards that are designed to minimize FGBOFSHOP roof monitor emissions. The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits."	Requirement of a plan should replace the very prescriptive (and in some cases, outdated) work practice and design parameters. The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. See AI-H11-02 for further comment.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H11-01

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to design/equipment parameters for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE IV.3	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the SO ₂ emissions and flow from each EUCFURNACE baghouse stack and stove stack on a continuous basis. ² (R 336.2803, R 336.2804, R 336.2810)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.4	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the natural gas usage rate of the natural gas suppression system for EUCFURNACE.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.1702, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.8	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the natural gas usage rate of the stoves. ² (R 336.1205(1)(a) & (b), R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.9	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the blast furnace gas usage rate of the stoves. ² (R 336.1205(1)(a) & (b), R 336.2801(ee), R 336.2802(4), 40 CFR Part 51 (Appendix S), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H11-02

Additional Information

2. Is This Information Confidential? Yes No

The following deletions to design/equipment parameters for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP IV.2	The permittee shall operate and maintain the following modifications to FGBOFSHOP which were completed within 180 days of May 12, 2014: a. Install a steam ring or other equivalent barrier at A and B Vessels to mitigate the potential for emissions to escape through the lance hole, b. Close the gaps at the reline tower door/boiler hood door in the primary capture hood, and; c. Modify the charge hood flap to prevent emissions escaping during charge as the flap is drawn.2 (R 336.12051(a) & (b), R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition and Replace with requirement to have a plan: The permittee shall maintain an Emission Reduction Plan for the BOF Roof Monitor. The plan shall include a set of design and work practice standards that are designed to minimize FGBOFSHOP roof monitor emissions. The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits - Added as FGBOF III.2	These requirements are very prescriptive and are based on CFD modeling that was conducted in 2013. Having them spelled out in the Title V permit forces the facility to live with requirements that are outdated. The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H12-01

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing / Sampling for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE V.1	The permittee shall conduct performance tests for particulate matter emissions and opacity at least once every five years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUCFURNACE V.7	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5, CO, NOx, VOC, Pb, and Mn emission rates from EUCFURNACE baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Pb and Mn dust concentrations in the EUCFURNACE baghouse hoppers. Subsequent Pb and Mn sampling of the baghouse dust is not required. No less than 45 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and the District Office. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Mn and Pb, to the AQD within 60 days following the last date of the test. ² (R 336.1205(1)(a) & (b), R 336.1225, R 336.1301, R 336.1361, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete specific reference to May 12, 2014, Delete reference to Mn and Pb Dust Analysis as the "first testing" has already been completed. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1." See specific markup.	The initial testing and hopper dust analysis was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H12-02

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing / Sampling for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE V.8	Within three years of May 12, 2014, the permittee shall verify PM, PM10, PM2.5, NOx, CO, Pb, Mn, and total Hg emission rates from the EUCFURNACE stove stack, by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. Testing must be performed at normal operating conditions for EUCFURNACE stove stack. No less than 45 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and the District Office. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete specific reference to May 12, 2014 and replace with "Every three years." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1." See specific markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-03

Additional Information

2. Is This Information Confidential?

Yes No

The following deletions to Testing / Sampling for EURELADLINGBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EURELADLINGBOF V.1 to V.3	<p>1. The permittee shall conduct performance tests for opacity and PM no less frequently than once during the ROP renewal period. (40 CFR 63.7821)</p> <p>2. Performance tests for visible emissions shall be conducted such that the opacity observations overlap with the performance tests for particulate of the BOF secondary baghouse. Performance testing requirements for particulate is contained in FGBOFSHOP. (40 CFR 63.7823(b))</p> <p>3. The permittee shall demonstrate compliance with the opacity limitation in SC I.2 with a certified observer according to Method 9 except for the following: (40 CFR 63.7823(d)(1)(i))</p> <p>a. Record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles rather than using the procedure specified in Section 2.4 of Method 9. (40 CFR 63.7823(d)(1)(ii))</p> <p>b. Determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals. (40 CFR 63.7823(d)(1)(iii))</p>	Eliminate Permit Condition	Testing requirements for the secondary baghouse are in the FGBOFSHOP section. Including all test requirements here is redundant.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-04

Additional Information

2. Is This Information Confidential?

Yes No

The following changes and deletions to Testing / Sampling for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF V.1	The permittee shall conduct performance tests for particulate matter emissions and opacity at least once every 5 years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source-wide V.1.
EUBOFDESULF V.3 and V.4	<p>3. Performance tests for visible emissions shall be conducted such that the opacity observations overlap with the performance tests for particulate. (40 CFR 63.7823(b))</p> <p>4. The permittee shall demonstrate compliance with the opacity limitation in SC I.3 with a certified observer according to Method 9 except for the following: (40 CFR 63.7823(d)(1)(i))</p> <p>a. Record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles rather than using the procedure specified in Section 2.4 of Method 9. (40 CFR 63.7823(d)(1)(ii))</p> <p>b. Determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals. (40 CFR 63.7823(d)(1)(iii))</p>	Eliminate Permit Condition	As discussed previously, AK Steel believes that "Secondary" emissions do not include emissions from the Desulf. Therefore, there is no opacity limit associated with roof emissions from the Desulf operation and thus, no requirement to conduct an opacity performance test concurrently with the Desulf PM performance test.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-05

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing / Sampling for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF V.5	<p>Within three years of May 12, 2014, the permittee shall verify the PM, PM10, PM2.5, Pb, and Mn emission rates from EUBOFDESULF baghouse stack, by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Pb and Mn dust concentrations in the EUBOFDESULF baghouse hoppers. Subsequent Pb and Mn sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.² (R 336.1205(1)(a) & (b), R 336.1225, R 336.1228, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)</p>	<p>Delete specific reference to May 12, 2014, Delete reference to Mn and Pb Dust Analysis as the "first testing" has already been completed. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See specific markup.</p>	<p>The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source-wide V.1.</p>



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-12-06

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing / Sampling for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF V.1	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. Testing shall be performed with test methods as specified in 40 CFR 63.7822. (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source-wide V.1.
EUBOF V.2	The permittee shall conduct performance tests for particulate matter emissions and opacity at least twice during the ROP renewal period. (40 CFR 63.7821(a))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source-wide V.1.
EUBOF V.7	The permittee shall verify visible emissions, PM, PM10, PM2.5, NOx, and CO emission rates from the EUBOF ESP stack (including BOF oxygen blows), by testing at owner's expense, in accordance with Department requirements, within 180 days of May 12, 2014, unless a test has been completed within two years prior to May 12, 2014 and the results submitted to the AQD for approval. The PM testing shall be performed with test methods as specified in Rule 336.1331. Subsequent testing will be required once every three years from the completion of the previous stack test. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804, R 336.2802(4))	Deleted references to testing within 180 days of May 12, 2014 and replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source-Wide Conditions V.1.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source-wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID
AI-H12-07

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing / Sampling for EULADLEREFINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE1 V.1	The permittee shall conduct performance tests for particulate matter emissions at least once every five years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE1 V.3	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE1 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE1 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Deleted references to May 12, 2014 and to obtaining hopper samples on the first test. Replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE1 V.4	The permittee shall verify the capture efficiency for EULADLEREFINE1 using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))	Replace "within three years of May 12, 2014" with "every three years." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H12-08

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing / Sampling for EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 V.1	The permittee shall conduct performance tests for particulate matter emissions at least once during the ROP renewal period. (40 CFR 63.7821)	Change "at least once during the ROP Renewal Period" to "every five years." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE2 V.3	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE2 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE1 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Deleted references to May 12, 2014 and to obtaining hopper samples on the first test. Replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-09

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing / Sampling for EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 V.4	The permittee shall verify the capture efficiency for EULADLEREFINE2 using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))	Replace "within three years of May 12, 2014" with "every three years." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source-Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source-wide V.1.

The following changes to Testing / Sampling for EUVACUUMDEGASSER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUVACUUMDEGASSER V.1	The permittee shall conduct a carbon monoxide emission test at least once during the five year life cycle of this permit. Performance of the stack test shall be according to the schedule stipulated in the Source Wide requirements – SC V.1 of this section or more frequently upon the request of the AQD. No less than 30 days prior to testing, a complete stack test protocol must be submitted to the AQD for approval. The final plan must be approved by the AQD prior to testing. (R 336.1213(3))	Replaced "during the five year life cycle of this permit" with "every five years." Added "Subsequent testing will be required once every five years from the completion of the previous stack test." Deleted reference to SC V.1. Added "Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Changed to make more consistent with other sources. Also added clarification regarding submittal of the test report. Language added to confirm the applicability of the proposed S.C. Source-wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-10

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing / Sampling for EUMACHSCARF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUMACHSCARF V.1	The permittee shall verify the visible emissions, PM, PM10, and PM2.5 emission rates from the EUMACHSCARF baghouse stack by testing at owner's expense, in accordance with Department requirements at least once every five years from completion of previous test. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 45 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, R 336.2810)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Language added to confirm the applicability of the proposed S.C. Source wide V.1.

The following changes to Testing / Sampling for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP V.1	The permittee shall conduct overlapping performance tests for particulate matter emissions from the BOF secondary baghouse and opacity from the BOF roof monitor (including reladling operation and BOF oxygen blows) at least once during the ROP renewal period. (40 CFR 63.7821)	Replace "at least once during the ROP renewal period" with "at least once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H12-11

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Testing / Sampling for FGBOFSHOP are being proposed:

Permit Condition	Current ROP Language	Revision	Justification
FGBOFSHOP V.2	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1 (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	Language added to confirm the applicability of the proposed S.C. Source wide V.1.



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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H12-12

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Testing / Sampling for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP V.6	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5, and NOx emission rates from the BOF secondary baghouse stack during typical operations (including reladling operation) by testing at owner's expense, in accordance with department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804, R 336.2802(4))	Delete "Within three years of May 12, 2014" and replace with "Once every three years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the test shall be completed in accordance with S.C. Source Wide Conditions V.1."	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGBOFSHOP V.7	Within three years of May 12, 2014, the permittee shall verify and quantify Mn, Pb, and total Hg emissions rates from the FGBOFSHOP (secondary baghouse stack and ESP stack simultaneously) by testing at owner's expense, in accordance with department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Mn, Pb and Hg dust concentrations in both the ESP hoppers and the baghouse hoppers. Subsequent Mn, Pb and Hg sampling of the ESP and baghouse hoppers is not required, unless requested by the AQD District Supervisor. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including ESP and baghouse dust analysis for Mn, Pb and Hg, to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))	Delete "Within three years of May 12, 2014" and replace with "Once every three years", delete references to Mn, Pb, and Hg sampling of the ESP and Baghouse Hoppers. Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	The initial testing and hopper dust analysis was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID
AI-H12-13

Additional Information

2. Is This Information Confidential?

 Yes No

The following changes to Testing / Sampling for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP V.8	The permittee shall verify the capture efficiency for FGBOFSHOP using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R336.2004, R 336.2801(ee))	Delete "within three years of May 12, 2014" and replace with "Once every three years." After FGBOFSHOP, add "reladling, charging, and tapping operations." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source Wide Conditions V.1." See detailed markup.	The initial CFD modeling was conducted as required. The ongoing requirement is now to perform the modeling once every three years from the completion of the previous modeling. In addition, since the modeling only applies to operations where the 98% capture efficiency apply, it should be clarified as applying only to reladling, charging, and tapping operations. Language added to confirm the applicability of the proposed S.C. Source wide V.1.

The following changes to Testing / Sampling for FGHSMFURNACES123 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGHSMFURNACES123 V.1	The permittee shall verify NOx emission rates from a representative reheat furnace from FGHSMFURNACES123 by testing at owner's expense, in accordance with department requirements once every ROP renewal period. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1801, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804)	Replace "once every ROP renewal period" with "once every 5 years from completion of the previous test." Change 60 day notification requirement to 30 days. "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources. Requested a shorter notification period as there is no underlying basis for the 60 day notification. Language added to confirm the applicability of the proposed S.C. Source wide V.1.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H13-01

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Monitoring/Recordkeeping for EURAWMATHANDLING are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EURAWMATHANDLING VI.4	No citations in current ROP - Sections being added to incorporate requirement to track natural gas usage	The permittee shall monitor and record, in a satisfactory manner, the total natural gas usage for EURAWMATHANDLING on a monthly, and 12-month rolling time period basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Natural gas usage for the stockhouse is reported in MAERS under the Stockhouse emission unit. While it can be assumed that natural gas usage is already implicitly covered in this section, it makes since to add a tracking requirement here to fully clarify this.

The following changes to Monitoring/Recordkeeping for EUCFURNACE for are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE VI.4	The permittee shall perform a non-certified visible emission observation for a minimum of 15 minutes for the EUCFURNACE bleeders at least once per month during planned blast furnace start up or shut down activities and a Method 9 certified visible emission observation of the EUCFURNACE bleeder at least once per quarter during planned blast furnace start up or shut down activities. Additionally, the permittee shall perform a Method 9 certified visible emission observation of the EUCFURNACE bleeder during all unplanned openings that last for more than thirty minutes. The permittee shall record each occurrence of bleeder stack opening, and the record shall include the date, start and stop time, and reason for each opening. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken including date, start time and stop time.2 (R 336.1301)	Add "unless impractical due to an emergency situation" to the requirement to perform the readings. Add language that the non-certified reading does not need to be performed in months where the certified reading is performed. See specific markup.	Shutdowns are relatively rare occurrences and can occur with minimal notice in it is an emergency situation. Delaying the shutdown to conduct a reading is not an option due to safety concerns. In addition, occasions have occurred where only 1 planned daytime bleeder opening occurred in a given quarter. AK Steel's typical practice has been to prioritize the certified reading over the non-certified reading. This has led to situations where the non-certified monthly reading has not been completed. AK Steel is looking to clarify this requirement to account for that type of situation.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-02

Additional Information

2. Is This Information Confidential?

Yes No

The following additions and changes to Monitoring/Recordkeeping for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE VI.6	The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the SO ₂ emissions and flow from EUCFURNACE baghouse stack and stove stack on a continuous basis. The permittee shall install and operate each CERM system to meet the timelines, requirements and reporting detailed in Appendix 3.2-1 and shall use the CERM data for determining compliance with SC I.12, I.13, and I.14.2 (R 336.2810, R 336.2803, R 336.2804)	Delete "install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE VI.7	The permittee shall prepare and operate at all times according to a written operation and maintenance plans for "C" Blast Furnace Casthouse Emission Control Baghouse. Each plan must address the following:	Delete "prepare"	As the plans have been prepared, the only ongoing requirement is to operate in accordance with the plan.
EUCFURNACE VI.31 to VI.36	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-14" W.C. defined as operating limit in S.C. 31. S.C. 32 through S.C. 36 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM _{2.5} and PM ₁₀ emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-03

Additional Information

2. Is This Information Confidential?

Yes No

The following additions and changes to Monitoring/Recordkeeping for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF VI.4	Except as allowed in SC VI.6, the permittee shall install, operate, and maintain a bag leak detection system meeting the following specifications on the baghouse control: (40 CFR 63.7831(f))	Delete "install"	Equipment has been installed - Ongoing requirements are to operate and maintain in a satisfactory manner
EUBOFDESULF VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-9" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.

The following deletions to Monitoring/Recordkeeping for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF VI.7	If applicable, the permittee shall operate and maintain the EUBOF ESP CPMS in continuous operation according to the site-specific monitoring plan. Unless otherwise specified, the CPMS shall: (40 CFR 63.7831(b)) a. Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data; (40 CFR 63.7831(b)(1)) b. Provide valid hourly data for at least 95 percent of every averaging period; and (40 CFR 63.7831(b)(2)) c. Determine and record the hourly average of all recorded readings. (40 CFR 63.7831(b)(3))	Eliminate Permit Condition	As discussed previously, AK Steel believes that the MACT requirement to maintain a site-specific monitoring plan does not apply to ESP's. The applicable requirements for ESP COMS are discussed in EUBOF VI.10 and EUBOF VI.16.



RENEWABLE OPERATING PERMIT APPLICATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-04

Additional Information

2. Is This Information Confidential?

Yes No

The following additions and changes to Monitoring/Recordkeeping for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF VI.30 to EUBOF VI.34	No citations in current ROP - Sections being added to incorporate consent decree requirements related to the ESP	See specific markup - incorporated EGLE Civil Action No. 15-cv-11804 Paragraph 19.a, 19.b, 19.c, 21, and 22.	Revision make to incorporate applicable sections of active applicable consent decrees
EUBOF VI.35 to EUBOF VI.40	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific excursion requirement defined as opacity that constitutes a deviation of the MACT limit. S.C. 36 through S.C. 40 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5, PM10, and Mn emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H13-05

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Monitoring/Recordkeeping for EULADLEREFINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.

The following additions to Monitoring/Recordkeeping for EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.

The following additions to Monitoring/Recordkeeping for EUVACUUMDEGASSER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUVACUUMDEGASSER VI.3 to VI.8	No citations in current ROP - Sections being added to incorporate CAM Requirements	Pilot Light Status defined as operating limit in S.C. VI.3. S.C. VI.4 through VI.8 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the CO emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-06

Additional Information

2. Is This Information Confidential?

Yes No

The following deletions and changes to Monitoring/Recordkeeping for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP VI.22	The permittee shall perform a Method 9C certified visible emission observation for the FGBOFSHOP roof monitors at least three times per week on separate days during BOF operations for a minimum of two hours which must include two complete heats. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.2 (R 336.1331)	Add the following before the corrective action clause: In the event that BOF operations are down for more than 36 hours within the week, the number of required readings is reduced to 2. In the event that BOF operations are down for more than 60 hours within the week, the number of required readings is reduced to one.	AK Steel is seeking relief on a condition that has been very difficult to meet - That is getting the full complement of VE readings completed during weeks where an outage occurred. Several weekend observations have been performed to meet the requirement as currently written.
FGBOFSHOP VI.22.a	If visible emissions from the EUBOFSHOP Roof Monitor exhibit opacity greater than 10%, on a three-minute average, the permittee shall investigate the reasons for the exceedance and shall verify that the appropriate work practices set forth in SC VI.22.b were followed. Any instance of EUBOFSHOP Roof Monitor opacity in excess of 10% for a 3-minute average shall be defined herein as a period of Elevated Opacity.	Replace reference to SC VI.22.b with "the emission reduction plan for the BOF Roof Monitor."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.
FGBOFSHOP VI.22.b	In the event of a period of Elevated Opacity, the permittee must be able to demonstrate that the following work practice standards for FGBOFSHOP were followed. The following work practices can be amended or revised upon approval of the AQD District Supervisor:	Eliminate the specific conditions within the Title V Permit and replace with "the permittee must be able to demonstrate that the work practice standards for FGBOFSHOP presented with the Emission Reduction Plan for the BOF Roof Monitor were followed."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-07

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Monitoring/Recordkeeping for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBHOFSHOP VI.23	The permittee shall monitor and record the work practice standards listed in SC VI.22.b using a data control system and work logs. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Replace reference to SC VI.22.b with "the emission reduction plan for the BOF Roof Monitor."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.
FGBOFSHOP VI.25	The permittee shall verify the fan flow conditions for the BOF Secondary Baghouse, as specified in the operation and maintenance plan, at least once per calendar year or more frequently as deemed necessary by the AQD District Supervisor. The flow rate verifications will be conducted in the ductwork riser connecting the charge and tap hoods to the main duct connecting it to the baghouse avoiding, to the extent possible, cyclonic flows. If the flow rate verification identifies a need to revise any set points, then the permittee shall update the fan speed and/or damper positions, as necessary, in the operation and maintenance plan as well as all procedures necessary to implement any such new set points. Any changes in the set points are subject to a retest under SC V.5. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Replace "fan speed and/or damper positions" with "setpoints"	This is too detailed. For example, the set point parameter for flow estimation was changed from fan speed to plenum pressure in 2019. Just referencing "setpoints" in the O&M plan is clear enough as the only setpoints presented are the flow estimation parameter and the damper position.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-08

Additional Information

2. Is This Information Confidential?

Yes No

The following deletions to Monitoring/Recordkeeping for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP VI.26	The permittee shall verify the damper positions for the BOF Secondary Baghouse on a quarterly basis. The permittee shall also inspect and calibrate the damper position to ensure that the actuator is achieving the desired set point for each operating scenario as defined in the operation and maintenance plan. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition	This requirement is essentially a repeat of an item required by the SEC Baghouse CPMS Plan. FGBOFSHOP VI.7.c already requires AK Steel to define performance evaluation procedures and acceptance criteria for the chosen CPMS variables. The permit condition is redundant.
FGBOFSHOP VI.27	The permittee shall verify the fan speed/amperage set point for the BOF Secondary Baghouse on a quarterly basis, this will include verification of fan speed measurements and calibrations using an independent measurement of the amperage/speed. The permittee shall keep the records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition	This requirement is essentially a repeat of an item required by the SEC Baghouse CPMS Plan. FGBOFSHOP VI.7.c already requires AK Steel to define performance evaluation procedures and acceptance criteria for the chosen CPMS variables. The permit condition is redundant. For example, fan speed monitoring was replaced by plenum pressure monitoring in 2019. Even though fan speed monitoring is no longer required by the CPMS plan, this permit condition still requires that the fan speed set point be verified even though it is no longer relevant to anything. The CPMS plan is the appropriate place to require such inspections. It does not need to be separately pulled into the Title V permit as a stand-alone condition.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H13-09

Additional Information

2. Is This Information Confidential?

Yes No

The following additions to Monitoring/Recordkeeping for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP VI.29	No citations in current ROP - Condition being added to incorporate monitoring requirements for Natural Gas Sources within FGBOFSHOP.	Add the following: The permittee shall monitor and record, in a satisfactory manner, the total natural gas usage for FGBOFSHOP (which includes ladle pre-heaters and gas stingers) on a monthly, and 12-month rolling time period basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	While AK Steel believes that the natural gas sources are incorporated under this flexible group, we are seeking to add a monitoring requirement to fully clarify this.
FGBOFSHOP VI.30 to VI.35	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 32. S.C. 33 through S.C. 36 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H13-10

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Monitoring/Recordkeeping for FGHSMFURNACES123 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGHSMFURNACES123 VI.3	The permittee shall perform a Method 9 certified visible emission observation of the slab reheat furnaces 1, 2 & 3 respective stacks at least once a month during processing activity. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R 336.1213(3))	after observation, add "a representative slab reheat furnace 1,2,3"	Current practice has been to read all HSM stacks while the hot mill was operating. However, in most cases, this only covers one (or possibly 2) furnaces. Adding "a representative" provides clarity that the observation is being performed on stack that corresponds with the process, not necessarily on each particular furnace.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-14-01

Additional Information

2. Is This Information Confidential?

Yes No

The following additions to Reporting for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

The following additions to Reporting for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H14-02

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Reporting for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF VII.8	No citations in current ROP - Sections being added to incorporate consent decree reporting requirements	<p>Added: By the 30th day after each calendar quarter (April 30, July 30, October 30, and January 30, permittee shall submit a quarterly report that includes each instance in which the 6-minute block average reading of the COM data for the ESP exceeds 20% opacity. For each instance, permittee shall:</p> <ul style="list-style-type: none"> a. Identify the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.a) b. When the root cause is unknown, provide a description of efforts taken by permittee to investigate the root cause of each 6-minute block average reading that exceeds 20% opacity, including a copy of any related ESP operating records. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.b) c. Describe corrective actions taken in response to the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity, including but not limited to a copy of related work orders or other documents submitted to address the cause of the high reading. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.c) d. Describe preventative actions taken, if any, and actions to be taken, if any, by permittee to eliminate such instances of 6-minute block average readings that exceed 20% opacity in the future, along with a proposed schedule for taking such corrective action, or alternatively, a justification for taking no additional action to address such instances. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.d) 	Revision make to incorporate applicable sections of active applicable consent decrees



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H14-03

Additional Information

2. Is This Information Confidential?

Yes No

The following additions to Reporting for EUBOF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF VII.9	No citations in current ROP - Sections being added to incorporate CAM reporting requirements	Added: Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.

The following additions to Reporting for EULADLEREFINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE1 VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H14-04

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Reporting for EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

The following additions to Reporting for EUVACUUMDEGASSER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUVACUUMDEGASSER VII.4	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H14-05

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Reporting for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP VII.8	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H16-01

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Other Requirements for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUCFURNACE IX.4, IX.5	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>Added conditions:</p> <p>"The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)"</p> <p>"If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"</p>	<p>Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.</p>



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H16-02

Additional Information

2. Is This Information Confidential?

Yes No

The following additions to Other Requirements for EUBOFDESULF are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOFDESULF IX.4 and IX.5	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>Added conditions:</p> <p>"The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)"</p> <p>"If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"</p>	<p>Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.</p>



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID AI-H16-03
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Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The following additions to Other Requirements for EUBOF are being proposed:
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Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUBOF IX.10 and IX.11	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)</p> <p>If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))</p>	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H16-04

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Other Requirements for EULADLEREFINE1 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE1 IX.4 and 5	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H16-05

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Other Requirements for EULADLEREFINE2 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EULADLEREFINE2 IX.4 and 5	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>Added conditions:</p> <p>"The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)"</p> <p>"If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"</p>	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H16-06

Additional Information

2. Is This Information Confidential? Yes No

The following additions to Other Requirements for EUVACUUMDEGASSER are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
EUVACUUMDEGASSER IX.1 and IX.2	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>Added conditions:</p> <p>"The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)"</p> <p>"If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"</p>	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H16-07

Additional Information

2. Is This Information Confidential?

Yes No

The following additions to Other Requirements for FGBOFSHOP are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGBOFSHOP IX.3 and IX.4	No citations in current ROP - Sections being added to incorporate CAM Requirements	<p>Added conditions:</p> <p>"The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)"</p> <p>"If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"</p>	<p>Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.</p>



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H16-08

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Other Requirements for FGENG2007>500 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGENG2007>500 IX.1	The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007>500. (40 CFR Part 63, Subparts A and ZZZZ)	<p>Delete condition and replace with the following two conditions:</p> <p>1. The permittee may operate any engine within FGENG2007>500 for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, those 50 hours are counted towards the hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. (40 CFR 63.6640(f))</p> <p>2. The permittee must maintain on file a copy of the initial notification required under 63.10(b)(2)(xiv). (40 CFR 63.6655(a))</p>	AK Steel is requesting that the specific RICE MACT requirements be spelled out within the permit instead of using a generic "catch-all" term



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

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SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID AI-H16-09
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Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The following deletions to Other Requirements for FGENG2007<500 are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
FGENG2007<500 IX.1 and IX.2	<p>1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007<500. (40 CFR Part 63, Subparts A and ZZZZ)</p> <p>2. The permittee shall comply with all provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, for Spark Ignition Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007<500. (40 CFR Part 60, Subparts A and JJJJ)</p>	Eliminate Permit Conditions	AK Steel's analysis indicates that the engines in this group have no requirements pertaining to either ZZZZ or to JJJJ. As such, the "catch-all" terms are unnecessary and should be deleted.

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RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640	Section Number (if applicable): 1
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1. Additional Information ID
AI-H18-01

Additional Information

2. Is This Information Confidential? Yes No

The following changes to Appendix 3.2-1 SO₂ Monitoring Continuous Emission Rate Monitoring System (CERMS) Requirements for EUCFURNACE are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
Appendix 3.2-1 SO ₂ Monitoring Continuous Emission Rate Monitoring System (CERMS) Requirements for EUCFURNACE, Item 1	For EUCFURNACE, the permittee shall implement and maintain the AQD approved Monitoring Plan. The Monitoring Plan shall include drawings or specifications showing proposed locations and descriptions of the required CERMS.	Delete "implement"	The plan has been implemented and approved, it now only needs to be maintained.
Appendix 3.2-1 SO ₂ Monitoring Continuous Emission Rate Monitoring System (CERMS) Requirements for EUCFURNACE, Item 2	For EUCFURNACE, within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the CERMS complies with the requirements of the corresponding Performance Specifications (PS) in the following table.	In place of testing, add "The annual Relative Accuracy Test Audit". In addition, AK Steel is seeking clarification on whether the 2 copies implies that a copy should be sent to the District Office and the TPU or that 2 copies should be sent to both the District Office and the TPU	Change being requested to clarify the "testing" specified within the condition.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 1

1. Additional Information ID

AI-H18-02

Additional Information

2. Is This Information Confidential?

Yes No

The following changes to Appendix 3.3-1 Continuous Opacity Monitoring System (COMS) Requirements are being proposed:

Permit Condition (in markup)	Current ROP Language	Revision	Justification
Appendix 3.3-1 Continuous Opacity Monitoring System (COMS) Requirements, Item 1	Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the COMS complies with the requirements of Performance Specification (PS) 1.	<p>The applicability of this requirement is very confusing. AK Steel suggests the following language: In the event that a new opacity monitor is installed as a permanent replacement for the previous monitor, within 60 days of completion of the field certifications required by Performance Specification 1 (PS1), the permittee shall submit to the AQD two copies of the final report demonstrating the COMS complies with the requirements of PS1.</p> <p>In addition, AK Steel is seeking clarification on whether the 2 copies implies that a copy should be sent to the District Office and the TPU or that 2 copies should be sent to both the District Office and the TPU</p>	Change being requested to clarify the "testing" specified within the condition.
Appendix 3.3-1 Continuous Opacity Monitoring System (COMS) Requirements, Item 4	The permittee shall perform an annual audit of the COMS using the procedures set forth in USEPA Publication 450/4-92-010, "Performance Audits Procedures for Opacity Monitors", or a procedure acceptable to AQD. Within 30 days after the completion of the audit, the results of the annual audit shall be submitted to the AQD.	<p>Replace permit condition with the following:</p> <p>The permittee shall conduct an annual zero alignment of the COMS by comparing the COMS simulated zero to the actual clear path zero using EPA Procedure 3 (Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources) as a guideline. Within 30 days after the completion of the quarter in which the audit was performed, the results of the audit shall be submitted to the AQD along with the summary report referenced in item 5</p>	A review of the referenced publication made it clear that the annual clear path check was the "annual audit" that was being referred to. AK Steel is also requesting that instead of a report being required within 30 days after the completion of the audit, the report be submitted within 30 days after the completion of the quarter in which the audit was performed. This will make the reporting requirement the same as for other COMS reporting requirements.

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

EFFECTIVE DATE: April 22, 2016

REVISION DATE: January 19, 2017

ISSUED TO

AK STEEL DEARBORN WORKS

State Registration Number (SRN): A8640

LOCATED AT

4001 Miller Road, Dearborn, Michigan 48120

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-A8640-2016a

Expiration Date: April 22, 2021

Administratively Complete ROP Renewal Application
Due Between October 22, 2019 and October 22, 2020

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-A8640-2016a

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

Wilhemina McLemore, Detroit District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a source-wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, or is state only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP.

Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

This permit does not relieve the permittee from any responsibilities or obligations imposed on the permittee, at this source, under Consent Decree (Civil Action No. 15-cv-11804) entered into on August 21, 2015; Consent Order SIP No. 30-1993 issued on November 2, 1994; Consent Order SIP No. 18-1993 issued on September 9, 1994 to Edw. C. Levy Co.; Consent Order Number 6-2006 issued on March 21, 2006; and Consent Order 9-2010 issued on April 23, 2010.

AK Steel Dearborn Works, A8640; and Edw. C. Levy Co., Plant 6, B4243 are considered to meet the criteria under Rule 336.1119(r) as single stationary source for purposes of the ROP program only, but were issued a separate ROP for the main slag processing plant as a result of negotiations.

SECTION 1 – AK STEEL DEARBORN WORKS

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the

Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, “Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:”² **(R 336.1301(1))**
 - a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner’s or operator’s expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
- Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that, “based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete”. The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.² **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
- The applicable requirements are included and are specifically identified in the ROP.
 - The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
- The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

- d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

- 30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
- 31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
- 32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**
- 33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

- 34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
 - a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**

- d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(8))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.
37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	20% Opacity ²	3-minute average	Fugitive dust emissions from sources other than roads, lots, or storage piles.	Method 9D, SC VI.2	Act 451 Section 324.5524(2)
2. Visible Emissions	5 % Opacity ²	3-minute average*	Fugitive dust emissions from any road, lot or storage pile, including any material handling activity at a storage pile.	Method 9D, SC VI. 2	Act 451 Section 324.5524(2)

*This shall not apply to storage pile material handling activities when wind speeds are in excess of 25 miles per hour.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

- The permittee shall implement and maintain the approved Fugitive Dust Control Plan as specified in Appendix 9-1 of this ROP.² **(Act 451 Section 324.5524, Consent Order SIP 30-1993)**

See Appendix 9-1

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. In the event that a source cannot be tested as scheduled due to a temporary shutdown, testing shall be conducted on that source with 60 days of startup. **(40 CFR Part 63.6620(b) Subpart ZZZZ, 40 CFR 63.7515(g) Subpart DDDDD, 40 CFR 63.11223 Subpart JJJJJ)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall keep daily records of the information required by Appendix 4.1-1(A-C) in a format consistent with SIP No. 30-1993. The permittee shall keep the record on file for a period of at least two years, and make the records available to the AQD upon written or verbal request. **(Act 451 Section 324.5524, Consent Order SIP No. 30-1993, Exhibit A,5,H,Addendum, R 336.1213(3))**
2. The permittee shall perform a non-certified visible emission observation of the fugitive dust sources mentioned in Appendix 9-1 of this permit at least once per week during March through October. The permittee shall perform a certified visible emission observation of a representative set of the fugitive dust sources mentioned in Appendix 9-1 of this permit at least once per month during March through October. The representative set must include a paved road, an unpaved road, a storage pile and an unpaved open area. A different set of fugitive dust sources must be observed each month. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. **(R 336.1213(3))**
3. The permittee shall implement and maintain the Hydrogen Sulfide Monitoring Protocol for Rule 406 submitted and approved by AQD on April 1, 2011 or any subsequent amendment to the protocol. Amendments to the protocol must be approved by the AQD District Supervisor. If, at any time, the AQD determines that the protocol is inadequate, the permittee shall amend the protocol within 45 days upon request from the AQD District Supervisor.² **(R 336.1406(2), R 336.1213(3))**

See Appendix 4-1 and 9-1

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. A quarterly report shall be submitted by the permittee to the AQD identifying each day in which emission limit, operational requirement, or recording requirement, as specified in SIP No. 30-1993 (Revised 9/9/94) Exhibit A (Fugitive Dust Control Plan, Rouge Area Operations), is not met. This report shall, for each instance, explain the reason that the emission limit, operational requirement, or recordkeeping requirement was not met, the duration of the event, the remedial action taken, and a description of the steps which were taken to prevent a recurrence. These reports shall be submitted within 30 days following the end of the calendar quarter in which the data was collected. **(Consent Order SIP No. 30-1993, Paragraph 11)**

See Appendix 8-1

ATTACHMENT E – PLANS REFERENCED IN ROP

SOURCE-WIDE PLANS

**HYDROGEN SULFIDE MONITORING PROTOCOL
FUGITIVE DUST CONTROL PLAN**



HYDROGEN SULFIDE MONITORING PROTOCOL

AK STEEL DEARBORN WORKS

April 1, 2011

Revised October 4, 2019

PLAN(E)-W-00-29

1. All off-site odor complaints brought to the attention of the facility will be investigated in a timely manner. It is anticipated that if *EGLE* receives an odor complaint, the complaint should be reported to the AK Steel Dearborn Works security phone (313-317-8882) as soon as possible, preferably within 8 hours. It is recognized that delays in reporting a complaint to AK Steel Dearborn Works will increase the likelihood that an odor will not be present, which, in turn, will reduce the opportunity to reach a definitive conclusion as to the existence, source, and nature of the odor.

2. *When Security receives the odor complaint, they are to record the name and phone number of the person making the complaint and the time that the complaint was made. Upon recording this information, Security should page Environmental Affairs as soon as possible at 313-714-9501. Environmental Affairs is responsible for contacting the person who made the complaint and completing the investigation form. If Environmental Affairs is contacted directly about the complaint, the same procedure will be followed.*

3. Odors will not be assumed to be hydrogen sulfide until after the investigation has been completed, since there are many chemicals at the facility and in the general area of the facility with odors similar to hydrogen sulfide. Investigation of off-site odor complaints will consist of determining the wind direction and status of equipment and operations and the use of hydrogen sulfide monitor to the extent appropriate. *Information regarding the use of the hydrogen sulfide monitor and conducting the investigation is provided in AKDP-F3-10-15, Hydrogen Sulfide Monitoring.*

4. The investigation shall be documented *by Environmental Affairs* on the Complaint Form (*FORM(E)-F3-10-30-02*). After the investigation and Complaint Form is completed, the Environmental Department shall *evaluate* the findings.

4.1 If the location of the odor complaint is not downwind of the facility, the odor will be determined not to be from the facility. A comment will be written on the complaint form stating that the source of the odor complaint was not from the facility.

4.2 If the location of the odor complaint is downwind of the facility, the environmental department will determine, through knowledge of the process and operation of the equipment, and the use of the hydrogen sulfide monitor where appropriate, if the odor could have been caused by hydrogen sulfide. If the odor is determined not to be hydrogen sulfide, a comment will be written on the complaint form stating that the odor was determined not to be hydrogen sulfide. If the odor could have been caused by hydrogen sulfide emissions, the environmental department shall document their findings on the form or on a separate page and a copy of the findings will be maintained with the completed Complaint Form.

4.3 Complaint forms listing the date and time of the odor complaint and the results of the investigation will be kept on file by AK Steel Dearborn Works for a minimum of 5 years and shall be made available to *EGLE* upon request.

CHANGE LOG

Revision	Comments
April 1, 2011	Original by Severstal
March 20, 2017	Revised plan to reflect change in ownership. Revised complaint report form.
October 04, 2019	Added step clarifying that it was EA's job to conduct the investigation, added specific steps for Security to take when notified, changed MDEQ and AQD references to EGLE, added reference to AKDP-F3-10-15, Hydrogen Sulfide Monitoring Procedure.



Dearborn Works

ENVIRONMENTAL AFFAIRS COMPLAINT REPORT FORM

Received by AK Dearborn Works		Date:	Time:	By:
Name:	_____			<input type="checkbox"/> Telephone
Address:	_____			<input type="checkbox"/> Fax
City:	_____			<input type="checkbox"/> Visit
Telephone No:	_____	Zip Code:	_____	<input type="checkbox"/> Other:
Type Complaint: <input type="checkbox"/> Fallout <input type="checkbox"/> Odor <input type="checkbox"/> Smoke <input type="checkbox"/> Dust <input type="checkbox"/> Explosion <input type="checkbox"/> Other _____				
Date & Time Occurred: _____				
Complainant Information: _____				
Investigation:		Date:	Time:	By:
Weather:		Wind Dir:	Wind Speed:	Sky:
Findings:				
Recommendations:				
Action Taken:				
Corporate Environmental Manager Contacted?	YES NO	Method		
Corporate Director of Public Affairs Contacted?	YES NO	Method		
Corporate Legal Department?	YES NO	Method		



AK STEEL DEARBORN WORKS FUGITIVE DUST CONTROL PLAN

September 2003

Revised July 2020

PLAN(E)-W-00-05

EXHIBIT A
FUGITIVE DUST CONTROL PLAN
AK STEEL DEARBORN WORKS

1. Facility Name and Address:

AK Steel Dearborn Works
4001 Miller Road
Dearborn, MI 48121

2. Name and Address of Responsible Person:

Environmental Affairs Manager
AK Steel Dearborn Works
Environmental Engineering
4001 Miller Road
Dearborn, MI 48120- 1699
Phone: (313) 845-3217

Summary of Source Descriptions and Control Measures

3. Diagram:

See attached Exhibit I.

4. Location of Unloading Operations:

See attached Exhibit I.

5. Description of Practices:

A. Raw material delivery and storage operations:

- 1) Raw materials, such as iron ore pellets and limestone are received at the dock in boats. The boats are equipped with conveyors, which provide self-unloading capability. The head end of the conveyor on each boat shall minimize the drop height to two feet, where possible, during unloading of the raw materials into the Hi-Line storage bins.

- 2) Coke is received by rail and unloaded in the EE Building. The EE Building is evacuated to a baghouse during unloading operations. The coke is stored in the Stockhouse and/or piles adjacent to the Stockhouse *or in the raw material yard.*
- 3) Briquettes are received by truck and stored in the Stockhouse and/or piles adjacent to the Stockhouse *or in the raw material yard.*
- 4) Other charge materials (e.g., BOF slag, etc.) are received by truck and stored in the Stockhouse and/or piles adjacent to the Stockhouse *or in the raw material yard.*
- 5) The lime receiving station at the Basic Oxygen Furnace is located at the southeast corner of the building. The south end of the station has a closable door. Lime is received in enclosed trucks and unloaded inside the building. The door at the south end of the building remains closed during unloading. The building is evacuated to a baghouse.
- 6) Coke breeze and iron ore screenings are stored in piles adjacent to the Stockhouse *or in the raw material yard* and subsequently sold or disposed.

B. Handling and storage of collectate from pollution control equipment:

- 1) Collectate from the baghouse controlling the coke unloading operation in EE Building is periodically vacuumed out and transferred to the onsite debris pile. Adequate steps to prevent control equipment collectate from becoming fugitive dust will be taken, such as mixing with water at the debris pile or adding water when necessary.
- 2) The coke screening building (DD Building), located north of EE Building and east of the Hi-Line, is evacuated by a baghouse. Undersize material is screened out, stored in the coke breeze storage bin, and subsequently sold.
- 3) Collectate from the raw material handling system baghouse is periodically vacuumed out and transferred to the on site debris pile. Adequate steps to prevent control equipment collectate from becoming fugitive dust will be taken, such as mixing with water at the debris pile or adding water when necessary.
- 4) Dust is periodically emptied from the two blast furnace flue dust collectors and stored on site and subsequently sold.
- 5) Collectate from the lime receiving station baghouse is periodically vacuumed out and disposed of or recycled.

- 6) During the steel making process at the Basic Oxygen Furnace emissions are generated, and captured in a "drop-out chamber" and an electrostatic precipitator. The collectate is moved by screw conveyors and covered belt conveyor to a storage bin, then loaded into a truck. The trucks are watered and then covered prior to transport to landfill or recycling. Water is not used if transported by a pneumatic truck.
- 7) Collectate from the BOF secondary emissions baghouse is periodically vacuumed out and transferred to an enclosed rolloff box.
- 8) Collectate from the desulfurization baghouse bins is periodically vacuumed out and transferred to the onsite debris pile. Adequate steps to prevent control equipment collectate from becoming fugitive dust will be taken, such as mixing with water at the debris pile or adding water when necessary.
- 9) Collectate from the No.1 Ladle Refining Facility baghouse is periodically vacuumed out and transferred to an enclosed rolloff box.
- 10) Collectate from the No.2 Ladle Refining Facility baghouse is periodically vacuumed out and transferred to an enclosed rolloff box.
- 11) Collectate from the "C" Blast Furnace baghouse is periodically vacuumed out and transferred to an enclosed roll off box.
- 12) Collectate from the PLTCM Scalebreaker Baghouse is collected in super sacks and is either transferred to the onsite debris pile or subsequently sold.
- 13) Collectate from the Machine Scarfing Baghouse is collected in super sacks and disposed offsite.

C. Other operations:

- 1) Periodically, materials must be stored in piles outside the exempt area shown in Exhibit I (west of the Blast Furnaces). These materials are coke, iron ore fines, limestone, coke screenings, sand and blast furnace flue dust. The active piles will be treated with an asphalt emulsion, petroleum resin, or acrylic cement, once per month from March through October. An active pile is defined as a storage pile that is disturbed once per month or more. Inactive piles will be treated with an asphalt emulsion, petroleum resin, or acrylic cement, once per year. An inactive pile is defined as a storage pile that is disturbed less than once per month.
- 2) Normal access areas surrounding storage piles will be treated with an

asphalt emulsion, petroleum resin, or an acrylic cement, once per month from March through October.

- 3) Field stored materials are reclaimed using a front-end loader and loaded into trucks or railroad cars. During loading of vehicles the clearance between the bottom of the loader bucket and the vehicle sideboard will be maintained at two feet maximum.

D. Open areas and unpaved roads:

- 1) Open areas are indicated on Exhibit I. They will be treated with an asphalt emulsion, petroleum resin, or acrylic cement, once per month between March and October.
- 2) Unpaved roads are shown on Exhibit I. They will be treated with an asphalt emulsion, petroleum resin, or acrylic cement, once every twelve (12) days between March and October.

E. Paved area control practices:

There are approximately 5.1 miles of paved roadways within the AK Steel Facility. Asphalt is the predominant surfacing material on all paved areas except Gate 12 Road, which is concrete. Treatment procedures employed for dust control on paved roadways and parking lots are primarily devoted to sweeping and flushing practice. Specific treatment procedures are described below.

- 1) Wet Sweeping
 - a. All paved roadways identified on Exhibit I receive wet sweeper treatments on a daily schedule (five days a week, March through October).
 - b. The traveled portion of parking areas (Exhibit 1) will receive wet sweep treatments once a month from March through October. A greater frequency rate will be implemented on these areas if warranted due to extended dry weather. The non traveled portions of parking lots will be swept and cleaned a minimum of three times per year.
 - c. Materials and debris picked up during wet sweep activities will be transported and deposited in a designated holding site. Appropriate control measures will be implemented when necessary to further reduce fugitive dust emission potential from the sweeping debris material piles.

2) Street Flushing

All paved roadways in the AK Steel Facility will receive flusher treatments on a daily schedule, five days a week for eight months (March through October) of the year when outside temperatures are above freezing. Roadway assignments are presented in Exhibit I.

3) Equipment

Equipment utilized to implement the fugitive dust plan is either on site or contracted as necessary.

4) Schedule Change

Roadway treatment application schedules presented in this plan may be modified on a short-term basis in response to adverse meteorological conditions or unusual circumstances requiring street cleaner equipment, such as spill situations or raw material handling. Daily treatment procedures will be foregone when:

- Daily precipitation exceeds 0.1 in.
- Freezing is a concern.
- Road salt is applied and for 48 hours thereafter

5) Additional Measure

- a. To control dust during scheduled raw material handling over paved surfaces, a flusher vehicle will sprinkle the truck hauling route.
- b. Speed signs have been posted on major paved roadways throughout the AK Steel Facility to maintain lower vehicular speeds. Maximum posted limit is 20 mph.

F. Material handling conveyors:

- 1) Coke handling conveyors are shown on Exhibit I. All of these conveyors are either totally enclosed or covered with a 180 degree cover.
- 2) The Blast Furnace Raw Material Handling Conveyor System is shown in Exhibit I. The "B" and "C" Blast Furnace charging conveyors are totally enclosed (360 degrees). All other conveyors have a 180 degree cover. All transfer points are covered.
- 3) The lime handling conveyor at the Basic Oxygen Furnace Building, including the transfer point, is enclosed. This conveyor is shown on Exhibit I.
- 4) The precipitator dust handling conveyor at the Basic Oxygen Furnace

Building is shown on Exhibit I. The conveyor has a 180 degree cover over the belt.

G. Dust Suppressant

The suppressant used will be an acrylic cement, petroleum resin, or an asphalt emulsion. It is diluted with water in a ratio of not less than 1 part suppressant to 9 parts water and applied at a rate of 0.3 gallons of solution per square yard of surface area covered throughout the plant (all sources).

H. Records in the format of Attachment I will be kept for a period of two years.

(Note: See attached MDEQ Required Recordkeeping for Fugitive Dust Source Addendum for additional information.)

ADDENDUM

Recordkeeping for Fugitive Dust Sources

ADDENDUM
Recordkeeping for Fugitive Dust Sources

Required Records

Unpaved Roads/ Lots

1. Date of treatment
2. Control measure used
3. Responsible person's initials
4. Name of product applied
5. Amount of solution/water applied
6. Dilution ratio
7. Road segment/lot identification

Paved Roads/Lots

1. Date of treatment
2. Control measure used
3. Responsible person's initials
4. Road segment/lot identification

Storage Piles/Materials Handling

1. Date of treatment
2. Control measure used
3. Responsible person's initials
4. Dilution ratio (if applicable)
5. Amount of dust suppressant/water applied
6. Identification of pile/material handling operations treated
7. Equipment used

Optional Records

Weather Conditions

1. Precipitation
2. Temperature
3. Wind direction and velocity

ATTACHMENT I

Daily Summary of Dust Suppressant Application to Unpaved Roads

EXHIBIT I
Fugitive Dust Sources



Unpaved Road / Area Dust Control Emulsion Application Log

Date: _____

Initials: _____

Name of product applied: _____

Dilution Ratio: _____

Check box if there was excessive precipitation (greater than 0.1 inches), or temperatures were below freezing.

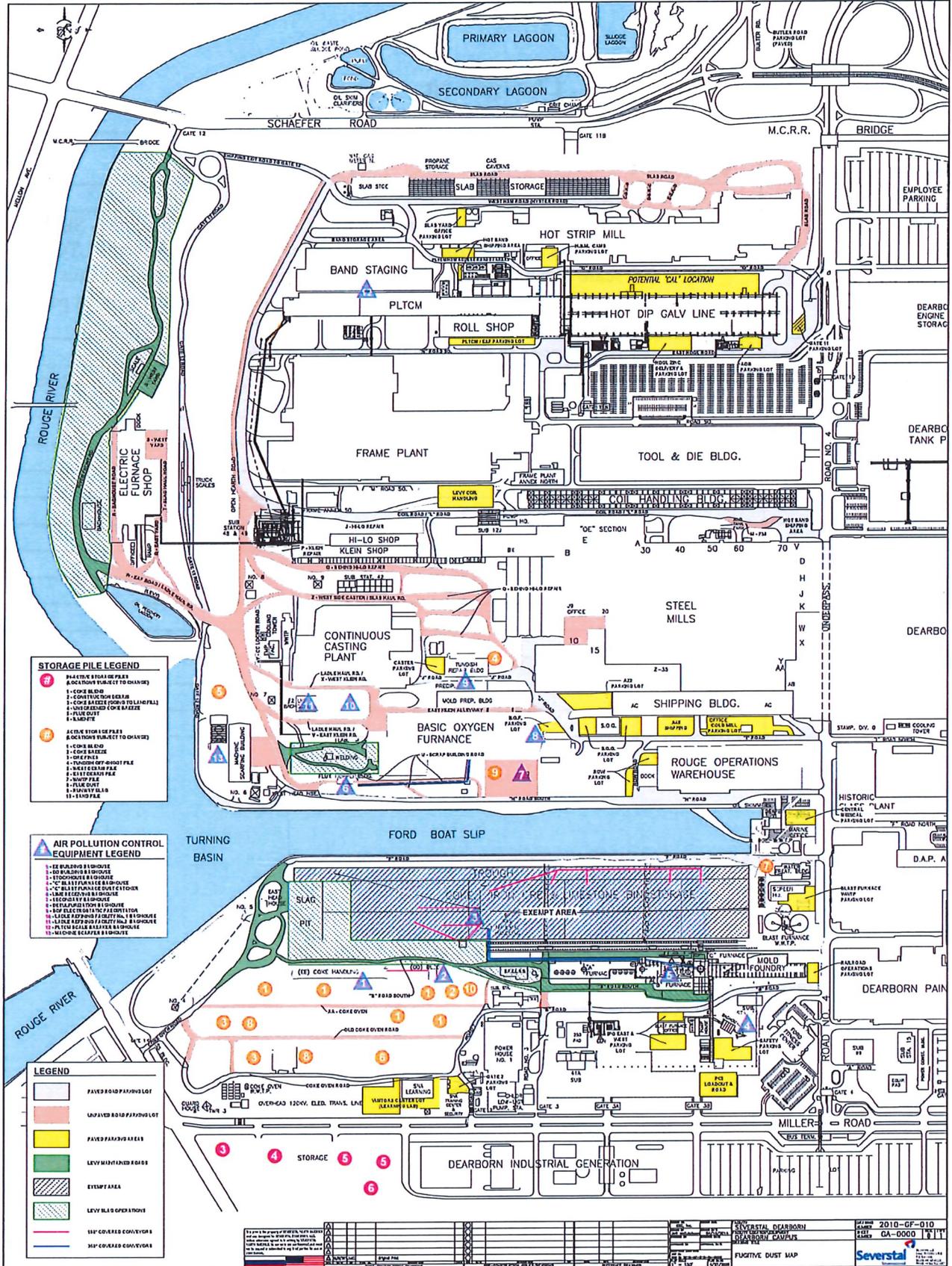
Treatment Required once every 12 days (MARCH - OCTOBER)

	AREA IDs	EMULSION (Gallons)	WATER (Gallons)	TOTAL (Gallons)
A	<i>Slab Road</i>			
C	<i>S.R.-B</i>			
D	<i>S.R.-C</i>			
E	<i>S.R.-D</i>			
J	<i>Hi-LO repair</i>			
O	<i>Behind Hi-Lo Repair</i>			
P	<i>Klein Repair</i>			
Q	<i>East Yard</i>			
R	<i>Bag House Road</i>			
T	<i>Slag Haul Road *</i>			
U	<i>Scrap Bldg. Road</i>			
V	<i>East Klein Road / East Klein Alleyway</i>			
W	<i>EAF Road (Levy)</i>			
X	<i>West Klein Road</i>			
Y	<i>CC Locker Road</i>			
Z	<i>West Side Caster</i>			
AA	<i>Coke Oven</i>			
AB	<i>Old Coke Oven Road</i>			
AC	<i>J9 Office</i>			
AD	<i>Machine Scarfer Slab Entry</i>			
AE	<i>Blast Furnace Stockhouse **</i>			
AF	<i>BOF Scrap Area (Directly in front of BOF)</i>			
SUBTOTALS				
OTHERS				
GRAND TOTALS				

Note:

* For T, if cannot treat with emulsion because of slab storage or other issue, please note reason.

** AE Area not regulated by Fugitive Dust Plan. On form for tracking purposes.



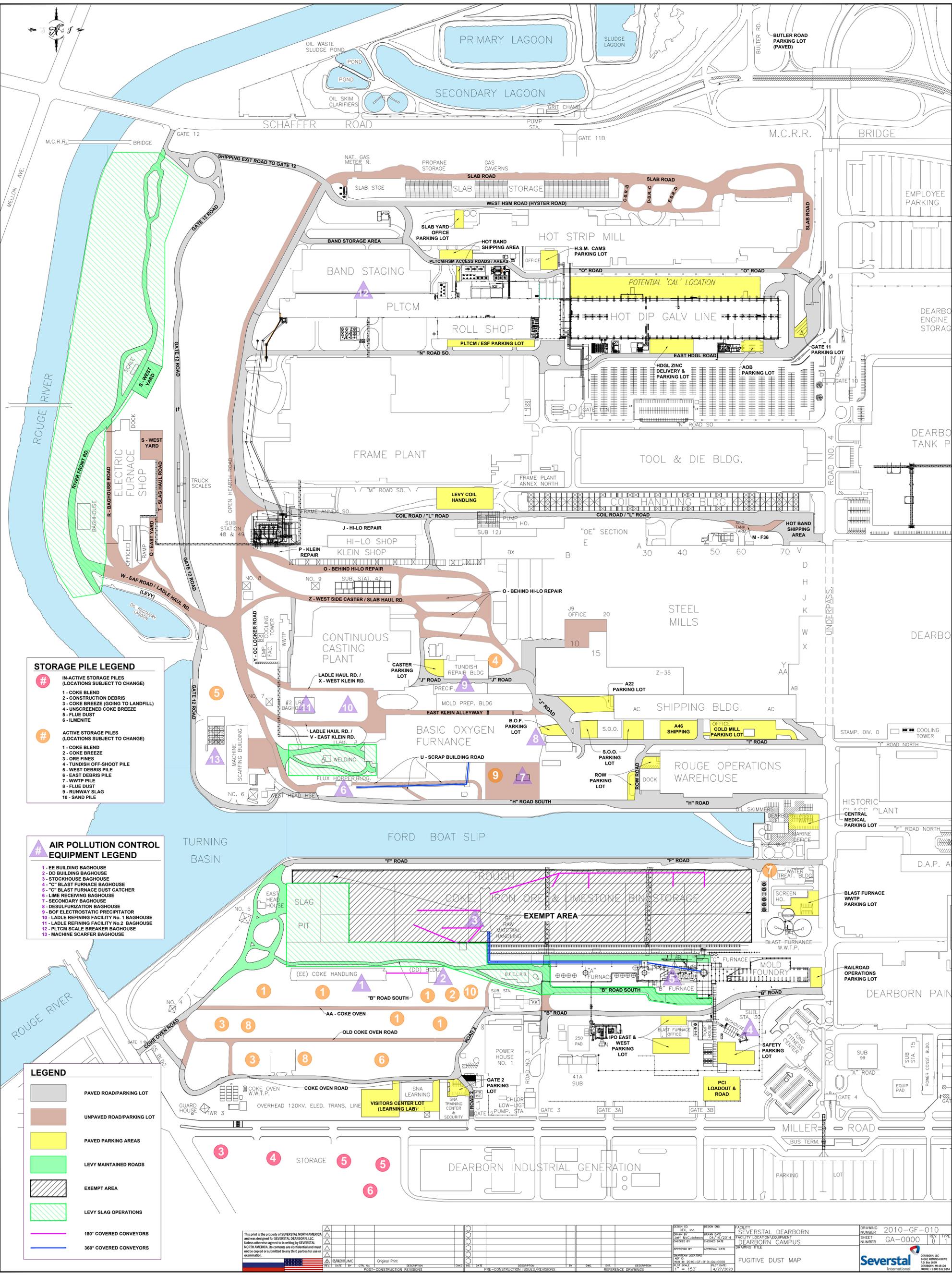
- STORAGE PILE LEGEND**
- 1- COKE BLDG
 - 2- COKE TUCK ROOMS
 - 3- COKE BARGE COOKS TO LAMINAR
 - 4- COKE BARGE COOKS TO BARGE
 - 5- FLAME DIRT
 - 6- LAMINAR
 - 7- COKE BARGE COOKS TO CHARGE
 - 8- COKE BARGE
 - 9- COKE BARGE
 - 10- COKE BARGE
 - 11- COKE BARGE
 - 12- COKE BARGE
 - 13- COKE BARGE
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 - 50- COKE BARGE

- AIR POLLUTION CONTROL EQUIPMENT LEGEND**
- 1- ELECTROSTATIC PRECIPITATOR
 - 2- ELECTROSTATIC PRECIPITATOR
 - 3- ELECTROSTATIC PRECIPITATOR
 - 4- ELECTROSTATIC PRECIPITATOR
 - 5- ELECTROSTATIC PRECIPITATOR
 - 6- ELECTROSTATIC PRECIPITATOR
 - 7- ELECTROSTATIC PRECIPITATOR
 - 8- ELECTROSTATIC PRECIPITATOR
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 - 48- ELECTROSTATIC PRECIPITATOR
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 - 50- ELECTROSTATIC PRECIPITATOR

- LEGEND**
- PAVED ROAD/PARKING LOT
 - UNPAVED ROAD/PARKING LOT
 - PAVED PARKING AREA
 - LEVY MAINTAINED ROADS
 - EXEMPT AREA
 - LEVY SLAG OPERATIONS
 - 100' COVERED CONVEYOR
 - 150' COVERED CONVEYOR

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR PERMITTING	10/10/10	J. SMITH
2	REVISED TO ADD COMMENTS	11/15/10	J. SMITH
3	REVISED TO ADD COMMENTS	12/01/10	J. SMITH
4	REVISED TO ADD COMMENTS	01/15/11	J. SMITH
5	REVISED TO ADD COMMENTS	02/01/11	J. SMITH
6	REVISED TO ADD COMMENTS	03/01/11	J. SMITH
7	REVISED TO ADD COMMENTS	04/01/11	J. SMITH
8	REVISED TO ADD COMMENTS	05/01/11	J. SMITH
9	REVISED TO ADD COMMENTS	06/01/11	J. SMITH
10	REVISED TO ADD COMMENTS	07/01/11	J. SMITH
11	REVISED TO ADD COMMENTS	08/01/11	J. SMITH
12	REVISED TO ADD COMMENTS	09/01/11	J. SMITH
13	REVISED TO ADD COMMENTS	10/01/11	J. SMITH
14	REVISED TO ADD COMMENTS	11/01/11	J. SMITH
15	REVISED TO ADD COMMENTS	12/01/11	J. SMITH
16	REVISED TO ADD COMMENTS	01/01/12	J. SMITH
17	REVISED TO ADD COMMENTS	02/01/12	J. SMITH
18	REVISED TO ADD COMMENTS	03/01/12	J. SMITH
19	REVISED TO ADD COMMENTS	04/01/12	J. SMITH
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40	REVISED TO ADD COMMENTS	01/01/14	J. SMITH
41	REVISED TO ADD COMMENTS	02/01/14	J. SMITH
42	REVISED TO ADD COMMENTS	03/01/14	J. SMITH
43	REVISED TO ADD COMMENTS	04/01/14	J. SMITH
44	REVISED TO ADD COMMENTS	05/01/14	J. SMITH
45	REVISED TO ADD COMMENTS	06/01/14	J. SMITH
46	REVISED TO ADD COMMENTS	07/01/14	J. SMITH
47	REVISED TO ADD COMMENTS	08/01/14	J. SMITH
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74	REVISED TO ADD COMMENTS	11/01/16	J. SMITH
75	REVISED TO ADD COMMENTS	12/01/16	J. SMITH
76	REVISED TO ADD COMMENTS	01/01/17	J. SMITH
77	REVISED TO ADD COMMENTS	02/01/17	J. SMITH
78	REVISED TO ADD COMMENTS	03/01/17	J. SMITH
79	REVISED TO ADD COMMENTS	04/01/17	J. SMITH
80	REVISED TO ADD COMMENTS	05/01/17	J. SMITH
81	REVISED TO ADD COMMENTS	06/01/17	J. SMITH
82	REVISED TO ADD COMMENTS	07/01/17	J. SMITH
83	REVISED TO ADD COMMENTS	08/01/17	J. SMITH
84	REVISED TO ADD COMMENTS	09/01/17	J. SMITH
85	REVISED TO ADD COMMENTS	10/01/17	J. SMITH
86	REVISED TO ADD COMMENTS	11/01/17	J. SMITH
87	REVISED TO ADD COMMENTS	12/01/17	J. SMITH
88	REVISED TO ADD COMMENTS	01/01/18	J. SMITH
89	REVISED TO ADD COMMENTS	02/01/18	J. SMITH
90	REVISED TO ADD COMMENTS	03/01/18	J. SMITH
91	REVISED TO ADD COMMENTS	04/01/18	J. SMITH
92	REVISED TO ADD COMMENTS	05/01/18	J. SMITH
93	REVISED TO ADD COMMENTS	06/01/18	J. SMITH
94	REVISED TO ADD COMMENTS	07/01/18	J. SMITH
95	REVISED TO ADD COMMENTS	08/01/18	J. SMITH
96	REVISED TO ADD COMMENTS	09/01/18	J. SMITH
97	REVISED TO ADD COMMENTS	10/01/18	J. SMITH
98	REVISED TO ADD COMMENTS	11/01/18	J. SMITH
99	REVISED TO ADD COMMENTS	12/01/18	J. SMITH
100	REVISED TO ADD COMMENTS	01/01/19	J. SMITH

2010-GF-010
 SEVERSTAL DEARBORN
 DEARBORN CAMPAIGN
 FUGITIVE DUST MAP



- STORAGE PILE LEGEND**
- #** IN-ACTIVE STORAGE PILES (LOCATIONS SUBJECT TO CHANGE)
- 1 - COKE BLEND
 - 2 - CONSTRUCTION DEBRIS
 - 3 - COKE BREEZE (GOING TO LANDFILL)
 - 4 - UNSCREENED COKE BREEZE
 - 5 - FLUE DUST
 - 6 - ILMENITE
- #** ACTIVE STORAGE PILES (LOCATIONS SUBJECT TO CHANGE)
- 1 - COKE BLEND
 - 2 - COKE BREEZE
 - 3 - ORE FINES
 - 4 - TUNDISH OFF-SHOOT PILE
 - 5 - WEST DEBRIS PILE
 - 6 - EAST DEBRIS PILE
 - 7 - WWTP PILE
 - 8 - FLUE DUST
 - 9 - RUNWAY SLAG
 - 10 - SAND PILE

- AIR POLLUTION CONTROL EQUIPMENT LEGEND**
- 1 - EE BUILDING BAGHOUSE
 - 2 - DD BUILDING BAGHOUSE
 - 3 - STOCKHOUSE BAGHOUSE
 - 4 - "C" BLAST FURNACE BAGHOUSE
 - 5 - "C" BLAST FURNACE DUST CATCHER
 - 6 - LIME RECEIVING BAGHOUSE
 - 7 - SECONDARY BAGHOUSE
 - 8 - DESULFURIZATION BAGHOUSE
 - 9 - BOF ELECTROSTATIC PRECIPITATOR
 - 10 - LADLE REFINING FACILITY No. 1 BAGHOUSE
 - 11 - LADLE REFINING FACILITY No. 2 BAGHOUSE
 - 12 - PLTCM SCALE BREAKER BAGHOUSE
 - 13 - MACHINE SCARFER BAGHOUSE

- LEGEND**
- PAVED ROAD/PARKING LOT
 - UNPAVED ROAD/PARKING LOT
 - PAVED PARKING AREAS
 - LEVY MAINTAINED ROADS
 - EXEMPT AREA
 - LEVY SLAG OPERATIONS
 - 180° COVERED CONVEYORS
 - 360° COVERED CONVEYORS

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<p>Original Print</p>	<p>POST-CONSTRUCTION REVISIONS</p>	<p>PRE-CONSTRUCTION ISSUES/REVISIONS</p>	<p>REFERENCE DRAWINGS</p>	<p>SEVERSTAL International</p>

EUCFURNACE PLANS

C-BLAST FURNACE CASTHOUSE BAGHOUSE AND CAPTURE SYSTEM O&M PLAN
C-BLAST FURNACE CASTHOUSE BAGHOUSE CPMS SITE SPECIFIC MONITORING PLAN
C-BLAST FURNACE CASTHOUSE BAGHOUSE AND BLEEDERS SSM PLAN
C-BLAST FURNACE STOVES MAP

AK STEEL DEARBORN WORKS

C Blast Furnace Casthouse Baghouse & Capture System

Operation & Maintenance Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

October 15, 2007

Revised July 24, 2019

PLAN(E)-W-10-01

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AK Steel Dearborn Works C Blast Furnace Baghouse and Capture System Operation and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the operation and maintenance (O & M) procedures for the C Blast Furnace Baghouse and capture system. This plan is intended to satisfy the requirements of the Integrated Iron and Steel Manufacturing Facilities Maximum Achievable Control Technology (MACT) rules to have a written O & M Plan pursuant to 40 CFR 63.7800(b). The roadmap directs interested parties to the appropriate written operational control document contained in the Dearborn Works document management system. Revisions to the operating control documents are not considered revisions to the O & M Plan. These procedures describe O & M of the capture system and the pollution control equipment (baghouse) to comply with the relevant MACT rules. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, at least to the levels required by the relevant standard. This plan, if implemented correctly, will also reduce reporting burdens.

1. Detailed Procedures: Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
<p>1. C Blast Furnace Baghouse system and/or capture system inspection procedures. The following equipment shall be inspected daily. The procedures provide how to evaluate each component and to repair, replace, or isolate each component. If established procedures are not followed, excess emission, repeated failure, or further damage could result. A record of each inspection will be maintained for 5 years.</p> <p style="padding-left: 20px;">a. Pressure drop across each baghouse compartment. These requirements are pursuant to 40 CFR 63.7830(b)(1).</p> <p style="padding-left: 20px;">b. Confirm that the compressed air supply to the pulse-jet baghouse is operating properly. These requirements are pursuant to 40 CFR 63.7830(b)(3).</p> <p style="padding-left: 20px;">c. Baghouse cleaning cycles to ensure proper operation. These requirements are pursuant to 40 CFR 63.7830(b)(4).</p> <p style="padding-left: 20px;">The following equipment shall be inspected at intervals of no less than weekly. The procedures provide how to</p>	<p>a. AKDP-F3-15-12 – Level II Reports – Daily Environmental Requirements</p> <p>b. AKDP-F3-15-12 - Level II Reports – Daily Environmental Requirements</p> <p>c. AKDP-F3-15-12 - Level II Reports – Daily Environmental Requirements</p>

Procedure	Reference
<p>evaluate each component and to repair, replace or isolate each component.</p> <p>a. Dust removal from the hopper through visual inspections or other means. These requirements are pursuant to 40 CFR 63.7830(b)(2).</p> <p>The following equipment shall be inspected at intervals of no less than monthly. The procedures provide how to evaluate each component and to repair, replace or isolate each component.</p>	<p>a. QSOPE-A2-65-0133 - Baghouse Dust Removal</p>
<p>a. Capture system hoods, ductwork, dampers, and expansion joints. These requirements are pursuant to 40 CFR 63.7800(b)(1).</p> <p>b. Baghouse components (inlet and outlet dampers and actuators, pressure sensors). These requirements are pursuant to 40 CFR 63.7800(b)(1).</p> <p>c. Bag cleaning mechanisms for proper functioning. These requirements are pursuant to 40 CFR 63.7830(b)(5).</p>	<p>a. QSMPE-A2-65-3700 – Weekly Inspection of C-Furnace Baghouse</p> <p>b. QSMPE-A2-65-3700 – Weekly Inspection of C-Furnace Baghouse</p> <p>c. QSMPE-A2-65-3704 - Inspection of C Furnace Pulse-Jets (Monthly)</p>
<p>The following equipment shall be inspected at intervals of no less than quarterly. The procedures provide how to evaluate each component and to repair, replace or isolate each component.</p> <p>a. Physical inspection of the baghouse interior for air leaks. These requirements are pursuant to 40 CFR 63.7830(b)(7).</p> <p>b. I.D. fan for wear, material buildup, and corrosion. These requirements are pursuant to 40 CFR 63.7830(b)(8).</p>	<p>a. QSMPE-A2-65-3707 - Quarterly Baghouse Tubesheet and Compartment Inspection</p> <p>d. QSMPE-A2-65-3700 – Weekly Inspection of C-Furnace Baghouse</p> <p>b. AKDP-F3-15-12 - Level II Reports – Daily Environmental Requirements</p>

Procedure	Reference
<p>2. Bag leak detection system alarm corrective action procedure. In the event of an alarm, corrective action must be initiated within one hour to determine the cause of the alarm. Corrective action must be initiated within 24 hours to correct the cause of the problem, and the corrective action must be completed as soon as practicable. These requirements are pursuant to 40 CFR 63.7800(b)(4).</p>	<p>QSOPE-A2-65-0132 Investigation of Potential Environmental Equipment Deviations</p> <p>AKDP-F3-15-12 - Level II Reports – Daily Environmental Monitoring</p>

Source Operation: Operation of C Blast Furnace includes the period of time when burden feed is occurring and “wind” is on the furnace and when hot metal and slag are cast from the tap hole. The hot metal is collected in torpedo cars, and the slag is captured in slag pots. This latter period of time (when fugitive emissions are generated) begins when the tap hole is drilled prior to the cast and ends after the tap hole is plugged at the end of the cast. The C Blast Furnace Casthouse Baghouse must be in operation during tap hole opening, casting, slagging, and plugging.

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the Blast Furnace is the General Manager – Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works Blast Furnace: Department Manager, Ironmaking.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, and maintain the air pollution control equipment as established in these O & M Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
5. **Monitoring:** Baghouse inlet pressure and hood damper positions are the designated operational monitoring components of the capture system and are listed in Table 1 which contain values established pursuant to §63.7790(b)(1) during the *June 2019* performance test. The baghouse inlet draft pressure transmitter and hood damper actuators are calibrated during their operational use, per the “C Blast Furnace Casthouse Baghouse Site Specific Monitoring Plan.”
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for

at least 5 years following the date of each O & M occurrence, measurement, maintenance, corrective action, report, or record.

7. **Reporting:** Baghouse inlet pressure and damper position deviations as well as deviations to the operation and maintenance requirements of this O&M plan are required to be reported to the agency on a periodic basis according to the Facility Title V permit and/or Integrated Iron and Steel MACT rules schedule.

A. REFERENCES:

40 CFR Subpart FFFFF

LIST OF CONTROLLED OPERATING AND MAINTENANCE PROCEDURES

The following procedures listed in this plan serve as the required inspections to comply with the Iron and Steel MACT rules for the Blast Furnace C Casthouse Baghouse.

Procedure	Reference
Level II Reports – Daily Environmental Requirements	AKDP-F3-15-12
Baghouse Dust Removal	QSOPE-A2-65-0133
<i>Weekly</i> Inspection of C-Furnace Baghouse	QSMPE-A2-65-3700
Inspection of C Furnace Pulse-Jets (Monthly)	QSMPE-A2-65-3704
Quarterly Baghouse Tubesheet and Compartment Inspection	QSMPE-A2-65-3707
Investigation of Potential Environmental Equipment Deviations	QSOPE-A2-65-0132

The following procedures listed in this plan serve as the required bag leak detector corrective action plan for the C Blast Furnace Casthouse Baghouse.

Procedure	Reference
Investigation of Potential Environmental Equipment Deviations	QSOPE-A2-65-0132
Level II Reports – Daily Environmental Requirements	AKDP-F3-15-12

REVISION TABLE

Date	Revision	Revision Comments
October 15, 2007	0	Original Issue
April 15, 2011	1	Revised plan with new facility name
September 12, 2013	2	O & M Plan revised by SNC Lavalin
May 9, 2014	3	O & M Plan updated by SNC Lavalin
November 17, 2014	4	O & M Plan revised by AK Steel
December 29, 2014	5	O & M Plan revised with new CPMS table
January 28, 2015	6	Removed Weekly Baghouse Lubrication and replaced with Inspection of C-Furnace Baghouse (Weekly)
August 17, 2015	7	Revised Procedure Numbers
September 16, 2016	9	Revised Procedure Names and Numbers, Fixed clerical errors
August 14, 2017	10	Revised reporting step 7, removed redundant steps 8 and 9
August 14, 2018	11	Revised Procedure Numbers
July 24, 2019	12	O & M plan revised to reflect new limits established during June 2019 performance testing

**TABLE 1 – AK STEEL DEARBORN WORKS “C” BLAST FURNACE BAGHOUSE OPERATING PARAMETERS
(ESTABLISHED *JUNE 2019*)**

Scenario Number	East Casthouse Activity	North Casthouse Activity	Baghouse Inlet Pressure, Minimum (inches Water Column)	East Slag Damper North (8051)	East Slag Damper South (8052)	East Iron Tilter West (8053A)	East Iron Tilter East (8053B)	East Taphole Damper (8054)	North Slag Damper South (8041)	North Slag Damper North (8042)	North Iron Tilter Damper (8043)	North Taphole Damper (8044)
				Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)
0	Idle	Idle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Drill	Idle	-3.9	0	0	0	0	100	0	0	0	0
2-5	Cast	Idle	-2.8	0	0	50	50	100	0	0	0	0
6-7	Slag, North Slag Leg	Idle	-2.5	30	0	50	50	100	0	0	0	0
8-9	Slag, South Slag Leg	Idle	-2.5	0	30	50	50	100	0	0	0	0
10	Idle	Drill	-3.9	0	0	0	0	0	0	0	0	100
11-12	Idle	Cast	-6.3	0	0	0	0	0	0	0	65	65
13	Idle	Slag, North Slag Leg	-2.5	0	0	0	0	0	0	30	95	100
14	Idle	Slag, South Slag Leg	-2.5	0	0	0	0	0	30	0	95	100
15-16	Drill	Cast	-4.5	0	0	0	0	100	0	0	65	75
17-18, 21-22	Slag, North Slag Leg	Cast	-3.6	30	0	50	50	97	0	0	65	74
19-20, 23-24	Slag, South Slag Leg	Cast	-3.6	0	30	50	50	97	0	0	65	74
25	Cast	Drill	-4.5	0	0	50	50	100	0	0	0	75
29	Cast	Cast	-3.5	0	0	50	50	100	0	0	65	75
37	Cast	Slag, North Slag Leg	-3.3	0	0	50	50	100	0	30	95	83
41	Cast	Slag, South Slag Leg	-3.3	0	0	50	50	100	30	0	95	83
45	Drill	Slag, North Slag Leg	-3.5	0	0	0	0	100	0	30	95	81
46	Drill	Slag, South Slag Leg	-3.5	0	0	0	0	100	30	0	95	81
47	Slag, North Slag Leg	Drill	-3.5	30	0	50	50	100	0	0	0	83
49	Slag, South Slag Leg	Drill	-3.8	0	30	50	50	100	0	0	0	83
51	Slag, North Slag Leg	Slag, North Slag Leg	-3.3	30	0	50	50	97	0	30	95	83
53	Slag, South Slag Leg	Slag, North Slag Leg	-3.3	0	30	50	50	97	0	30	95	83
55	Slag, North Slag Leg	Slag, South Slag Leg	-3.3	30	0	50	50	97	30	0	95	83
57	Slag, South Slag Leg	Slag, South Slag Leg	-3.3	0	30	50	50	97	30	0	95	83

*Note: Minimum inlet pressure readings that are less than the values specified in Table 1 and damper position readings that deviate from the values specified in Table 1 by over 5% will not be considered deviations if the readings occurred within two minutes of a scenario transition.

AK STEEL DEARBORN WORKS

C Blast Furnace Casthouse Baghouse

Continuous Parametric Monitoring System (CPMS) Site Specific Monitoring Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFF

September 30, 2011

Revised July 24, 2019

PLAN(E)-W-10-02

Continuous Parametric Monitoring System (CPMS) Site Specific Monitoring Plan for the C Blast Furnace Casthouse Baghouse

System Description and Introduction

The purpose of this CPMS Site Specific Monitoring Plan is to address the following procedures associated with the CPMS used at the casthouse emission control system to satisfy the Integrated Iron and Steel MACT requirements as well as Dearborn Works ROP No. MI-ROP-A8640-2016a: installation; system description; performance evaluation; operation and maintenance; sampling frequency; out of control periods; data quality assurance; and recordkeeping and reporting procedures. This plan will follow the six provisions in the Iron and Steel MACT rule under 40 CFR 63.7831(a)(1) - (6) regarding the contents of such site specific monitoring plans.

The parameters that will be monitored for C Blast Furnace Casthouse Baghouse (“Casthouse Baghouse”) are inlet static pressure (indicating the level of ventilation draft) and hood damper positions. As a result of the varying operation, the level of inlet static pressure and the hood damper positions will vary. A list of scenarios, or modes, has been created and the corresponding acceptable inlet static pressure and hood damper positions are listed. The CPMS modes are included in the attached Table 1: C Blast Furnace Casthouse Emission Control System: CPMS Scenario Table.

Comments on §63.7830(a)(1) and (2)

Dearborn Works does not have any dampers in the exhaust system that remain in the same position and are not manually set, so the following requirement (§63.7830(a)(1)) is not applicable: “Dampers that are not manually set and remain in the same position are required to be visually checked at least once every 24 hours to verify that each damper is in the same position as during the initial performance test.”

Dearborn Works is not using flow monitoring devices, so the requirement in §63.7830(a)(2) to monitor “the hourly average actual volumetric flow rate through each separately ducted hood, the average hourly total volumetric flow rate at the inlet to the control device” is not applicable.

Installation Requirements

Per 40 CFR 63.7831(a)(1), the CPMS Site Specific Monitoring Plan must address the “Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (*e.g.*, on or downstream of the last control device).”

For the Casthouse Baghouse, the measurement of inlet static pressure satisfies this requirement, since the measurement device is located on the baghouse.

System Description and Equipment Specifications

Per 40 CFR 63.7831(a)(2), the CPMS Site Specific Monitoring Plan must address the “Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system.”

The nine hood dampers are controlled by Group 11 Beck Drives, or equivalent, which provide a 4-20 mA analog position feedback signal. The signal indicates the damper position from full open to full close through 90° (100%) of movement. The Group 11 actuator is a powerful control package designed to provide precise position control of dampers.

The inlet static pressure is measured by a Foxboro IGP20 Pressure Transmitter. Two redundant transmitters are used. Under normal circumstances, the average of the two inlet pressure transmitters is used to control baghouse draft. Should either one of the two transmitters fail, the other will continue to control baghouse draft.

The required CPMS equipment is included in Table 2: CPMS Equipment for Casthouse Baghouse.

Table 2: CPMS Equipment for Casthouse Baghouse

Application	Model/Serial Number ⁽¹⁾	Quantity
Damper for North and East Casthouse Tapholes	Beck Drive 11-409-114784-01-0X	2
Damper for North and East Casthouse Iron Runners	Beck Drive 11-309-114784-02-0X	3
Damper for North and East Casthouse Slag Runners	Beck Drive 11-209-114784-03-0X	4
Inlet Static Pressure Measurement Device	Foxboro IGP20 Pressure Transmitter	2 ⁽²⁾
Data Management System	ActiveFactory Wonderware Historian	1

⁽¹⁾ or equivalent

⁽²⁾ the system includes a primary and a backup transmitter

Performance Evaluation Procedures (Calibrations)

Per 40 CFR 63.7830(a)(3), the site specific monitoring plan must include “Performance evaluation procedures and acceptance criteria (e.g., calibrations).” The calibration frequency and methodology are included in Table 3: CPMS Calibration Frequency for Casthouse Baghouse.

Table 3: CPMS Calibration Frequency for Casthouse Baghouse

Measurement	Instrument Type ⁽¹⁾	Calibration Frequency	Procedure #
Inlet Static Pressure	Transmation QuikCal 190 Pressure Calibrator	Once per Quarter	QSMPE-A2-65-2117
Damper Position	Protractor	Once per Quarter	QSMPE-A2-65-3703

⁽¹⁾ or equivalent

Operation and Maintenance

Per 40 CFR 63.7831(a)(4), the site specific monitoring plan must address the following: “Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8).”

§§63.8 (c) Operation and maintenance of continuous monitoring systems.

(1) The owner or operator of an affected source shall maintain and operate each CMS as specified in this section, or in a relevant standard, and in a manner consistent with good air pollution control practices. (i) The owner or operator of an affected source must maintain and operate each CMS as specified in §63.6(e)(1).

(ii) The owner or operator must keep the necessary parts for routine repairs of the affected CMS equipment readily available.

(iii) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan for CMS as specified in §63.6(e)(3).

(3) All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under §63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system.

(4) Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, all CMS, including COMS and CEMS, shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(ii) All CEMS for measuring emissions other than opacity shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(7)(i) A CMS is out of control if—

(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or

(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or

(C) The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard.

(ii) When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

(8) The owner or operator of a CMS that is out of control as defined in paragraph (c)(7) of this section shall submit all information concerning out-of-control periods, including start and end dates and hours and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in §63.10(e)(3).

In order to comply with the requirements listed above, Dearborn Works has implemented the following Casthouse Baghouse procedures:

➤ **Operation and Maintenance Procedures**

- The hood damper actuators are constructed with no burnout motors, sealed electronics, and powerful gear trains. The manufacturer indicates that they require no periodic maintenance. Dearborn Works has included the hood damper actuator linkage on its periodic monitoring schedule.
- Preventive maintenance performed on the Casthouse Baghouse CPMS system is described in Table 4: CPMS Preventative Maintenance Tasks for the Casthouse Baghouse.

Table 4: CPMS Preventative Maintenance Tasks for the Casthouse Baghouse

Equipment Name	Preventative Maintenance Task	Frequency	Procedure #
Damper Linkage	Check linkage attachment	Weekly	QSMPE-A2-65-3700
Damper Position	Calibrate / verify	Quarterly	QSMPE-A2-65-3703
Inlet Static Pressure Transmitters	Calibrate	Quarterly	QSMPE-A2-65-2117

➤ **Casthouse Baghouse CPMS Spare Parts (to satisfy §63.8(c)(1)(ii) requirements):**

- The spare parts for the CPMS will be incorporated into the procedure located in Table 5: CPMS Spare Parts for Casthouse Baghouse.

Table 5: CPMS Spare Parts for Casthouse Baghouse

Procedure Name	Procedure #
Quarterly Environmental Critical Spare Parts Inventory	QSMPE-A2-02-2008

Sampling Frequency

The CPMS will be operated continuously and performance of the CPMS will be evaluated at least twice a year. A performance evaluation will consist of sampling historical baghouse data (a minimum of three of the required four data points constitutes a valid hour of data for inlet pressure). Historical data will be evaluated against the set points specified in the attached Table 1, C Blast Furnace Casthouse Emission Control System: CPMS Scenario Table. Deviations from the CPMS modes will be reported in Dearborn Works semiannual ROP deviation report.

Hood dampers will be deemed to conform to the site-specific CPMS plan should they match their specified set points within the range of their respective calibration accuracies specified in Table 3: CPMS Calibration Frequency for Casthouse Baghouse. Inlet static pressure will be deemed to conform to the site specific CPMS plan if the absolute value of the inlet pressure is greater than the absolute value of the minimum inlet pressure values specified in Table 1: C Blast Furnace Casthouse Emission Control System: CPMS Scenario Table. Data collected at regular 15 minute intervals will occasionally record inlet static pressure when dampers are transitioning between scenarios. Inlet static pressure and damper positions are not expected to correspond to specific set points in the CPMS scenario table when transitioning. Transition periods will not be considered deviations.

The evaluation will be considered valid should data be available for 95% of the reporting period. Data will be retained for a period of (5) years.

Out-of Control Periods

Dearborn Works will take the necessary corrective actions to repair/recalibrate the CPMS. During the period the monitoring equipment is out of control, the facility will not use the recorded data in data averages and calculations or to meet any data availability requirement. Out-of-control conditions, as defined in 40 CFR 63.8(c)(7)(i) addresses continuous opacity monitoring systems (COMS) and is not applicable to CPMS. Requirements for being “out of control” conform to 40 CFR 63.8(c)(7)(ii), based on exceedance to device calibration. Out of control requirements for CPMS components are presented in Table 6: CPMS Out of Control Requirements Casthouse Baghouse.

- The beginning of the out-of-control period, per 40 CFR 63.8(c)(7)(ii), is defined by the facility as the hour that the CPMS is noted to be operating outside of the performance (calibration) limits. This occurs when a calibration check of the baghouse inlet static pressure or hood damper actuators are deemed to be outside of the acceptable calibration specified in this site specific CPMS Monitoring Plan.
- The end of the out-of-control period is defined by the facility as the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits (calibration).

Table 6: CPMS Out of Control Requirements Casthouse Baghouse

Measurement Type	Instrument Type ⁽¹⁾	"Out of Control" conditions
Damper Position	Damper Actuator	A damper alarm will be activated when the damper position deviates from the setpoint by 5%
Inlet Static Pressure	Pressure Transmitter	An inlet pressure alarm will be activated if the absolute value of the inlet pressure is less than the absolute value of the minimum inlet pressure specified in Table 1.

(1) or equivalent

Data Quality Assurance

The requirements presented in this section of the Site-Specific Monitoring Plan apply to the CPMS for the inlet static pressure and hood damper positions as previously described. Per 40 CFR 63.7831(b)(5), the CPMS Site-Specific Monitoring Plan must address the following: Ongoing data quality assurance procedures in accordance with the general requirements of 63.8(d).

§63.8(d) Quality control program. (1) *The results of the quality control program required in this paragraph will be considered by the Administrator when he/she determines the validity of monitoring data.*

(2) *The owner or operator of an affected source that is required to use a CMS and is subject to the monitoring requirements of this section and a relevant standard shall develop and implement a CMS quality control program. As part of the quality control program, the owner or operator shall develop and submit to the Administrator for approval upon request a site-specific performance evaluation test plan for the CMS performance evaluation required in paragraph (e)(3)(i) of this section, according to the procedures specified in paragraph (e). In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:*

- (i) *Initial and any subsequent calibration of the CMS;*
- (ii) *Determination and adjustment of the calibration drift of the CMS;*
- (iii) *Preventive maintenance of the CMS, including spare parts inventory;*
- (iv) *Data recording, calculations, and reporting;*
- (v) *Accuracy audit procedures, including sampling and analysis methods; and*
- (vi) *Program of corrective action for a malfunctioning CMS.*

(3) The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. Where relevant, e.g., program of corrective action for a malfunctioning CMS, these written procedures may be incorporated as part of the affected source's startup, shutdown, and malfunction plan to avoid duplication of planning and recordkeeping efforts.

In order to comply with the Data Quality Assurance requirement, Dearborn Works has implemented the following procedures:

- Initial and any subsequent calibration of the CMS
 - Calibration and adjustment procedures were presented in the section, “Performance Evaluation Procedures (Calibrations)”.
- Determination and adjustment of the calibration drift of the CMS
 - Calibration drift is associated with CEMS. The type of monitoring equipment that Dearborn Works is using to comply with the Iron and Steel MACT does not involve periodic drift tests (as CEMS use) because the equipment is not designed for that purpose.
- Preventative maintenance of the CMS, including spare parts inventory;
 - Preventative maintenance procedures are conducted based on standard industry practices and facility maintenance experience.
 - The spare parts inventory is maintained onsite or readily available offsite and is included in the section, “Cathouse Baghouse CPMS Spare Parts.”
- Data recording, calculations, and reporting;
 - Data recording is conducted as follows:
 - Data is collected through the PLC and is sent to a data historian system. The data historian system software is used to reduce, manage and archive the collected data from the PLC.
 - Calculations are not required in this type of system, as there are no emissions or flowrates to calculate. The data recorded are fan amps and hood damper positions.
 - Reporting is addressed in the next section, “Recordkeeping and Reporting Procedures for CPMS”.
- Accuracy audit procedures including sampling and analysis methods
 - Accuracy audit procedures were addressed in the section, “Performance Evaluation Procedures (Calibrations)”
 - Sampling and analysis methods pertain only to CEMS, not to the CPMS system in use at Dearborn Works.
- Program of corrective action for a malfunctioning CPMS
 - Corrective action procedures are addressed in the “C Blast Furnace Cathouse Baghouse Startup, Shutdown, and Malfunction Plan” (separate document).

Recordkeeping and Reporting Procedures for CPMS

The requirements presented in this section of the Site-Specific Monitoring Plan apply to the CPMS for the inlet static pressure and damper positions as previously described. Per 40 CFR 63.7831(b)(6), the Site-Specific Monitoring Plan must address the following:

(6) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §§63.10(c), (e)(1), and (e)(2)(i);

§§63.10(c) Additional recordkeeping requirements for sources with continuous monitoring systems. In addition to complying with the requirements specified in paragraphs (b)(1) and (b)(2) of this section, the owner or operator of an affected source required to install a CMS by a relevant standard shall maintain records for such source of—

(1) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods);

(2)-(4) [Reserved]

(5) The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks;

(6) The date and time identifying each period during which the CMS was out of control, as defined in §63.8(c)(7);

(7) The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during startups, shutdowns, and malfunctions of the affected source;

(8) The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;

(9) [Reserved]

(10) The nature and cause of any malfunction (if known);

(11) The corrective action taken or preventive measures adopted;

(12) The nature of the repairs or adjustments to the CMS that was inoperative or out of control;

(13) The total process operating time during the reporting period; and

(14) All procedures that are part of a quality control program developed and implemented for CMS under §63.8(d).

(15) In order to satisfy the requirements of paragraphs (c)(10) through (c)(12) of this section and to avoid duplicative recordkeeping efforts, the owner or operator may use the affected source's startup, shutdown, and malfunction plan or records kept to satisfy the recordkeeping requirements of the startup, shutdown, and malfunction plan specified in §63.6(e), provided that such plan and records adequately address the requirements of paragraphs (c)(10) through (c)(12).

§63.10 (e) Additional reporting requirements for sources with continuous monitoring systems—

(2) Reporting results of continuous monitoring system performance evaluations. (i) The owner or operator of an affected source required to install a CMS by a relevant standard shall furnish the Administrator a copy of a written report of the results of the CMS performance evaluation, as required under §63.8(e), simultaneously with the results of the performance test required under §63.7, unless otherwise specified in the relevant standard.

In order to comply with the above requirements, the facility maintains the following records for a minimum of 5 years:

- All required parametric monitoring data. This includes monitoring data from the beginning of startup until the end of shutdown, as defined in the “C Blast Furnace Casthouse Baghouse Startup, Shutdown and Malfunction (SSM) Plan” (separate document). This includes monitoring data recorded during unavoidable CPMS breakdowns and out-of-control periods.
 - Records are maintained electronically on the AK Steel Environmental Server.
- The date and time identifying each period during which the monitoring system was inoperative.
 - Records are maintained electronically on the AK Steel Environmental Server.
- The date and time identifying each period during which the CPMS was out of control, as previously defined above.
 - Records are maintained by the BF Computer Aided Maintenance System (CAMS) department personnel and on the AK Steel Environmental Server.
- The specific identification (i.e., the date and time of commencement and duration) of each period of parametric monitoring exceedance, as defined in this site specific monitoring plan.
 - Records are maintained electronically on the AK Steel Environmental Server.
- The nature and cause of each malfunction (if known).
 - Records are maintained electronically on the AK Steel Environmental Server.
 - Records will include corrective action taken or preventive measures adopted.
- The nature of the repairs or adjustments to the CPMS that was inoperative or out of control.
 - Records are maintained electronically by the BF CAMS department personnel and on the AK Steel Environmental Server.
- A record of the total process operating time during the reporting period is maintained as required.
- All procedures that are part of a quality control program developed and implemented for the monitoring equipment are recorded in this site specific monitoring plan or in the C-Blast Furnace Casthouse and Bleeders Startup, Shutdown, and Malfunction Plan.

LIST OF CONTROLLED PROCEDURES

The following procedures listed in this plan serve as the required inspections to comply with the CPMS Requirements of the Iron and Steel MACT rules for the Blast Furnace C Casthouse Baghouse.

Procedure	Reference
1. Baghouse Inlet Pressure Transmitter Calibration	QSMPE-A2-65-2117
2. Inspection of C Furnace Baghouse Damper Positions (Quarterly)	QSMPE-A2-65-3703
3. Inspection of C Furnace Baghouse	QSMPE-A2-65-3700
4. Quarterly Environmental Critical Spare Parts Inventory	QSMPE-A2-02-2008

REVISION TABLE

Date	Revision	Revision Comments
9/30/2011	1	Original Issue – CPMS operating parameters incorporated into O&M Plan
11/21/13	2	Updated CPMS details and operating parameters – incorporated in revision of O&M Plan
8/22/14	3	Revised CPMS parameters to address seasonal variations – incorporated in revision of O&M Plan
5/07/2015	4	Disassembled C Blast Furnace MACT Plan that included CPMS, SSM, O&M portions and made separate plans that conform to AK standards, updated plan to reference inlet static pressure instead of fan amps
8/17/15	5	Updated procedure numbers, added list of controlled procedures
9/16/16	6	Updated procedure numbers
8/14/17	7	Removed references to PTI 182-05C, replaced with reference to new ROP.
8/14/18	8	Updated procedure numbers, updated location of where CPMS records are kept
7/24/19	9	Plan revised to reflect new limits established during June 2019 performance testing

**TABLE 1 – AK STEEL DEARBORN WORKS “C” BLAST FURNACE BAGHOUSE OPERATING PARAMETERS
(ESTABLISHED *JUNE 2019*)**

Scenario Number	East Casthouse Activity	North Casthouse Activity	Baghouse Inlet Pressure, Minimum (inches Water Column)	East Slag Damper North (8051)	East Slag Damper South (8052)	East Iron Tilter West (8053A)	East Iron Tilter East (8053B)	East Taphole Damper (8054)	North Slag Damper South (8041)	North Slag Damper North (8042)	North Iron Tilter Damper (8043)	North Taphole Damper (8044)
				Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)	Setpoint (%)
0	Idle	Idle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	Drill	Idle	-3.9	0	0	0	0	100	0	0	0	0
2-5	Cast	Idle	-2.8	0	0	50	50	100	0	0	0	0
6-7	Slag, North Slag Leg	Idle	-2.5	30	0	50	50	100	0	0	0	0
8-9	Slag, South Slag Leg	Idle	-2.5	0	30	50	50	100	0	0	0	0
10	Idle	Drill	-3.9	0	0	0	0	0	0	0	0	100
11-12	Idle	Cast	-6.3	0	0	0	0	0	0	0	65	65
13	Idle	Slag, North Slag Leg	-2.5	0	0	0	0	0	0	30	95	100
14	Idle	Slag, South Slag Leg	-2.5	0	0	0	0	0	30	0	95	100
15-16	Drill	Cast	-4.5	0	0	0	0	100	0	0	65	75
17-18, 21-22	Slag, North Slag Leg	Cast	-3.6	30	0	50	50	97	0	0	65	74
19-20, 23-24	Slag, South Slag Leg	Cast	-3.6	0	30	50	50	97	0	0	65	74
25-28	Cast	Drill	-4.5	0	0	50	50	100	0	0	0	75
29-36	Cast	Cast	-3.5	0	0	50	50	100	0	0	65	75
37-40	Cast	Slag, North Slag Leg	-3.3	0	0	50	50	100	0	30	95	83
41-44	Cast	Slag, South Slag Leg	-3.3	0	0	50	50	100	30	0	95	83
45	Drill	Slag, North Slag Leg	-3.5	0	0	0	0	100	0	30	95	81
46	Drill	Slag, South Slag Leg	-3.5	0	0	0	0	100	30	0	95	81
47-48	Slag, North Slag Leg	Drill	-3.5	30	0	50	50	100	0	0	0	83
49-50	Slag, South Slag Leg	Drill	-3.8	0	30	50	50	100	0	0	0	83
51-52	Slag, North Slag Leg	Slag, North Slag Leg	-3.3	30	0	50	50	97	0	30	95	83
53-54	Slag, South Slag Leg	Slag, North Slag Leg	-3.3	0	30	50	50	97	0	30	95	83
55-56	Slag, North Slag Leg	Slag, South Slag Leg	-3.3	30	0	50	50	97	30	0	95	83
57-58	Slag, South Slag Leg	Slag, South Slag Leg	-3.3	0	30	50	50	97	30	0	95	83

*Note: Minimum inlet pressure readings that are less than the values specified in Table 1 and damper position readings that deviate from the values specified in Table 1 by over 5% will not be considered deviations if the readings occurred within two minutes of a scenario transition

AK STEEL DEARBORN WORKS

C Blast Furnace Casthouse Baghouse and Bleeders

Startup, Shutdown & Malfunction Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

May 22, 2006

Revised July 13, 2020

PLAN(E)-W-10-03

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AK Steel Dearborn Works C Blast Furnace Casthouse Baghouse Start-up, Shutdown, and Malfunction Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the C Blast Furnace Casthouse Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to R 336.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e)(3). In addition, this plan includes specific operating procedures to minimize bleeder emissions as required by ROP MI-ROP-A8640-2016a, EUCFURNACE III.2. It should be noted that sections of this SSM that pertain to minimizing bleeder emissions are not subject to the requirements of the Integrated Iron and Steel MACT Rule. The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: The procedure described below applies only to sources covered by the Integrated Iron and Steel MACT. They do not apply to procedures that specifically apply to minimizing bleeder emissions. During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in this plan, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: A reference to the Start-up, Shutdown, and Malfunction procedures are outlined below.

Procedure		Reference
1.	C Blast Furnace Startup Procedure	QSOPE-A2-60-0119
2.	C Blast Furnace Shutdown Procedure	QSOPE-A2-60-0115
3.	C Blast Furnace Casthouse Baghouse Startup Procedure	QSOPE-A2-65-0135
4.	C Blast Furnace Casthouse Baghouse Shutdown Procedure	QSOPE-A2-65-0136
5.	C Blast Furnace Casthouse Baghouse ID Fans Startup Procedure	QSOPE-A2-65-0137
6.	C Blast Furnace Casthouse Baghouse ID Fans Shutdown Procedure	QSOPE-A2-65-0138
7.	C Blast Furnace Casthouse Baghouse Malfunction Procedure	QSOPE-A2-65-0139
8.	C-Blast Furnace Bleeder Emissions Control	QSOPE-A2-65-0140
9.	Sealing (popping) Leaking Dirty Gas or Semi Clean Bleeder	QSOPE-A2-60-0128
10.	C Blast Furnace Casthouse Baghouse System Malfunction Procedure Reporting Form	Iron Making – Environmental Deviation – Working Report – Form(E)-A2-65-0132-01
11.	C Blast Furnace Casthouse Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	QSOPE-A2-02-0125

1. Proposed definitions are outlined below:

Source Startup: The start-up of the C Blast Furnace is defined as when the hot blast wind is started. The furnace resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. During furnace start-up, prior to casting, the baghouse ID fans are turned on, and the baghouse will be in operation. Dearborn Works Procedure QSOPE-A2-60-0119 is designed to minimize bleeder emissions during the blast furnace start-up.

Monitoring Equipment Startup: The startup of the C Blast Furnace monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of all compartment broken bag detectors, the baghouse inlet pressure transmitter, damper beck drives that are referenced in the C-Blast Furnace Continuous Parametric Monitoring System plan and overall and compartment differential pressure transmitters.

Source Shutdown: The shutdown of C Blast Furnace is defined as when the wind is completely turned off for whatever reason (planned or unplanned outage, etc). During the shutdown process, the source of emissions (casthouse emissions) covered by the Iron and Steel MACT will

cease. The baghouse will be in operation until the end of the last cast before shutdown. Often during a planned shutdown, the hearth will be drained of its iron to a greater extent than during a typical cast. This process is referred to as blowing the taphole and may contribute to higher than normal emissions. Dearborn Works procedure QSOPE-A2-60-0115 is designed to minimize bleeder emissions during the blast furnace shutdown.

Monitoring Equipment Shutdown: The shutdown of the C Blast Furnace monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of all compartment broken bag detectors, the baghouse inlet pressure transmitter, all damper beck drives that are referenced in the C-Blast Furnace Continuous Parametric Monitoring System plan, and compartment and overall differential pressure transmitters.

Control Device or CPMS Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test when the source is in operation. For example, the air pollution control equipment is malfunctioning when:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal components malfunction or failure (e.g., inoperable pulse jet components, inlet/outlet damper actuators failure, inoperable screw conveyors)
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)
- Loss of structural integrity (e.g., ductwork, hoods, stack)
- Beck driver actuator broken linkage
- Loss of inlet pressure transmitter signal

2. Responsible Official (RO): The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.

3. Roles and Responsibilities: The RO has delegated the responsibilities associated with the RO for the C Blast Furnace to the following position: Department Manager – Ironmaking.

4. Training: Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.

- 5. Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
- 6. Reporting:** The Integrated Iron and Steel MACT rules also includes "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction are consistent with the procedures in the startup, shutdown or malfunction plan (SSMP), reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i). The reporting requirements listed here do not apply to C-Furnace bleeders since the bleeders are not subject to the Integrated Iron and Steel MACT.

Reports to be submitted to *EGLE* are outlined below. The reports described below apply only to sources covered by the Integrated Iron and Steel MACT. They do not apply to procedures that specifically pertain to minimizing bleeder emissions.

Agency Reporting Requirements	Responsible Department	Overview of content
<p>1. Source Operation and CPMS Semi-Annual Report: Submit a report to <i>EGLE</i> when actions taken during a malfunction are consistent with the procedures specified in the SSM Plan for that event.</p>	<p>Environmental Affairs</p>	<p>Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to <i>EGLE</i> by the semi-annual reporting date specified in the Title V permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and September 15 for the period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.</p>

Agency Reporting Requirements	Responsible Department	Overview of content
<p>2a. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be <u>reported within 2 working days</u>, after commencing action inconsistent with the plan, by fax or telephone.</p>	<p>Environmental Affairs</p>	<p>Describe whenever startup, shutdown or malfunction <u>event deviates from the plan</u> in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.</p>
<p>2b. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, <u>followed by a letter within 7 working days after the end of the event</u>. A “Responsible company official” signs report.</p>	<p>Environmental Affairs</p>	<p>This is a follow-up letter to the 2-day report. A letter shall be submitted to <i>EGLE</i> within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.</p>

7. Corrective Action: Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to section 5 and 6 above.

A. REFERENCES:

40 CFR Subpart FFFFF

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment (including CPMS) in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
1. C Blast Furnace Startup Procedure	QSOPE-A2-60-0119
2. C Blast Furnace Shutdown Procedure	QSOPE-A2-60-0115
3. C Blast Furnace Casthouse Baghouse Startup Procedure	QSOPE-A2-65-0135
4. C Blast Furnace Casthouse Baghouse Shutdown Procedure	QSOPE-A2-65-0136
5. C Blast Furnace Casthouse Baghouse ID Fans Startup Procedure	QSOPE-A2-65-0137
6. C Blast Furnace Casthouse Baghouse ID Fans Shutdown Procedure	QSOPE-A2-65-0138
7. C Blast Furnace Casthouse Baghouse Malfunction Reporting Procedure	QSOPE-A2-65-0139
8. C-Blast Furnace Bleeder Emissions Control	QSOPE-A2-65-0140
9. Sealing (popping) Leaking Dirty Gas or Semi Clean Bleeder	QSOPE-A2-60-0128
10. C Blast Furnace Casthouse Baghouse System Malfunction Procedure Reporting Form	Iron Making – Environmental Deviation – Working Report – Form(E)-A2-65-0132-01
11. C Blast Furnace Casthouse Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	QSOPE-A2-02-0125

REVISION TABLE

Date	Revision	Revision Comments
5/18/2006	1	Original Issue – SSM incorporated into O&M Plan
10/15/07	2	Revised to include newly installed baghouse – SSM incorporated into O&M Plan
4/15/11	3	Revised to change facility name – SSM incorporated into O&M Plan
11/21/13	4	Revised to include more detailed SNC Lavelin O&M plan, add details regarding CPMS and update CPMS Operating Parameters – SSM incorporated into O&M Plan
5/12/14	5	Revised to include Bleeder SSM Plan – SSM incorporated into O&M Plan.
8/17/15	6	Separated SSM plan from other plans, revised format to conform to AK Standards, modified procedure numbers
9/16/16	7	Added overall and compartment differential pressure transmitters to monitoring equipment startup and shutdown descriptions, added form number for malfunction reporting form
8/14/17	8	Removed references to PTI 182-05C, added reference to MI-ROP-A8640-2016a
8/14/18	9	Updated Procedure and Form Numbers, Revised reporting dates for the Semi-Annual Report
7/24/19	10	Added QSOPE-A2-60-0128 Sealing (popping) Leaking Dirty Gas or Semi Clean Bleeder to the plan
7/13/2020	11	Changed MDEQ reference to EGLE. No content change.

MALFUNCTION ABATEMENT PLAN

C BLAST FURNACE STOVES

AK STEEL DEARBORN WORKS

JULY 28, 2014

Revised September 02, 2020

PLAN(E)-W-10-04

AK Steel – Dearborn Works C Blast Furnace Stoves Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the C Blast Furnace Stoves Operation. This plan is intended to satisfy the requirements of Michigan Rule 911 and MI-ROP-A8640-2016a, requirement EUCFURNACE III.3. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative maintenance (PM) for the C Blast Furnace Stoves. The procedure provides a description of the items or conditions that shall be inspected, the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	QSMPE-A2-02-2005 (Semi-Annual Ironmaking Inspection Requirements)
2. Identification of the major replacement parts for the C Blast Furnace. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	QSMPE-A2-02-2008 (Quarterly Environmental Critical Spare Parts Inventory)
3. C Blast Furnace system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	QSOPE-A2-20-0121 (C Blast Furnace Stoves Environmental Operational Variables and Malfunction Procedure)
4. Equipment malfunctions for the C BlastFurnace.. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	QSOPE-A2-20-0121 (C Blast Furnace Stoves Environmental Operational Variables and Malfunction Procedure) <i>QSOPE-A2-20-0110 (Stove Firing With Only Natural Gas)</i>

2. **Supervisory Personnel:** The Responsible Official (RO) for implementing the MAP procedures is the General Manager – Dearborn Works. The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works Blast Furnace: Department Manager, Ironmaking. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions of the C Blast Furnace Stoves.

Parameter	Monitoring Method
Stack Opacity	Method 9 certified visible emission observation
Oxygen in waste gas	Oxygen Probes

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works’ interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

Pursuant to Permit No. MI-ROP-A8640-2016a, *requirement EUCFURNACE III.3: The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures, or operational changes to achieve compliance with applicable emission limits.* It is AK Steel Dearborn Works’ interpretation that in the event that new equipment is installed the MAP and associated procedures will be reviewed and updated accordingly. AK Steel Dearborn Works will also implement corrective procedures and/or operational changes to achieve compliance with applicable emission limits during the time that an amended plan is awaiting approval from the EGLE.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the C Blast Furnace Stoves.

Procedure	Reference
Preventative maintenance for the C Blast Furnace Stoves.	QSMPE-A2-02-2005 (Semi-Annual Ironmaking Inspection Requirements)
Replacement parts for the C Blast Furnace Stoves.	QSMPE-A2-02-2008 (Quarterly Environmental Critical Spare Parts Inventory)
Operational variables to monitor for the C Blast Furnace Stoves.	QSOPE-A2-20-0121 (C Blast Furnace Stoves Environmental Operational Variables and Malfunction Procedure)
Equipment malfunctions for the C Blast Furnace Stoves.	QSOPE-A2-20-0121 (C Blast Furnace Stoves Environmental Operational Variables and Malfunction Procedure) <i>QSOPE-A2-20-0110 (Stove Firing With Only Natural Gas)</i>

REVISION TABLE

Date	Revisions	Revision Comments
June 28, 2014	1	Original Issue
May 8, 2015	2	Updated to AK MAP Template
August 17, 2015	3	Revised document control numbers, procedure numbers
August 14, 2017	4	Removed references to PTI 182-05C, added references to new Title V permit MI-ROP-A8640-2016a
August 14, 2018	5	Updated Form Numbers
September 16, 2019	6	Changed MDEQ to EGLE
September 2, 2020	7	Added procedure QSOPE-A2-20-0110 (Stove Firing With Only Natural Gas)

EUBOF AND FGBOFSHOP PLANS

SCRAP MANAGEMENT PLAN

BOF ROOF MONITOR EMISSION REDUCTION PLAN (PROPOSED)

BOF ESP O&M PLAN

COMS QUALITY ASSURANCE AND QUALITY CONTROL PLAN

ESP SSM PLAN

ESP MAP

DESULFURIZATION BAGHOUSE SSM PLAN

BOF SECONDARY EMISSIONS CONTROL BAGHOUSE AND CAPTURE SYSTEM O&M PLAN

BOF SEC BAGHOUSE CPMS SITE SPECIFIC MONITORING PLAN

BOF SEC BAGHOUSE SSM PLAN

SCRAP MANAGEMENT PLAN

AK STEEL DEARBORN WORKS

July 11, 2014

Revised October 26, 2016

PLAN(E)-W-20-11



DEARBORN WORKS

SCRAP MANAGEMENT PLAN

October 2016

I. INTRODUCTION

This Scrap Management Plan (SMP) was developed within 60 days of the issuance of PTI 182-05C and was initially submitted to the ADQ District Supervisor on July 11, 2014 by Severstal Dearborn, LLC and approved by the MDEQ on August 15, 2014. Since this submission, ownership of this facility has changed to AK Steel Corporation, Dearborn Works. AK Steel Dearborn Works on-site scrap management is contracted and managed by EDW. C. Levy Company (Levy).

AK Steel Corporation, Dearborn Works operates two Basic Oxygen Furnaces (BOF), which produce molten steel by combining scrap materials and molten iron. This SMP and referenced procedures for on-site scrap inspection and material management facilitate the efforts for controlling mercury and/or other contaminants and VOC emissions by minimizing or eliminating unacceptable materials. The SMP is designed to control the presents of such contaminants in the scrap before it is consumed at the BOF.

II. GENERAL SCRAP SPECIFICATIONS & RESTRICTIONS

The terms in this SMP shall have the same definitions as those required in the EPA’s Final Area Source Rule for Electric Arc Furnace Steelmaking facilities found in 40 CFR Part 63 Subpart YYYYYY. Based on the reasoning outlined by EPA in the rule, the term “mercury switch” denotes only mercury switches that are part of a convenience light switch mechanism installed in a vehicle.

All scrap suppliers for AK Steel Dearborn Works are provided Purchase Material Requirements, which detail the specifications of the scrap required. The following restrictions apply to all scrap steel purchased or used by the AK Steel Dearborn Works BOF Steelmaking Process:

- A. Scrap must be purchased from providers that have minimized the presence of mercury through participation in the (National Vehicle Mercury Switch Recovery Program (NVMSRP) or other EPA approved programs and all suppliers must document that mercury containing devices and switches have been removed from the scrap.

- B. Scrap materials must be depleted to the extent practicable of un-drained used oil filters, chlorinated plastics, and free organic liquids prior to being charged to the BOF furnaces.
- C. Lead-containing components and chlorinated plastics must be removed from the scrap, to the extent practicable prior to being charged to the BOF furnaces.

III. VERIFICATION OF COMPLIANCE WITH SCRAP SPECIFICATIONS

Upon arrival, each scrap load is inspected visually and/or by spectrometer to determine if the load is acceptable and recorded on BOF Truck Scrap Inspection and Unloading Report. AK Steel Dearborn Works requires a minimum 95% of each truck load of scrap to be the designated material. Levy procedure DET6-SY-INSP-001 (Scrap Inspection Specification Document) provides detailed information for each commodity specification. If the load is determined to be acceptable, a specific off-loading location is assigned. Reference procedure DET6-ADM-012 (Scrapyard Receiving Clerk).

All scrap that has been processed through a shredder that utilizes a magnetic or density separation technique to separate ferrous and non-ferrous materials will be presumed to be depleted of chlorinated plastics and lead to the extent practicable.

Certain types of scrap, including factory bundles, home scrap, return scrap, and rail, as defined by common industry practices, are not expected to contain free organic liquids, chlorinated plastics, mercury, or lead and will be presumed to be free of these contaminants. This scrap is not subject to the inspection and verification requirements of this plan.

On an annual basis AK Steel will ensure that motor vehicle scrap providers are participating in the National Vehicle Switch Recovery Program (NVMSRP) or another EPA-approved program by obtaining from the supplier a written assurance of their participation and that any motor vehicle scrap provided by such supplier to AK Steel was procured from other suppliers who are signed up for and are participating in the NVMSRP or another EPA-approved program. If a motor vehicle scrap provider does not participate in or demonstrate through written assurance that they purchase motor vehicle scrap through NVMSRP or another EPA-approved program for the removal of mercury switches, AK Steel Dearborn Works shall not purchase motor vehicle scrap from such provider.

IV. NON-CONFORMING SCRAP MATERIAL

If the scrap load material is found to be non-conforming upon arrival and initial inspection, the load is to be sent back to the supplier. Materials that are found to be non-conforming after delivery are segregated from the conforming material and removed from the area. If the amount of non-conforming material does not meet the 95% requirement, all material is reloaded, rejected and sent back to the supplier. Scrap load material that is rejected is documented on the BOF Truck Scrap Inspection and Unloading Report. Reference procedures DET6-ADM-012 (Scrapyard Receiving Clerk) and DET6-SY-001 (Scrapyard Material Handler).

AK STEEL DEARBORN WORKS

BOF ROOF MONITOR

EMISSION REDUCTION PLAN

July 24, 2020

PLAN(E)-W-20-13

BOF Roof Monitor Emission Reduction Plan

AK Steel has proposed an emission reduction plan for the BOF Roof Monitor in its ROP MI-ROP-A8640-2016a renewal application. The proposal is to replace the current design parameters specified in FGBOFSHOP IV.2 and the work practice requirements specified in FGBOFSHOP VI.22.b with this plan. This will allow for changes to allow adaptability to current conditions without having to change wording within the ROP. The proposal contains a mechanism for EGLE review and approval of the initial plan as well as any amendments and is as follows:

The permittee shall implement and maintain an emission reduction plan for the BOF roof monitor. The plan shall include design and work practice standards that are designed to minimize FGBOFSHOP roof monitor emissions. The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective action procedures or operational changes to achieve compliance with all applicable emission limits.

Design / Equipment Parameters

The following design / equipment standards were specified within the ROP as condition FGBOFSHOP IV.2 and are currently in effect:

1. Install a steam ring or other equivalent barrier at A and B Vessels to mitigate the potential for emissions to escape through the lance hole.
2. Close the gaps at the reline tower door/boiler hood door in the primary capture hood
3. Modify the charge hood flap to prevent emissions escaping during charge as the flap is drawn.

Work Practices

The following work practices were specified within the ROP as condition FGBOFSHOP VI.22.b and are currently in effect:

1. Hot metal shall not be poured at the reladling station until the hood is in the closed position.
2. Additive injections shall not occur until the desulfurization baghouse ID fan is operating at greater than 65 amps.
3. The fan speed for the BOF Secondary Baghouse control system shall be maintained in accordance with the set points (+/- 2% of the measured speed) set forth in the updated

operation and maintenance plan during charging and/or tapping operations at the BOF vessels as applicable.

4. The dampers in the BOF Secondary capture system shall be maintained in accordance the set points (+/- 10% the measured position) set forth in the updated operation and maintenance plan during charging and/or tapping operations at the BOF vessels as applicable.
5. The hot metal charges at the BOF vessels are a minimum 90 second long.
6. During charging of the BOF Vessels the charge angle shall be no less than 40 degrees and not exceed 55 degrees from vertical as the charge progresses.
7. During the oxygen blow, the permittee shall observe the vessel for slopping and shall manually reduce the oxygen rate if visible emissions from the slopping appear to have the ability to cause an exceedance of the opacity limit at the BOF Roof Monitor.
8. Charging should not be conducted until the associated dampers have been set to charging mode and had time to move to correct position.
9. After charging, the vessel shall not be moved to an upright position until online mode has been selected.
10. The current operating mode on the off charge vessel shall not change from tapping to online or offline, or online to offline mode, until the charge is complete.
11. Maintain steel ladle under the tapping hood during kicker addition until the emissions have subsided.
12. Tapping should not be conducted until the associated dampers have been set to tapping mode and had time to move to correct position.

Amendments

AK Steel is seeking to make the following amendments to the original requirements that were laid out in the ROP:

1. Remove Design / Equipment Parameters item 2, “Close the gaps at the reline tower door/boiler hood door in the primary capture hood.”

This requirement was put in place as a follow-up to CFD modeling that was conducted in 2013. The packing of the boiler hood doors is very labor intensive, lasts for only a small amount of time, and is limited in its effectiveness. As long as draft is sufficient, emissions do not escape from the boiler hood doors. AK steel replaced the downcomer in 2019 and has not experienced any significant draft issues since that date. AK Steel believes that the increase in draft level will more than offset any benefit associated with packing the doors.

2. Change Work Practices item 3, “The fan speed for the BOF Secondary Baghouse control system shall be maintained in accordance with the set points (+/- 2% of the measured speed) set forth in the updated operation and maintenance plan during charging and/or tapping operations at the BOF vessels as applicable” to “the outlet plenum pressure for the BOF Secondary Baghouse control system shall be maintained above the minimal values set forth in the operation and maintenance plan during charging and/or tapping operations at the BOF vessels as applicable.”

In 2019, performance testing was conducted on the Secondary Baghouse that involved changing the flow measurement parameter from fan speed to outlet plenum pressure. With that change, the fan speed is no longer relevant.

3. Modify Work Practice item 9, “After charging, the vessel shall not be moved to an upright position until online mode has been selected” to “After charging, the vessel shall not be moved to an upright position until online mode has been selected unless oxygen blowing is taking place on the other vessel.”

Under normal conditions, the switch from “charge” mode to “online” mode will cause the primary louver to open beyond the charging setpoint, leading to better capture as the vessel is moved to an upright position. However, when oxygen blowing is taking place on the other vessel, the primary louver setpoint for the vessel not blowing is restricted for safety reasons. As a result, the louver will actually close beyond the charging setpoint which leads to worse capture as the vessel is moved to an upright position. AK Steel is seeking this change to allow flexibility to determine a means to optimally control emissions generated while moving a vessel that was previously charged to an upright position while oxygen blowing is taking place on the other vessel.

Change Log

Revision Date	Version	Changes
7/24/2020	0	Original Issue

OPERATION AND MAINTENANCE PLAN

BOF

ELECTROSTATIC PRECIPITATOR (ESP)

AK STEEL DEARBORN WORKS

May 22, 2006

Revised June 25, 2019

PLAN(E)-W-20-01

AK Steel – Dearborn Works BOF Electrostatic Precipitator (ESP) Operations and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the Operations and Maintenance (O & M) procedures for the BOF Electrostatic Precipitator (ESP). This plan is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rules to have a written plan pursuant to 40 CFR 63.7800(b) and 40 CFR 63.6(e)(1)(i). This plan also satisfies ROP No. MI-ROP-A8640-2016a, requirement EUBOF III.1. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this O & M Plan. These procedures describe O & M of the source and the pollution control equipment (electrostatic precipitator) to comply with the relevant MACT rules. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, at least to the levels required by the relevant standard. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
<p>1. Preventative maintenance (PM) for the BOF ESP. A PM schedule must be developed consistent with the manufacturer’s instructions for routine and long-term maintenance. These requirements are pursuant to 40 CFR 63.7800(b)(2).</p>	<p><i>QSMPE-BI-81-81</i> (Weekly ESP Preventative Maintenance Inspections)</p> <p><i>QSMPE-BI-81-05</i> (Weekly Precipitator Filter Change Out)</p> <p><i>QSMPE-BI-81-82</i> (Monthly ESP Preventative Maintenance Inspections)</p> <p><i>QSMPE-BI-81-83</i> (Quarterly ESP Preventative Maintenance Inspections)</p>
<p>2. ESP Continuous Opacity Monitor System (COMS) corrective action procedure. In the event emissions from an ESP equipped with a COMS exceed a six minute average opacity of 15</p>	

Procedure	Reference
<p>percent, an investigation as to the cause of the opacity must be completed. This investigation includes the following:</p> <ul style="list-style-type: none"> • Prompt assessment by the ESP operator upon occurrence of opacity above 15% as to whether immediate corrective action is warranted. • Prompt completion by the ESP operator of the checksheet for 6-Minute Opacity (PO-B2-80-78E-1) to make an initial assessment of root cause of opacity above 15%. • Periodic completion of the 6-Minute Average Opacity Investigation Spreadsheet (PO-B2-81-99E-2) at least once per week to evaluate and assess trends and root causes of opacity above 15%. <p>In the event emissions from an ESP equipped with a COMS exceeds an hourly average opacity of 10 percent, corrective action must be initiated within one hour to determine the cause of the alarm. Corrective action must be initiated within 24 hours to correct the cause of the problem, and the corrective action must be completed as soon as practicable. These requirements are pursuant to 40 CFR 63.7833(g).</p>	<p><i>QSOPE-B2-80-78</i> (15% 6-Minute ESP Operator Alarm Response)</p> <p><i>QSOPE-B2-81-99</i> (ESP 15% 6-Minute Opacity Investigation Procedure)</p> <p><i>QSOPE-B2-81-98</i> (ESP 10% One Hour Elevated Opacity Investigation Procedure)</p>
<p>3. BOF ESP system inspection procedures. The following equipment shall be inspected at intervals of <u>no less than monthly</u>. The procedures provide how to evaluate each component and to repair, replace or isolate each component. If established procedures are not followed, excess emission, repeated failure, or further damage could result. A record of each inspection will be maintained for 5 years.</p> <p>a. Hoods, ductwork, dampers, and expansion joints. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or</p>	<p><i>QSMPE-B1-81-81</i> (Weekly ESP Preventative Maintenance Inspections)</p> <p><i>QSMPE-B1-81-82</i> (Monthly ESP Preventative Maintenance Inspections)</p>

Procedure	Reference
<p>accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection. These requirements are pursuant to 40 CFR 63.7800(b)(1).</p> <p>Initiate Corrective Action Procedure for monthly required inspections. These requirements are pursuant to 40 CFR 63.6(e)(1)(i) and 63.7830(a). Corrective Action: The Integrated Iron and Steel MACT rules do not address a specific time for initiating and completing corrective actions regarding issues identified during preventative maintenance inspections. Dearborn Works' policy is to address such corrective actions as soon as practical (and may want to include capture systems corrective actions prior to the next monthly inspection.). The BOF cannot operate when the ESP is not in operation.</p> <p>Inspection recordkeeping and certification procedures. A record of each inspection will be kept for 5 years. These requirements are pursuant to 40 CFR 63.7842(a)(3) and 63.7843(b).</p>	<p><i>QSMPE-B1-00-12</i> (Environmental Inspection Corrective Action Follow-Up Procedure)</p>
<p>4. Off-Gas Conditioning System (Required to be included in this plan by EUBOF III.1 of ROP MI-ROP-A8640-2016a). This system provides additional air-atomized water spray and must be maintained as part of the off gas conditioning system.</p>	<p><i>QSOPE-B2-80-71</i> (Boiler/Precipitator Spray System Operation)</p> <p><i>QSOPE-B2-81-23</i> (Boiler Pulpit Readings Procedure)</p> <p><i>QSOPE-B2-80-101</i> (ESP Gas Conditioning Steam Preparation after long delays)</p> <p><i>QSMPE-B2-80-75</i> (Conditioning Spray Setpoints Tracking Procedure)</p>

2. Responsible Official (RO): The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the plant is General Manager - Dearborn Works.

3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the BOF: *BOF* Department Manager.
 4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, maintain the air pollution control equipment as established in the Operating and Maintenance procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
 5. **Monitoring:** The COMS continuously monitors and is averaged on a 6-minute and hourly basis.
 6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
 7. **Reporting** COMS opacity deviations and deviations to the operation and maintenance requirements of the O&M plan are required to be reported to the Agency on a periodic basis according to the Facility Title V permit and/or the Integrated Iron and Steel MACT rules schedule.
- A. **REFERENCES:** 40 Code of Fed. Reg. Subpart FFFFFF – 40 CFR 63.7780

List of Manufacturer's Recommended BOF ESP Preventative Maintenance Procedures⁽¹⁾ with Incorporated Dearborn Works Preventative Maintenance Procedures

Original 1963 Recommended O&M	Is the 1963 Recommendation Applicable in 2015?	AK Steel Interpretation	Reference
DAILY			
"Take switchboard readings. (Preferably hourly, or at least once per shift)"	No	References outdated/obsolete technology. Data is displayed on computer screens.	N/A
"Check that all insulator compartments are receiving proper ventilation."	No	It is the opinion of AK Steel that the daily inspection requirement is excessive and should be conducted on a weekly basis.	<i>Form(E)-B1-81-81-02</i> (Weekly ESP Air Dryer, Hopper, and Dust Bin Heater Inspections)
"A periodic check of the hopper and dust bin heater thermostats should be made to insure their proper functioning"	No	It is the opinion of AK Steel that the daily inspection requirement is excessive and should be conducted on a weekly basis.	<i>Form(E)-B1-81-81-02</i> (Weekly ESP Air Dryer, Hopper, and Dust Bin Heater Inspections)

(1) Page 108 from ESP Operating Manual, Book 2.

Original 1963 Recommended O&M	Is the 1963 Recommendation Applicable in 2015?	AK Steel Interpretation	Reference
WEEKLY			
"Remove dust and foreign matter from electrical equipment."	Yes	Incorporated in Preventative Maintenance Schedule	<i>QSMPE-B1-81-05</i> (Weekly ESP Filter Change Out)
"Check signal horn and signal lights to see that they are functioning properly."	No	References outdated/obsolete technology. Signal lights identified the starting of a heat so that the Operators would go back into the Pulpit.	The Pulpit is continuously staffed.
"Check operation of the dust valves and conveyors."	Yes	Incorporated in Preventative Maintenance Schedule	<i>Form(E)-B2-81-04-02</i> (BOF ESP Operations Shift Checklist) <i>Form(E)-B1-81-82-01</i> (Monthly BOF ESP Conveyer(s)) Mechanical Inspection

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the Iron and Steel MACT rules for the BOF ESP.

Procedure	Reference
<i>QSMPE-B1-81-81</i> (Weekly ESP Preventative Maintenance Inspections)	<i>Form(E)-B1-81-81-01</i> (Weekly Electrostatic Precipitator Pollution Control Inspection)
	<i>Form(E)-B1-81-81-02</i> (Weekly ESP Air Dryer, Hopper and Dust Bin Heater Inspections)
<i>QSMPE-B1-81-05</i> (Weekly ESP Filter Change Out)	Filter Change Report
<i>QSMPE-B1-81-82</i> (Monthly ESP Preventative Maintenance Inspections)	<i>Form(E)-B1-81-82-01</i> (Monthly BOF Electrostatic Precipitator Conveyer(s) Mechanical Inspection)
	Monthly Fan Vibration and Analysis Report
<i>QSMPE-B1-81-83</i> Quarterly ESP Preventative Maintenance Inspections	<i>Form(E)-B1-81-83-01</i> (Quarterly BOF Electrostatic Precipitator ID Fan Inspection)
	<i>Form(E)-B1-81-83-02</i> (Quarterly BOF Electrostatic Precipitator Roof (Rapper) Electrical Inspection)
	<i>Form(E)-B1-81-83-03</i> (Quarterly BOF Electrostatic Precipitator Conveyer(s) Electrical Inspection)
	<i>Form(E)-B1-81-83-04</i> (Quarterly BOF Millwater Differential Pressure Inspection)
	<i>Form(E)-B1-81-83-05</i> (Quarterly Electrostatic Precipitator CPMS Damper Inspection)
	<i>Form(E)-B1-81-83-06</i> (Quarterly BOF Electrostatic Precipitator Rapper System (Field) Electrical Inspection)

Procedure	Reference
<i>QSOPE-B2-81-99</i> (ESP 15% 6-Minute Opacity Investigation Procedure)	<i>Form(E)-B2-81-99-02</i> (6-Minute Average Opacity Investigation Spreadsheet)
<i>QSOPE-B2-81-78</i> (15% 6-Minute Operator Alarm Response)	<i>Form(E)-B2-81-78-01</i> (BOF Precipitator Checksheet for 6-Minute (>15% 6-Minute Average))
<i>QSOPE-B2-81-98</i> (ESP 10% One-Hour Elevated Opacity Investigation)	<i>Form(E)-B2-81-98-01</i> (ESP COMS One-Hour Average Exceedance Corrective Action Form)
<i>QSOPE-B2-81-04</i> (ESP Parameter / Opacity Monitoring Procedure)	<i>Form(E)-B2-81-04-02</i> (ESP Operations Shift Checklist)
<i>QSOPE-B2-81-23</i> (Boiler Pulpit Readings Procedure)	<i>Form(E)-B2-81-23-01</i> (Boiler Pulpit Readings)
<i>QSMPE-B1-00-12</i> (Environmental Inspection Corrective Action Follow-Up Procedure)	N/A
<i>QSOPE-B2-80-71</i> (Boiler/Precipitator Spray System Operation)	N/A
<i>QSOPE-B2-80-75</i> (ESP Gas Conditioning Steam Preparation after long delays)	N/A
<i>QSMPE-B1-80-75</i> (Conditioning Spray Setpoints Tracking Procedure)	<i>Form(E)-B1-80-75-01</i> (A and B Vessel Spray Bank 1-7 Setpoint Tracking Form)
	<i>Form(E)-B1-80-75-02</i> (A and B Vessel Spray Bank 8 Setpoint Tracking Form)
	<i>Form(E)-B1-80-75-03</i> (A and B Vessel Spray Bank and Water Flow Setpoint Tracking Form)
	<i>Form(E)-B1-80-75-04</i> (Inspection to Ensure Proper Atomization by Spray Nozzles)

REVISION TABLE

Date	Revision Comments
May 22, 2006	Original Issue
October 15, 2007	Combined all MACT plans
April 15, 2011	Revised plan with new facility name
September 3, 2013	Plan revised by SNC Lavalin
June 24, 2014	Updated by SNC Lavalin
November 5, 2014	O & M Plan revised by AK Steel
January 12, 2015	Updated O & M Plan to include 15% 6-minute opacity procedure and fixed procedure numbers referenced in O & M plan.
March 30, 2015	Updated O & M Plan to include procedure for ESP Operators to follow in the event of a 6-minute 15% or greater COMS alarm (PO-B2-80-78E).
June 1, 2017	Removed Oracle Work Order ID's and replaced with the EMS documentation system procedure numbers and associated forms, Removed "ESP Parameter/Opacity Monitoring Checksheet", "BOF Precipitator E-Field Electric Readings", "Downcomer Draft Transmitter Inspection", and "Boiler/Precipitator Change Spray H ₂ O Setpoints." Added PO-PR-B2-80-101E (ESP Gas Conditioning Steam Preparation after long delays), PM-FM-B2-81-83E-06 (Quarterly BOF Electrostatic Precipitator Rapper System (Field) Electrical Inspection).
May 25, 2018	Changed numbering for PO-PR-B2-00-12E to PM-PR-B2-00-12E, Added PM-PR-B2-80-75E to Detailed Procedures, Step 4, Added PM-PR-B2-80-75E and associated forms to the "List of Controlled Operating and Maintenance Procedures and Forms"
June 25, 2019	Changed procedure numbers to align with current numbering format, changed RO delegated person in step 3 from Steelmaking Department Manager to BOF Department Manager

AK STEEL DEARBORN WORKS

Continuous Opacity Monitoring System (COMS)

Quality Assurance and Quality Control Plan

January 8, 2016

Revised July 24, 2020

PLAN(E)-W-20-06

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Introduction

This Quality Assurance/Quality Control (QA/QC) Plan has been prepared to support the operation of the Continuous Opacity Monitoring System (COMS) at AK Steel Dearborn Works, Dearborn, MI, installed for measurement of flue gas opacity.

The EPA has established requirements for monitoring, record keeping, and reporting opacity levels in flue gases emitted from affected units. The COMS discussed in this manual is governed by the regulations established under *Title 40 Code of Federal Regulations Part 60* (40 CFR Part 60), Appendix B, Performance Specification 1 and *Title 40 Code of Federal Regulations Part 60* (40 CFR Part 60) Appendix F, Quality Assurance Procedures, which include general requirements for the installation, certification, operation, and maintenance of the COMS. Compliance with the ASTM D2616-98 is also addressed.

Definitions of Quality Assurance and Quality Control

The QA procedures consist of two distinct and equally important functions. One function is the assessment of the quality of the COMS data by estimating accuracy. The other function is the control and improvement of the quality of the COMS data by implementing QC policies and corrective actions. These two functions form a control loop: When the assessment function indicates that the data quality is inadequate, the control effort must be increased until the data quality is acceptable. In order to provide uniformity in the assessment and reporting of data quality, this procedure explicitly specifies the assessment methods for response drift and accuracy.

Quality Assurance is the series of activities performed to evaluate the overall effectiveness of the maintenance and QC efforts. QC involves those activities undertaken to determine that the product or service is effective in maintaining an accurate and reliable output of COMS data.

Quality Control functions often are comprised of a series of frequent internal checks, such as system inspections, periodic calibrations, and routine maintenance. Quality Assurance involves less frequent external checks on product quality and is used to evaluate the total quality control process.

External quality assurance evaluations may include independent system audits, third party sampling and analysis, and/or comparisons to known calibration standards. This Plan encompasses both QA and QC functions and identifies which function is fulfilled by the specific activity.

Data collected as a result of QA and QC measures are to be submitted to the Agency. These data are to be used by both the Agency and the COMS operator in assessing the effectiveness of the QA and QC procedures in the maintenance of acceptable COMS operation and valid emission data.

Quality Assurance Policy

AK Steel Dearborn Works' policy is to efficiently operate and maintain its facilities in accordance with good operating practices (GOP) and applicable environmental regulations. AK Steel Dearborn

Works is committed to ensuring that all environmental systems are operating within acceptable limits and that its operations are in compliance with AK Steel Dearborn Works' Environmental Policy (AKWEP-W1-00-02).

Objective of Quality Assurance Plan

AK Steel Dearborn Works recognizes that the reliability and acceptability of COMS data depends on completion of all activities stipulated in a well-defined QA plan. The objective of this QA plan is to define the necessary activities that guarantee COMS data quality is maintained at acceptable levels. The plan also provides the framework for implementing QA activities by addressing items such as documentation, training, corrective actions, and preventive maintenance measures.

Scope of Quality Assurance Plan

This QA plan is specific to the operation and maintenance of the COMS installed at AK Steel Dearborn Works, Dearborn, MI. The QA Plan goal is to obtain and evaluate emissions data of known and acceptable quality in support of the air pollution control equipment operation. The data obtained is used to demonstrate compliance with the following EPA, state and local emission and monitoring regulations:

40 CFR 60, Appendix B, Performance Specification 1

40 CFR 60, Appendix F; Quality Assurance Procedures

ASTM D6216-98

Additionally, this plan describes the necessary support services and activities, such as manual testing, data reduction, and report preparation, required to maintain data quality. However, this plan is not exhaustive in that some QA/QC activities are not discussed in detail here. Activities not fully discussed may include, but are not limited to, instrument maintenance, plant operating procedures, plant quality control procedures, and plant internal procedures for procurement and inventory control. These activities may be referenced in this QA Plan and may be updated, replaced, or deleted without notice or change to this plan.

Document Control

This QA/QC Plan includes procedures that ensure changes and revisions to this plan are communicated to all appropriate individuals. The Environmental Affairs Manager will be responsible for ensuring that all changes and revisions are incorporated in the basic document. Periodic review of this QA Plan will help to insure that the QA process is working to provide efficient notice of required actions. Whenever inaccuracies occur for two consecutive quarters, AK Steel Dearborn Works must revise the current procedures or modify or replace the COMS to correct the deficiency causing the excessive inaccuracies. The procedures must be kept on record and available for inspection by the enforcement agency

Description of Facility and COMS

Facility

AK Steel Inc. operates a fully integrated steel mill located in Dearborn, MI. Molten iron (hot metal) is produced in the blast furnace by heating iron ore and other iron-bearing materials, coke, and lime, slag, or other flux material with hot gas. Burden materials consisting of iron ore pellets, flux material (slag, limestone or dolomite), and a carbon source (usually coke) are delivered to and charged into the top of the furnace. Additional carbon is supplied to the furnace by injecting natural gas or coal in the hot blast section of the furnace. Molten iron and slag are cast from the furnace into a trough and iron runners in the floor of the cast house. The slag is separated from the molten iron in the trough prior to entering the bottle cars. The slag is then diverted to slag pots. The molten iron is transported in bottle cars to the Basic Oxygen Furnace (BOF) for use in the steelmaking process.

The bottle cars travel by rail to transfer the molten iron into a charging ladle at the reladling pit. An empty hot metal ladle (refractory lined) is placed down into the reladling pit. The moveable hot metal fume collection hood is positioned into place above the empty ladle. One hot metal bottle car is lined up with the centerline of the ladle. The hot metal bottle car is tilted to pour the hot metal into the charging ladle. The fumes from this hot metal transfer operation are collected by the fume hood and sent to the Secondary Emission Control (SEC) Baghouse. If necessary, another bottle car is moved into position and the process is repeated until the ladle is full. After the hot metal transfer is complete, the ladle is removed from the pit by the charging crane and placed into the ladle tilt stand at the desulfurization station.

At the desulfurization ladle tilt stand, a movable hood and lance are moved into position over the ladle. Once in position, the lance is lowered into the hot metal and injects desulfurizing reagents with a nitrogen carrier into the hot metal. This process converts the sulfur in the hot metal to sulfides. The sulfides rise to the surface of the hot metal and become bound in the slag. The fume and dust emissions produced during the desulfurization operation are captured in the hood and sent to the desulfurization baghouse. Once the desulfurization is complete, the lance is raised. The ladle is then tilted and the slag is skimmed from the surface of the hot metal using a hydraulic powered skimming arm, with a refractory paddle. The slag skimmed from the surface of the hot metal drops into a slag pot below the ladle. Emissions from slag skimming are also captured by the movable hood and sent to the desulfurization baghouse.

Scrap steel is charged into a BOF vessel and then hot metal processed at the desulfurization station is charged into the vessel on top of the scrap. Emissions from charging scrap steel and hot metal are captured by hoods and ducted to the SEC Baghouse. Fluxing agents are added during the steelmaking process. Oxygen is blown into the hot metal/scrap mixture causing the scrap to melt, while the hot metal is refined into steel. The heat for the steelmaking process comes from the reaction of oxygen with the dissolved carbon in the hot metal. Emissions generated during oxygen blowing (primarily particulate emissions consisting of iron oxides and various other metal oxides) are captured and exhausted to the Electrostatic Precipitator (ESP) for particulate matter (PM) removal.

The ESP operates with the fumes entering through the inlet header. Induced draft (ID) fans provide the suction for moving the fume and dust laden gases through the ESP. While the system is designed to operate with three (3) fans, four (4) fans are often utilized to allow for redundancy. The dust laden gases pass through one of the four precipitators which collect the particles are electrically energized and migrate over to the collector plates, where the PM accumulates.

Rappers are used to impart a vibration to both the discharge electrodes and the collection plates to dislodge the accumulated dust. The dislodged dust falls from the ESP plates and wires into the ESP's dust handling system. The dust handling system consists of a set of screw conveyors and double dump valves attached to the outlets of insulated hoppers on the dropout chamber, the inlet manifold, and on the precipitators. Conveyors discharge into a set of surge bins where the material is stored. The material empties from the bottom of each of the surge bins onto a web belt conveyor where it travels to a corresponding dust silo for ultimate disposal via trucks.

The clean waste-gas continues through the ESP units and the ID fans. The gas is discharged through a 213 ft. high by 17 ft. diameter stack. A continuous opacity monitor system (COMS) is used to measure the opacity of the stack gases.

After processing at the BOF, the molten steel undergoes further refining in the ladle refining furnaces before ultimately cast into steel slabs.

Organization and Responsible Individuals

Certain individuals and groups at the facility will have designated responsibilities to ensure that QA/QC activities are performed as required by this QA program. The following is a typical organizational structure of responsibilities.

Environmental Affairs Manager or Designee:

- Oversees the COMS QA/QC program.
- Reviews all plans and reports for accuracy.
- Prepares certification/recertification applications and notifications to required regulatory agencies.
- Stays abreast of EPA regulation updates that may affect the COMS programs and interprets as required. Writes the quarterly COMS reports from plant prior to submittal.
- Submits quarterly reports and certification/recertification test results to the applicable regulatory agencies.
- Reviews COMS data for validity and makes any necessary corrections so the proper data will be entered in the quarterly reports.
- Ensures records are maintained for out-of-control conditions.

- Maintains files of all plant COMS data (hardcopy or electronic), reports, etc. for three years as required by the EPA (or as applicable to local regulatory requirements).
- Reviews and approves all plant-specific COMS plans, procedures, and reports.
- Reviews COMS daily calibration.
- Works with Operations Supervisor of Designee to ensure appropriate entries are in the maintenance log.

Operations Supervisor or Designee:

- Coordinates and schedules COMS audits, diagnostic tests and certification/recertification tests as required.
- Notifies the Steelmaking Department Manager of any abnormal conditions that cannot be resolved within existing COMS procedures in a reasonable amount of time.
- Provides training and support in the administration and maintenance of the COMS QA program and COMS Standard Operating Procedures (SOP) documents.
- Notifies appropriate plant personnel of scheduled COMS audits and certification/recertification tests.
- Arranges for support needed by contractor for periodic audits and certification/recertification tests.
- Provides plant resources to assist contractors during audits and certification/recertification testing.
- Designates and manages manpower and other resources needed to properly maintain and operate the COMS. Ultimately responsible for ensuring that all routine preventive maintenance is completed on schedule.
- Reviews COMS status on a daily basis.
- Perform regular maintenance on equipment as recommended by the manufacturer.
- Address and report any abnormal conditions to the Operations Supervisor.
- Works with Environmental Affairs Manager of Designee to ensure appropriate entries are entered into the maintenance log.
- Maintain the spare parts inventory.
- Maintain audit filter certifications or provide instructions to service provider to maintain audit filter certifications.

COMS Overview

The COMS is an integrated system manufactured by Monitoring Solutions, Inc. whose headquarters are based in Indianapolis, IN. The following figure presents a simplified illustration of COMS gas flow (reference system drawings for specific component detail).

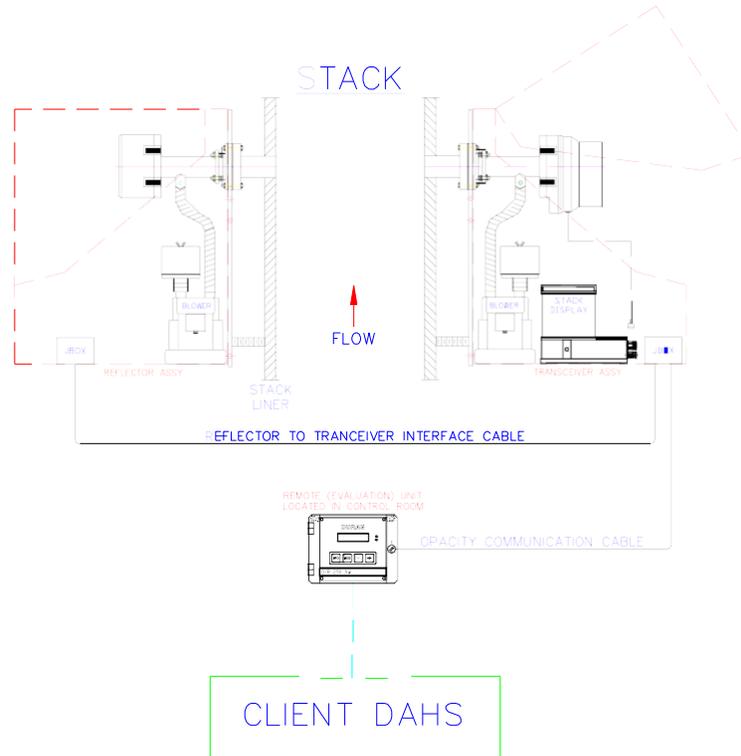


Figure 1. General COMS Overview

The COMS monitors the optical density of effluent particulate flowing through a stack or duct. The system measures opacity as a percentage of light passing through the gases compared to the reference light beam originating from source. It consists of four major components: the Transmissometer, the terminal control box, the air-purging system and the remote control unit and data acquisition equipment.

The PLC provides the communication link between COMS and Wonderware ActiveFactory trending data and data historian system. Wonderware ActiveFactory receives and stores data generated by the COMS and records COMS operations such as calibration and detection of alarm conditions.

ActiveFactory enables trending of historical and real time COMS data over time. Alarms and limit excursions are readily visible as scaled in the PLC. The historian is a real-time relational database for COMS data. The historian acquires and stores COMS data and provides real-time and historical COMS data together with configuration, event, summary, and associated operations data.

A complete set of operation and maintenance manuals for all components of the system is maintained by *the Environmental Affairs and the BOF Maintenance Departments*. These manuals provide complete descriptions of the system including theory, installation, operation, and maintenance.

Durag Model D-R 290 Opacity Monitor

The instrument is manufactured by the Durag Corporation and distributed and serviced by Monitoring Solutions, Inc.

The D-R 290 opacity monitoring system consists of four major components: the transmissometer, the terminal control box, the air-purging system and the remote control unit and data acquisition equipment. The Transmissometer component consists of an optical transmitter/receiver (transceiver) unit mounted on one side of a stack or duct and a retro reflector unit mounted on the opposite side. The transceiver unit contains the light source, the photodiode detector, and the associated electronics. The transceiver uses a single-lamp, single detector system to determine effluent opacity. An LED light source is modulated electronically at 2 KHz to eliminate any ambient light interference. The modulated beam is configured to alternately produce reference and measurement signals so that the effects of variations in the optical and electronic components of the COMS are minimized.

The display terminal control box mounted beside the transceiver unit provides on-stack readout of the opacity output from the transceiver and can be used as a diagnostic tool.

The air purging system serves a threefold purpose: 1) it provides an air window to keep exposed optical surfaces clean; 2) it protects the optical surfaces from condensation of stack gas moisture; and 3) it minimizes thermal conduction from the stack to the instrument. A standard installation has one air-purging system for each the transceiver and the retro reflector units.

The remote control unit communicates with the remote display unit via an RS 422 cable.

The opacity monitor measures the amount of light transmitted through the effluent from the transceiver to the retro reflector and back again. The control unit uses the effluent transmittance to calculate the optical density of the effluent at the monitor location, or the “path” optical density. In order to provide stack exit opacity data, the path optical density must be corrected. The correction factor is expressed as the ratio of the stack exit inside diameter to the inside diameter of the stack at the Transmissometer location. This ratio is called the “stack correction factor” (SCF) by Monitoring Solutions, Inc. The following equations illustrate the relationship between this ratio, path optical density, and stack exit opacity.

$$L_X/L_t = \text{stack correction factor}$$

where:

L_X = stack exit inside diameter (ft)

L_t = stack inside diameter (or the duct width) at the monitor location (ft)

$$OP_X = 1 - \left(1 - \frac{\text{Opacity}}{100} \right)^{\text{corr. factor}}$$

where:

OP_X = stack exit opacity (%)

Wonderware Data System

Overview

The Wonderware Historian is a real time data collection of operations data and alarms generated at the BOF through the PLC. The historian allows retrieval of operations data while acting as a storage system for data and isolating Steelmaking Department operations data from plant wide data. Real time and archival traces of historian data include analog, discrete, string or event data for notifying AK Steel Dearborn Works of operations changes or incidents.

Wonderware ActiveFactory provides real time and historical trending, analysis, and reporting of operations data. Real time data can be viewed as operations occur. Blocks of related data can be visualized as a tool to maintain operations, quality, and maintenance goals. Information about all displayed tags, including minimum and maximum values, the times associated with those values, average values, ranges, etc. can be accessed and summarized.

Statistics can be calculated for an entire trend interval or for only the period between time cursors. Statistical data can be saved, printed, or exported to other spreadsheet programs such as Microsoft Excel. Tag alarm and event queries such as Alarm History, Alarm Limits, and Event History Values are available so that tag alarms and events can be reviewed as a diagnostic tool for troubleshooting and corrective actions.

Quality Assurance Activities

Overview

The purpose of these procedures is to ensure that the COMS installed at the AK Steel Dearborn Works facility operates in such a manner as to provide accurate and reliable data.

Table 1. Quality Assurance Checklist

<i>Activity: Quality Assurance</i>	Quarterly	Annual
Calibration Error Audit	X	
Clear Path Check Audit		X

COMS Analyzer Summary

Parameter	Full Scale Range	Analyzer Mfg	Model	Serial Number
Opacity Reflector Type 2	0-100 %	Durag	D-R 290	1244169

Daily Calibration Drift (CD) Check: COMS (Opacity)

A Calibration check must be conducted at least daily for determination of zero and upscale calibration drift. Each day, the COMS status indicators and final recording device must be checked for faults and/or alarms associated with the COMS. Faults and alarm data is processed through the PLC. A device check is performed if there is a fault or alarm on the COMS display module to review the status code. The ESP Operator notes any status codes on the BOF ESP Operating Shift Checklist (PO-FM-B2-81-04E-02) and notifies a supervisor of the error code condition.

The results of daily calibrations are calculated as the measurement device reading minus the value of the reference material used. The Supervisor must be notified when the cumulative automatic zero compensation exceeds 4% opacity.

The COMS has an automatic daily calibration control cycle that runs at regular intervals, which can be set to occur every 1-99 hours. This cycle automatically measures and displays the zero point value, the level of window contamination on the optical surfaces, and a control (daily upscale/span) value. All subsequent measurements are then adjusted to correct for the window contamination values. The acceptable value for this window contamination can be selected in %; if the value becomes higher, a warning message will be displayed (relay output). The control panel electronics then calculate the transmission intensity based on the light it receives and the intensity of the comparison normal beam. This data is then used in the calculation of the opacity. The result is then both displayed and given as an analog current output signal to the PLC.

All calibration test data is recorded by the Wonderware Historian. The system records the date, time, and raw data values. The Environmental Affairs designee is responsible for reviewing the daily calibrations for drift and other abnormalities and for communicating any issues to the Operations Supervisor. Calibration as well as monitor maintenance is recorded by the Environmental Affairs designee on a calibration and maintenance log.

Out-of-Control Period - COMS

During the system calibration check, the values measured by a monitor are accessed by Wonderware. On a daily basis, the Environmental Affairs Manager or Designee is

responsible for reviewing the measured values compared to the known calibration and the previous day’s values to determine if the QC check is within permissible limits.

The beginning of the out-of-control period is the time corresponding to the completion of the fifth, consecutive daily CD check with a failed CD or the time corresponding to the completion of the daily CD check preceding the daily CD check that results in a failed CD. The end of the out-of-control period is the time corresponding to the completion of appropriate adjustment and subsequent successful CD check.

If any individual 24 hour zero drift or 24 hour span drift exceeds two times the applicable performance specification, the COMS must be adjusted to within specification. A third party vendor will be notified to address the issue, make adjustments, and perform corrective actions.

NOTE: Most Durag 290 systems have a default “window check” alarm set point of 3.5%. If the Window Check (zero drift) is greater than 3.5%, an error code of 001 will show on the Durag 290 display. This will give the client an advance notice that the zero drift is approaching the limit and the unit requires cleaning. If the COMS exceeds the limits and fails the Daily Calibration check, a fault is generated and will appear on the display module.

Table 2. Criteria for Opacity Calibration Drift & Out of Control
(40 CFR 60, appendix B, PS 1, 13.3(6) & Appendix F, 4.3)

Monitor	Daily Calibration Drift	Daily Adjustment required	Out-of Control	
			Five (5) consecutive daily	Any calibration
Opacity	≤ 2.0 % Opacity	≥ 4.0 % Opacity	≥ 4.0 % Opacity	≥ 8.0% Opacity

Any time the COMS is declared "out of control" or "out of service", it shall be considered downtime for reporting purposes and cannot be used to show compliance with permit limits or data capture requirements. Corrective action must be performed and documented as soon as possible after determining that the COMS is not operating to within required specifications. A successful daily calibration error test must be performed before data can be considered valid.

If any routine calibration adjustments of an opacity monitor are made, a daily calibration error test must be performed on the monitor.

When a calibration cycle is completed, the Durag calculates the calibration error as outlined in 40 CFR 60, Appendix B, Performance Specification 1 and 40 CFR 60, Appendix F.

COMS Quarterly Calibration Error Audit

A calibration error test shall be performed on each COMS at least once every calendar quarter using neutral density audit filters. The Operations Supervisor is responsible for completing the quarterly calibration error test. The Environmental Affairs designee is responsible for checking the audit report. This report includes a comparison between results and comparable COMS data. In general, the audit is conducted by a trained third party which specializes in the monitoring equipment.

Audit Preparation

Note: Before physical maintenance is performed, the maintenance technician must meet with a BOF maintenance designee to evaluate the hazards of the job. This can be done by completing the AK Steel Job Site Orientation Form.

1. Verify that the COMS is operating properly by performing a system calibration check.
2. Notify the Operations Supervisor or Designee of the start of the audit.
3. Proceed to the test location and verify the following for the audit personnel:
4. Safe access
5. Safety belts, if required
6. Hoist equipment
7. Required neutral density filters
8. Communication with Wonderware.

Zero Compensation Check

The Zero Compensation Check value is the amount of contamination in % opacity that the unit is applying to the readings when performing an audit. **NOTE:** For the Durag D-R 290, this is the window check reading.

1. Document the Zero Compensation Check value PRIOR TO CLEANING. These values do not need to be documented via the final recording device.
2. Clean the transceiver window, zero mirror and reflector.
3. Document the Zero Compensation Check value AFTER CLEANING.
4. Perform a manual calibration to remove/clear any zero compensation.

Calibration Error Test

Performing the calibration error check on-stack using the filters determines the linearity of the instrument response relative to the current clear-path zero setting. This calibration error check does not determine the accuracy of the actual instrument clear-path zero or the status of any cross-stack parameters. A true calibration check is performed by moving the on-stack components to a location with minimal ambient opacity, making sure that the proper path length and alignments are attained, and then placing the calibration filters in the measurement path.

A minimum number of three runs are required during the audit. Currently, a third party vendor performs five runs; however, this may be reduced to three runs in the future. The maximum allowable error on the Calibration Error Test is 3%.

1. Put the monitor in Filter Audit mode
2. Record the audit filter serial numbers and opacity values.
3. Remove the filters from their protective covers, inspect and if necessary, clean them.
4. Record the zero value.
5. Insert the low-range neutral density filter into the filter slot located in front of the heated lens.
6. Wait approximately three minutes or until a stable value has been recorded and displayed on

the data recorder. (**Note:** The data should be taken from a data recording/reporting device that presents instantaneous opacity (or opacity data with the shortest available integration period)).

7. Record the COMS response to the low-range neutral density filter.
8. Remove the low-range filter and insert the mid-range neutral density filter.
9. Wait approximately three minutes and record the COMS response to the mid-range neutral density filter.
10. Remove the mid-range filter and insert the high-range filter.
11. Wait approximately three minutes and record the COMS response to the high-range neutral density filter.
12. Remove the high-range filter, wait approximately three minutes, and record the zero value.
13. Repeat steps 1) through 12) until a total of five opacity readings are obtained for each neutral density filter.

Optical Alignment Check

The unit's optical alignment must be within its specific reference mark. If the alignment varies with stack temperature, you must perform any adjustments to the alignment only when the boiler is under normal operations.

Audit Completion

1. Notify the Operations Supervisor or Designee that the audit has been completed.
2. Obtain copies of COMS data covering the test period.
3. Document results from COMS audit.
4. Document any maintenance performed and provide it to Operation Supervisor or Designee

Audit Report Preparation

A report of the results of each Calibration Error Audit is prepared for inclusion in the current Quarterly Emission Report. The Calibration Error report follows the following outline:

1. Introduction
 - 1.1 Briefly describe the audit and purpose
2. Results
 - 2.1 Give the date of the audit & a brief description of the results
 - 2.2 If corrective action was required, describe
 - 2.3 Present the results of repeat audits, if applicable
3. Supporting data
 - 3.1 Include all of the data used to calculate the results
 - 3.2 Include Calibration Error summary report

COMS Semi-Annual Requirements

Neutral Density Filters

Neutral Density (ND) filters, used for calibration error assessment are required to be certified semi-annually. ND filters must be certified in accordance with the basic procedures specified in 40 CFR Part 60, Appendix B, Performance Spec. 1.

Table 3. Opacity Audit Filter allowable ranges (per ASTM D6216-98, Paragraph 7.5)

	Opacity Permit Limit 10-19%	Opacity Permit Limit \geq 20%
Low Level	5-10%	10-20%
Mid Level	10-20%	20-30%
High Level	20-40%	30-60%

AK Steel Dearborn Works is responsible for maintaining a file of the filter certificate for each neutral density filters supplied, including the date of production, certified value and serial number. Alternatively, the service provider can provide the filters for the quarterly calibration checks.

COMS Annual Requirements

A “Zero Alignment”, or clear path check, must be completed annually. Annually is defined as a period wherein the unit is operating at least 28 days in a calendar year.

1. The COMS unit **MUST BE REMOVED** from its installation and set up under a clear path condition.

NOTE: If performing this zero alignment check in conjunction with the quarterly checks, perform the zero compensation check **FIRST** in order to document those values.

2. Setup the unit to the exact path length.
3. Clean the transceiver window, zero mirror, and reflector.
4. Perform a manual calibration to remove/clear any zero compensation values.
5. Record the COMS response to the clear path zero in % opacity (cross-stack reading).
Activate the simulated zero and record the reading in % opacity (window check reading).
 - 5.1 The response difference between these two readings is recorded as the “zero alignment error”.
 - 5.2 The maximum allowable zero alignment error is 2%.
6. Adjust the simulated zero (window check) to read the same value in % opacity as the clear path zero.

COMS Field Audit Performance Tests (DR-290 Opacity Monitor)

This audit is typically only performed for the INITIAL CERTIFICATION of the COMS, however, some of the information may be reference for other audits and tests.

After installation, the following procedures and tests must be performed on each opacity system (40 CFR 60 App. B PS1).

Preliminary Data

1. Obtain the stack exit inside diameter (or equivalent exit diameter) and the stack or duct inside diameter or width at the monitor location. Record these values.

Note: Pollutant handling system dimensions may be acquired from the following sources listed in descending order of reliability:

- 1.1 physical measurements,
 - 1.2 construction drawings,
 - 1.3 opacity monitor installation/certification documents, and
 - 1.4 source personnel recollections.
2. Calculate the stack correction factor and record the result.
 3. Record the source-cited stack correction.

The stack correction factor is preset by the manufacturer using information supplied by the source. The value recorded should be the value source personnel agree should be set inside the monitor.

The path length correction error should be within $\pm 2\%$. This error exponentially affects the opacity readings, resulting in over or underestimation of the stack exit opacity. The most common error in computing the optical path length correction factor is the use of the flange-to-flange distance in place of the stack/duct inside diameter at the monitor location. This error will result in underestimation of the stack exit opacity and can be identified by comparing the monitor optical path length to the flange-to-flange distance; the flange-to-flange distance should be greater by approximately two to four feet.

4. Obtain the reference zero and span calibration values. Record these values.

Note: The reference zero and span calibration values may not be the same as the values recorded during instrument installation and/or certification. The zero and span values recorded should be the reference values recorded during the most recent clear-path calibration of the COMS.

AK Steel is responsible for maintaining a copy of the initial field audit and any necessary subsequent field audits onsite for the life of the opacity monitor.

Error Checks

The following describes the error codes for the COMS remote control unit. Unless otherwise noted, the audit can continue with error codes being present, provided the source has been informed of the fault conditions.

Error code 100 = Transceiver blower fault

Error code 200 = Transceiver filter plugged

Error code 300 = Reflector blower fault

Error code 400 = Reflector filter plugged

Note: If a FAULT occurred, an error code should be displaying on the stack mounted display and on the remote in the ESP Pulpit. An explanation of the error codes can be found in the Installation and Operation manual.

Error codes are typically associated with parameters that the monitor manufacturer feels are critical to COMS function, and to the collection of valid opacity data. The parameters associated with each of the error codes are found in the manufacturer's manual. With the exception of alarms that warn of elevated opacity levels (alarm or warning lamps), the error codes indicate that the COMS is not functioning properly.

Instrument Range Check

Check the COMS measurement range by pressing the MOD button (the LED on the button will light up) and using the PLUS button to cycle through the displays. Record the instrument range.

Reference Signal, Zero and Span Checks

Initiate the calibration cycle by pressing the arrow and plus buttons simultaneously and holding for approximately 5 seconds. (**Note:** The monitor will automatically cycle through the internal zero, external zero, span and stack taper ratio modes.)

Record the internal zero milliamp value displayed on the control panel display. (**Note:** The internal zero checks the instrument reference signal. Since the instrument provides a full scale output of 4 to 20 milliamps, a value of 4 milliamps displayed on the control unit display represents a zero condition. After 1-½ minutes in the internal zero mode, the monitor will automatically switch to the external zero mode.)

Record the external zero value (in milliamps) displayed on the control unit display. Record the external zero value (in percent opacity) displayed on the opacity data recorder.

During the zero calibration check, the zero mirror is moved into the path of the measurement beam by a servomotor. The zero mechanism is designed to present the transceiver with a simulated clear-path condition. The daily zero check does not test the actual clear-path zero, nor does it provide a check of cross-stack parameters such as the optical alignment of the Transmissometer or drift in the reflectance of the retro reflector. The actual clear-path zero can only be checked during clear-stack or off-stack calibration of the COMS. In addition to simulating the instrument clear-path zero, the zero mechanism allows the amount of dust on the transceiver optics (primary lens and zero mirror) to be quantified. After 1-½ minutes in the external zero mode, the COMS will automatically enter the span mode.

The COMS internal zero should be set to indicate 0% opacity (equivalent to 3.7-4.3mA). An external zero error greater than 4% opacity is usually due to excessive dust accumulation on the optical surfaces, electronic drift or an electronic/mechanical offset of the data recorder. Excessive dust on the optical surfaces sufficient to cause a significant zero error would be indicated by the difference in the internal and external zero values and/or window alarm. Instrument span error may be caused by the

same problems that cause zero errors and may be identified in a similar fashion. A span error may also be caused by an inaccurately names span filter.

The external zero displayed on the control unit panel meter also indicates the level of dust accumulation on the zero retro-reflector and transceiver measurement window. The difference between the internal and external zero responses should equal the amount of dust found on the transceiver optics. To convert the zero responses to a value that represents lens dusting in percent opacity, use the following equation.

$$\text{Meter response (\% opacity)} = 6.25 [\text{ext zero value (mA)} - (\text{int zero value (mA)})]$$

Record the span value (in milliamps) displayed on the control unit panel meter. Record the span value (in percent opacity) displayed on the data recorder. Go to the Transmissometer location.

During the span calibration check, a servomotor moves a span filter into the path of the measurement beam while the zero mirror is in place. The span mechanism is designed to provide an indication of the upscale accuracy of the COMS relative to the simulated clear-path zero. The monitor will output its stack correction factor (SCF) for approximately 70 seconds when the span portion of the calibration cycle is completed. The COMS automatically returns to the measurement mode when the SCF portion of the calibration cycle is complete.

If the zero and span errors are due to a data recorder offset, both errors will be in the same direction and will be of the same magnitude.

Retro Reflector Dust Accumulation Check

1. Record the opacity prior to cleaning the retro-reflector optics.
2. Open the transceiver housing, inspect and clean the retro-reflector optics, and close the housing.
3. Record the post-cleaning opacity. Go to the transceiver location.

Transceiver Dust Accumulation Check

1. Record the pre-cleaning opacity.
2. Open the transceiver, clean the optics (primary lens and zero mirror) and close the transceiver.
3. Record the post-cleaning opacity.

The results of the dust accumulation check should not exceed 4%. A dust accumulation value of more than 4% opacity indicates that the airflow of the purge system and/or the cleaning frequency of the optical surfaces are inadequate. When determining the optical surface dust accumulation, the auditor should note whether the opacity is relatively stable (within $\pm 2\%$ opacity) before and after cleaning the optical surfaces. If the opacity is fluctuating by more than $\pm 2\%$, the dust accumulation analysis should be omitted.

Optical Alignment Assessment

1. Determine the monitor alignment by looking through the alignment port of the side of the transceiver.
2. Observe whether the image is centered in the cross hairs.

When the transceiver and retro-reflector are misaligned, a portion of the measurement beam that should be returned to the measurement detector is misdirected, resulting in a positive bias

in the data reported by the COMS. One of the most common causes of misalignment is vibration which may cause the on-stack components to shift slightly on the instrument mounting flanges. Another common cause of misalignment is thermal expansion and contraction of the structure on which the transmissometer is mounted. If the COMS is being audited while the unit is off-line (cold stack), the results of the alignment analysis may not be representative of the alignment of the instrument when the stack or duct is at normal operating temperature.

Calibration Error Check

The calibration error check is performed using three neutral density filters:

	Opacity Permit Limit 10-19%	Opacity Permit Limit \geq 20%
Low Level	5-10%	10-20%
Mid Level	10-20%	20-30%
High Level	20-40%	30-60%

(per ASTM D6216-98, Paragraph 7.5)

Neutral Density (ND) filters, used for calibration error assessment are required to be certified semi-annually. ND filters must be certified in accordance with the basic procedures specified in 40 CFR Part 60, Appendix B, Performance Spec. 1.

AK Steel Dearborn Works is responsible for maintaining a file of the filter certificate for each neutral density filters supplied, including the date of production, certified value and serial number. Alternatively, AK may request that the third party service provider provide the filters and required certification for the quarterly calibration checks.

Performing the calibration error check on-stack using the filters determines the linearity of the instrument response relative to the current clear-path zero setting. This calibration error check does not determine the accuracy of the actual instrument clear-path zero or the status of any cross-stack parameters. A true calibration check is performed by moving the on-stack components to a location with minimal ambient opacity, making sure that the proper path length and alignments are attained, and then placing the calibration filters in the measurement path.

Calibration error results in excess of $\pm 3\%$ are indicative of a non-linear or mis-calibrated instrument. However, the absolute calibration accuracy of the monitor can be determined only when the instrument clear-path zero value is known. If the zero and span data are out-of-specification, the calibration error data will often be biased in the direction of the zero and span errors. Even if the zero and span data indicate that the COMS is calibrated properly, the monitor may still be inaccurate due to error in the clear-path zero adjustment. The optimum calibration procedure involves using neutral density filters during clear-stack or off-stack COMS calibration. This procedure would establish both the absolute calibration accuracy and linearity of the COMS. If this procedure is impractical, and it is reasonable to assume that the clear-path zero is set correctly, the monitor's calibration can be set using either the neutral density filters or the internal zero and span values.

1. Put the monitor in Filter Audit mode
2. Record the audit filter serial numbers and opacity values.
3. Remove the filters from their protective covers, inspect and if necessary, clean them.
4. Record the zero value.

5. Insert the low-range neutral density filter into the filter slot located in front of the heated lens.
6. Wait approximately two minutes or until a clear value has been recorded and displayed on the data recorder. (**Note:** The data should be taken from a data recording/reporting device that presents instantaneous opacity (or opacity data with the shortest available integration period)).
7. Record the COMS response to the low-range neutral density filter.
8. Remove the low-range filter and insert the mid-range neutral density filter.
9. Wait approximately two minutes and record the COMS response to the mid-range neutral density filter.
10. Remove the mid-range filter and insert the high-range filter.
11. Wait approximately two minutes and record the COMS response to the high-range neutral density filter.
12. Remove the high-range filter, wait approximately two minutes, and record the zero value.
13. Repeat steps 1 through 12 until a total of five opacity readings are obtained for each neutral density filter.

Averaging Period Calculation and Recording Check

To obtain the six-minute integrated opacity data, repeat the steps in the Calibration Error Check, changing the waiting periods to 13 minutes. (**Note:** In order to acquire valid six-minute averaged opacity data, each filter must remain in for at least two consecutive six-minute periods plus one minute; the first period will be invalid because it was in progress when the filter was inserted. A waiting period of 13 minutes is required.)

Record the six-minute integrated data.

Calculations

When the calibration error check is complete, return the monitor to measuring mode. Close the transceiver head and the weather cover, and return to the D-R 290 opacity monitor control unit.

Return to the control unit location and reset the opacity instrument range to its original setting, if necessary.

Obtain a copy of the audit data from the data recorder and complete the required calculations.

Arithmetic Mean

$$\bar{d} = \frac{1}{n} \sum_{i=1}^n d_i$$

Where:

\bar{d}	=	mean of the differences
n	=	number of data points
d_i	=	the difference between a reference method value and the corresponding value (RM _i - CEM _i) at a given point in time, "i".

Standard Deviation

$$S_d = \sqrt{\frac{\sum_{i=1}^n x_i^2 - \frac{\left(\sum_{i=1}^n x_i\right)^2}{n}}{n-1}}$$

Where:

- S_d = Standard deviation
- n = number of data points
- x_i = the difference between a reference method value and the corresponding continuous emission monitoring system value ($RM_i - CEM_i$) at a given point in time, "i".

Confidence Coefficient (one-tailed)

$$CC = \frac{t_{0.975} S_d}{\sqrt{n}}$$

Where:

CC = Confidence coefficient
 t_{0.975} = t-value

n	t _{0.975}	n	t _{0.975}	n	t _{0.975}
2	12.706	7	2.447	12	2.201
3	4.303	8	2.385	13	2.179
4	3.182	9	2.306	14	2.160
5	2.776	10	2.262	15	2.145
6	2.571	11	2.228	16	2.131

The values in this table are already corrected for n-1 degrees of Freedom. Use n equal to the number of data points.

Opacity Calibration Error

Calculate the calibration error (calibration error, zero drift error, and calibration drift error) as the sum of the absolute value of the mean difference and the 95 percent confidence coefficient for each of the three test attenuators as follows:

$$Er = |\bar{x}| + |CC|$$

Where:

Er = Error.

System Response Time Check

Using a high-level calibration attenuator, alternately insert the filter five times and remove it from the external audit device. For each filter insertion and removal, measure the amount of time required for the COMS to display 95 percent of the step change in opacity on the COMS data recorder.

- For the upscale response time, measure the time from insertion of the filter for the monitor to display of 95 percent of the final, steady upscale reading.
- For the downscale response time, measure the time from removal of the filter for the monitor to display 5 percent of the initial upscale reading.
- Calculate the mean of the five upscale response time measurements and the mean of the five downscale response time measurements.

COMS Operational Test Period

If the opacity monitor is relocated, substantially refurbished, or replaced, then the opacity monitor must be recertified. Certification activities include all of the activities listed in the quarterly opacity field

audit performance tests and completion of the operational test period. These activities may be done by either AK Steel Dearborn Works or by third party vendor.

Before conducting the operational testing, you must have successfully completed the previously discussed procedures and tests. Then, operate the opacity monitor for an initial 168-hour test period while the source is operating under normal operating conditions. If normal operations contain routine source shutdowns, include the sources down periods in the 168-hour operational test period. However, you must ensure that the following minimum source operating time is included in the operational test period: (1) For a batch operation, the operational test period must include at least one full cycle of batch operation during the 168-hour period unless the batch operation is longer than 168 hours or (2) for continuous operating processes, the unit must be operating for at least 50 percent of the 168-hour period.

Except during times of instrument zero and upscale calibration drift checks, you must analyze the effluent gas for opacity and produce a permanent record of the opacity monitor output. During this period, you may not perform unscheduled maintenance, repair, or adjustment to the opacity monitor. Automatic zero and calibration adjustments (i.e., intrinsic adjustments), made by the opacity monitor without operator intervention or initiation, are allowable at any time. At the end of the operational test period, verify and record that the opacity monitor optical alignment is still correct. If the test period is interrupted because of opacity monitor failure, record the time when the failure occurred. After the failure is corrected, you restart the 168-hour period and tests from the beginning (0-hour).

During the operational test period, perform the following test procedures:

Zero Calibration Drift Test.

At the outset of the 168-hour operational test period and at each 24-hour interval, the automatic calibration check system must initiate the simulated zero device to allow the zero drift to be determined. Record the opacity monitor response to the simulated zero device.

After each 24-hour period, subtract the opacity monitor zero reading from the nominal value of the simulated zero device to calculate the 24-hour zero drift (ZD).

At the end of the 168-hour period, calculate the arithmetic mean, standard deviation, and confidence coefficient of the 24-hour ZDs. Also calculate the sum of the absolute value of the mean and the absolute value of the confidence coefficient and report this value as the 24-hour ZD error.

Upscale Calibration Drift Test.

At each 24-hour interval after the simulated zero device value has been checked, check and record the opacity monitor response to the upscale calibration device.

After each 24-hour period, subtract the opacity monitor upscale reading from the nominal value of the upscale calibration device to calculate the 24-hour calibration drift (CD).

At the end of the 168-hour period, calculate the arithmetic mean, standard deviation, and confidence coefficient of the 24-hour CD. Also calculate the sum of the absolute value of the mean and the absolute value of the confidence coefficient and report this value as the 24-hour CD error.

Quality Control Activities

Quality control activities are performed to ensure that the COMS operation and maintenance are adequate and appropriate. Application of these activities ranges from installation, to data handling, and reporting procedures.

Installation of the COMS has been carried out in strict accordance with specifications submitted by AK Steel Dearborn Works. A complete set of Operation and Maintenance manuals for all components of the COMS are provided with the COMS. These manuals provide complete descriptions of the system including theory, installation, operation and maintenance including procedures used for initial start-up, debugging, and inspection.

Training

General Training

General training provides an understanding of the overall system and program goals. General training is common to all individuals directly involved in the COMS program.

Quality Assurance/Quality Control Plan

Each source owner or operator must develop and implement a QC program. As a minimum, each QC program must include written procedures which should describe in detail, complete, step-by-step procedures and operations for each of the following activities:

1. Calibration of COMS.
2. CD determination and adjustment of COMS.
3. Preventive maintenance of COMS (including spare parts inventory).
4. Data recording, calculations, and reporting.
5. Accuracy audit procedures including sampling and analysis methods.
6. Program of corrective action for malfunctioning COMS.

QC Activities

An activity matrix summarizing various routine activities is presented in the following table. The Operations Supervisor or Designee is ultimately responsible for scheduling routine maintenance and ensuring that all routine preventive maintenance is completed on schedule.

Table 4. Quality Control Checklist

<i>Activity: Quality Control</i>	Daily	Quarterly	As Required
Durag Alarms Status	X		
Opacity Alarms Status	X		
Opacity Cal Check Passed/Record	X		
Clean/Replace Filters – Opacity Blowers		X	
Clean Opacity Mirrors		X	X
Verify Opacity Alignment		X	
Clean Interior of Enclosure/Rack		X	X

Daily QC Activities

Once every day, the Environmental Affairs Manager, Operations Manager, or Designee will:

1. Verify that the Opacity Daily Calibration check has PASSED and that the zero and span calibration values are recorded in Wonderware.
2. Once every day, the Operations Supervisor or Designee will check/address any Wonderware/analyzer/monitor alarms,

If any parameter is found to be out of tolerance, appropriate corrective actions will be initiated promptly.

Quarterly QC Activities

A quarterly COMS technical audit involves a general inspection of the monitoring system.

1. Check that readings are consistent with process conditions.
2. Check that shelter cabinets are clean and the area maintained; monitor enclosure clean and all systems operational (i.e., heating/cooling).
3. Check/Replace opacity purge and blower filters. Clean/Inspect blower hoses and areas around opacity components.
4. Clean dirt accumulation on lens and reflector.
5. Verify alignment of opacity transceiver and reflector.
6. Technical tasks will be completed by Operations Supervisor or Designee with assistance of a third party vendor. The Environmental Affairs designee must be notified before technical tasks are initiated that involve physical maintenance on the unit.

COMS Maintenance

All maintenance of the COMS can be classified into one of these three areas:

1. Routine preventive maintenance. This is a regularly scheduled set of activities designed to prevent problems before they develop.
2. Non-routine preventive maintenance. This set of activities is designed to prevent problems, which cannot be predicted. These procedures are performed on an as-needed basis. For example, if sample vacuum on the analyzer drops from its normal reading, the pump, gauge or sample capillaries should be replaced or cleaned. Most Non-routine preventive maintenance is not discussed in this plan since the procedural methods must be developed as the need dictates.
3. Corrective Maintenance. Those activities required to correct problems that occur due to equipment malfunction. Corrective maintenance actions are determined and performed by the third party vendor maintenance technician or other qualified personnel based on the nature of the malfunction.

All preventive maintenance is scheduled and performed in a timely manner by the Operations Supervisor or Designee with assistance of a third party vendor.

Spare Parts Inventory

The Operations Supervisor or Designee will:

1. Maintain a spare parts inventory adequate to meet the normal operating requirements.
2. Maintain the spare parts inventory based on vendor recommended lists.
3. Modify the current inventory on an "as required" basis.

The following is a list of the parts recommended to adequately maintain the normal operating requirements the COMS. Contact Monitoring Solutions at (317) 856-9400, fax (317) 856-9410 for information on pricing and availability. Note: Each list is per analyzer or assembly.

Table 1-5 Recommended Spare Parts - Durag D-R 290 Opacity Monitor

Description of Parts	Monitoring Solutions' PN	Quantity
Vacuum Switch	310-00014	1
Pressure Switch	310-00015	1
Blower Filter	106-03698	2
LED	310-00003	1
Communication Chip	310-00008	3

Table 1-6 Recommended Spare Parts - PLC/COMDAS

Description of Parts	Monitoring Solutions' PN	Quantity
Optical Head Board	310-00036	1
Processor Chip	310-00042	3

In addition, AK Steel maintains a spare DURAG unit in its spare part inventory.

COMS Maintenance and Repair Guideline

The following table serves as a basic guideline for activities required after maintenance and repair of a COMS.

Check # / Component(s) Replaced ↓	Optical Alignment Check (On-Stack)	Fault Status Indicator Check (Error Codes)	Daily Cal - Zero & Span Check	Optical Alignment Check (Off-Stack)	Clear Path Zero Check (Off-Stack)	Calibration Error Check (On-Stack Audit)	Averaging Period Calculation & Recording Check	7-Day Drift Check (*1)	Re-Certify per PS-1	New MCOC required
1) <u>Routine/Preventative Maintenance</u> Cleaning of external optical surfaces, adjust window check - zero and span value on main board back to MCOC specs, and replacing blower filters.	X	X	X							
2) <u>Measurement "Non-Critical" Repairs</u> Replacing Comm./Processor Chips, Comm. Diodes, blower pressure/vacuum switches, blower motors, heated window, AZ board (provided EPROM software is same version & revision), EPROMs only (provided software is same version & revision and zero mirror drive motor). NOTE: Any required mfg tests for these components must also be complied with.	X	X	X							
3) <u>Primary Measurement Light Source</u> Replacing LED. NOTE: Any required mfg tests for these components must also be complied with.	X	X	X	X	X	X				
4) <u>Measurement "Critical" Repairs</u> Replacing the optical detector assembly, zero reflector on transceiver, transceiver Main Board, AW board EPROM with a <u>different</u> version and/or revision level, main stack reflector, Zero Mirror drive motor and replacing and/or cleaning any of the internal components. NOTE: Any required mfg tests for these components must also be complied with.	X	X	X	X	X	X		X		
7) <u>Measurement "Critical" non-monitor related</u> Any changes to components involving data acquisition and recording.		X	X			X	X		X	
6) <u>Rebuilt or Refurbished monitors</u> Major sub-assembly replacement - i.e. complete optical bench, or multiple lesser sub-assemblies; LED, optical detector & transceiver main board with different revision levels from the original.									X	
7) <u>MCOC Performance Parameters</u> Change to, or addition of, components which may affect MCOC specified Performance parameters.									X	X

(*1) The drift test must be performed within 14 days of the repair and if the first drift test is successful, then all data recorded during the drift test is considered valid.

Temporary COMS Monitor

Use of a temporary (substitute) COMS monitor is allowable, but has the following limitations (**NOTE:** this is for a monitor that hasn't been certified for the site):

- a) Temporary monitor has been certified according to ASTM D6216-12. (Per Durag representatives, the 290 is certified per ASTM D6216-98, but also meets the requirements of ASTM D6216-12).
- b) Temporary monitor use does not exceed 1080 hours (45 days) per year as a replacement for a “Fully Certified” unit. After 45 days of use, the temporary unit must go through the “Full Certification” procedures per PS-1 in order to be used further for collecting “Valid Data”. Swapping of multiple “temporary” monitors within the 45 day period is NOT acceptable.
- c) The monitor has been installed and passed an optical alignment check and a check for indicator faults (error codes).
- d) The monitor has passed an off-stack clear path zero assessment check and zero calibration value adjustment.
- e) Complete a 168-hour operational test (Daily Calibrations).
- f) Calibration Error test (normal audit) must pass.
- g) The span check value of the temporary monitor has been updated in the DAS.
- h) Every required test performed is documented.

COMS Non-Routine Cleaning Procedure

Occasionally, the COMS Monitor will exhibit a steadily increasing baseline. This has been most noticeable in winter months. The most likely cause of this is buildup on the COMS monitor lenses. The following procedure describes how to clean the lenses. This procedure should be implemented if the high baseline is suspected to be due to dirty lenses. This procedure is in AK Steel's quality system as procedure QSOPE-*BI*-80-102.

Required Tools: Lens Cleaning Solution and Tissues (or wet wipes made for cleaning glass), Microfiber Cloth, Flathead Screwdriver

Procedure:

- 1.0 The BOF PSO Electrostatic Precipitator Pulpit operator and the melter will be informed before going out to work on the COMS Opacity monitor.
- 2.0 Take the lid off the opacity monitor system on both sides of the ESP stack.
- 3.0 Open the opacity monitor screen and place the device in window check
 - 3.1 To get to window check mode, press the MOD button followed by the + until the display window shows “window check” on the upper line.
 - 3.2 Placing the monitor in “window check” mode moves the zero reflector in the front of the heated window to make cleaning easier.
- 4.0 Open the reflector box and clean the zero reflector and the heated window in front of it with lens cleaning solution and lens cleaning tissues.

- 4.1 Follow with a microfiber cloth to remove any smudges or streaks.
- 4.2 Close the reflector box, making sure to secure all 4 latches.
- 5.0 Open the reflector box on the other side of the stack and clean it using the same materials as above.
 - 5.1 Close the reflector box, making sure to secure all 4 latches.
- 6.0 Once all 3 windows are clean (zero reflector and heated window on monitor screen side and reflector on the other side of the stack), go back to the COMS monitor screen and press the MOD button to return to normal operations.
- 7.0 Run the opacity monitor through a calibration cycle by pressing and holding down the “+” and “→” at the same time for about 5 seconds until the calibration cycle starts.

Data Recording and Reporting

General Requirements

An effective quality assurance program communicates the results of QA/QC activities to all affected parties. This QA plan makes provisions for the proper recording and communication of QA and QC information and provides the necessary mechanisms for triggering corrective actions based on the contents of QA/QC reports.

Documentation of QA/QC data and information is an integral part of this QA Plan. This section describes reports and other records that provide appropriate documentation of QA/QC activities. AK Steel Dearborn Works utilizes two primary means of documentation:

1. Data Acquisition System - Wonderware
2. Manually prepared QA/QC forms, logs and reports.

All data must be available for review for a minimum of five (5) years from the date of each record and be available to the EPA or **EGLE** upon request at any time. It can be presented as either a computerized database or printed emission logs.

All reporting is to be on an Eastern Standard Time basis.

The data acquisition system must be capable of reading all values over the full range of each measurement device and must create a permanent record of all required raw and calculated data for storage, review and reporting. In addition a continuous readout in units of each applicable emission standard or operating criteria is required.

Notification, Reporting and Record Keeping requirements

AK Steel is responsible for providing the following notifications and reports to **EGLE**: More information on COMS specific reporting can be found in AKDP-F3-15-10, COMS Operation, Maintenance, Reporting, and General Requirements.

1. Iron and Steel MACT Semi-Annual Report - Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to the **EGLE** by the designated reporting deadlines (September 15 for January 1 – June 30 of the calendar year and March 15 for July 1 – December 31 of the calendar year) following the end of each calendar half with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s). Report must also detail COMS downtime, significant changes in instrumentation, and deviations to the applicable emission limit.
2. 2-Day Malfunction Report - If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within

2 working days, after commencing action inconsistent with the plan, by fax or telephone. The report must describe whenever startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.

3. 7-day Malfunction Report - If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, followed by a letter within 7 working days after the end of the event. A "Responsible company official" signs report. This is a follow-up letter to the 2-day report. A letter shall be submitted to the *EGLE* within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.
4. Quarterly COMS Report – Report details monitor downtime and reportable deviations from the 10% opacity limitation for the BOF ESP stack. If necessary, an excess emission report is submitted along with the quarterly report. Report must detail the reporting period, company address, a description of the emission unit, the applicable emission limitation, total source operating time, Model, Manufacturer, and serial number of the COMS monitoring device, date of latest certification or audit, and an explanation of COMS excess emissions and downtime. Report must be submitted to *EGLE* by the 30th day after the completion of each calendar quarter.
5. Annual COMS Report – The annual report results of the annual clear path check must be submitted to the *EGLE* once a year within 30 days of performing the audit.
6. Consent Decree 20% COMS Exceedance Report – In accordance with AKDW Civil Action No. 15-cv-11804, a report detailing root cause, efforts to investigate root cause when root cause is unknown, and corrective action to the 20% opacity must be submitted to EPA and *EGLE* by the 30th day after the completion of each calendar quarter.

Details for each of these reports can be found in AKDP-F3-15-08 Routine Air Compliance Reporting.

In addition to the above reports, COMS monitor downtime in excess of 5% per quarter and deviations to the applicable emission limit presented in the Iron and Steel MACT and in AK Steel's Title V permit are reportable as deviations in a semi-annual Title V deviation report. All information related to the COMS (calibration, maintenance, alarm response, reporting

and notifications) must be retained by the facility for a minimum of five years. This includes all inspections and records required by the ESP Operations and Maintenance Plan, the ESP Startup, Shutdown, and Malfunction Plan, and the ESP Malfunction Abatement Plan (Documents PLAN(E)-W-20-01, PLAN(E)-W-20-05, and PLAN(E)-W-20-07 respectively).

Maintenance Record

The Maintenance Record is maintained by the Environmental Affairs Manager, Operations Supervisor or Designee. A periodic review of the COMS maintenance record provides a guide to possible problem trends with the COMS.

Visual alarms are displayed on HMIs in the ESP Pulpit and in the BOF Condo at the time of the alarm to provide a real-time mechanism for alerting operating personnel to excess emissions and monitoring system problems. When alarms are received, Plant Operations personnel advise the Operations Supervisor or Designee and appropriate inspection/maintenance activities are initiated in accordance with procedures specified in the AK Steel ESP O&M Plan. The alarm provides for automated and also manually entered documentation of the COMS operating status during alarm conditions.

Component Addition, Maintenance or Replacement

Maintenance

1. Zero and calibration drift checks should be conducted immediately prior to any maintenance, if possible.
2. Zero and calibration drift checks must be conducted immediately following any maintenance.
3. If the post-maintenance zero or calibration drift checks show drift in excess of twice the applicable performance specifications, recalibration must be conducted in accordance with the quarterly calibration error check procedures.

Addition or Replacement

Scheduled addition of or replacement of components or software programs with components or software programs of different makes or models requires submittal of the record of proposed maintenance prior to such change. For unscheduled addition of or replacement of components or software programs with components or software programs of different makes or models, submittal of the record of conducted maintenance must be made as soon as possible after such replacement. Successful completion of performance testing may be required prior to use of data from the monitoring system. Contact the Environmental Affairs Department for specific instructions.

Addition of or replacement of components or software programs with like makes and models may require successful completion of performance testing prior to use of data from the monitoring system. Contact the Environmental Affairs Department for specific instructions.

AK Steel ESP Plans and Procedures

The following table details additional AK Steel ESP procedures related to COMS calibrations, reporting, and ESP alarm troubleshooting.

Procedure or Plan Number	Title
PLAN(E)-W-20-01	ESP O&M Plan
PLAN(E)-W-20-05	ESP SSM Plan
PLAN(E)-W-20-07	ESP MAP
Form(E)- <i>B1</i> -81-04-02	ESP Operations Shift Checklist
QSOPE- <i>B1</i> -81-99	ESP 15% 6-Minute Opacity Investigation Procedure
Form(E)- <i>B1</i> -81-99-02	6-Minute Average Opacity Investigation Spreadsheet
QSOPE- <i>B1</i> -81-78	15% 6-Minute Operator Alarm Response
Form(E)- <i>B1</i> -81-78-01	BOF Precipitator Checksheet for 6-Minute (>15%, 6-Minute Average)
QSOPE-B2-81-98	ESP 10% One-Hour Elevated Opacity Investigation
Form(E)-B2-81-98-01	ESP COMS One-Hour Average Exceedance Corrective Action Form
AKDP-F3-15-08	Routine Air Compliance Reporting
AKDP-F3-15-10	COMS Operation, Maintenance, Reporting, and General Requirements
QSOPE- <i>B1</i> -80-102	Cleaning COMS Monitor on ESP Stack

References

1. 40 CFR 60 Appendix A, “Reference Method Test Procedures.”
2. 40 CFR 60 Appendix B, “Performance Specifications.”
3. 40 CFR 60 Appendix B, Performance Specification 1, “Specifications and Test Procedures for Continuous Opacity Monitoring Systems in Stationary Sources.”
4. 40 CFR 60 Appendix F, “Quality Assurance Procedures.”
5. 40 CFR 60, Appendix F Procedure 3, “Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources.”
6. “Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III – Stationary Source Specific Methods,” Section 3.0.9, U.S. EPA, June 1, 1986.
7. “Durag Model D-R 290 Dust and Opacity Monitor Installation and Operation Manual,” Durag, Inc.
8. “Durag Model D-R 290 Service Manual,” Durag, Inc.
9. ASTM D6216-98, “Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications.”
10. AK Steel QIS Procedure Homepage

Glossary of Terms and Acronyms

A-B	Family of Programmable Logic Controllers. Manufactured by Allen-Bradley Products.
Accuracy	The measure of the closeness of a measurement to its true value. Although the true value of gas is not known, it can be approximated by the use of an appropriate standard of reference. For example, a National Institute of Standard and Technology Standard (formerly NBS) Reference Material (NIST-SRM) is a primary standard used to assess accuracy. Secondary standards are also used as an approximation to the "true value" although errors may be introduced using these secondary standards.
ANSI	<u>A</u> merican <u>N</u> ational <u>S</u> tandards <u>I</u> nstitute - a standards-making organization.
ASTM	<u>A</u> merican <u>S</u> ociety for <u>T</u> esting and <u>M</u> aterials
Attenuate	To lessen the amount, force, magnitude, or value of (light).
Attenuator	An apparatus used to lessen the amount, force, magnitude, or value of (light); another name for a neutral density filter or screen
Audit	An audit is an independent assessment of the accuracy of data. Independence is achieved by having the audit performed by an operator other than the person conducting the routine measurements and by using audit standards and procedures different from those routinely used in the monitoring.
Audit Jig	A device that when attached to the COMS transceiver, or permanently installed, allows the insertion of neutral density filters in the COMS light beam. The device is used during the calibration error (CE) test of the COMS.
Calibration Drift (CD)	The difference in the COMS output reading from a reference value after a period of operating during which no unscheduled maintenance, repair, or adjustment took place. For opacity, the reference value is supplied by a reflecting mirror and a neutral density filter or screen which can be automatically or manually inserted into the light beam path of the monitor. For pollutant analyzers, the reference value is supplied by injecting gases of known values into the system. The CD error is calculated as the difference between the correct value and the observed value for the zero and upscale calibration value.
Calibration Error Test (CE)	A calibration error test is a performance audit of a COMS in which a three point audit is conducted. For opacity, three certified neutral density filters (low, mid, and high-range) are placed in the monitor light beam five nonconsecutive times and the monitor responses are recorded from the opacity data recorder. For COMS analyzers, three known reference gases are used. From the data, a calibration

	error is calculated.
cc	cubic centimeter - A unit measure of volume equal to 1 milliliter (ml).
CFR	<u>C</u> ode of <u>F</u> ederal <u>R</u> egulations. The COMS is designed to help the user meet their applicable requirements.
chip	Integrated Circuit - a microelectronic semiconductor device.
COM	Continuous Opacity Monitor - That portion of the instrument that senses the pollutant and generates an output that is a function of the opacity (the transceiver and the retro reflector units). A COM is also known as a transmissometer.
COMS	Continuous Opacity Monitoring System - The total equipment used to sample, analyze, and provide a permanent record of opacity monitoring data on a continuous basis. This equipment includes the transceiver, retro reflector, blowers, control unit, and data record and processing hardware and software. A COMS may also be known as a transmissometer system.
CU	<u>C</u> ount <u>U</u> nits – The scaling factor used by a DAS to coincide the analog input/output signal with the engineering units or range.
DIP Switch	A group of subminiature switches, usually slide switches, housed in a Dual In-line Package (integrated circuit header) configuration.
DTR	<u>D</u> own <u>T</u> ime <u>R</u> ecovery – Refers to the process of recovering data lost to the main CEMDAS computer via means of a backup or secondary collection method.
Durag Corp.	Manufacturer of the opacity system: transceiver, reflector, and control units as well as the enclosures and purge systems.
EPA	<u>E</u> nvironmental <u>P</u> rotection <u>A</u> gency
EU	<u>E</u> ngineering <u>U</u> nits
FET	<u>F</u> ield <u>E</u> ffect <u>T</u> ransistor - an active three terminal semiconductor device.
In Hg	Inches of mercury, a unit measure of pressure (One atmosphere = 14.696 psi = 0 psig = 29.921 in Hg = 406.8 in WC).
In WC	in H ₂ O, Inches of Water (Column), a unit measure of pressure. See In Hg, above.
LED	<u>L</u> ight <u>E</u> mitting <u>D</u> iode - a solid state miniature indicator light.
MDEQ	Michigan Department of Environmental Quality

Millivolt (mv)	An electrical unit of measure equal to 1×10^{-3} volt.
Monitor	Instrument that measures a flue gas characteristic such as opacity or flow.
Monitor Malfunction	Any interruption in the collection of data as a result of the failure of any component of the COMS to operate within specifications of the manufacturer or Performance Specification.
Nanometer (nm)	A unit measure of length equal to 1×10^{-9} meter. Commonly used to describe wavelengths of light.
NBS	<u>N</u> ational <u>B</u> ureau of <u>S</u> tandards - an agency of the US government chartered to maintain standards of measurement.
NEMA	<u>N</u> ational <u>E</u> lectrical <u>M</u> anufacturers <u>A</u> ssociation - a standards-making organization. COMS enclosures (e.g., junction boxes, instrument racks, switch boxes, etc.) are rated by their manufacturers to meet various NEMA standards.
Neutral Density (ND) Filter	An optical filter or screen which attenuates light uniformly over the wavelength range of interest. The wavelength range of interest for COMS is the visible light spectrum of 400 to 700 nanometers (nm). ND filters are used for the assessment of calibration error and are used for the assessment of the daily calibration drift (upscale calibration check or span check). ND filters may also be referred to as screens, attenuators, or audit filters.
OSHA	<u>O</u> ccupational <u>S</u> afety and <u>H</u> ealth <u>A</u> dministration.
Out-Of-Control Period	The time period which the COMS may not be collecting valid data; or data which may not be used to demonstrate compliance.
Performance Audit	A quantitative evaluation of COMS operation. Usually the accuracy of the COMS is determined by using known reference standard.
PLC	<u>P</u> rogrammable <u>L</u> ogic <u>C</u> ontroller.
Pot	<u>P</u> otentiometer, a 3-terminal variable resistor. Position of sliding contact can be adjusted by rotating a shaft or screw or by sliding a control tab or knob. Miniature screw-adjusted units are commonly called trimpots; multi-turn knob-adjusted units are called helipot; linear-adjusted units are called slidepots.
psi	<u>P</u> ounds per <u>s</u> quare <u>i</u> nch - a unit of measure of pressure.

psia	<u>P</u> ounds per <u>s</u> quare <u>i</u> nch <u>a</u> bsolute.
psig	<u>P</u> ounds per <u>s</u> quare <u>i</u> nch <u>g</u> auge.
psiv	<u>P</u> ounds per <u>s</u> quare <u>i</u> nch <u>v</u> acuum.
QA/QC	<u>Q</u> uality <u>A</u> ssurance/ <u>Q</u> uality <u>C</u> ontrol
RATA	<u>R</u> elative <u>A</u> ccuracy <u>T</u> est <u>A</u> udit (performed semi-annually or annually, depending on results from the previous RATA).
Routine Maintenance	An orderly program of actions designed to prevent the failure of monitoring parts and systems during their use.
SOP	<u>S</u> tandard <u>O</u> perating <u>P</u> rocedure.
Span (Daily)	Refer to Upscale Calibration Value.
ss (or SS)	Stainless steel - Standard abbreviation is CRES (Cold Rolled Electroless Steel).
Systems Audit	A qualitative evaluation of COMS Operation. Emissions data, logs, QA/QC data and the operational information are reviewed by regulator officials or by a corporate environmental auditor in order to determine the operational status of the COMS relative to the applicable regulations or to the company's objectives.
Upscale Calibration Value	Sometimes referred to as the span or daily span. The calibration check of the COMS is performed by simulating an upscale condition. For pollutants and diluents, the upscale value is simulated with a calibration gas. For opacity, the upscale calibration value is simulated with a calibrated filter or screen.
Visible Emission Observations (VEO)	Quantifying the opacity of an effluent gas using the EPA Reference Method 9.
Zero	A simulated or actual level where the system value is at zero (0) percent. For opacity, a simulated zero is initiated daily when a mirror in the transceiver unit moves into the light path. An actual zero may be performed when the opacity is mounted on the stack and no emissions are in the stack or duct (clean stack conditions) or by removing the opacity (transceiver and retro reflector) from the stack to achieve the actual zero. For COMS analyzers, zero is simulated using known standards, typically calibration gases, where the value is at zero (0).

Attachments

Attachment 1. COMS Quarterly Summary Report sample printout

AUDIT DATA SHEET MONITORING SOLUTIONS MODEL D-R 290 OPACITY COMS													
Corporation: <u>Client Name</u>	Plant/Site: <u>Location</u>												
Process Unit/Stack ID: <u>Unit #</u>													
Auditor: <u>0</u> Attendees:	Representing: <u>Monitoring Solutions, Inc.</u>												
<u>0</u> Remote serial number:	Representing: _____												
Transceiver serial number: - <u>0</u>													
Reflector serial number: - <u>0</u>	Flange to flange distance: <u>0</u> "												
Date: <u>MM/DD/YYYY</u>													
Preliminary Data													
1 Stack exit inside diameter (FT) = Lx	<u>72</u>												
2 Stack (or duct) inside diameter at the transmissometer location (FT) = Lt	<u>72</u>												
3 Calculated optical pathlength correction factor = Lx/Lt	<u>1</u>												
4 Source-cited optical pathlength correction factor	<u>1</u>												
5 Source-cited zero automatic calibration value (% opacity)	<u>0.00</u> %												
6 Source-cited span automatic calibration value (% opacity)	<u>0.00</u> %												
[GO TO CONTROL UNIT / DATA RECORDER LOCATION]													
[INSPECT DATA RECORDING SYSTEM AND MARK WITH "OPACITY AUDIT," AUDITOR'S NAME, AFFILIATION, DATE, SOURCE, PROCESS UNIT/STACK IDENTIFICATION, AND THE TIME OF DAY.]													
Fault Lamp Checks	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">ON</th> <th style="width: 50px;">OFF</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;">X</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </tbody> </table>	ON	OFF		X		X		X		X		
ON	OFF												
	X												
	X												
	X												
	X												
7 Blower [Loss of purge air blower power]													
8 Filter [Inadequate purge air flow]													
9 Window [Excessive dirt on transceiver window]													
10 Fault [Additional COMS fault has occurred. Note fault code on panel meter and consult the instrument manual.]													
Instrument Range Check													
11 Instrument range setting	<u>100</u> %												
[Press the "RANGE" button and record the instrument range. Increase range if too low.]													
Zero Check													
[Press the "CALIBR" button of the control panel]													
12 Internal zero value (milliamps)	- <u>4.00</u> mA												
[Wait for two minutes for automatic change to external zero mode.]													
13 Panel meter zero calibration value (milliamps)	<u>0.00</u> mA												
14 Opacity data recorder zero calibration value (% Op)	<u>0.00</u> %												
[Wait two minutes for automatic change to external span mode.]													

AUDIT DATA SHEET
 MONITORING SOLUTIONS MODEL D-R 290 OPACITY COMS
 (Continued)

Span Check

15 Panel meter span calibration value (milliamps) 0.00 mA
 16 Opacity data recorder span calibration value (% Op) 0.00 %
 [Go to transmissometer location.]

Retroreflector Dust Accumulation Check

17 Pre-cleaning effluent opacity (% Op) 0.00 %
 [Inspect and clean optical surface.]
 18 Post-cleaning effluent opacity (% Op) 0.00 %
 [Go to transceiver location.]

Transceiver Dust Accumulation Check

19 Pre-cleaning effluent opacity (% Op) 0.00 %
 [Inspect and clean optical surface.]
 20 Post-cleaning effluent opacity (% Op) 0.00 %

Optical Alignment Check (Optional)

[LOOK THROUGH ALIGNMENT SIGHT AND DETERMINE IF BEAM IMAGES ARE CENTERED.]

21 Images Centered?

[Draw Location of images in sight.]

YES	NO
X	

Calibration Error Check [Jig Procedure]

[Install the audit jig on the primary lens and adjust the jig zero until a value of 4mA is read on the remote panel meter.]

[Make the final jig zero adjustments based on opacity data from the data recorder.]

[Record audit filter data.]

<u>Filter</u>	<u>Serial NO.</u>	<u>% Opacity</u>	<u>SCF%</u>
22 LOW	- 0	<u>0.00</u>	<u>0.00</u>
23 MED	- 0	<u>0.00</u>	<u>0.00</u>
24 HIGH	- 0	<u>0.00</u>	<u>0.00</u>

AUDIT DATA SHEET
 MONITORING SOLUTIONS MODEL D-R 290 OPACITY COMS
 (Continued)

[Remove the audit filters from the protective covers, inspect, and clean each filter.]

[Insert a filter, wait approximately 2 minutes, and record the opacity value reported by the opacity data recorder. Repeat the process 5 times for each filter.]

[If jig zero values change by more than 1.0% opacity during any of the runs, readjust the jig zero to the original value and repeat the run.]

<u>ZERO</u>	<u>LOW</u>	<u>MID</u>	<u>HIGH</u>	<u>ZERO</u>
- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
	- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
	- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
	- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
	- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>

[If six-minute integrated data are also available, allow 13 minutes each for an additional run of the ZERO, LOW, MID, HIGH, and ZERO readings.]

<u>ZERO</u>	<u>LOW</u>	<u>MID</u>	<u>HIGH</u>	<u>ZERO</u>
- <u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>

[Remove the audit jig, close the transceiver head and the weather cover.] [Return to control unit location.]

Control Unit Adjustment Reset [If necessary, reset the opacity range switch to the position indicated in blank 10.]

[Obtain a copy of the audit data from the opacity data recorder, and ensure that the data can be clearly read and interpreted.]

[Read and transcribe final calibration error data.]

<u>ZERO</u>	<u>LOW</u>	<u>MID</u>	<u>HIGH</u>	<u>ZERO</u>
25 <u>0.00</u>	26 <u>0.00</u>	27 <u>0.00</u>	28 <u>0.00</u>	29 <u>0.00</u>
	30 <u>0.00</u>	31 <u>0.00</u>	32 <u>0.00</u>	33 <u>0.00</u>
	34 <u>0.00</u>	35 <u>0.00</u>	36 <u>0.00</u>	37 <u>0.00</u>
	38 <u>0.00</u>	39 <u>0.00</u>	40 <u>0.00</u>	41 <u>0.00</u>
	42 <u>0.00</u>	43 <u>0.00</u>	44 <u>0.00</u>	45 <u>0.00</u>

[Six-minute average data, if applicable.]

<u>ZERO</u>	<u>LOW</u>	<u>MID</u>	<u>HIGH</u>	<u>ZERO</u>
46 <u>0.00</u>	47 <u>0.00</u>	48 <u>0.00</u>	49 <u>0.00</u>	50 <u>0.00</u>

AUDIT DATA SHEET
 MONITORING SOLUTIONS MODEL D-R 290 OPACITY COMS
 (Continued)

Calculation of Audit Results

Stack exit correlation error (%):

$$51 \quad \frac{\frac{\text{Blank 4}}{1} - \frac{\text{Blank 3}}{1}}{\text{Blank 3}} * 100 = \underline{0}$$

Zero Error (% Op.):

$$52 \quad \text{Panel Meter} \quad 6.25 * \frac{0}{(\text{Blank 13} - 4.0) - \text{Blank 5}} = \underline{-25.00} \quad \%$$

$$53 \quad \text{Opacity Data Recorder} \quad \frac{0}{\text{Blank 14} - \text{Blank 5}} = \underline{0.00}$$

Span Error (% Op.):

$$54 \quad \text{Panel Meter} \quad 6.25 * \frac{0}{(\text{Blank 15} - 4.0) - \text{Blank 6}} = \underline{-25.00} \quad \%$$

$$55 \quad \text{Opacity Data Recorder} \quad \frac{0}{\text{Blank 16} - \text{Blank 6}} = \underline{0.00}$$

Optical Surface Dust Accumulation (% OP):

$$56 \quad \text{Retroreflector} \quad \frac{0}{\text{Blank 17} - \text{Blank 18}} = \underline{0.00} \quad \%$$

$$57 \quad \text{Transceiver} \quad \frac{0}{\text{Blank 19} - \text{Blank 20}} = \underline{0.00} \quad \%$$

$$58 \quad \text{Total} \quad \frac{0}{\text{Blank 56} + \text{Blank 57}} = \underline{0.00} \quad \%$$

Optical Pathlength Correction Factor and Zero Offset Correction of Audit Filters:

$$59 \text{ LOW: } \frac{(1 - \frac{\text{Blank 22}}{100}) - \frac{0}{\text{Blank 4}}}{(1 - \frac{\text{Blank 45}}{100})} * 100 = \underline{0} \quad \%$$

$$60 \text{ MID: } \frac{(1 - \frac{\text{Blank 23}}{100}) - \frac{0}{\text{Blank 4}}}{(1 - \frac{\text{Blank 45}}{100})} * 100 = \underline{0} \quad \%$$

$$61 \text{ HIGH: } \frac{(1 - \frac{\text{Blank 24}}{100}) - \frac{0}{\text{Blank 4}}}{(1 - \frac{\text{Blank 45}}{100})} * 100 = \underline{0} \quad \%$$

MONITORING SOLUTIONS MODEL D-R 290 OPACITY COMS					
Performance Audit Data Summary					
Auditor <u>0</u>		Date <u>MM/DD/YYYY</u>			
Source <u>Client Name</u>		Unit <u>Unit #</u>			
PARAMETER	Blank No.	Audit Results		Specifications	
Fault Lamps					
Blower failure	7	0	X	OFF	
Filter Block	8	0	X	OFF	
Window	9	0	X	OFF	
Fault	10	0	X	OFF	
Stack Exit Correlation Error	51	0.00		+/- 2% Op	
Internal Zero Error	Panel	52	-25.00		+/- 4% Op
	Data	53	0.00		+/- 4% Op
Internal Span Error	Panel	54	-25.00		+/- 4% Op
	Data	55	0.00		+/- 4% Op
Optical Alignment Analysis	21	X	0	Centered	
Optical Surface Dust Accumulation					
Retroreflector	56	0.00		<= 2% Op	
Transceiver	57	0.00		<= 2% Op	
Total	58	0.00		<= 4% Op	
Calibration Error Analysis					
Mean Error					
Low	62	0.00			
	71a	0.00			
	Mid	63	0.00		
		72a	0.00		
	High	64	0.00		
73a		0.00			
Confidence Interval					
Low	65	0.00			
	66	0.00			
	67	0.00			
Calibration Error					
Low	68	0.00		<= 3% Op	
	69	0.00		<= 3% Op	
	High	70	0.00		<= 3% Op

Error Based On Six-Minute Averaged Data, From a Single Filter Insertion

Attachment 2. Opacity Monitor Manufacturer's Certificate of Compliance

EPA CERTIFICATION TESTS

**CFR 40, PART 60, APPENDIX B
PERFORMANCE SPECIFICATION 1
DURAG D-R 290 AV OPACITY MONITORING SYSTEM**

Prepared for: Monitoring Solutions

AK Steel Dearborn Works

(a) Model/ Serial Number: DURAG D-R 290 / 1244169

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Appendix A. Performance Test Data	

EPA 40 CFR Part 60 Performance Specification 1 and ASTM D 6216-98 design and performance specifications of the Durag D-R 290 opacity monitoring system.

1. Annual Performance Specification Testing

The opacity monitor tested to demonstrate the following design parameters was selected on the basis of an annual selection.

Opacity Monitor Information

Model	D-R 290
Transceiver Serial Number	1238952
Reflector Type	III
Reflector Serial Number	1238853
Control Unit Serial Number	1239309
Software Version	V3.21

The following tests were performed by:

Thomas Schlosser, Technician, Date: 02 / 2014

The test data was reviewed and certified by:

Ralf Norrenbrock, R&D Engineer, Date: 02 / 2014

1.1 Spectral Response

The following data was obtained using a monochromator. A description of the test setup and a graph of the data are included in Appendix A.

Parameter	Specification	Actual Test Result
Peak response	Between 500-600 nm	580 nm
Mean response	Between 500-600 nm	590 nm
Max. response beyond 700 nm	Less than 10% of peak	< 10 %
Max. response less than 400 nm	Less than 10% of peak	< 10 %

1.2 Thermal stability

The test data for the thermal stability is included in Appendix A.

Parameter	ASTM Specification	Actual Test Result
Tested range, min. temp.	DURAG RATING -20°C	- 20 °C
Tested range, max. temp.	DURAG RATING +50°C	+50° C
Nominal measurement value	Filter value used (10-20% single pass opacity)	15,6 %
Measurement drift, max deviation from nominal measurement value	≤ 2% opacity/ 40° F	< 0.5% See appendix
Zero drift from nominal without compensation	≤ 2% opacity/ 40° F	<0.5% See appendix
Span drift from nominal with compensation	≤ 2% opacity/ 40° F	<0.5% See appendix

1.3 Insensitivity to ambient light

Parameter	ASTM Specification	Actual Test Result
Max solar intensity	900 W/m ²	978 W/m ²
Nominal measurement value	Filter value used (10-20% single pass opacity)	15,6 %
Measurement drift, max deviation from nominal measurement value	≤ 2% opacity	0,2 %
Drift was corrected for thermal effects	No Correction	N/A
Zero drift from nominal without compensation	≤ 2% opacity	0,2 %
Span drift from nominal with compensation	≤ 2% opacity	0,2 %

1.4 Calibration device repeatability

Parameter	ASTM Specification	Actual Test Result
External zero device repeatability	≤ 1% opacity	0,24 %
External filter access	Available	Yes

1.5 Zero/upscale calibration check apparatus

Parameter	ASTM Specification	Actual Test Result
Indicated response to simulated zero calibration device	0 +/- 0.5% opacity	0 %
Simulated zero check	Simulated condition during which the energy reaching the detector is between 90 and 190% of the energy under actual clear path conditions.	Int. 0,653 V Ext 0,651 V 101,18%
Response to the upscale calibration device without electronic hardware or software modification	+ 10% opacity to highest calibration error attenuator value	0,416V/0,530V double pass 12.9% single pass stack factor of 1
Does automatic zero and span calibration devices check all active optics and electronics	Required	Yes
Is automatic correction provided for zero drift?	Mfgr. to specify	No
Is automatic correction provided for dust accumulation on exposed optics?	Mfgr to specify	Yes
	If yes, frequency	During calibration cycle (daily)
Is automatic correction provided for span/cal drift?	Mfgr to specify	No

1.6 PLCF (OPLR) Security Precautions

Condition	ASTM Specification	As supplied
Original certified value is fixed and not adjustable by user	One or more of listed conditions to be provided	Yes Displayed during cal and Cannot be changed by end user

1.7 Faults and alarms

Faults are indicated by activating R6.

Errors are indicated by activating R5.

Faults and Errors appear on the module display and an alarm appears on the ESP Pulpit HMI indicating the COMS needs to be inspected.

Error	LCD-Display	R6	R5
Error data transfer	ERROR 000	X	X
Error contamination exceeded	ERROR 001		X
Error message external 1 AW	ERROR 002		X
Error message external 2 AW	ERROR 003		X
Error EEPROM	ERROR 004		X
Error RAM	ERROR 005	X	X
Error PROM	ERROR 006	X	X
Error AW-System	ERROR 007	X	X
Error comparison	ERROR 010		X
Error zero point external	ERROR 020		X
Error zero point internal	ERROR 030		X
Error stepper motor	ERROR 040	X	X
Error LED	ERROR 050	X	X
Error heated window	ERROR 060		X
Error optic head	ERROR 070	X	X
Error message input 1 AZ	ERROR 100		X
Error message input 2 AZ	ERROR 200		X
Error message input 3 AZ	ERROR 300		X
Error message input 4 AZ	ERROR 400		X
Error message input 5 AZ	ERROR 500		X
Error message input 6 AZ	ERROR 600		X
Error AZ-System	ERROR 700	X	X

1.8 Miscellaneous

Parameter	ASTM Specification	Test result
Resolution of visual measurement indication	≤ 0.5% opacity	0,1%
Resolution of analog output measurement indication	≤ 0.5% opacity	0,025 %
Bipolar range of visual measurement indication	+50% opacity or more to – 4% opacity or less	100 to –25%
Capability of analog output measurement indication to indicate negative values to at least –4% opacity	Required	Yes
Is span drift corrected for zero drift (dust accumulation)?	Optional	Yes
Are means available to monitor dust accumulation on exposed optical surfaces?	Optional	Yes
What surfaces are monitored for dust accumulation?	Mfgr to specify	Window, zero point reflector
Is an alarm provided for excessive dust accumulation?	Mfgr to specify	Relay output, Error 001 on control unit
What level of dust accumulation triggers alarm?	Mfgr to specify	3.5%
Is dust level measured separately from the accumulated zero drift?	Mfgr to specify	No
Are all dust (if provided), zero, and span values corrected to stack exit conditions?	Required	Yes
What is the normal update interval for opacity measurements?	10 sec max	5 s
Do longer term opacity averages include at least 6 approximately equally distributed individual measurements per minute?	Required	Yes

EPA 40 CFR Part 60 Performance Specification 1 and ASTM D 6216-98 design and performance specifications of the DURAG D-R 290 opacity monitoring system.

2. Design Specification Verification

EPA 40 CFR Part 60 Performance Specification 1 and ASTM D 6216-98 design and performance specifications of the DURAG D-R 290 opacity monitoring system.

2. The opacity monitor that was selected to demonstrate the following design parameters was selected on the basis of a manufacturing lot not to exceed 20 in size.

Opacity Monitor Information

Model	D-R 290
Transceiver Serial Number	1244167
Control Unit Serial Number	1243568
Software Version MK	V 3.21

The following tests were performed by:

Thomas Schlösser, Technician, Date: 10 / 2014

The test data was reviewed and certified by:

Ralf Norrenbrock, R&D Engineer, Date: 10 / 2014

2.1 Angle of View:

Portion of opacity monitor included in the test:

Optics, Aperture, Detector

Portion of the opacity monitor excluded in the test:

None

Light source used in the test was non-directional.

Where detector/measurement electronics modified to measure response to designated light source: **No**

Parameter	ASTM Specification	Actual Test Results
Angle of view, horizontal	$\leq 4^\circ$ for all radiation providing a response of $\geq 2.5\%$ of peak response	3.5°
Angle of view, vertical	$\leq 4^\circ$ for all radiation providing a response of $\geq 2.5\%$ of peak response	3.5°

2.2 Angle of projection:

Portion of the opacity monitor included in the test:

Optics, Light Source

Portion of the opacity monitor excluded in the test:

None

Photodetector used in test:

Photo Element PIN 6DT

If the test was conducted with ac coupled measurement circuit, was it demonstrated that ambient light levels did not saturate the detector?

Yes

Was it demonstrated that turning on/off ambient lights did not affect measurement?

Yes

Parameter	ASTM Specification	Actual Test Results
Angle of projection, horizontal	≤ 4° for all radiation providing a response of ≥ 2.5% of peak response	3.25 °
Angle of projection, vertical	≤ 4° for all radiation providing a response of ≥ 2.5% of peak response	3.25 °

2.3 Insensitivity to supply voltage variations

Manufacturers specified nominal voltage:

115 Volt

Manufacturers specified operating voltage range:

90 Volt - 264 Volt

Parameter	Specification	Actual Test Value
Min test voltage	-10% from nom, or mfgs min specified operating voltage, whichever is lesser	90 Volt
Max test voltage	+10% from nom, or mfgs max specified operating voltage, whichever is greater	264 Volt
Nominal measurement value	10-20% opacity	15,6 %
Measurement drift, max deviation from nominal measurement value from nominal to max ac voltage	+/- 1% opacity	0 %
Measurement drift, max deviation from nominal	+/- 1% opacity	0 %

measurement value from nominal to min ac voltage		
Zero drift from nominal to min ac voltage without compensation	+/- 1% opacity	0 %
Span drift from nominal to min ac voltage with compensation	+/- 1% opacity	0 %
Zero drift from nominal to max ac voltage without compensation	+/- 1% opacity	0 %
Span drift from nominal to max ac voltage with compensation	+/- 1% opacity	0 %

3. Individual system performance specification testing

Performance Specification Verified by Tests Prescribed for Each Specific Opacity Monitor.

The following tests were performed individually on the specific instrument described below. Further, the following signatures attest to the fact that the design and performance specifications tested on previous opacity monitors, as described in Sections 1 and 2, are representative of the design and performance of this specific monitor.

PERSON CONDUCTING TEST: Kent Karlsson

Date: 12/29/14

TEST DATA REVIEWED AND CERTIFIED BY: Lori McCloud

Date: 12/30/14

ANALYZER MANUFACTURER: DURAG, GmbH

MODEL:

SERIAL NO:

Transmissiometer D-R 290 MK-150
Software: MK 3.15

1244169

Reflector: Type: 2-150

1242946

Stack Remote Control D-R290AZ:
Software: AZ 5.14

1244352

Housing D-R 290AG		<u>1244718</u>
Control Room Display D-R 290AW Software: AW 5.16		<u>1244880</u>
D-R 290 BT		<u>1237989</u>
D-SK 290 MA	(Opt. Side)	<u>NA</u>
D-SK 290 AE	(Opt. Side)	<u>NA</u>
D-SK 290 MA	(Refl. Side)	<u>NA</u>
D-SK 290 AE	(Refl. Side)	<u>NA</u>

DATE 12/29/14

Customer: Monitoring Solutions

EMISSION OUTLET PATH LENGTH: 204.5"

MONITOR PATH LENGTH: 204.5

CUSTOMER FLANGE TO FLANGE: 220.75"

D-R 290 FLANGE-TO-FLANGE DISTANCE: 222.75" (adapter flanges, gaskets & back plates)

MONITOR SYSTEM OUTPUT PATH LENGTH CORRECTED: YES NO

STACK CORRECTION FACTOR: 1.000

OPERATING RANGE: Output 1: 0-100% OP, Output 2: 0-100% OP

3.1 Calibration error

Filter	Specify Group, Group I or II	Actual Filter Value (%)	Specified Cal Error	Actual Cal Error
Low	II	17.0	3.0%	0.3
Mid	II	25.0	3.0%	0.2
High	II	56.3	3.0%	0.5

Note: Group I filters are 5-10, 10-20, 20-40 percent opacity (low, mid, high)
 Group II filters are 10-20, 20-30, 30-60 percent opacity (low, mid, high)

CALIBRATED NEUTRAL DENSITY FILTER VALUES

FILTER VALUE % OPACITY FILTER VALUE ADJUSTED FOR STACK TAPER RATIO

Range	Filter Value	Serial #	Range	Corrected Filter Value
Low Range	17.0	M45A	Low Range	17.0
Mid Range	25.0	UG35	Mid Range	25.0
High Range	56.3	D18AST	High Range	56.3

1 - [(1-% FILTER VALUE)^{STRFC}] = CORRECTED FILTER VALUE
WHERE STRCF = STACK TAPER RATIO CORRECTION FACTOR

RUN #	FILTER VALUE (CORRECTED)	INSTRUMENT READING	INSTRUMENT READING MINUS FILTER VALUE (X_i)
1	0	0	0
2	17.0	17.3	0.3
3	25.0	25.2	0.2
4	56.3	56.8	0.5
5	0	0	0
6	17.0	17.3	0.3
7	25.0	25.2	0.2
8	56.3	56.8	0.5
9	0	0	0
10	17.0	17.3	0.3
11	25.0	25.2	0.2
12	56.3	56.8	0.5
13	0	0	0
14	17.0	17.3	0.3
15	25.0	25.2	0.2
16	56.3	56.8	0.5
17	0	0	0
18	17.0	17.3	0.3
19	25.0	25.2	0.2
20	56.3	56.8	0.5

3.3 Spectral Response Repeatability

Date of photopic filter calibration: 04/27/14 UN99
 Peak transmission of photopic filter: 86.5%
 Calculated nominal response of analyzer to photopic filter: 47.1% opacity
 Calculated allowable variation of the response to photopic filter:
 OP Low 47.1% opacity, OP High 52.1% opacity
 Above opacity values converted to stack exit values according to the specific PLCF established for this installation: PLCF 1.000
 OPc nom 47.1% opacity, Opc High 52.1% opacity, Opc Low 47.1% opacity
 Actual measured response of the instrument to listed photopic filter: 48.6% opacity
 Is measured response within previously calculated range: Yes

3.4 Intrinsic opacity monitor settings/adjustments

List of configurable parameters to obtain the performance described in this report.

D-R 290 Flange-to-Flange:	222.75"	
Measurement ID:	204.5"	
Stack Exit ID:	204.5"	
Setup mode:	63S	
Measuring range 1, output 1	0 – 100 OP	
Measuring range 2, output 1		0 – 100 OP
Integration time, output 1	5 sec	
Measuring range 1, output 2		0 – 100 OP
Measuring range 2, output 2	0 – 100 OP	
Integration time, output 2	360 sec	
Zero Point Check	0%	
Window Check	0%	
Upscale Cal Value	40.0%	
Stack Correction Factor		1.000
Cal Cycle Interval	24 Hr	
Window Contamination alarm	3.5%	
Limit Value 1	20.00 ma	
Limit Value 2	20.00 ma	
Internal reference gain	83	
Internal zero point gain	67	
Upscale gain	25	
External zero gain	67	
LED Current	561 Count	
Detector energy clear path	0.614 V	
Detector energy simulated zero	0.617 V	

4. Quality Assurance Program

4.1 ISO, ANSI/ASOC or other Quality System Certification.

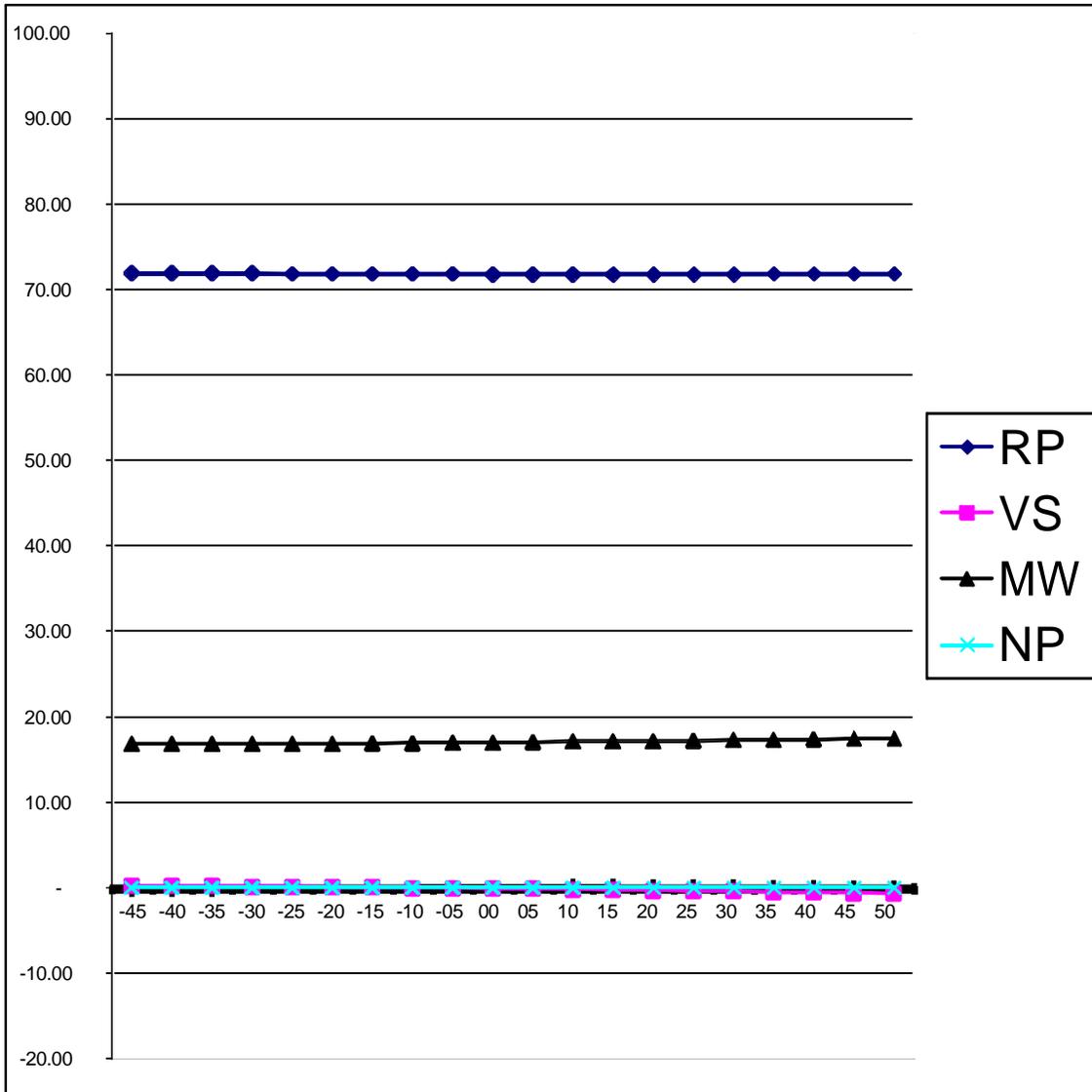
DURAG, GmbH is certified according to EN ISO 9001 on Aug. 7, 2012. The test certificate is attached in the hardcopy version of this report.

4.2 QA Guideline Compliance

DURAG GmbH maintains a QA/QC program that complies with the local requirements. All products manufactured by DURAG GmbH including this opacity monitor are tested to insure compliance with the QA/QC program.

Appendix A:

Temperature Drift:



CERTIFICATE



Management system as per
DIN EN ISO 9001 : 2008

In accordance with TUV NORD CERT procedures, it is hereby certified that

DURAG GmbH
Kollastraße 105
22453 Hamburg
Germany

applies a management system in line with the above standard for the following scope

**Development, production and sales of products and services for
combustion engineering, environmental monitoring and traffic sensor
technology of DURAG, VEREWA, DURAG data systems and DURAG
process & systems technology**

Certificate Registration No. 07 100 940052
Audit Report No. 3510 1032

Valid until 2015-07-31
Initial certification 1994

G. Brüntigam
Certification Body
at TUV NORD CERT GmbH

Essen, 2012-08-07

This certification was conducted in accordance with the TUV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TUV NORD CERT GmbH

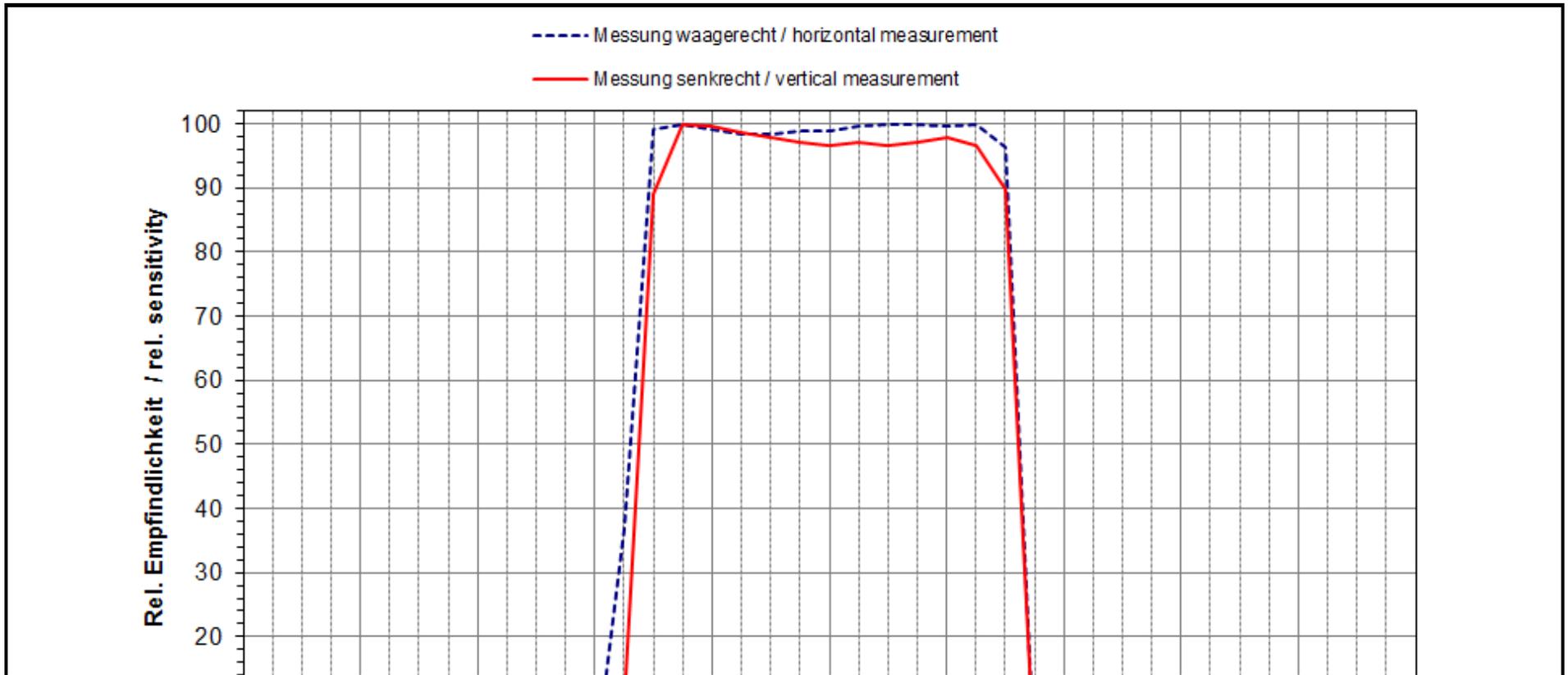
Langemarkstrasse 20

45141 Essen

www.tuv-nord-cert.com



TGA-ZM-07-06-20



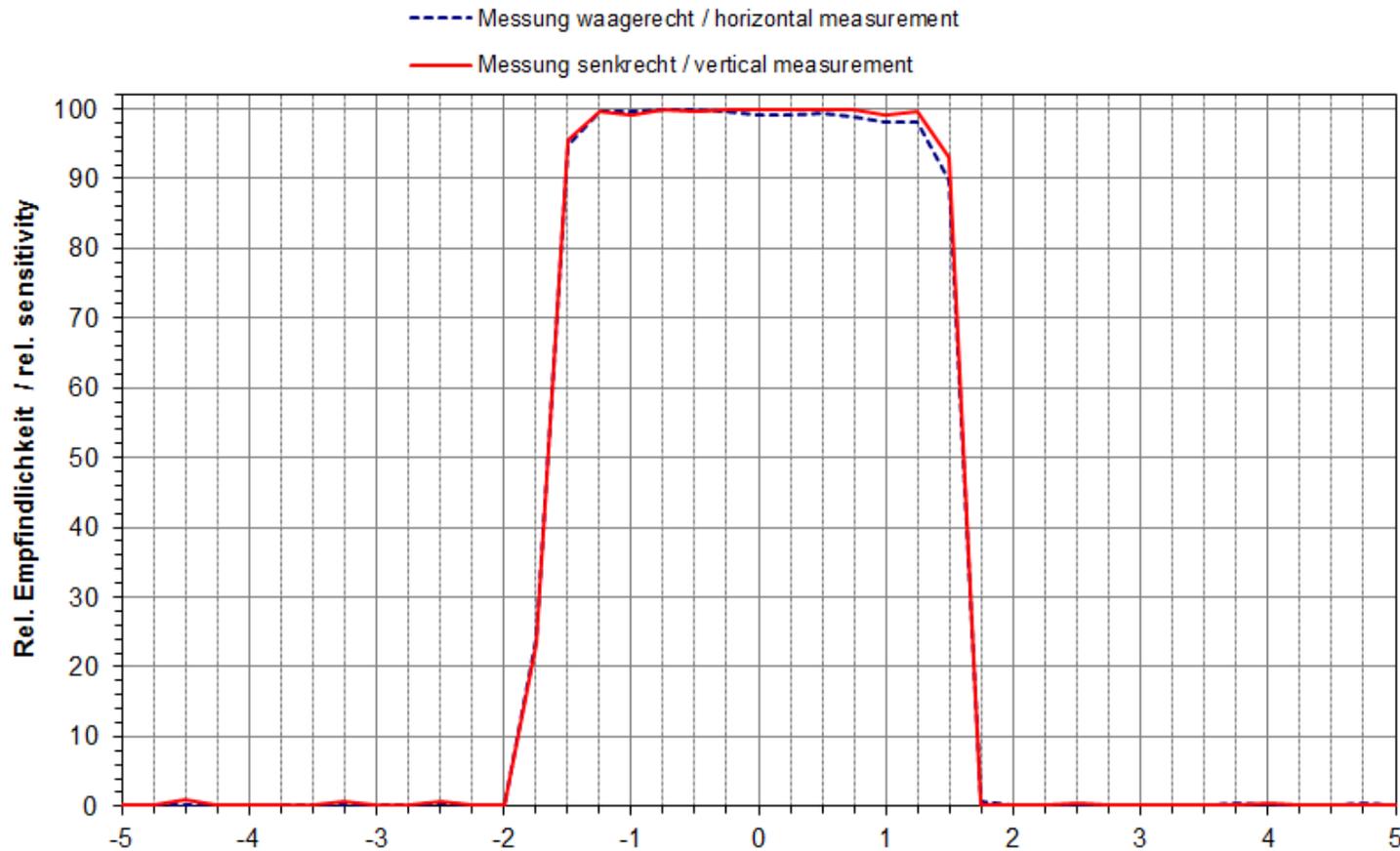
DURAG GmbH
Kollastr.105 • D-22453 Hamburg

Sichtwinkel / Angle of View D-R 290
Gemessen gegen SWBD in 3 m Entfernung
Measured towards a SWBD in 3 m distance

Date: 10 / 2014

Name: Ralf Norrenbrock

Produced for 10 / 2014 serial no.: 1244167-1244178 • graphs serial no.: 1244167



DURAG GmbH
Kollastr.105 • D-22453 Hamburg

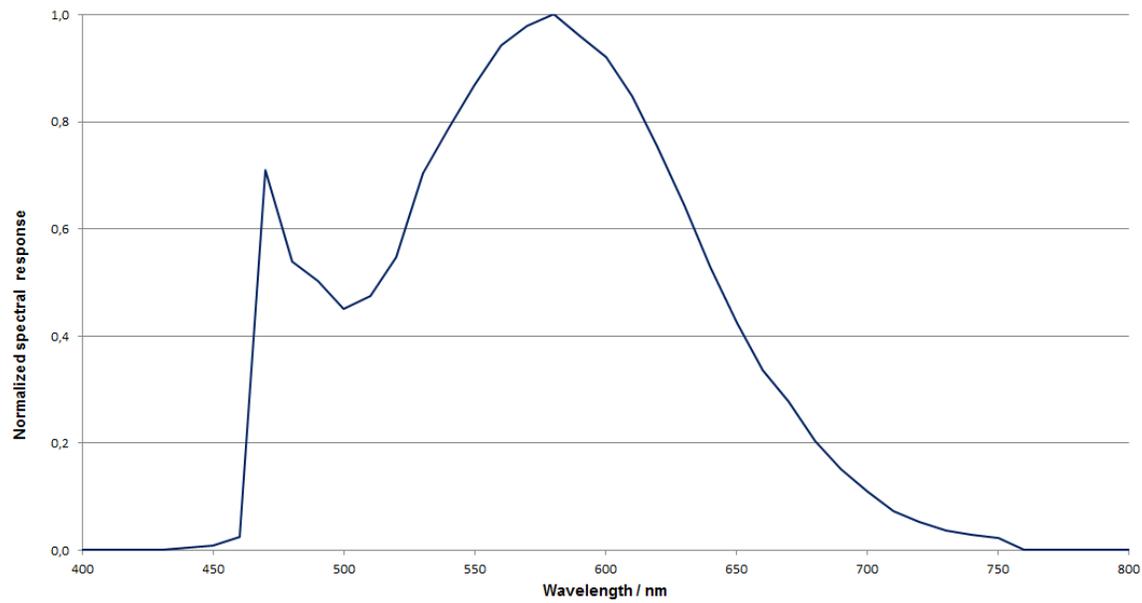
Projektionswinkel / Angle of Projection D-R 290

Gemessen gegen Fotoelement 5 mm in 3 m Entfernung
Measured towards a photo element 5 mm in 3 m distance

Date: 10 / 2014

Name: Ralf Norrenbrock

Produced for 10 / 2014 serial no.: 1244167-1244178 • graphs serial no.: 1244167



DURAG GmbH
 Kollaustr.105 • D-22453 Hamburg

Spectral response of D-R 290
 (Calculated from manufacturer supplied data)

Date: 10 / 2014

Name: Ralf Norrenbrock

Change Log

Revision Date	Version	Changes
01/08/2016	0	Original Issue – Created for DURAG COMS unit
09/21/2017	1	Minor corrections to account for actual procedures (eg..contractor providing audit filters), rewrote notification, reporting, and recordkeeping requirements in greater detail; made consistent with Michigan rules, Iron and Steel MACT, and AK’s Title V permit, added section “AK Steel ESP Plans and Procedures” to reference specific AK Steel procedures that are referenced by or pertain to this plan
09/06/2018	2	Added COMS Non-Routine Cleaning Procedure, reference to AKDP-F3-15-10, COMS Operation, Maintenance, Reporting, and General Requirements Procedure, Updated procedure and form numbers for AK Steel ESP Plans and Procedures to new format, Added reference N0. 10 to AK Steel QIS Procedure Homepage
07/29/2019	3	Corrected procedure numbers to now AK Steel format, added comment about keeping spare DURAG unit, added reference to AK COMS cleaning procedure and also added reference to AK Steel ESP Plan and procedures.
07/24/2020	4	P.9 Revised who maintains the operation and maintenance manuals, P.29 Revised procedure number (B2 to B1), revised required PPE, P.31 3 places MDEQ changed to EGLE, P.32 4 places-MDEQ to EGLE, revised description of Annual COMS Report, P.34 several procedures B2 to B1. Section 5. Page 32 deleted detailing standard quarterly maintenance and

AK STEEL DEARBORN WORKS

Electrostatic Precipitator (ESP)

Startup, Shutdown & Malfunction (SSM) Plan

May 22, 2006

Revised July 24, 2020

PLAN(E)-W-20-05

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AK Steel – Dearborn Works BOF Electrostatic Precipitator (ESP) Startup, Shutdown, and Malfunction Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the BOF ESP. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, the facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by the facility are consistent with the procedures specified in each procedure, the facility shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: A reference to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. PSO Electrostatic Precipitator Startup Procedure	QSOPE- B1 -80-74
2. Precipitator I.D. Fan Starting Procedure	QSOPE-B1-80-85
3. ESP Fan Startup After 4 Fan Shutdown	QSOPE- B1 -81-12
4. Electrostatic Precipitator Emergency Single Fan Shutdown Procedure	QSOPE- B1 -81-13
5. Electrostatic Precipitator Shutdown Procedure	QSOPE-B1-80-75
6. Electrostatic Precipitator Compartment Isolation	QSOPE-B1-80-99

Procedure	Reference
7. Continuous Opacity Monitoring System Quality Assurance and Quality Control Plan	PLAN(E)-W-20-06
8. Electrostatic Precipitator Malfunction Troubleshooting	QSOPE- B1 -81-75
9. ESP and BOF Shop Emissions Malfunction Troubleshooting - Meller Response	QSOPE-B2-81-14
10. ESP 10% One-Hour Elevated Opacity Investigation Procedure	QSOPE-B2-81-98
11. ESP 15% 6-Minute Opacity Investigation Procedure	QSOPE- B1 -81-99
12. 15% 6-Minute ESP Operator Alarm Response Procedure	QSOPE- B1 -80-78
13. Environmental Inspection Corrective Action Follow-Up	QSMPE-B1-00-12
14. Electrostatic Precipitator Compartment Return to Service	QSOPE-B1-80-100
15. ESP-Induced Draft Control Equipment and Set Points	QSMPE-B1-81-14

1. Proposed definitions are outlined below:

Source Startup: Source startup is defined as the period of time when one or both of the BOF vessels resume operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. The startup period begins when scrap is initially charged into the vessel. The ESP control system must be in operation prior to this activity. Source start-up is not considered to be the normal operating events associated with every BOF heat cycle.

Monitoring Equipment Startup: The startup of the ESP monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of the COMS unit.

Source Shutdown: Source shutdown is defined as the period of time when the BOF goes down for either a scheduled reason (planned outage, etc.) or an unplanned event (e.g., power outage, ESP malfunction, etc.). The tap is completed and subsequent charging activities ceased. Source shutdown is not considered to be the normal operating events associated with every BOF heat cycle. The ESP control system does not have to operate during these periods.

Monitoring Equipment Shutdown: The shutdown of the ESP monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of a COMS unit.

Control Device Malfunction: Malfunction of the control device (ESP) associated with the BOF process occurs when the equipment is not operating as designed or as established during the performance test when oxygen blowing is occurring per the source operating definition previously provided. For example, the air pollution control equipment is malfunctioning when:

- ESP fan(s) breakdown
- ESP internal components malfunction or failure (e.g., field failure)
- PLC and/or Communications failure
- Electrical power outage

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the plant is General Manager – Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to *the following* positions within the BOF: *Steelmaking* Department Manager.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
5. **Monitoring:** The COM is *continuously* monitored and *block* averaged on a 6 minute and hourly basis.
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
7. **Reporting:** *Deviations of the 10% 1-hour opacity average as described in the Iron and Steel MACT Rule* are required to be reported to the Agency on a periodic basis according to the Facility Title V permit and the Integrated Iron and Steel MACT rules schedule. The Integrated Iron and Steel MACT rules also includes "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction are consistent with the procedures in the startup, shutdown or malfunction plan (SSMP), reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i).

Reports prepared by operations to be submitted to the Agency are outlined below.

Agency Reporting Requirements	Responsibility	Overview of content
1. Iron and Steel MACT Semi-Annual Report	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly.

Agency Reporting Requirements	Responsibility	Overview of content
		<p>This report will be submitted to EGLE by the semi-annual reporting date specified in the Title V Permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and September 15 for the time period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.</p>
<p>2. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be <u>reported within 2 working days</u>, after commencing action inconsistent with the plan, by fax or telephone.</p>	<p>Environmental Affairs</p>	<p>Describe whenever startup, shutdown or malfunction <u>event deviates from the plan</u> in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.</p>
<p>3. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, <u>followed by a letter within 7 working days after the end of the</u></p>	<p>Environmental Affairs</p>	<p>This is a follow-up letter to the 2-day report. A letter shall be submitted to EGLE within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.</p>

Agency Reporting Requirements	Responsibility	Overview of content
event. A “Responsible company official” signs report.		

REFERENCES: 40 CFR Subpart FFFFF

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
1. PSO Electrostatic Precipitator Startup Procedure	QSOPE- B1 -80-74
2. Precipitator I.D. Fan Starting Procedure	QSOPE-B1-80-85
3. ESP Fan Startup After 4 Fan Shutdown	QSOPE- B1 -81-12
4. Electrostatic Precipitator Emergency Single Fan Shutdown Procedure	QSOPE- B1 -81-13
5. Electrostatic Precipitator Shutdown Procedure	QSOPE-B1-80-75
6. Electrostatic Precipitator Compartment Isolation	QSOPE-B1-80-99
7. Continuous Opacity Monitoring System Quality Assurance and Quality Control Plan	PLAN(E)-W-20-06
8. Electrostatic Precipitator Malfunction Troubleshooting	QSOPE- B1 -81-75
9. ESP and BOF Shop Emissions Malfunction Troubleshooting - Meller Response	QSOPE-B2-81-14
10. ESP 10% One-Hour Elevated Opacity Investigation Procedure	QSOPE-B2-81-98
11. ESP 15% 6-Minute Opacity Investigation Procedure	QSOPE- B1 -81-99
12. 15% 6-Minute ESP Operator Alarm Response Procedure	QSOPE- B1 -80-78
13. Environmental Inspection Corrective Action Follow-Up	QSMPE-B1-00-12
14. Electrostatic Precipitator Compartment Return to Service	QSOPE- B1 -80-100
15. ESP-Induced Draft Control Equipment and Set Points	QSMPE-B1-81-14

Change Log

Revision Date	Version	Changes
5/22/2006	0	Original Issue
10/11/2007	1	Combine with BOF SSM and O&M plan
4/15/2011	2	Changed facility name
11/4/2015	3	Separated from BOF SSM and O&M plan, put in AK Steel format
8/11/2016	4	Deleted procedure PM-PR-B2-81-01E, PM-PR-B2-00-19E; Both procedures were redundant.
9/15/2016	5	Deleted PO-PR-B2-81-21; this was addressed in revisions to PO-PR-B2-80-74E and PO-PR-B2-80-85E, updated monitoring description, fixed procedure numbers as appropriate
9/06/2018	6	Revised procedure numbers for new format (none added or deleted), revised reporting dates for semi-annual report
07/29/2019	7	Updated procedure numbers, added procedure QSOPE-B2-81-14, changed person in step 3 to "Department Manager-BOF" , changed references to MDEQ to EGLE
07/24/2020	8	Changed several B2 to B1, clarified Item 3; Roles and Responsibilities as well as No. 5, monitoring, redefined a deviation in relationship to the Iron and Steel MACT Rule.

AK STEEL DEARBORN WORKS

ELECTROSTATIC PRECIPITATOR (ESP)

MALFUNCTION ABATEMENT PLAN

(MAP)

September 19, 2013

Revised August 05, 2020

PLAN(E)-W-20-07

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AK Steel – Dearborn Works Electrostatic Precipitator (ESP) Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the Electrostatic Precipitator (ESP) at the Basic Oxygen Furnace (BOF). This plan is intended to satisfy the requirements of the Title V permit, MI-ROP-A8640-2016a, EUBOF III.4 and Michigan Rule 911. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
<p>1. Preventative maintenance (PM) for the ESP. The procedure provides a description of the items or conditions that shall be inspected and the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).</p>	<p>QSMPE-B1-81-81 (Weekly ESP Preventative Maintenance Inspections)</p> <p>QSMPE-B1-81-05 (Weekly Precipitator Filter Change Out)</p> <p>QSMPE-B1-81-82 (Monthly ESP Preventative Maintenance Inspections)</p> <p>QSMPE-B1-81-83 (Quarterly ESP Preventative Maintenance Inspections)</p>
<p>2. Identification of the major replacement parts. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).</p>	<p>QSMPE-B1-81-20 Quarterly BOF Environmental Required Spare Parts Inventory</p>
<p>3. ESP system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is</p>	<p><i>Form(E)-B1-81-04-02</i> ESP Operations Shift Checksheet</p> <p><i>QSOPE-B1-81-23</i> (Boiler Pulpits Readings Procedure)</p>

Procedure	Reference
pursuant to R 336.1911(2)(b).	<p><i>QSOPE-B1-80-71</i> (Boiler/Precipitator Spray System Operation)</p> <p>QSMPE-B1-80-75 Conditioning Spray Setpoints Tracking Procedure</p> <p>PLAN(E)-W-20-06 Continuous Opacity Monitoring System Quality Assurance and Quality Control Plan</p>
<p>4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).</p>	<p><i>QSOPE-B1-81-75</i> ESP Malfunction Troubleshooting – PSO Response</p> <p>QSOPE-B2-81-14 ESP and BOF Shop Emissions Malfunction Troubleshooting – Melter Response</p> <p><i>QSOPE-B1-80-78</i> (15% 6-Minute ESP Operator Alarm Response)</p> <p><i>QSOPE-B1-81-99</i> (ESP 15% 6-Minute Opacity Investigation Procedure)</p> <p>QSOPE-B2-81-98 (ESP 10% One Hour Elevated Opacity Investigation Procedure)</p> <p>QSMPE-B1-00-12 Environmental Inspection Corrective Action Follow-Up</p>

2. **Supervisory Personnel:** The person who is designated to have the overall responsibility for supervising and managing compliance the ESP Malfunction Abatement Plan is the Responsible Official (RO). This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions or failures of the ESP.

Parameter	Monitoring Method
Stack Opacity	COMS

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works' interpretation that when needed, revising the equipment malfunction procedures identified in procedure #4 above would adequately address this rule.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the ESP.

Procedure	Reference
QSMPE-B1-81-81 (Weekly ESP Preventative Maintenance Inspections)	Form(E)-B1-81-81-01 (Weekly Electrostatic Precipitator Pollution Control Inspection)
	Form(E)-B1-81-81-02 (Weekly ESP Air Dryer, Hopper and Dust Bin Heater Inspections)
QSMPE-B1-81-05 (Weekly ESP Filter Change Out)	Filter Change Report
QSMPE-B1-81-82 (Monthly ESP Preventative Maintenance Inspections)	Form(E)-B1-81-82-01 (Monthly BOF Electrostatic Precipitator Conveyor(s) Mechanical Inspection)
	Monthly Fan Vibration and Analysis Report
QSMPE-B1-81-83 (Quarterly ESP Preventative Maintenance Inspections)	Form(E)-B1-81-83-01 (Quarterly BOF Electrostatic Precipitator ID Fan Inspection)
	Form(E)-B1-81-83-02 (Quarterly BOF Electrostatic Precipitator Roof (Rapper) Electrical Inspection)
	Form(E)-B1-81-83-03 (Quarterly BOF Electrostatic Precipitator Conveyor(s) Electrical Inspection)
	Form(E)-B1-81-83-04 (Quarterly BOF Millwater Differential Pressure Inspection)
	Form(E)-B1-81-83-05 (Quarterly BOF Electrostatic Precipitator CPMS Damper Inspection)
	Form(E)-B1-81-83-06 (Quarterly BOF Electrostatic Precipitator Rapper System (Field) Electrical Inspection)
	Form(E)-B1-81-83-07 (Quarterly BOF Electrostatic Precipitator Rapper System (Field) Electrical Inspection)
QSOPE-B2-81-99 (ESP 15% 6-Minute Opacity Investigation Procedure)	Form(E)-B2-81-99-02 (6-minute Average Opacity Investigation Spreadsheet)
<i>QSOPE-B1-80-78</i> (15% 6-Minute Operator Alarm Response)	<i>Form(E)-B1-80-78-01</i> (BOF Precipitator Checklist for 6-Minute >15% 6-Minute Average)
QSOPE-B2-81-98 (ESP 10% One-Hour Elevated Opacity Investigation)	Form(E)-B2-81-98-01 (ESP COMS One-Hour Average Exceedance Corrective Action Form)
<i>QSOPE-B1-81-04</i> (ESP Parameter / Opacity Monitoring Procedure)	<i>Form(E)-B1-81-04-02</i> (ESP Operations Shift Checklist)
<i>QSOPE-B1-81-23</i> (Boiler Pulpit Readings Procedure)	<i>Form(E)-B1-81-23-01</i> (Boiler Pulpit Readings)

Procedure	Reference
QSMPE-B1-81-20 (Quarterly BOF Environmental Required Spare Parts Inventory)	Form(E)-B2-81-20-2 (Precipitator Screw Consumable Items Inventory) Form(E)-B1-81-20-4 (Precipitator Electrical Critical Spares Inventory)
<i>QSOPE-B1-81-75</i> (ESP Malfunction Troubleshooting – PSO Response)	N/A
QSOPE-B2-81-14 (ESP and BOF Shop Emissions Malfunction Troubleshooting – Melter Response)	N/A
QSMPE-B1-00-12 (Environmental Inspection Corrective Action Follow-up Procedure)	N/A
<i>QSOPE-B1-80-71</i> (Boiler/Precipitator Spray System Operation)	N/A
PLAN(E)-W-20-06 (Continuous Opacity Monitoring System Quality Assurance and Quality Control Plan)	N/A
QSMPE-B1-80-75 (Conditioning Spray Setpoints Tracking Procedure)	Form(E)-B1-80-75-01 (A and B Vessel Spray Bank 1-7 Setpoint Tracking Form)
	Form(E)-B1-80-75-02 (A and B Vessel Spray Bank 8 Setpoint Tracking Form)
	Form(E)-B1-80-75-03 (A and B Vessel Spray Bank and Water Flow Setpoint Tracking Form)
	Form(E)-B1-80-75-04 (Inspection to Ensure Proper Atomization by Spray Nozzles)

REVISION TABLE

Date	Revision	Revision Comments
9/19/2013	0	Original Issue
11/4/2015	1	Placed into AK Format
9/15/2017	2	Made changes to reflect 6/1/17 O&M Plan revisions, added opacity response alarms, boiler pulpit readings, spray system operation procedures, added reference to Title V permit
9/18/2018	3	Modified procedure and form numbers to new format, updated title for QSOPE-B2-81-75, added procedures QSMPE-B2-81-14, QSMPE-B2-80-101, QSMPE-B2-80-75 and associated forms to plan, updated title on Form(E)-B2-81-20-2, added new electrical spare part inventory form Form(E)-B2-81-20-4
7/31/2019	4	Updated procedure numbers, removed QSOPE-B2-80-101 as procedure is no longer applicable.
08/05/2020	5	Changed several procedures and forms from B2 to B1.

AK STEEL DEARBORN WORKS

Desulfurization Baghouse

Startup, Shutdown & Malfunction (SSM) Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

May 22, 2006

Revised August 5, 2020

PLAN(E)-W-20-10

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AK Steel Dearborn Works Desulfurization Baghouse Start-up, Shutdown, and Malfunction (SSM) Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the Desulfurization Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: References to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. Desulfurization Baghouse Startup and Shutdown Procedure	Procedure # QSMPE-B1-15-01
2. Desulfurization Baghouse Fan Startup and Shutdown Procedure	Procedure # QSMPE-B1-15-02
3. Desulfurization Baghouse Malfunction Procedure	Procedure # QSMPE-B1-15-03
4. Desulfurization Baghouse Malfunction Form	Form # Form(E)-B1-15-03-01
5. Critical Equipment Alarm Response – Bag Leak Detection Alarms	Procedure # QSOPE-B2-00-13

	Procedure	Reference
6.	Troubleshooting Desulfurization (Desulf) Baghouse Bag Leak Alarm	Procedure # QSMPE-B1-15-08
7.	Bag Leak Detection System Corrective Action Form	Form # Form(E)-B2-00-13-1
8.	Backup Slag Skimming	Procedure # QSOPE-B2-15-25
9.	Desulfurizer Emission Reaction	Procedure # QSOPE-B2-15-06

1. Proposed definitions are outlined below:

Source Startup: Source startup is defined as the period of time when the desulfurization station resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. For this source, the startup period begins when the iron ladle is placed in the desulfurization station. The Desulfurization baghouse must be in operation just prior to this activity. Source start-up is not considered to be the normal operating protocol associated with every BOF heat cycle.

Monitoring Equipment Startup: The startup of the Desulfurization Baghouse monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Source Shutdown: Source shutdown is defined as the period of time when the BOF goes down for either a scheduled reason (planned outage, etc.) or an unplanned event (e.g., power outage, baghouse malfunction, etc.). Source shutdown is not considered to be the normal operating protocol associated with every BOF heat cycle. The baghouse must be in operation when desulfurizing and when primary slag skimming is taking place.

Monitoring Equipment Shutdown: The shutdown of the Desulfurization Baghouse monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Control Device Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test. Examples of events that are considered malfunctions are provided below:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal component malfunction or failure (e.g., inlet/outlet damper actuators failure)
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden increase in opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)

- Loss of structural integrity (e.g., ductwork, hoods, stack)
 - Drive actuator broken linkage
 - Tilt Stand Issues
 - Primary Slag Skimming Arm Issues
2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.
 3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO for the BOF to the following position: Department Manager – *Steelmaking*.
 4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform. A record of the training must be maintained in accordance with departmental procedures.
 5. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
 6. **Reporting:** The Integrated Iron and Steel MACT rules also include "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSM plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the SSM Plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i).

Reports to be submitted to EGLE are outlined below.

Agency Reporting Requirements	Responsibility	Overview of content
1. Iron and Steel MACT Semi-Annual Report	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to EGLE by the semi-annual reporting date specified in the Title V Permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and September 15 for the time period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.
2. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, after commencing action inconsistent with the plan, by fax or telephone.	Environmental Affairs	Describe whenever startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.

Agency Reporting Requirements	Responsibility	Overview of content
<p>3. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, followed by a letter within 7 working days after the end of the event. A "Responsible company official" signs report.</p>	<p>Environmental Affairs</p>	<p>This is a follow-up letter to the 2-day report. A letter shall be submitted to EGLE within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.</p>

7. Corrective Action: Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to Sections 5 and 6 above.

A. REFERENCES:

40 CFR Subpart FFFFF

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure		Reference
1.	Desulfurization Baghouse Startup and Shutdown Procedure	Procedure # QSMPE-B1-15-01
2.	Desulfurization Baghouse Fan Startup and Shutdown Procedure	Procedure # QSMPE-B1-15-02
3.	Desulfurization Baghouse Malfunction Procedure	Procedure # QSMPE-B1-15-03
4.	Desulfurization Baghouse Malfunction Form	Form # Form(E)-B1-15-03-01
5.	Critical Equipment Alarm Response – Bag Leak Detection Alarms	Procedure # QSOPE-B2-00-13
6.	Troubleshooting Desulfurization (Desulf) Baghouse Bag Leak Alarm	Procedure # QSMPE-B1-15-08
7.	Bag Leak Detection System Corrective Action Form	Form # Form(E)-B2-00-13-1
8.	Backup Slag Skimming	Procedure # QSOPE-B2-15-25
9.	Desulfurizer Emission Reaction	Procedure # QSOPE-B2-15-06

Change Log

Revision Date	Version	Changes
5/22/2006	0	Original Issue
10/22/2007	1	Combine with BOF SSM and O&M plan
11/4/2015	2	Separated from BOF SSM and O&M plan, put in AK Steel format
8/11/2016	3	Removed PO-PR-B2-00-19E, Procedure was redundant
9/15/2017	4	Added PO-PR-B2-15-25E, 2 Control Device malfunctions, and verbiage to shutdown description to incorporate slag skimming portion of operation
9/18/2018	5	Revised procedure numbers for new format (none added or deleted), added reporting description for semi-annual report
07/31/2019	6	Updated form and procedure number references, added QSOPE-B2-15-06 to plan, changed person referenced in step 3 from “Department Manager Steelmaking” to “Department Manager – BOF”, changed references to MDEQ to EGLE.
08/05/2020	7	Changed person of reference in 3 from manager-BOF to Manager-Steelmaking.

AK STEEL DEARBORN WORKS

BOF Secondary Emissions Control (SEC) Baghouse & Capture System

Operation & Maintenance Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

October 11, 2007

Revised June 4, 2019

PLAN(E)-W-20-02

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AK Steel Dearborn Works Secondary Emissions Control (SEC) Baghouse and Capture System Operation and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the operation and maintenance (O & M) procedures for the Dearborn Works SEC Baghouse and capture system. This plan is intended to satisfy the requirements of the Integrated Iron and Steel Manufacturing Facilities Maximum Achievable Control Technology (MACT) rules to have a written O & M Plan pursuant to 40 CFR 63.7800(b). The roadmap directs interested parties to the appropriate written operational control document contained in the Dearborn Works document management system. Revisions to the operational control documents are not considered revisions to this O&M Plan. These procedures describe O & M of the capture system and the pollution control equipment (baghouse) to comply with the relevant MACT rules. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, at least to the levels required by the relevant standard. This plan, if implemented correctly, will also reduce reporting burdens.

1. Detailed Procedures: Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
<p>1. SEC Baghouse system and/or capture system inspection procedures. The following equipment shall be inspected daily). The procedures provide how to evaluate each component and to repair, replace, or isolate each component. If established procedures are not followed, excess emission, repeated failure, or further damage could result. A record of each inspection will be maintained for 5 years.</p> <p style="padding-left: 40px;">a. Pressure drop across each baghouse compartment. These requirements are pursuant to 40 CFR 63.7830(b)(1).</p> <p style="padding-left: 40px;">b. Baghouse cleaning cycles to ensure proper operation. These requirements are pursuant to 40 CFR 63.7830(b)(4).</p> <p>The following equipment shall be inspected weekly. The procedures provide how to evaluate each component and to repair, replace or isolate each component.</p>	<p style="padding-left: 40px;">AKDP-F3-15-12 Daily Environmental Requirements</p> <p style="padding-left: 40px;">AKDP-F3-15-12 Daily Environmental Requirements</p>

Procedure	Reference
<p>a. Dust removal from the hopper through visual inspections or other means. These requirements are pursuant to 40 CFR 63.7830(b)(2).</p> <p>The following equipment shall be inspected monthly. The procedures provide how to evaluate each component and to repair, replace or isolate each component.</p>	<p>QSMPE-B/1-00-20 Weekly Baghouse Dust Removal at the BOF</p>
<p>a. Capture system hoods, ductwork, dampers, and expansion joints. These requirements are pursuant to 40 CFR 63.7800(b)(1).</p> <p>b. Baghouse components (inlet and outlet dampers and actuators, pressure sensors). These requirements are pursuant to 40 CFR 63.7800(b)(1).</p>	<p>QSMPE-B/1-30-63 Weekly Preventative Maintenance Inspections for the Secondary Emissions Baghouse</p> <p>Form(E)-B/1-30-63-01 Weekly Hot Metal Hood Inspection</p> <p>Form(E)-B/1-30-63-02 Weekly Charge and Tap Hood Inspection</p> <p>Form(E)-B/1-30-63-03 Weekly Baghouse Plenum Inspection</p>
<p>c. Bag cleaning mechanisms for proper functioning. These requirements are pursuant to 40 CFR 63.7830(b)(5).</p> <p>d. Visual checks of bag tension on reverse air baghouses to ensure that bags are not kinked (kneaded or bent) or laying on their sides. These requirements are pursuant to 40 CFR 63.7830(b)(6).</p>	<p>QSMPE-B/1-30-58 Monthly Preventative Maintenance Inspections for the Secondary Emissions Baghouse</p> <p>Form(E)-B/1-30-58-01 Monthly Secondary Emissions Baghouse Component Inspection</p>

Procedure	Reference
<p>The following equipment shall be inspected quarterly. The procedures provide how to evaluate each component and to repair, replace or isolate each component.</p> <p>a. Physical inspection of the baghouse interior for air leaks. These requirements are pursuant to 40 CFR 63.7830(b)(7).</p> <p>b. I.D. fan for wear, material buildup, and corrosion. These requirements are pursuant to 40 CFR 63.7830(b)(8).</p>	<p>QSMPE-B/30-56 Quarterly Preventative Maintenance Inspections for the Secondary Emissions Baghouse</p> <p>Form(E)-B/30-56-01 Quarterly Secondary Emissions Baghouse Interior Inspection</p> <p>Quarterly Fan Vibration Analysis</p>
<p>2. Bag leak detection system alarm corrective action procedure. In the event of an alarm, corrective action must be initiated within one hour to determine the cause of the alarm. Corrective action must be initiated within 24 hours to correct the cause of the problem, and the corrective action must be completed as soon as practicable. These requirements are pursuant to 40 CFR 63.7800(b)(4).</p>	<p>QSOPE-B2-00-13 Critical Equipment Alarm Response</p>

Source Operation: Production of steel in a BOF vessel consists of scrap charging, hot metal charging, oxygen blowing, and tapping. The vessel is tilted forward to receive scrap and hot metal. Fugitive particulate emissions are collected in a charging hood and conveyed to the BOF Secondary Emissions Control (SEC) Baghouse. Primary particulate emissions generated during oxygen blowing are captured and collected in an Electrostatic Precipitator (ESP). Tapping is the process in which the BOF vessel is tilted and the refined molten steel is poured into a receiving ladle. Fugitive particulate emissions generated during tapping are collected in a tapping hood and conveyed to the SEC Baghouse. In addition, there is a capture hood installed to collect fugitive particulate emissions generated at the South Reladling Station which is also conveyed to the SEC Baghouse.

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the BOF is the General Manager – Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works BOF: Department Manager – Steelmaking.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, and maintain the air pollution control

equipment as established in these O & M Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.

5. **Monitoring:** *Outlet Baghouse Plenum Pressure* and hood damper positions are the designated operational monitoring parameters of the capture system and are listed in Table 1 which contain values established pursuant to §63.7790(b)(1) during the *May 2019* performance test. The *outlet baghouse plenum pressure transmitters* and hood damper actuators are calibrated during their operational use, per the “SEC Baghouse Site Specific Monitoring Plan.”
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each O & M occurrence, measurement, maintenance, corrective action, report, or record.
7. **Reporting:** *Outlet baghouse plenum pressure* and hood damper position deviations as well as any deviations to the requirements of this O&M plan are required to be reported to the MDEQ on a semiannual basis according to the Dearborn Works Title V (ROP) permit.

A. REFERENCES:

40 CFR Subpart FFFFF
Dearborn Works ROP: MI-ROP-A8640-2016a

LIST OF CONTROLLED OPERATING AND MAINTENANCE PROCEDURES

The following procedures listed in this plan serve as the required inspections to comply with the Iron and Steel MACT rules for the SEC baghouse.

Procedure / Form	Reference
Daily Environmental Requirements	AKDP-F3-15-12 Daily Environmental Requirements
Dust Removal from Hoppers	QSMPE-BI-00-20 Baghouse Dust Removal
SEC Baghouse Weekly Preventative Maintenance Inspections	QSMPE-BI-30-63 Weekly Preventative Maintenance Inspections for the Secondary Emissions Baghouse
Hot Metal Hood Weekly Visual Inspection	Form(E)-BI-30-63-01 Weekly Hot Metal Hood Inspection
Tap and Charge Hood Weekly Inspection	Form(E)-BI-30-63-02 Weekly Charge and Tap Hood Inspection
Baghouse Inlet & Outlet Plenum Weekly Inspection	Form(E)-BI-30-63-03 Weekly Baghouse Plenum Inspection
SEC Baghouse Monthly Preventative Maintenance Inspections	QSMPE-BI-30-58 Monthly Preventative Maintenance Inspections for the Secondary Emissions Baghouse
Baghouse Cleaning System Inspection	Form(E)-BI-30-58-01 Monthly Secondary Emissions Baghouse Component Inspection
SEC Baghouse Quarterly Preventative Maintenance Inspections	QSMPE-BI-30-56 Quarterly Preventative Maintenance Inspections for the Secondary Emissions Baghouse
Baghouse Interior Inspection	Form(E)-BI-30-56-01 Quarterly Secondary Emissions Baghouse Interior Inspection
Baghouse Fan Inspection	Quarterly Fan Vibration Analysis

The following procedure and form listed in this plan serve as the required bag leak detector corrective action plan for the SEC baghouse.

Procedure	Reference
Baghouse Alarms Procedure	QSOPE-B2-00-13 Critical Equipment Alarm Response

REVISION TABLE

Date	Revision	Revision Comments
October 11, 2007	1	Original Issue
April 15, 2011	2	Revised plan with new facility name
September 12, 2013	3	O & M Plan revised by SNC Lavalin
July 3, 2014	4	O & M Plan updated by SNC Lavalin
November 17, 2014	5	O & M Plan revised by AK Steel
December 30, 2014	6	O & M Plan revised with updated procedure numbers and updated CPMS table from December 2014 performance testing
March 4, 2015	7	Added note to Table 1 to include situations when scenarios are in transition.
August 15, 2017	8	Revised to reflect modified procedure names and references; no new inspections added. Modified reporting step 7 and deleted redundant steps 8 and 9
September 6, 2018	9	Revised to reflect new procedure and form numbering convention. No new procedures added or removed
June 4, 2019	10	Revised numbering on some procedures that were moved from B2 to B1, revised designed monitoring parameter from fan speed to baghouse outlet plenum pressure, updated Table 1 to reflect newly established operating limits

Table 1

Scenario	Hot Metal Transfer	Furnace A Status	Furnace B Status	Hot Metal Transfer Damper (%)	Furnace A Charge Damper S (%)	Furnace A Charge Damper N (%)	Furnace B Charge Damper S (%)	Furnace B Charge Damper N (%)	Furnace A Tap Damper (%)	Furnace B Tap Damper (%)	Baghouse Outlet Plenum Pressure (in. W.C.)
100	No	Offline	Offline	0	0	0	0	0	20	20	N/A
101	No	Offline	Charging	0	0	0	100	100	0	0	13.6
102	No	Offline	Tap	0	0	0	75	0	0	100	9.8
103	No	Offline	Online	0	0	0	40	40	0	0	3.1
110	No	Charging	Offline	0	100	100	0	0	0	0	13.7
112	No	Charging	Tap	0	100	100	0	0	0	75	16.8
113	No	Charging	Online	0	100	100	20	20	0	0	15.2
120	No	Tap	Offline	0	0	75	0	0	100	0	11.6
121	No	Tap	Charging	0	0	0	100	100	75	0	16.6
122	No	Tap	Tap	0	0	0	0	0	100	100	12.3
123	No	Tap	Online	0	0	75	20	20	100	0	13.0
130	No	Online	Offline	0	40	40	0	0	0	0	3.1
131	No	Online	Charging	0	20	20	100	100	0	0	16.3
132	No	Online	Tap	0	20	20	75	0	0	100	12.1
133	No	Online	Online	0	40	40	40	40	0	0	6.7
200	Yes	Offline	Offline	100	0	0	0	0	30	30	7.3
201	Yes	Offline	Charging	100	0	0	100	100	0	0	15.0
202	Yes	Offline	Tap	100	0	0	75	0	0	100	11.2
203	Yes	Offline	Online	100	0	0	40	40	0	0	6.7
210	Yes	Charging	Offline	100	100	100	0	0	0	0	15.2
212	Yes	Charging	Tap	100	100	100	0	0	0	75	15.0
213	Yes	Charging	Online	100	100	100	20	20	0	0	15.0
220	Yes	Tap	Offline	100	0	75	0	0	100	0	12.9
221	Yes	Tap	Charging	100	0	0	100	100	75	0	15.2
222	Yes	Tap	Tap	100	0	0	0	0	100	100	13.8
223	Yes	Tap	Online	100	0	75	20	20	100	0	14.9
230	Yes	Online	Offline	100	40	40	0	0	0	0	7.2
231	Yes	Online	Charging	100	20	20	100	100	0	0	14.7
232	Yes	Online	Tap	100	20	20	75	0	0	100	13.7
233	Yes	Online	Online	100	40	40	40	40	0	0	8.0

Note: *Minimum baghouse outlet plenum pressure readings* that are less than the values specified in Table 1 and damper position readings that deviate from the values specified in Table 1 by over 10% will not be considered deviations if the readings occurred within two minutes of a scenario transition.

AK STEEL DEARBORN WORKS

BOF Secondary Emissions Control (SEC) Baghouse

Continuous Parametric Monitoring System (CPMS) Site Specific Monitoring Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

October 11, 2007

Revised May 29, 2020

PLAN(E)-W-20-09

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Continuous Parametric Monitoring System (CPMS) Site Specific Monitoring Plan for BOF Secondary Emissions Control (SEC) Baghouse

System Description and Introduction

The purpose of this CPMS Site Specific Monitoring Plan is to address the following procedures associated with the CPMS used at the BOF secondary emission control system to satisfy the Integrated Iron and Steel MACT requirements as well as Dearborn Works ROP MI-ROP-A8640-2016a: installation; system description; performance evaluation; operation and maintenance; sampling frequency; out of control periods; data quality assurance; and recordkeeping and reporting procedures. This plan will follow the six provisions in the Iron and Steel MACT rule under 40 CFR 63.7831(a)(1) - (6) regarding the contents of such site specific monitoring plans.

The parameters that will be monitored for the secondary emission control system baghouse (“SEC Baghouse”) are baghouse outlet plenum pressure (indicating the level of ventilation draft) and hood damper positions. As a result of the varying operation, the baghouse outlet plenum pressure and the hood damper positions will vary. A list of scenarios, or modes, has been created and the corresponding hood damper positions and minimum baghouse outlet plenum pressures are listed. The CPMS modes are included in the attached Table 1: BOF Secondary Emissions Baghouse Operating Parameters (established May 2019 during MACT performance stack testing).

Comments on §63.7830(a)(1) and (2)

Dearborn Works does not have any dampers in the exhaust system that remain in the same position and are not manually set, so the following requirement (§63.7830(a)(1)) is not applicable: “Dampers that are not manually set and remain in the same position are required to be visually checked at least once every 24 hours to verify that each damper is in the same position as during the initial performance test.”

Dearborn Works is not using flow monitoring devices, so the requirement in §63.7830(a)(2) to monitor “the hourly average actual volumetric flow rate through each separately ducted hood, the average hourly total volumetric flow rate at the inlet to the control device” is also not applicable.

Installation Requirements

Per 40 CFR 63.7831(a)(1), the CPMS Site Specific Monitoring Plan must address the “Installation of the CPMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device).”

For the SEC Baghouse, the measurement of the baghouse outlet plenum pressure satisfies this requirement, since the fans are located downstream of the baghouse.

System Description and Equipment Specifications

Per 40 CFR 63.7831(a)(2), the CPMS Site Specific Monitoring Plan must address the “Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system.”

The Hot Metal Transfer (HMT) Damper, Furnace A South Charge Damper, Furnace A North Charge Damper, Furnace B South Charge Damper, Furnace B North Charge Damper, Furnace A Tap Damper, and Furnace B Tap Damper are controlled by damper actuator drives which provide a 4-20 mA analog position feedback signal. The signal indicates the hood damper position from full open to full close through 90° of movement. The hood damper actuators are powerful control packages designed to provide precise position control of dampers, as described in Table 2.

The SEC Baghouse Outlet Plenum Pressure is measured by pressure transmitters that provide a 4-20 mA analog position feedback sensor. The signal indicates the absolute outlet pressure from 0 to 35 inches water column (W.C.). Redundant sensors are in place to ensure that this parameter is measured in the event of a failure of the gauge. The data historian automatically records the lower of the 2 sensor readings.

Table 2: CPMS Equipment for Secondary Emission Control System Baghouse

Application	Description	Quantity
HMT Damper Furnace A South Charge Damper Furnace A North Charge Damper Furnace B South Charge Damper Furnace B North Charge Damper Furnace A Tap Damper Furnace B Tap Damper	Damper Actuators with 4-20 mA Signal	7
Baghouse Outlet Plenum Pressure	Pressure transmitter with 4-20 mA signal	2
Data Management System	Active Factory Wonderware Data Historian	1

Performance Evaluation Procedures (Calibrations)

Per 40 CFR 63.7830(a)(3), the site specific monitoring plan must include “Performance evaluation procedures and acceptance criteria (e.g., calibrations).” The calibration frequency and methodology are included in Table 3 for the Secondary Emission Control System Baghouse.

Table 3: CPMS Calibration Frequency for **Secondary Emission Control System Baghouse**

Measurement	Instrument Type	Calibration Frequency	Procedure/Form #
QSMPE-B/30-56 Quarterly Preventative Maintenance Inspections for the Secondary Emissions Baghouse			
Damper Actuator	Protractor, angle finder or similar device with markings in degrees or percent	Once per Quarter	Form(E)-B/30-56-02 Quarterly Secondary Emissions Baghouse CPMS Damper Drive System – Damper Calibration Inspection
Outlet Plenum Pressure	N.I.S.T. traceable calibrated differential pressure transmitter	Once per Quarter	Contractor Calibration Records

Operation and Maintenance

Note that continuous monitoring systems (CMS) include continuous opacity monitoring systems (COMS), continuous emission monitoring systems (CEMS) and CPMS. The SEC Baghouse at Dearborn Works is not equipped with a COMS or CEMS system.

Per 40 CFR 63.7831(a)(4), the site specific monitoring plan must address the following: “Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8).”

§§63.8 (c) Operation and maintenance of continuous monitoring systems.

(1) The owner or operator of an affected source shall maintain and operate each CMS as specified in this section, or in a relevant standard, and in a manner consistent with good air pollution control practices. (i) The owner or operator of an affected source must maintain and operate each CMS as specified in §63.6(e)(1).

(ii) The owner or operator must keep the necessary parts for routine repairs of the affected CMS equipment readily available.

(iii) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan for CMS as specified in §63.6(e)(3).

(3) All CMS shall be installed, operational, and the data verified as specified in the relevant standard either prior to or in conjunction with conducting performance tests under §63.7. Verification of operational status shall, at a minimum, include completion of the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system.

(4) Except for system breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level calibration drift adjustments, all CMS, including COMS and CEMS, shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(ii) All CEMS for measuring emissions other than opacity shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(7)(i) A CMS is out of control if—

(A) The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or in the relevant standard; or

(B) The CMS fails a performance test audit (e.g., cylinder gas audit), relative accuracy audit, relative accuracy test audit, or linearity test audit; or

(C) The COMS CD exceeds two times the limit in the applicable performance specification in the relevant standard.

(ii) When the CMS is out of control, the owner or operator of the affected source shall take the necessary corrective action and shall repeat all necessary tests which indicate that the system is out of control. The owner or operator shall take corrective action and conduct retesting until the performance requirements are below the applicable limits. The beginning of the out-of-control period is the hour the owner or operator conducts a performance check (e.g., calibration drift) that indicates an exceedance of the performance requirements established under this part. The end of the out-of-control period is the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits. During the period the CMS is out of control, recorded data shall not be used in data averages and calculations, or to meet any data availability requirement established under this part.

(8) The owner or operator of a CMS that is out of control as defined in paragraph (c)(7) of this section shall submit all information concerning out-of-control periods, including start and end dates and hours and descriptions of corrective actions taken, in the excess emissions and continuous monitoring system performance report required in §63.10(e)(3).

In order to comply with the requirements listed above, Dearborn Works has implemented the following secondary emission control system SEC Baghouse procedures:

➤ **Operation and Maintenance Procedures**

- The secondary emission control system hood damper actuators are constructed with no burnout motors, sealed electronics and powerful gear trains and the manufacturer indicates that they require no periodic maintenance. Dearborn Works has included the hood damper actuator linkage on its periodic monitoring schedule.
- Preventive maintenance performed on the Secondary Emission Control System Baghouse CPMS system is described in Table 4.

Table 4: CPMS Preventative Maintenance Tasks for **Secondary Emission Control System Baghouse**

Equipment Name	Preventative Maintenance Task	Frequency	Procedure/Form #
QSMPE-B1-30-56 Quarterly Preventative Maintenance Inspections for the Secondary Emissions Baghouse			
Damper Linkage	Check Linkage Attachment	Quarterly	Form(E)-B1-30-56-02 Quarterly Secondary Emissions Baghouse CPMS Damper Drive System – Damper Calibration Inspection
Damper Actuator	Calibrate / verify	Quarterly	
Baghouse Outlet Plenum Pressure Transmitter	Calibrate/Verify	Quarterly	Contractor Calibration Records

➤ **Secondary Emissions Control System SEC Baghouse CPMS Spare Parts (to satisfy §63.8(c)(1)(ii) requirements):**

- The spare parts for the CPMS will be incorporated into the following procedure: It should be noted that the baghouse outlet plenum pressure transmitter has a redundant transmitter installed.

Table 5: CPMS Spare Parts for **the SEC Baghouse**

Procedure Name	Procedure/Form #
Quarterly BOF Environmental Required Spare Parts Inventory	QSMPE-B1-81-20 Form(E)-B1-81-20-01

Sampling Frequency

The CPMS will be operated continuously and performance of the CPMS will be evaluated at least twice a year. A performance evaluation will consist of sampling historical baghouse data (damper positions and fan motor speeds) every 15 minutes of operation. (A minimum of three of the required four data points constitutes a valid hour of data.) Historical data will be evaluated against the set points specified in the attached Table 1: BOF Secondary Emission Control System Baghouse Operating Parameters. Deviations from the CPMS modes will be reported in Dearborn Works semiannual ROP deviation report. Hood dampers and baghouse outlet plenum pressure will be deemed to conform to this site specific CPMS plan should they match their specified set points specified in Table 1 within the range of their respective calibration accuracies specified in Table 7.

Note that data collected at regular 15 minute intervals will occasionally record hood damper positions or baghouse outlet plenum pressures when dampers and/or fans are transitioning between scenarios. Hood damper positions and baghouse outlet plenum pressure are not expected to correspond to specific set points in the CPMS scenario table when transitioning and transition periods will not be considered deviations. Allowances for transition times have been selected for the hood dampers and plenum pressure based on historically observed transitions. During this allowance a hood damper and the baghouse outlet plenum pressure is expected to be in between the prior scenario setpoint and the current setpoint and will not be considered a deviation. Table 6 includes transition time allowances for the hood dampers and baghouse outlet plenum pressure. The evaluation will be considered valid should data be available for 95% of the reporting period. Data will be retained for a period of (5) years.

Table 6: CPMS Secondary Dampers Transition Allowance

Damper	Travel Allowance
HMT	120 seconds
Furnace A South Charge	120 seconds
Furnace A North Charge	120 seconds
Furnace B South Charge	120 seconds
Furnace B North Charge	120 seconds
Furnace A Tap	120 seconds
Furnace B Tap	120 seconds

Out-of Control Periods

Dearborn Works will take the necessary corrective actions to repair/recalibrate the CPMS. During the period the monitoring equipment is out of control, the facility will not use the recorded data in data averages and calculations or to meet any data availability requirement. Out-of-control conditions, as defined in 40 CFR 63.8(c)(7)(i) addresses COMS and is not applicable to CPMS. Requirements for being “out of control” conform to 40 CFR 63.8(c)(7)(ii), based on exceedance to device calibration. Out of control requirements for CPMS components are presented in Table 7.

- The beginning of the out-of-control period, per 40 CFR 63.8(c)(7)(ii), is defined by the facility as the hour that the CPMS is noted to be operating outside of the performance (calibration) limits. This occurs when a calibration check of the baghouse outlet plenum pressure or hood damper actuators are deemed to be outside of the acceptable calibration specified in this site specific CPMS Monitoring Plan.
- The end of the out-of-control period is defined by the facility as the hour following the completion of corrective action and successful demonstration that the system is within the allowable limits (calibration).

Table 7: CPMS Out of Control Requirements Secondary Emission Control System Baghouse

Measurement Type	Instrument Type	"Out of Control" conditions
Damper Position	Damper Actuator	Damper Position is out of control if damper position varies more than 10% of the setpoints noted in Table 1
Baghouse Outlet Plenum Pressure	Pressure Transmitter	<i>Baghouse outlet plenum pressure</i> is out of control if the <i>plenum pressure</i> decreases below the setpoints noted in Table 1

Data Quality Assurance

The requirements presented in this section of the Site-Specific Monitoring Plan apply to the CPMS for the baghouse outlet plenum pressure and hood damper positions as previously described. Per 40 CFR 63.7831(b)(5), the CPMS Site-Specific Monitoring Plan must address the following:

Ongoing data quality assurance procedures in accordance with the general requirements of 63.8(d).

§63.8(d) Quality control program. (1) *The results of the quality control program required in this paragraph will be considered by the Administrator when he/she determines the validity of monitoring data.*

(2) *The owner or operator of an affected source that is required to use a CMS and is subject to the monitoring requirements of this section and a relevant standard shall develop and implement a CMS quality control program. As part of the quality control program, the owner or operator shall develop and submit to the Administrator for approval upon request a site-specific performance evaluation test plan for the CMS performance evaluation required in paragraph (e)(3)(i) of this section, according to the procedures specified in paragraph (e). In addition, each quality control program shall include, at a minimum, a written protocol that describes procedures for each of the following operations:*

- (i) Initial and any subsequent calibration of the CMS;*
- (ii) Determination and adjustment of the calibration drift of the CMS;*
- (iii) Preventive maintenance of the CMS, including spare parts inventory;*
- (iv) Data recording, calculations, and reporting;*
- (v) Accuracy audit procedures, including sampling and analysis methods; and*
- (vi) Program of corrective action for a malfunctioning CMS.*

(3) *The owner or operator shall keep these written procedures on record for the life of the affected source or until the affected source is no longer subject to the provisions of this part, to be made available for inspection, upon request, by the Administrator. If the performance evaluation plan is revised, the owner or operator shall keep previous (i.e., superseded) versions of the performance evaluation plan on record to be made available for inspection, upon request, by the Administrator, for a period of 5 years after each revision to the plan. Where relevant, e.g., program of corrective action for a malfunctioning CMS, these written procedures may be incorporated as part of the affected source's startup, shutdown, and malfunction plan to avoid duplication of planning and recordkeeping efforts.*

In order to comply with the Data Quality Assurance requirement, Dearborn Works has implemented the following procedures:

- Initial and any subsequent calibration of the CMS
 - Calibration and adjustment procedures were presented in the section, “Performance Evaluation Procedures (Calibrations).”
- Determination and adjustment of the calibration drift of the CMS
 - Calibration drift is associated with CEMS. The type of monitoring equipment that Dearborn Works is using to comply with the Iron and Steel MACT does not involve periodic drift tests (as CEMS use) because the equipment is not designed for that purpose.
- Preventative maintenance of the CMS, including spare parts inventory;
 - Preventative maintenance procedures are conducted based on standard industry practices and facility maintenance experience.
 - The spare parts inventory is maintained onsite or readily available offsite and is included in the section, “Secondary Emissions Control System SEC Baghouse CPMS Spare Parts.”
- Data recording, calculations, and reporting;
 - Data recording is conducted as follows:
 - Data is collected through the PLC and is sent to a data historian system. Data is pulled a minimum of once per week in 15-minute increments and is saved on the AK Steel Environmental Server.
 - Calculations are not required in this type of system, as there are no emissions or flowrates to calculate. The data recorded are fan speeds and hood damper positions.
 - Reporting is addressed in the next section, “Recordkeeping and Reporting Procedures for CPMS”.
- Accuracy audit procedures including sampling and analysis methods
 - Accuracy audit procedures were addressed in the section, “Performance Evaluation Procedures (Calibrations).”
 - Sampling and analysis methods pertain only to CEMS, not to the CPMS system in use at Dearborn Works.
- Program of corrective action for a malfunctioning CPMS
 - Corrective action procedures are addressed in the “SEC Baghouse Startup, Shutdown, and Malfunction Plan” (separate document).

Recordkeeping and Reporting Procedures for CPMS

The requirements presented in this section of the Site-Specific Monitoring Plan apply to the CPMS for the fan speed and damper positions as previously described. Per 40 CFR 63.7831(b)(6), the Site-Specific Monitoring Plan must address the following:

(6) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §§63.10(c), (e)(1), and (e)(2)(i);

§§63.10(c) Additional recordkeeping requirements for sources with continuous monitoring systems. In addition to complying with the requirements specified in paragraphs (b)(1) and

(b)(2) of this section, the owner or operator of an affected source required to install a CMS by a relevant standard shall maintain records for such source of—

(1) All required CMS measurements (including monitoring data recorded during unavoidable CMS breakdowns and out-of-control periods);

(2)-(4) [Reserved]

(5) The date and time identifying each period during which the CMS was inoperative except for zero (low-level) and high-level checks;

(6) The date and time identifying each period during which the CMS was out of control, as defined in §63.8(c)(7);

(7) The specific identification (i.e., the date and time of commencement and completion) of each period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during startups, shutdowns, and malfunctions of the affected source;

(8) The specific identification (i.e., the date and time of commencement and completion) of each time period of excess emissions and parameter monitoring exceedances, as defined in the relevant standard(s), that occurs during periods other than startups, shutdowns, and malfunctions of the affected source;

(9) [Reserved]

(10) The nature and cause of any malfunction (if known);

(11) The corrective action taken or preventive measures adopted;

(12) The nature of the repairs or adjustments to the CMS that was inoperative or out of control;

(13) The total process operating time during the reporting period; and

(14) All procedures that are part of a quality control program developed and implemented for CMS under §63.8(d).

(15) In order to satisfy the requirements of paragraphs (c)(10) through (c)(12) of this section and to avoid duplicative recordkeeping efforts, the owner or operator may use the affected source's startup, shutdown, and malfunction plan or records kept to satisfy the recordkeeping requirements of the startup, shutdown, and malfunction plan specified in §63.6(e), provided that such plan and records adequately address the requirements of paragraphs (c)(10) through (c)(12).

§63.10 (e) Additional reporting requirements for sources with continuous monitoring systems—

(2) Reporting results of continuous monitoring system performance evaluations. (i) The owner or operator of an affected source required to install a CMS by a relevant standard shall furnish the Administrator a copy of a written report of the results of the CMS performance evaluation, as required under §63.8(e), simultaneously with the results of the performance test required under §63.7, unless otherwise specified in the relevant standard.

In order to comply with the above requirements, the facility maintains the following records for a minimum of 5 years:

- All required parametric monitoring data. This includes monitoring data from the beginning of startup until the end of shutdown, as defined in the “SEC Baghouse Startup, Shutdown and Malfunction (SSM) Plan” (separate document). This includes monitoring data recorded during unavoidable CPMS breakdowns and out-of-control periods.
 - Records are maintained electronically in malfunction logs stored on the AK Steel Environmental Server
- The date and time identifying each period during which the monitoring system was inoperative.

- Records are maintained in malfunction logs stored on the AK Steel Environmental Server
- The date and time identifying each period during which the CPMS was out of control, as previously defined above.
 - Records are maintained by the BOF CAMS Department.
- The specific identification (i.e., the date and time of commencement and duration) of each period of parametric monitoring exceedance, as defined in this site specific monitoring plan.
 - Records are maintained in malfunction logs stored on the AK Steel Environmental Server
- The nature and cause of each malfunction (if known).
 - Records are maintained in malfunction logs stored on the AK Steel Environmental Server
 - Records will include corrective action taken or preventive measures adopted.
- The nature of the repairs or adjustments to the CPMS that was inoperative or out of control.
 - Records are maintained electronically by the BOF CAMS Department.
- A record of the total process operating time during the reporting period is maintained as required.
- All procedures that are part of a quality control program developed and implemented for the monitoring equipment are recorded in this site specific monitoring plan.

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure / Form	Reference
1. Quarterly Preventative Maintenance Inspections for the Secondary Emissions Baghouse	QSMPE-B1-30-56
2. Quarterly Secondary Emissions Baghouse CPMS Damper Drive System – Damper Calibration Inspection	Form(E)-B1-30-56-2
3. Quarterly BOF Environmental Required Spare Parts Inventory	QSMPE-B1-81-20
4. SEC Baghouse Spare Parts Inventory	Form(E)-B1-81-20-01

REVISION TABLE

Date	Revision	Revision Comments
October 11, 2007	1	Original Issue
April 15, 2011	2	Revised plan with new facility name
September 12, 2013	3	O & M Plan revised by SNC Lavalin
July 3, 2014	4	O & M Plan updated by SNC Lavalin
November 17, 2014	5	O & M Plan revised by AK Steel
December 30, 2014	6	O & M Plan revised with updated procedure numbers and updated CPMS table from December 2014 performance testing
March 4, 2015	7	Pulled CPMS portion from previous MACT plan and updated plan per AK standards, and Added Table 1 to plan.
November 4, 2015	8	Updated plan and procedure numbers listed in plan; clarified out of control periods
August 15, 2017	9	Removed references to PTI 182-05C, added reference to new ROP, added forms PM-FM-B2-30-56E-02 and PM-FM-B2-30-56E-03 to tables 3 and 4
September 6, 2018	10	Adjusted procedure and form numbers to new numbering format (no procedures deleted), added reference to SEC Baghouse Spare Parts Form, removed references to record retention and data collection that discussed maintaining electronically on a historian server and replaced with current practices of completing malfunction logs and extracting data frequently and saving the data on the AK Steel Environmental Server
May 31, 2019	11	Changed CPMS parameter from fan speed to baghouse outlet plenum pressure, made changes to instrumentation used, renumbered several procedures from B2 to B1 bucket
May 29, 2020	12	Corrected procedure numbers in Table 3, corrected “Out of Control” condition description in Table 7 for Baghouse outlet plenum pressure

Scenario	Hot Metal Transfer	Furnace A Status	Furnace B Status	Hot Metal Transfer Damper (%)	Furnace A Charge Damper S (%)	Furnace A Charge Damper N (%)	Furnace B Charge Damper S (%)	Furnace B Charge Damper N (%)	Furnace A Tap Damper (%)	Furnace B Tap Damper (%)	Baghouse Outlet Plenum Pressure (in. W.C.)
100	No	Offline	Offline	0	0	0	0	0	20	20	N/A
101	No	Offline	Charging	0	0	0	100	100	0	0	13.6
102	No	Offline	Tap	0	0	0	75	0	0	100	9.8
103	No	Offline	Online	0	0	0	40	40	0	0	3.1
110	No	Charging	Offline	0	100	100	0	0	0	0	13.7
112	No	Charging	Tap	0	100	100	0	0	0	75	16.8
113	No	Charging	Online	0	100	100	20	20	0	0	15.2
120	No	Tap	Offline	0	0	75	0	0	100	0	11.6
121	No	Tap	Charging	0	0	0	100	100	75	0	16.6
122	No	Tap	Tap	0	0	0	0	0	100	100	12.3
123	No	Tap	Online	0	0	75	20	20	100	0	13.0
130	No	Online	Offline	0	40	40	0	0	0	0	3.1
131	No	Online	Charging	0	20	20	100	100	0	0	16.3
132	No	Online	Tap	0	20	20	75	0	0	100	12.1
133	No	Online	Online	0	40	40	40	40	0	0	6.7
200	Yes	Offline	Offline	100	0	0	0	0	30	30	7.3
201	Yes	Offline	Charging	100	0	0	100	100	0	0	15.0
202	Yes	Offline	Tap	100	0	0	75	0	0	100	11.2
203	Yes	Offline	Online	100	0	0	40	40	0	0	6.7
210	Yes	Charging	Offline	100	100	100	0	0	0	0	15.2
212	Yes	Charging	Tap	100	100	100	0	0	0	75	15.0
213	Yes	Charging	Online	100	100	100	20	20	0	0	15.0
220	Yes	Tap	Offline	100	0	75	0	0	100	0	12.9
221	Yes	Tap	Charging	100	0	0	100	100	75	0	15.2
222	Yes	Tap	Tap	100	0	0	0	0	100	100	13.8
223	Yes	Tap	Online	100	0	75	20	20	100	0	14.9
230	Yes	Online	Offline	100	40	40	0	0	0	0	7.2
231	Yes	Online	Charging	100	20	20	100	100	0	0	14.7
232	Yes	Online	Tap	100	20	20	75	0	0	100	13.7
233	Yes	Online	Online	100	40	40	40	40	0	0	8.0

Note: Minimum baghouse outlet plenum pressure readings that are less than the values specified in Table 1 and damper position readings that deviate from the values specified in Table 1 by over 10% will not be considered deviations if the readings occurred within two minutes of a scenario transition.

AK STEEL DEARBORN WORKS

Secondary Emissions Control (SEC) Baghouse

Startup, Shutdown & Malfunction (SSM) Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

October 11, 2007

Revised August 05, 2020

PLAN(E)-W-20-08

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AK Steel Dearborn Works BOF Secondary Emissions Control (SEC) Baghouse Start-up, Shutdown, and Malfunction (SSM) Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the BOF Secondary Emissions Control (SEC) Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: References to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. SEC Baghouse ID Fan Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-01</i>
2. SEC Baghouse Reverse Air Fan Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-02</i>
3. SEC Baghouse System Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-03</i>

Procedure	Reference
4. SEC Baghouse Malfunction Procedure	Procedure # <i>QSMPE-B1-20-04</i>
5. SEC Baghouse Malfunction Form	Form # <i>Form(E)-B1-20-04-01</i>
6. Critical Equipment Alarm Response Procedure	Procedure # QSOPE-B2-00-13
7. Bag Leak Detection System Corrective Action Form	Form # Form(E)-B2-00-13-1

1. Proposed definitions are outlined below:

Source Startup: Source startup is defined as the period of time when the BOF resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. For this source, the startup period begins when molten iron is poured into the ladle at the reladling station. The SEC baghouse system must be in operation just prior to this activity. Source start-up is not considered to be the normal operating protocol associated with every BOF heat cycle.

Monitoring Equipment Startup: The startup of the SEC Baghouse monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Source Shutdown: Source shutdown is defined as the period of time when the BOF goes down for either a scheduled reason (planned outage, etc.) or an unplanned event (e.g., power outage, baghouse malfunction, etc.). Source shutdown is not considered to be the normal operating protocol associated with every BOF heat cycle.

Monitoring Equipment Shutdown: The shutdown of the SEC Baghouse monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Control Device Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test. Examples of events that are considered malfunctions are provided below:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal component malfunction or failure
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden increase in opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)
- Loss of structural integrity (e.g., ductwork, hoods, stack)
- Beck drive actuator broken linkage

- Loss of baghouse outlet plenum pressure transmitter signal
2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.
 3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO for the BOF to the following position: Department Manager – *Steelmaking*.
 4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform. A record of the training must be maintained in accordance with departmental procedures.
 5. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
 6. **Reporting:** The Integrated Iron and Steel MACT rules also include "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSM plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the SSM Plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i).

Reports to be submitted to the *EGLE* are outlined below.

Agency Reporting Requirements	Responsibility	Overview of content
1. Iron and Steel MACT Semi-Annual Report	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to the EGLE by the semi-annual reporting date specified in the Title V Permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and

Agency Reporting Requirements	Responsibility	Overview of content
		September 15 for the time period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.
<p>2. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be <u>reported within 2 working days</u>, after commencing action inconsistent with the plan, by fax or telephone.</p>	Environmental Affairs	Describe whenever startup, shutdown or malfunction <u>event deviates from the plan</u> in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.
<p>3. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, <u>followed by a letter within 7 working days after the end of the event</u>. A “Responsible company official” signs report.</p>	Environmental Affairs	This is a follow-up letter to the 2-day report. A letter shall be submitted to the EGLE within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.

7. Corrective Action: Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to Sections 5 and 6 above.

A. REFERENCES:
40 CFR Subpart FFFFF

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
1. SEC Baghouse ID Fan Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-01</i>
2. SEC Baghouse Reverse Air Fan Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-02</i>
3. SEC Baghouse System Startup and Shutdown Procedure	Procedure # <i>QSMPE-B1-20-03</i>
4. SEC Baghouse Malfunction Procedure	Procedure # <i>QSMPE-B1-20-04</i>
5. SEC Baghouse System Malfunction Form	Form # <i>Form(E)-B1-20-04-01</i>
6. Critical Equipment Alarm Response Procedure	Procedure # <i>QSOPE-B1-00-13</i>
7. Bag Leak Detection System Corrective Action Form	Form # <i>Form(E)-B1-00-13-1</i>

Change Log

Revision Date	Version	Changes
10/11/2007	0	Original Issue
04/15/2011	1	Revised plan with new facility name
09/12/2013	2	O&M Plan revised by SNC Lavelin
07/03/2014	3	O&M Plan updated by SNC Lavelin
11/04/2015	4	Pulled SSM portion from previous MACT plan, updated plan per AK Standards
08/11/2016	5	Renumbered procedures where appropriate, eliminated procedure PO-PR-B2-00-19E; procedure was redundant.
08/16/2017	6	Updated document with new document numbering requirements, no content change.
09/06/2018	7	Updated document with new document numbering requirements (no procedures added or removed), replaced example malfunction pertaining to loss of inlet pressure transmitter with loss of fan speed transmitter, revised reporting dates for semi-annual report
07/25/2019	8	Revised control device malfunction to include baghouse outlet plenum pressure transmitter instead of fan speed transmitter. Changed department manager, steelmaking to department manager BOF, Change references to MDEQ to EGLE.
08/05/2020	9	Changed B2 to B1 for marked procedure references, changed person referred in step 3 from “BOF” to “Steelmaking”, changed MDEQ to EGLE.

EULADLEREFINE1 AND EULADLEREFINE2 PLANS

LADLE REFINING FURNACE #1 (LRF#1) SSM PLAN

LADLE REFINING FURNACE #2 (LRF#2) SSM PLAN

AK STEEL DEARBORN WORKS

Ladle Refining Furnace #1 (LRF #1) Baghouse

Startup, Shutdown & Malfunction (SSM) Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

May 22, 2006

Revised July 24, 2020

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AK Steel Dearborn Works Ladle Refining Furnace #1 Baghouse Start-up, Shutdown, and Malfunction (SSM) Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the LRF #1 Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: References to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. LRF #1 Baghouse and Baghouse Fan Startup and Shutdown Procedure	Procedure # QSMPE-B4-90-08
2. Operators Response to Bag Leak Detection Alarm LRF #1	Procedure # QSOPE-B3-10-51
3. Environmental Incident Investigation Form	Form # FORM(E)-B3-10-51-1
4. LRF Baghouse Malfunction Troubleshooting Procedure	Procedure # QSMPE-B4-90-04
5. LRF Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	Procedure #QSOPE-B3-10-58

Procedure	Reference
6. Maintenance Bag Leak Alarm Troubleshooting	Procedure #QSMPE-B4-90-03

1. Proposed definitions are outlined below:

Source Startup: Source startup is defined as the period of time when the LRF resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. For this source, the startup period begins when a steel ladle is placed under the LRF roof. The LRF #1 baghouse must be in operation just prior to this activity. Source start-up is not considered to be the normal operating protocol associated with every LRF heat cycle.

Monitoring Equipment Startup: The startup of the LRF #1 monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Source Shutdown: Source shutdown is defined as the period of time when the LRF goes down for either a scheduled reason (planned outage, etc.) or an unplanned event (e.g., power outage, baghouse malfunction, etc.). Source shutdown is not considered to be the normal operating protocol associated with every LRF heat cycle.

Monitoring Equipment Shutdown: The shutdown of the LRF #1 monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Control Device or Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test. Examples of events that are considered malfunctions are provided below:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal component malfunction or failure (e.g., inlet/outlet damper actuators failure)
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden increase in opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)
- Loss of structural integrity (e.g., ductwork, hoods, stack)
- Drive actuator broken linkage

2. Responsible Official (RO): The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM

procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.

3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO for the LRF to the following position: Department Manager – *Steelmaking*.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform. A record of the training must be maintained in accordance with departmental procedures.
5. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
6. **Reporting:** The Integrated Iron and Steel MACT rules also include "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSM plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the SSM Plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i).

Reports to be submitted to EGLE are outlined below.

Agency Reporting Requirements	Responsibility	Overview of content
1. Iron and Steel MACT Semi-Annual Report	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to EGLE by the semi-annual reporting date specified in the Title V Permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and September 15 for the time period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction

Agency Reporting Requirements	Responsibility	Overview of content
		event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.
<p>2. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be <u>reported within 2 working days</u>, after commencing action inconsistent with the plan, by fax or telephone.</p>	Environmental Affairs	Describe whenever startup, shutdown or malfunction <u>event deviates from the plan</u> in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.
<p>3. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, <u>followed by a letter within 7 working days after the end of the event</u>. A “Responsible company official” signs report.</p>	Environmental Affairs	This is a follow-up letter to the 2-day report. A letter shall be submitted to EGLE within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.

7. Corrective Action: Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to Sections 5 and 6 above.

A. REFERENCES:

40 CFR Subpart FFFFF

AK STEEL DEARBORN WORKS

Ladle Refining Furnace #2 (LRF #2) Baghouse

Startup, Shutdown & Malfunction (SSM) Plan

Iron & Steel MACT Rule

40 CFR 63 Part FFFFF

May 22, 2006

Revised July 24, 2020

PLAN(E)-W-20-04

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LIST OF CONTROLLED PROCEDURES	7

AK Steel Dearborn Works Ladle Refining Furnace #2 Baghouse Start-up, Shutdown, and Malfunction (SSM) Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the LRF #2 Baghouse. This roadmap is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.7810(c), 40 CFR 63.7835(b), and 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the facility operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown and malfunction and a program of corrective action for malfunctioning process and air pollution control equipment. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator shall report the actions taken for that event within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event.

C. REFERENCES: References to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. LRF #2 Baghouse and Baghouse Fan Startup and Shutdown Procedure	Procedure # QSMPE-B4-90-12
2. Operators Response to Bag Leak Detection Alarm LRF #2	Procedure # QSOPE-B3-10-52
3. Environmental Incident Investigation Form	Form # FORM(E)-B3-10-51-1
4. LRF Baghouse Malfunction Troubleshooting Procedure	Procedure # QSMPE-B4-90-04
5. LRF Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	Procedure #QSOPE-B3-10-58

Procedure	Reference
6. Maintenance Bag Leak Alarm Troubleshooting	Procedure #QSMPE-B4-90-03

1. Proposed definitions are outlined below:

Source Startup: Source startup is defined as the period of time when the LRF resumes operation after an extended downtime or outage for maintenance and other events, whether planned or unplanned. For this source, the startup period begins when a steel ladle is placed under the LRF roof. The LRF #2 baghouse must be in operation just prior to this activity. Source start-up is not considered to be the normal operating protocol associated with every LRF heat cycle.

Monitoring Equipment Startup: The startup of the LRF #2 monitoring equipment is defined as when the monitoring equipment is turned on from a power off condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Source Shutdown: Source shutdown is defined as the period of time when the LRF goes down for either a scheduled reason (planned outage, etc.) or an unplanned event (e.g., power outage, baghouse malfunction, etc.). Source shutdown is not considered to be the normal operating protocol associated with every LRF heat cycle.

Monitoring Equipment Shutdown: The shutdown of the LRF #2 monitoring equipment is defined as when the monitoring equipment is turned off from a power on condition. The monitoring equipment consists of a particulate monitor for detection of broken bags and differential pressure transmitters for baghouse compartments and the overall baghouse.

Control Device or Malfunction: Malfunction of the baghouse occurs when the equipment is not operating as designed or as established during the performance test. Examples of events that are considered malfunctions are provided below:

- Loss of electrical power
- Baghouse fan breakdown (bearing, shaft, motor, belt, sheave, rotating element, dampers, vibration, current, winding temperature, etc.)
- Baghouse internal component malfunction or failure (e.g., inlet/outlet damper actuators failure)
- High differential baghouse pressure
- High baghouse temperature
- Bag leak detection system failure
- Sudden increase in opacity (broken bags)
- Loss or malfunction of recording display devices (pressure gauges)
- Loss of structural integrity (e.g., ductwork, hoods, stack)
- Drive actuator broken linkage

2. Responsible Official (RO): The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the SSM

procedures. This person is the signature authority for the records and reports as required in these plans. The RO is the General Manager – Dearborn Works.

3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO for the LRF to the following position: Department Manager – *Steelmaking*.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform. A record of the training must be maintained in accordance with departmental procedures.
5. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
6. **Reporting:** The Integrated Iron and Steel MACT rules also include "immediate reporting" if the actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) are not consistent with the procedures specified in the affected source's SSM plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). The report must be submitted within 2 working days after commencing actions inconsistent with the plan followed by a letter within 7 working days after the end of the event. If actions taken to during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the SSM Plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i).

Reports to be submitted to EGLE are outlined below.

Agency Reporting Requirements	Responsibility	Overview of content
1. Iron and Steel MACT Semi-Annual Report	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report will be submitted to EGLE by the semi-annual reporting date specified in the Title V Permit for Title V reporting (defined as March 15 for the period July 1 – December 31 and September 15 for the time period January 1 – June 30) with the name of owner; title of owner; signature of responsible official; identification of the startup, shutdown or malfunction

Agency Reporting Requirements	Responsibility	Overview of content
		event(s); and a statement that the provisions of the plan were implemented during the startup, shutdown or malfunction.
<p>2. 2-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be <u>reported within 2 working days</u>, after commencing action inconsistent with the plan, by fax or telephone.</p>	Environmental Affairs	Describe whenever startup, shutdown or malfunction <u>event deviates from the plan</u> in accordance with 40 CFR 63.10(d)(5)(ii). Report to Agency circumstances about the actions and when normal operation will resume.
<p>3. 7-day report: If actions taken during a startup or shutdown that caused the source to exceed any applicable emission limitation in the relevant emission standards, or malfunction (including actions taken to correct a malfunction) is not consistent with the procedures specified in the affected source's SSM Plan, the owner or operator shall report in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, <u>followed by a letter within 7 working days after the end of the event</u>. A “Responsible company official” signs report.</p>	Environmental Affairs	This is a follow-up letter to the 2-day report. A letter shall be submitted to EGLE within 7 working days after the end of the event with the name of owner; title of owner; signature of responsible official; an explanation of the startup, shutdown or malfunction; an explanation of the reasons for not following the applicable provisions of the plan; an explanation of whether excess emissions may have occurred; and an explanation of whether parameter monitoring exceedances may have occurred.

7. **Corrective Action:** Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to Sections 5 and 6 above.

A. REFERENCES:

40 CFR Subpart FFFFF

LIST OF CONTROLLED PROCEDURES

The facility will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
2. LRF #1 Baghouse and Baghouse Fan Startup and Shutdown Procedure	Procedure # QSMPE-B4-90-12
2. Operators Response to Bag Leak Detection Alarm LRF #1	Procedure # QSOPE-B3-10-52
3. Environmental Incident Investigation Form	Form # FORM(E)-B3-10-51-1
4. LRF Baghouse Malfunction Troubleshooting Procedure	Procedure # QSMPE-B4-90-04
5. LRF Baghouse Environmental Monitoring Equipment Startup and Shutdown Procedure	Procedure #QSOPE-B3-10-58
6. Maintenance Bag Leak Alarm Troubleshooting	Procedure #QSMPE-B4-90-03

Change Log

Revision Date	Version	Changes
5/22/2006	0	Original Issue
4/21/2011	1	Changed company name and logo
11/4/2015	2	Changed to AK Steel Format
8/11/2016	3	Changed Procedure Numbers
9/06/2018	4	Modified procedure numbers to new numbering format, added semi-annual reporting instructions
07/26/2019	5	Modified person in section 3 to “Department Manager-Caster”, changed all MDEQ references to EGLE
07/24/2020	6	Clarified step 3, Roles and Responsibilities with proper title, minor grammar corrections.

MACHINE SCARFING BAGHOUSE PLANS

MACHINE SCARFING BAGHOUSE MAP

MALFUNCTION ABATEMENT PLAN

MACHINE SCARFER BAGHOUSE

AK STEEL DEARBORN WORKS

Updated September 16, 2019

Plan(E)-W-40-01

AK Steel – Dearborn Works Machine Scarfer Baghouse
Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the Machine Scarfing Operation. This plan is intended to satisfy the requirements of Michigan Rule 911 and Title V Permit MI-ROP-A8640-2016a, section EUMACHSCARF III.1. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative maintenance (PM) for the Machine Scarfer and Baghouse. The procedure provides a description of the items or conditions that shall be inspected and the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	Machine Scarfing Preventative Maintenance Schedule
2. Identification of the major replacement parts. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	Machine Scarfing Baghouse Spare Parts
3. Machine Scarfing Baghouse system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	Machine Scarfing Baghouse Operational Variables to Monitor
4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	Machine Scarfing Baghouse Malfunction Procedure

2. **Supervisory Personnel:** AK Steel Dearborn Works has contracted out the operation and maintenance of the Scarfing Operation to SMS Mill Services (SMS). SMS will be responsible for operating the machine scarfing operation as well as the inspection, maintenance, and repair of the Machine Scarfer Baghouse. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions or failures of the baghouse.

Parameter	Monitoring Method
Stack Opacity	Method 9 certified visible emission observation
Differential Pressure	Magnehelic Gauge

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs. It is AK Steel Dearborn Works’ interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

Pursuant to Title V Permit MI-ROP-A8640-2016a, Section EUMACHSCARF III.1, the permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the *permittee* shall implement corrective procedures, or operational changes to achieve compliance with applicable emission limits. It is AK Steel Dearborn Works’ interpretation that in the event that new equipment is installed the MAP and associated procedures will be reviewed and updated accordingly. AK Steel Dearborn Works will also implement corrective procedures and/or operational changes to achieve compliance with applicable emission limits during the time that an amended plan is awaiting approval from the *EGLE*.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the Machine Scarfing Baghouse.

Procedure	Reference
Preventative maintenance	Machine Scarfing Preventative Maintenance Schedule
Replacement parts for the machine scarfing baghouse	Machine Scarfing Baghouse Spare Parts
Operational variables to monitor	Machine Scarfing Baghouse Operational Variables to Monitor
Equipment malfunctions	Machine Scarfing Baghouse Malfunction Procedure

REVISION TABLE

Date	Revision Number	Revision Comments
02/23/ 2015	0	Original Issue
08/14/2018	1	Updated to reflect incorporation of PTI into Title V Permit, updated plan number to reflect new numbering format
9/16/2019	2	Corrected spelling error, changed MDEQ to EGLE

PLTCM PLANS

PLTCM ACID FUME SCRUBBER O&M PLAN

PLTCM ACID FUME SCRUBBER SSM PLAN

PLTCM ACID TANK FARM SCRUBBER O&M PLAN

PLTCM ACID TANK FARM SCRUBBER SSM PLAN

PLTCM SCALE BREAKER BAGHOUSE/DUST COLLECTOR MAP

PICKLE LINE TANDEM MILL FUME EXHAUST MAP

**OPERATION & MAINTENANCE
PLAN**

PLTCM ACID FUME SCRUBBER

AK STEEL - DEARBORN WORKS

Steel Pickling MACT Rule

40 CFR 63 Part CCC

August 17, 2011

Revised September 30, 2019

PLAN(E)-W-30-01

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AK Steel - Dearborn Works PLTCM Fume Scrubber Operation and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the operation and maintenance (O & M) procedures for the Dearborn Works Pickle Line Tandem Cold Mill (PLTCM) acid fume scrubber. This plan is intended to satisfy the requirement to have a written plan per 40 CFR 63.1160(b)(1). The roadmap directs interested parties to the appropriate written operational control document contained in the Dearborn Works document management system. Revisions to the operational control documents are not considered revisions to this O&M plan. These procedures describe operation and maintenance of the source and pollution control equipment to comply with the relevant NESHAP standard. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

1. Detailed Procedures: Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
<p>1. Pickle Line Scrubber Operational Variables to Monitor. Monitor and record the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance pursuant to 40 CFR 63.1160(b)(i).</p> <p>Install, operate, and maintain systems for the measurement and recording of the scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates must be monitored continuously and recorded at least once per shift while the scrubber is operating pursuant to 40 CFR 63.1162(a)(2).</p>	<p>QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits</p>
<p>2. Pickle Line Scrubber Preventative Maintenance. Follow manufacturer’s recommended maintenance at recommended intervals on fresh solvent pumps, recirculating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans pursuant to 40 CFR 63.1160(b)(ii).</p> <p>Clean the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling pursuant to 40 CFR 63.1160(b)(iii).</p> <p>Perform an inspection of each scrubber at intervals of no less than 3 months pursuant to 40 CFR 63.1160 (b)(iv)(A-E): (A) Clean or replace any plugged spray nozzles or other</p>	<p>QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements</p> <p>QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements</p>

<p>liquid delivery device;</p> <p>(B) Repair or replace missing, misaligned, or damaged baffles, trays, or other internal components;</p> <p>(C) Repair or replace droplet eliminator elements as needed;</p> <p>(D) Repair or replace heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber (<i>N/A, no heat exchange equipment on the scrubber</i>); and</p> <p>(E) Adjust damper settings for consistency with the required air flow.</p>	
<p>3. Pickle Line Scrubber Calibrations (Make-up flow meter, Recirculating flow meter, Packed Tower pressure monitor, and Mist Eliminator pressure monitor).</p> <p>Each monitoring device shall be certified by the manufacturer to be accurate to within 5 percent and shall be calibrated in accordance with the manufacturer’s instructions but not less frequently than once per year 40 CFR 63.1162 (a)(5).</p>	<p>QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements</p>
<p>4. Pickle Line Scrubber Malfunction Troubleshooting</p>	<p>QSMPE-P3-50-06 Pickle Line Fume Scrubber Malfunction Procedure</p>

Source Operation: The PLTCM acid fume scrubber must be in operation prior to the start-up of the pickle line.

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance with the Steel Pickling MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the PLTCM is the General Manager – Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works PLTCM:
Department Manager – PLTCM
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, and maintain the air pollution control equipment as established in these O & M Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
5. **Monitoring:** Make-up and recirculating water flow and pressure drop are the designated operational monitoring components. The water flow meters and pressure transmitters are calibrated at least annually during their operational use.
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Steel

Pickling MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least five (5) years following the date of each O & M occurrence, measurement, maintenance, corrective action, report, or record.

- 7. Reporting:** The Environmental Affairs Departments will submit a Semi-Annual HCl MACT Report to the *EGLE* twice a year. The report will contain the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded in accordance with 40 CFR 63.1164(c).
- 8. Corrective Action:** In the event of a malfunction of the Pickle Line operation or the Pickle Line Scrubber, corrective actions shall be initiated within one (1) working day and repairs shall be completed as soon as practical. Procedures to be initiated are the applicable actions that are specified in the O & M Plan. Records and reporting of corrective action must be performed according to section 6 and 7 above.

A. REFERENCES:

40 CFR Subpart CCC

LIST OF CONTROLLED OPERATING AND MAINTENANCE PROCEDURES

The following procedures listed in this plan serve as the required inspections to comply with the Steel Pickling MACT rules for the PLTCM fume scrubber.

Procedure	Reference
Pickle Line Scrubber Operational Variables to Monitor	<i>QSOPE-P3-00-29</i> PLTCM Equipment Environmental Operating Limits
Pickle Line Scrubber Preventative Maintenance	<p><i>QSPME-P3-00-02</i> Quarterly PLTCM Maintenance Requirements</p> <p>Form(E)-P3-00-02-01 Mechanical Quarterly Downtime Pickle Line Scrubber Checklist</p> <p>Form(E)-P3-00-02-02 Electrical Quarterly Downtime Pickle Line Scrubber Checklist</p> <p>Form(E)-P3-00-09-01 Mechanical Bi-Annual Downtime Pickle Line Scrubber Checklist</p>
Pickle Line Scrubber Calibrations	<p><i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements</p> <p>Pickle Line Scrubber Demister Differential Pressure Transmitter – MQ1 Gauge ID 1492, PLTCM 501097 PDT-0051</p> <p>Pickle Line Scrubber Tower Differential Pressure Transmitter – MQ1 Gauge ID 1493, PLTCM 501096 PDT-0052</p> <p>Pickle Line Scrubber Recirculation Water Flow Meter - MQ1 Gauge ID 1494, PLTCM 501098</p> <p>Pickle Line Scrubber Make-Up Water Flow Meter - MQ1 Gauge ID 1495, PLTCM 501099 FE/FT-0050</p>

**LIST OF CONTROLLED OPERATING AND MAINTENANCE
PROCEDURES (Continued)**

Procedure	Reference
Pickle Line Scrubber Environmental Operating Limits	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits

REVISION TABLE

Date	Revision Number	Revision Comments
08/17/2011	0	Original Issue
02/08/2013	1	Plan revised for site specific operating parameters and other miscellaneous updates.
07/22/2013	2	Improve identification of catastrophic fan failure and identify it as a malfunction as well as minor edits/ additions to the malfunction table.
08/31/2015	3	Operation & Maintenance portion and Startup, Shutdown, Malfunction portion of previous plan were made into separate AK Steel plans. Updated procedure numbers, added new procedure to clarify environmental operating limits
10/20/2016	4	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variable are recorded online.
09/19/2017	5	Added malfunction troubleshooting procedure, specified forms for quarterly, annual, and bi-annual maintenance, specified ID numbers for gauges that require annual calibration
09/17/2018	6	Added Annual PLTCM Maintenance Requirement Procedure to Preventative Maintenance Section, changed Title of Manager in section 3 from Department Manager – Processing to Department Manager – PLTCM, renumbered all procedures and forms to current numbering format
09/30/2019	7	Changed MDEQ reference to EGLE, corrected reference for Pickle Line Scrubber Operational Variables to Monitor Procedure, Renumbered PLTCM Maintenance Requirement Procedure to new format.

**STARTUP, SHUTDOWN &
MALFUNCTION PLAN**

PLTCM ACID FUME SCRUBBER

AK STEEL – DEARBORN WORKS

August 17, 2011

Revised September 02, 2020

PLAN(E)-W-30-02

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AK Steel - Dearborn Works PLTCM Fume Scrubber Start-up, Shutdown, and Malfunction Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the PLTCM acid fume scrubber. This roadmap is intended to satisfy the requirements of the Steel Pickling Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the Dearborn Works operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown, and malfunction and a program of corrective action for malfunctioning air pollution control equipment. Revisions to the operational control documents are not considered revisions to this plan. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by the Dearborn Works are consistent with the procedures specified in each procedure, the Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan. If the actions taken during periods of startup, shutdown, and malfunction result in emissions in excess of the applicable standard and are not consistent with the procedures contained in this plan, the Dearborn Works shall record the actions taken for that event and shall report such actions to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) within two working days after commencing actions inconsistent with the plan, followed by a letter to the EGLE within seven working days after the end of the event.

C. REFERENCES: A reference to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. Fume scrubber startup procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
2. Fume scrubber shutdown procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
3. Fume scrubber malfunction procedure	QSMPE-P3-50-06 Pickle Line Fume Scrubber Malfunction Procedure
4. Fume scrubber malfunction reporting procedure	QSMPE-P3-50-06 Pickle Line Fume Scrubber Malfunction Procedure

1. Proposed definitions are outlined below:

Pickle Line Operation Startup: Pickle line operation startup occurs when acid has been pumped into the upper tanks, the line is moving again, and the Pickle Line Scrubber is operating.

Pickle Line Scrubber Startup: The startup of the Pickle Line Scrubber is defined as when one of the circulation and one of the makeup water pumps are operating and the fan is on.

Pickle Line Scrubber Monitoring Equipment Startup: The startup of the Pickle Line Scrubber monitoring equipment is defined as when the monitoring equipment for the scrubber water flow rate meters and differential pressure transmitters is powered on from a power-off condition. No recalibration of the monitoring equipment is required upon startup.

Pickle Line Operations Shutdown: Pickle line operation shutdown occurs when the pickling operations have stopped (line speed is zero) and the acid has drained from the upper tanks. The Pickle Line Scrubber may or may not be powered off.

Pickle Line Scrubber Shutdown: The shutdown of the Pickle Line Scrubber is defined as any component of the scrubber is deactivated (i.e. fan, either circulation or makeup water pump).

Pickle Line Scrubber Monitoring Equipment Shutdown: The shutdown of the Pickle Line Scrubber Monitoring Equipment is defined as when the monitoring equipment for the scrubber water flow rate meters and differential pressure transmitters is turned off. Planned Shutdowns of the monitoring equipment will only occur during power outages or calibration checks. The line operations are shut down during both conditions.

Control Device Malfunction: Malfunction of the control device (fume scrubber) associated with the PLTCM process occurs when the equipment is not operating as designed or as established during the most recent performance test. For example, the air pollution control equipment is malfunctioning when:

- Scrubber water flow rate monitor becomes inoperable (and no technically valid backup monitoring system)
- Differential pressure monitor becomes inoperable (and no technically valid backup monitoring system)
- Scrubber fan breakdown
- Scrubber internal components malfunction or failure (e.g., spray nozzles failure, mist eliminator failure)
- Recirculation pump malfunction or failure
- Electrical power outage
- Loss of water supply or pressure
- Scrubber vessel rupture or failure
- Block hourly average of the total scrubber differential pressure is outside of the ranges specified in the PLTCM Acid Fume Scrubber Operation and Maintenance plan.

- Block hourly average of the recirculation and/or make-up water flow rate is outside of the ranges specified in the PLTCM Acid Fume Scrubber Operation and Maintenance plan.

- 2. Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Steel Pickling MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the Dearborn Works is the General Manager – Dearborn Works.
- 3. Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following positions within the PLTCM: Department Manager – PLTCM.
- 4. Conformance Monitoring (conformance to standards):** Operating managers routinely monitor conformance to operational controls and key environmental control maintenance standards. For this operation, the following variables are routinely monitored for conformance to the standards.

Operational monitoring variables:	Procedure
1. PLTCM Fume Scrubber recirculating water flow rate 2. PLTCM Fume Scrubber makeup water flow rate 3. PLTCM Fume Scrubber differential pressure	1-3. QSOPE-P3-00-29 PLTCM Environmental Operating Limits

Environmental maintenance monitoring variables:	Procedure
1. PLTCM Fume Scrubber recirculating water flow meter calibrations 2. PLTCM Fume Scrubber makeup water flow meter calibrations 3. PLTCM Fume Scrubber differential pressure transmitter calibrations (tower and demister) 4. PLTCM Fume Scrubber system operating/maintenance inspections	1-3. QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements 4. QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements

Specific information regarding the above parameters is included in the required Operation and Maintenance (O & M) Plan for this source.

- 5. Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
- 6. Monitoring:** The scrubber water flow rate meters and differential pressure transmitters are the designated operational monitoring components of the continuous monitoring system (CMS). Accordingly, these devices are calibrated annually during their operational use. Specific information regarding the scrubber water flow rate meters and differential pressure transmitters is included in the required Operation and Maintenance (O & M) Plan for this source.

- 7. Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Steel Pickling MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.
- 8. Reporting:** The Steel Pickling MACT rules also includes "immediate reporting" disincentives, whenever a startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). PLTCM Operations is responsible for reporting startup, shutdown, or malfunction events which deviate from this plan and exceed emission limits. Environmental Affairs is responsible for reporting those events to the EGLE within 2 working days, after commencing action inconsistent with the plan, by fax or telephone and followed by a letter postmarked within 7 working days after the end of the event.

If actions taken during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the startup, shutdown or malfunction plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i). Amendments were promulgated on April 20, 2006 for certain aspects of SSM requirements affecting relevant MACT sources. According to the amended 40 CFR 63.10(d)(5)(i): "Reports shall only be required if a startup, shutdown, or malfunction caused the source to exceed any applicable emission limitation in the relevant emission standards, or if a malfunction occurred during the reporting period." The second phrase in the previous sentence is interpreted to require additional 40 CFR 63.10(d)(5)(i) reports for malfunctions that also had the potential to exceed any applicable emission limitation in the relevant emission standards. Based on the amended rule, Dearborn Works will only report those startup and shutdown events in which an emission limitation was exceeded in the semiannual report.

Reports to be submitted to the EGLE are outlined below.

Agency Reporting Requirements	Responsible Department	Overview of content
1. Source Operation Semi-Annual Report: Submit a report to the EGLE when an emission limit was exceeded during a start-up or shutdown or actions taken during a malfunction which were consistent with the procedures specified in the SSM Plan for that event.	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report is to be certified by a Responsible Official and postmarked by the 30 th day following the end of each calendar year half.
2a. 2-day report: Whenever actions taken during startup, shutdown or malfunction cause an exceedance of	Environmental Affairs	Describe whenever startup, shutdown or malfunction event deviates from the plan in

Agency Reporting Requirements	Responsible Department	Overview of content
<p>an emission limit and actions deviate from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, after commencing action inconsistent with the plan, by fax or telephone.</p>		<p>accordance with 40 CFR 63.10(d)(5)(ii). Report to the EGLE circumstances about the actions and when normal operation will resume.</p>
<p>2b. 7-day report: Whenever actions taken during startup, shutdown or malfunction cause an exceedance of an emission limit and actions deviate from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, followed by a letter within 7 working days after the end of the event. The Responsible Official signs the report.</p>	<p>Environmental Affairs</p>	<p>This is a follow-up letter to the 2-day report. A letter shall be submitted within 7 working days after the end of the event which contains the name, title, and signature of the Responsible Official certifying the accuracy of the document. The letter shall explain the circumstances of the event, the reasons for not following the SSM Plan, and whether any excess emissions and/or parametric monitoring exceedances are believed to have occurred.</p>

9. **Corrective Action:** Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to section 7 and 8 above.

A. REFERENCES:
40 CFR Subpart CCC

LIST OF CONTROLLED PROCEDURES

Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
1. Fume scrubber startup procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
2. Fume scrubber shutdown procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
3. Fume scrubber malfunction procedure	QSMPE-P3-50-06 Pickle Line Fume Scrubber Malfunction Procedure
4. Fume scrubber malfunction reporting procedure	QSMPE-P3-50-06 Pickle Line Fume Scrubber Malfunction Procedure
5. Recording PLTCM Fume Scrubber recirculating water flow rate, makeup water flow rate, and differential pressure	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits
6. Fume scrubber environmental operating limits	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits
7. Calibrations of the PLTCM Fume Scrubber recirculating water flow meter, makeup water flow meter, and differential pressure transmitter	QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements
8. PLTCM Fume Scrubber system operating/maintenance inspections	QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements

REVISION TABLE

Date	Revision Number	Revision Comments
08/17/2011	0	Original Issue
02/08/2013	1	Plan revised for site specific operating parameters and other miscellaneous updates.
07/22/2013	2	Improve identification of catastrophic fan failure and identify it as a malfunction as well as minor edits/ additions to the malfunction table.
08/31/2015	3	Operation & Maintenance portion and Startup, Shutdown, Malfunction portion of previous plan were made into separate AK Steel plans. Procedure numbers revised, added new procedure to clarify environmental operating limits
10/20/2016	4	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variables are recorded online.
09/19/2017	5	Revised definition of Pickle Line operations shutdown, added differential pressure and water flow rate being out of allowable range to control device malfunction section
09/17/2018	6	changed Title of Manager in section 3 from Department Manager – Processing to Department Manager – PLTCM, renumbered all procedures and forms to current numbering format
09/30/2019	7	Changed MDEQ reference to EGLE.
09/02/2020	8	Corrected typo on List of Controlled Procedures

**OPERATION & MAINTENANCE
PLAN**

**PLTCM ACID TANK FARM
SCRUBBER**

AK STEEL - DEARBORN WORKS

Steel Pickling MACT Rule

40 CFR 63 Part CCC

August 3, 2011

Revised September 30, 2019

PLAN(E)-W-30-03

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AK Steel - Dearborn Works PLTCM Acid Tank Farm Scrubber Operation and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the operation and maintenance (O & M) procedures for the Dearborn Works Pickle Line Tandem Cold Mill (PLTCM) Acid Tank Farm Scrubber. This plan is intended to satisfy the requirement to have a written plan per 40 CFR 63.1160(b)(1). The roadmap directs interested parties to the appropriate written operational control document contained in the Dearborn Works document management system. Revisions to the operational control documents are not considered revisions to this O&M plan. These procedures describe operation and maintenance of the source and pollution control equipment to comply with the relevant NESHAP standard. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions.

1. Detailed Procedures: Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
<p>1. Acid Tank Farm Scrubber Operational Variables to Monitor. Monitor and record the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance pursuant to 40 CFR 63.1160(b)(i).</p> <p>Install, operate, and maintain systems for the measurement and recording of the scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates must be monitored continuously and recorded at least once per shift while the scrubber is operating pursuant to 40 CFR 63.1162(a)(2).</p>	<p>QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits</p>
<p>2. Acid Tank Farm Scrubber Preventative Maintenance. Follow manufacturer’s recommended maintenance at recommended intervals on fresh solvent pumps, recirculating pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans pursuant to 40 CFR 63.1160(b)(ii).</p> <p>Clean the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling pursuant to 40 CFR 63.1160(b)(iii).</p> <p>Perform an inspection of each scrubber at intervals of no less than 3 months pursuant to 40 CFR 63.1160 (b)(iv)(A-E):</p>	<p>QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements</p>

<p>(A) Clean or replace any plugged spray nozzles or other liquid delivery device;</p> <p>(B) Repair or replace missing, misaligned, or damaged baffles, trays, or other internal components;</p> <p>(C) Repair or replace droplet eliminator elements as needed;</p> <p>(D) Repair or replace heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber (<i>N/A, no heat exchange equipment on the scrubber</i>); and</p> <p>(E) Adjust damper settings for consistency with the required air flow.</p> <p>Inspect each vessel semiannually to determine that the closed-vent system and either the air pollution control device or the enclosed loading and unloading line, whichever is applicable, are installed and operating when required pursuant to 40 CFR 63.1162 (c)</p>	
<p>3. PLTCM Acid Tank Farm Scrubber Calibrations (Packed Tower pressure monitor and Tower water flow monitor). Each monitoring device shall be certified by the manufacturer to be accurate to within 5 percent and shall be calibrated in accordance with the manufacturer’s instructions but not less frequently than once per year 40 CFR 63.1162 (a)(5).</p>	<p><i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements</p>
<p>4. PLTCM Acid Tank Farm Scrubber Malfunction Troubleshooting</p>	<p><i>QSMPE-P3-50-07</i> Acid Tank Farm Scrubber Malfunction Procedure</p>

Source Operation: The PLTCM Acid Tank Farm Scrubber must be in operation prior to the unloading of fresh acid.

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance with the Steel Pickling MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the PLTCM is the General Manager – Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works PLTCM: Department Manager – PLTCM.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, and maintain the air pollution control equipment as established in these O & M Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.

5. **Monitoring:** Water flow and pressure drop are the designated operational monitoring components. The water flow meter and pressure transmitter are calibrated at least annually during their operational use.
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Steel Pickling MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least five (5) years following the date of each O & M occurrence, measurement, maintenance, corrective action, report, or record.
7. **Reporting:** The Environmental Affairs Department will submit a Semi-Annual HCl MACT Report to the *EGLE* twice a year. The report will contain the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded in accordance with 40 CFR 63.1164(c).
8. **Corrective Action:** In the event of a malfunction of the Acid Tank Farm Scrubber, corrective actions shall be initiated within one (1) working day and repairs shall be completed as soon as practical. Procedures to be initiated are the applicable actions that are specified in the O & M Plan. Records and reporting of corrective action must be performed according to section 6 and 7 above.

A. REFERENCES:

40 CFR Subpart CCC

LIST OF CONTROLLED OPERATING AND MAINTENANCE PROCEDURES

The following procedures listed in this plan serve as the required inspections to comply with the Steel Pickling MACT rules for the PLTCM Acid Tank Farm Scrubber.

Procedure	Reference
Acid Tank Farm Scrubber Operational Variables to Monitor	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits
Acid Tank Farm Scrubber Preventative Maintenance	QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements Form(E)-P3-00-02-03 Mechanical Quarterly Downtime Acid Tank Farm Scrubber Checklist Form(E)-P3-00-02-04 Electrical Quarterly Downtime Acid Tank Farm Scrubber Checklist
Acid Tank Farm Scrubber Calibrations	QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements Acid Tank Farm Scrubber Tower Differential Pressure Transmitter – MQ1 Gauge ID 1497, PLTCM 502898 PDIT-1 Acid Tank Farm Fume Scrubber Tower Water Flow – MQ1 Gauge ID 1498, PLTCM 502896 FIT-1
Acid Tank Farm Scrubber Environmental Operating Limits	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits

REVISION TABLE

Date	Revision Number	Revision Comments
08/17/2011	0	Original Issue
02/08/2013	1	Added information for site-specific operating parameter values, miscellaneous updates.
03/28/2014	2	Added PLC and fan failure scenarios, defined malfunction, clarified definition of a shutdown, changed name to Acid Tank Farm (ATF) and addition lubrication details.
8/31/2015	3	Deconstructed SNA ATF Scrubber SSM & O&M Plan into separate documents and updated each document to AK Steel standards. Updated procedure numbers, added new procedure to clarify environmental operating limits
10/20/2016	4	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variables are recorded online.
09/19/2017	5	Added malfunction troubleshooting procedure, specified forms for quarterly maintenance, specified ID numbers for gauges that require annual calibration
09/17/2018	6	changed Title of Manager in section 3 from Department Manager – Processing to Department Manager – PLTCM, renumbered all procedures and forms to current numbering format
09/30/2019	7	Changed references to Annual PLTCM Maintenance Requirement Procedure and Acid Tank Farm Scrubber Malfunction Procedure to reflect current numbering system, changed MDEQ reference to EGLE.

**STARTUP, SHUTDOWN &
MALFUNCTION PLAN**

PLTCM ACID TANK FARM SCRUBBER

AK STEEL – DEARBORN WORKS

August 17, 2011

Revised September 30, 2019

PLAN(E)-W-30-04

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AK Steel - Dearborn Works PLTCM Acid Tank Farm Scrubber Start-up, Shutdown, and Malfunction Plan: Roadmap

A. PURPOSE: This plan provides a roadmap to the written start-up, shutdown and malfunction procedures for the PLTCM Acid Tank Farm Scrubber. This roadmap is intended to satisfy the requirements of the Steel Pickling Maximum Achievable Control Technology (MACT) rule to have a written plan pursuant to 40 CFR 63.6(e). The roadmap directs interested parties to the appropriate written document from the Dearborn Works operational control documentation management system. These procedures describe operating and maintaining the source during periods of start-up, shutdown, and malfunction and a program of corrective action for malfunctioning air pollution control equipment. Revisions to the operational control documents are not considered revisions to this plan. The malfunction procedures intend to provide direction to operators to ensure we are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

B. DETAILED PROCEDURE: During periods of start-up, shutdown, and malfunction, Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in this plan. When actions taken by Dearborn Works are consistent with the procedures specified in each procedure, Dearborn Works shall keep records for that event demonstrating that the procedures specified in the plan were followed. In addition, records shall be kept of the occurrence and duration of each start-up, shutdown and malfunction of operation and each malfunction of the air pollution control equipment. Semi-annual reports are to be submitted confirming that actions taken during the relevant period of start-up, shutdown, and malfunction were consistent with the procedures in this plan.

If the actions taken during periods of start-up, shutdown, and malfunction result in emissions in excess of the applicable standard and are not consistent with the procedures contained in this plan, Dearborn Works shall record the actions taken for that event and shall report such actions to the *Michigan Department of Environment, Great Lakes, and Energy (EGLE)* within two working days after commencing actions inconsistent with the plan, followed by a letter to the *EGLE* within seven working days after the end of the event.

C. REFERENCES: A reference to the Start-up, Shutdown, and Malfunction procedures for this source are outlined below.

Procedure	Reference
1. Acid Tank Farm Scrubber startup procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
2. Acid Tank Farm Scrubber shutdown procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
3. Acid Tank Farm Scrubber malfunction procedure	QSMPE-P3-50-07 Acid Tank Farm Scrubber Malfunction Procedure
4. Acid Tank Farm Scrubber malfunction reporting procedure	QSMPE-P3-50-07 Acid Tank Farm Scrubber Malfunction Procedure

1. Proposed definitions are outlined below:

Acid Tank Farm Scrubber Startup: The startup of the Acid Tank Farm Scrubber is defined as when the exhaust fan is started and water is turned on to the scrubber.

Acid Tank Farm Scrubber Monitoring Equipment Startup: The startup of the Acid Tank Farm Monitoring Equipment is defined as when the monitoring equipment for the scrubber water flow rate meters and differential pressure transmitters is powered on from a power-off condition. No recalibration of the monitoring equipment is required upon startup.

Acid Tank Farm Scrubber Shutdown: The shutdown of the Acid Tank Farm Scrubber is defined as the exhaust fan is shut off and there is no water flowing through the scrubber.

Acid Tank Farm Scrubber Monitoring Equipment Shutdown: The shutdown of the Acid Tank Farm Scrubber Monitoring Equipment is defined as when the monitoring equipment for the scrubber water flow rate meters and differential pressure transmitters is turned off. Planned shutdowns of the monitoring equipment will only occur during power outages or calibration checks. Acid Tank Farm operations are shut down during both conditions.

Control Device Malfunction: Malfunction of the control device (fume scrubber) associated with the PLTCM process occurs when the equipment is not operating as designed. For example, the air pollution control equipment is malfunctioning when:

- Scrubber water flow rate monitor becomes inoperable (and no technically valid backup monitoring system)
- Differential pressure monitor becomes inoperable (and no technically valid backup monitoring system)
- Scrubber fan breakdown
- Scrubber internal components malfunction or failure (e.g., spray nozzles failure, mist eliminator failure)
- Electrical power outage
- Loss of water supply or pressure
- Scrubber vessel rupture or failure
- Block hour average of scrubber differential pressure falls below the normal operating ranges as specified in the PLTCM Acid Tank Farm Scrubber Operation and Maintenance plan.
 - Block hour average of scrubber water flow falls below the normal operating ranges as specified in the PLTCM Acid Tank Farm Scrubber Operation and Maintenance plan.

2. Responsible Official (RO): The person who is designated to have the overall responsibility for managing compliance to the Steel Pickling MACT rules and implementing the SSM procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the Dearborn Works is the General Manager – Dearborn Works.

3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following positions within the PLTCM: Department Manager – PLTCM.
4. **Conformance Monitoring (conformance to standards):** Operating managers routinely monitor conformance to operational controls and key environmental control maintenance standards. For this operation, the following variables are routinely monitored for conformance to the standards.

Operational monitoring variables:	Procedure
1. PLTCM Acid Tank Farm Scrubber water flow rate 2. PLTCM Acid Tank Farm Scrubber differential pressure	1-2. QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits

Environmental maintenance monitoring variables:	Procedure
1. PLTCM Acid Tank Farm Scrubber water flow meter calibration 2. PLTCM Acid Tank Farm Scrubber differential pressure transmitter calibration 3. PLTCM Acid Tank Farm Scrubber system operating/maintenance inspections	1-2. QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements 3. QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements

Specific information regarding the above parameters is included in the required Operation and Maintenance (O & M) Plan for this source.

5. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to start-up, shut down, and respond to malfunctions in accordance with procedures established in these SSM Plan procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
6. **Monitoring:** The scrubber water flow rate meter and differential pressure transmitter are the designated operational monitoring components of the continuous monitoring system (CMS). Accordingly, these devices are calibrated annually during their operational use. Specific information regarding the scrubber water flow rate meters and differential pressure transmitter is included in the required Operation and Maintenance (O & M) Plan for this source.
7. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Steel Picking MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each SSM occurrence, measurement, maintenance, corrective action, report, or record.

- 8. Reporting:** The Steel Pickling MACT rules also includes "immediate reporting" disincentives, whenever a startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). PLTCM Operations is responsible for reporting startup, shutdown, or malfunction events which deviate from this plan and exceed emission limits. Environmental Affairs is responsible for reporting those events to the *EGLE* within two working days, after commencing action inconsistent with the plan, by fax or telephone and followed by a letter postmarked within seven working days after the end of the event.

If actions taken during a startup, shutdown, or malfunction, including actions to correct a malfunction, are consistent with the procedures in the startup, shutdown or malfunction plan, reporting is required on a semi-annual basis per 40 CFR 63.10(d)(5)(i). Amendments were promulgated on April 20, 2006 for certain aspects of SSM requirements affecting relevant MACT sources. According to the amended 40 CFR 63.10(d)(5)(i): "Reports shall only be required if a startup, shutdown, or malfunction caused the source to exceed any applicable emission limitation in the relevant emission standards, or if a malfunction occurred during the reporting period." The second phrase in the previous sentence is interpreted to require additional 40 CFR 63.10(d)(5)(i) reports for malfunctions that also had the potential to exceed any applicable emission limitation in the relevant emission standards. Based on the amended rule, Dearborn Works will only report those startup and shutdown events in which an emission limitation was exceeded in the semiannual report.

Reports to be submitted to the *EGLE* are outlined below.

Agency Reporting Requirements	Responsible Department	Overview of content
1. Source Operation Semi-Annual Report: Submit a report to the <i>EGLE</i> when an emission limit was exceeded during a start-up or shutdown or actions taken during a malfunction which were consistent with the procedures specified in the SSM Plan for that event.	Environmental Affairs	Report contains the date of each start-up or shutdown (when an emission limit was exceeded) and any malfunction of the source or control equipment indicating the SSM Plan was implemented properly. This report is to be certified by a Responsible Official and postmarked by the 30 th day following the end of each calendar year half.
2a. 2-day report: Whenever actions taken during startup, shutdown or malfunction cause an exceedance of an emission limit and actions deviate from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, after	Environmental Affairs	Describe whenever startup, shutdown or malfunction event deviates from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Report to the <i>EGLE</i> circumstances about the actions and when normal operation will resume.

Agency Reporting Requirements	Responsible Department	Overview of content
commencing action inconsistent with the plan, by fax or telephone.		
2b. 7-day report: Whenever actions taken during startup, shutdown or malfunction cause an exceedance of an emission limit and actions deviate from the plan in accordance with 40 CFR 63.10(d)(5)(ii). Actions taken shall be reported within 2 working days, followed by a letter within 7 working days after the end of the event. The Responsible Official signs the report.	Environmental Affairs	This is a follow-up letter to the 2-day report. A letter shall be submitted within 7 working days after the end of the event which contains the name, title, and signature of the Responsible Official certifying the accuracy of the document. The letter shall explain the circumstances of the event, the reasons for not following the SSM Plan, and whether any excess emissions and/or parametric monitoring exceedances are believed to have occurred.

9. **Corrective Action:** Procedures to be initiated are the applicable actions that are specified in the SSM Plan. Records and reporting of corrective action must be performed according to section 7 and 8 above.

A. REFERENCES:
40 CFR Subpart CCC

LIST OF CONTROLLED PROCEDURES

Dearborn Works will operate and maintain the source and associated air pollution control equipment in accordance with the Startup, Shutdown, and Malfunction Plan and the controlled procedures listed below:

Procedure	Reference
1. Acid Tank Farm Scrubber startup procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
2. Acid Tank Farm Scrubber shutdown procedure	QSOPE-P3-50-04 Acid and Rinse Section Start Up / Shutdown Procedure
3. Acid Tank Farm Scrubber malfunction procedure	QSMPE-P3-50-07 Acid Tank Farm Scrubber Malfunction Procedure
4. Acid Tank Farm Scrubber malfunction reporting procedure	QSMPE-P3-50-07 Acid Tank Farm Scrubber Malfunction Procedure

LIST OF CONTROLLED PROCEDURES (Continued)

5.	Recording PLTCM Acid Tank Farm Scrubber water flow rate and differential pressure	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits
6.	PLTCM Equipment Environmental Operating Limits	QSOPE-P3-00-29 PLTCM Equipment Environmental Operating Limits
7.	Calibrations of the PLTCM Acid Tank Farm Scrubber water flow meter, and differential pressure transmitter	QSMPE-P3-00-03 Annual PLTCM Maintenance Requirements
8.	PLTCM Acid Tank Farm Scrubber system operating/maintenance inspections	QSMPE-P3-00-02 Quarterly PLTCM Maintenance Requirements

REVISION TABLE

Date	Revision Number	Revision Comments
08/17/2011	0	Original Issue
02/08/2013	1	Added information for site-specific operating parameter values, miscellaneous updates.
03/28/2014	2	Added PLC and fan failure scenarios, defined malfunction, clarified definition of a shutdown, changed name to Acid Tank Farm (ATF) and added lubrication details.
08/31/2015	3	Deconstructed SNA ATF Scrubber SSM & O&M Plan into separate documents and updated each document to AK Steel standards. Updated procedure numbers, added new procedure to clarify environmental operating limits
10/20/2016	4	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variables are recorded online.
09/19/2017	5	Added differential pressure and water flow out of range to control device malfunction section, added procedure names to reference column in list of controlled procedures
09/17/2018	6	changed Title of Manager in section 3 from Department Manager – Processing to Department Manager – PLTCM, renumbered all procedures and forms to current numbering format
09/30/2019	7	Changed MDEQ reference to EGLE.

MALFUNCTION ABATEMENT PLAN

PLTCM SCALE BREAKER BAGHOUSE /

DUST COLLECTOR

AK STEEL DEARBORN WORKS

November 6, 2012

Revised September 18, 2018

PLAN(E)-W-30-05

AK Steel – Dearborn Works PLTCM Scale Breaker Baghouse / Dust Collector Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the PLTCM Scale Breaker Baghouse / Dust Collector. This plan is intended to satisfy the requirements of Michigan Rule 911. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative Maintenance (PM) for the Scale Breaker Baghouse / Dust Collector: The procedure provides a description of the items or conditions that shall be inspected, the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-P3-00-02</i> Quarterly PLTCM Maintenance Requirements <i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements
2. Identification of the major replacement parts. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-P3-00-04</i> PLTCM Environmental Control Equipment Spare Parts Inventory
3. Pickle Line Scale Breaker Baghouse system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	<i>QSOPE-P3-00-29</i> PLTCM Equipment Environmental Operating Limits
4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	<i>QSMPE-P3-00-05</i> PLTCM Dust Collector Equipment Malfunction Procedure

2. **Supervisory Personnel:** The Responsible Official (RO) for implementing the MAP procedures is the General Manager – Dearborn Work. The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works PLTCM: Department Manager, PLTCM. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions or failures of the baghouse.

Parameter	Monitoring Method
Differential Pressure	Dwyer Photohelic Gauge

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works’ interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the Machine Scarfing Baghouse.

Procedure	Reference
Preventative maintenance	<p><i>QSMPE-P3-00-02</i> Quarterly PLTCM Maintenance Requirements</p> <p><i>Form(E)-P3-00-02-05</i> Electrical Quarterly Downtime Dust Collector Checklist</p> <p><i>Form(E)-P3-00-02-06</i> Mechanical Quarterly Downtime Dust Collector Checklist</p> <p><i>Form(E)-P3-00-02-07</i> Mechanical Quarterly Runtime Dust Collector Checklist</p> <p><i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements</p> <p><i>Form(E)-P3-00-03-06</i> Mechanical Annual Downtime Dust Collector Checklist</p> <p>Dust Collector Baghouse Differential Pressure Transmitter – MQ1 Gauge ID 1491, PLTCM 502623</p>
Replacement parts for the dust collector	<p><i>QSMPE-P3-00-04</i> PLTCM Environmental Control Equipment Spare Parts Inventory</p> <p><i>FORM(E)-P3-00-04E-01</i> Dust Collector Spare Parts Inventory Form</p>
Operational variables to monitor	<i>QSOPE-P3-00-29</i> PLTCM Equipment Environmental Operating Limits
Equipment malfunctions	<i>QSMPE-P3-00-05</i> PLTCM Dust Collector Equipment Malfunction Procedure

REVISION TABLE

Date	Revision Number	Revision Comments
11/06/2012	0	Original Issue
08/31/2015	1	Updated MAP and put in AK Steel template. Updated procedure numbers, added new procedure to clarify environmental operating limits
10/20/2016	2	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variable are recorded online.
09/19/2017	3	Added specific forms and gauge ID numbers to list of controlled operating and maintenance procedures and forms
09/18/2018	5	Revised procedure and form numbers to new numbering format, no procedures added or deleted

MALFUNCTION ABATEMENT PLAN

PICKLE LINE TANDEM MILL FUME

EXHAUST

AK STEEL DEARBORN WORKS

November 6, 2012

Revised September 18, 2018

PLAN(E)-W-30-06

AK Steel – Dearborn Works PLTCM Tandem Mill Fume Exhaust Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the PLTCM Tandem Mill Fume Exhaust (TMFE) system. This plan is intended to satisfy the requirements of Michigan Rule 911. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative Maintenance (PM) for the Tandem Mill Fume Exhaust. The procedure provides a description of the items or conditions that shall be inspected, the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-P3-00-02</i> Quarterly PLTCM Maintenance Requirements <i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements
2. Identification of the major replacement parts. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-P3-00-04</i> PLTCM Environmental Control Equipment Required Spare Parts Inventory
3. Tandem Mill Fume Exhaust system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	<i>QSOPE-P3-00-29</i> PLTCM Equipment Environmental Operating Limits
4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	<i>QSMPE-P3-90-14</i> PLTCM Tandem Mill Fume Exhaust Malfunction Procedure

2. **Supervisory Personnel:** The Responsible Official (RO) for implementing the MAP procedures is the General Manager – Dearborn Work. The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works PLTCM: Department Manager, PLTCM. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions or failures of the baghouse.

Parameter	Monitoring Method
Differential Pressure across the PPS Units	Photohelic Gauge

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works’ interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the Machine Scarfing Baghouse.

Procedure	Reference
Preventative maintenance	<p><i>QSMPE-P3-00-02</i> Quarterly PLTCM Maintenance Requirements</p> <p><i>FORM(E)-P3-00-02E-08</i> Electrical Quarterly Runtime Tandem Mill Fume Exhaust Checklist</p> <p><i>FORM(E)-P3-00-02-09</i> Mechanical Quarterly Runtime Tandem Mill Fume Exhaust Checklist</p> <p><i>FORM(E)-P3-00-02-10</i> Mechanical Quarterly Downtime Tandem Mill Fume Exhaust Checklist</p> <p><i>QSMPE-P3-00-03</i> Annual PLTCM Maintenance Requirements</p> <p><i>FORM(E)-P3-00-03-01</i> Electrical Annual Runtime Tandem Mill Fume Exhaust Checklist (Annual – Cool)</p> <p><i>FORM(E)-P3-00-03-02</i> Electrical Annual Runtime Tandem Mill Fume Exhaust Checklist (Annual – Warm)</p> <p><i>FORM(E)-P3-00-03-03</i> Busch Internal Annual Checklist</p> <p>TMFE Differential Pressure Transmitters – MQ1 ID 2012, 2013, 2014, 2015; PLTCM 502604-T, 502604-B, 502608-T, 502608-B</p>

List of Controlled Operating and Maintenance Procedures and Forms (continued)

Procedure	Reference
Replacement parts for the TMFE	<i>QSMPE-P3-00-04</i> PLTCM Environmental Control Equipment Required Spare Parts Inventory FORM(E)-P3-00-04-02 TMFE Spare Parts Inventory Form
Operational variables to monitor	<i>QSOPE-P3-00-29</i> PLTCM Equipment Environmental Operating Limits
Equipment malfunctions	<i>QSMPE-P3-90-14</i> PLTCM Tandem Mill Fume Exhaust Malfunction Procedure

REVISION TABLE

Date	Revision Number	Revision Comments
11/06/2012	0	Original Issue
08/31/2015	1	Revised MAP into AK Steel template, updated procedure numbers, added new procedure to clarify environmental operating limits
10/20/2016	2	Removed PM-PR-P3-00-01E Daily PLTM Maintenance Requirements because operating variable are recorded online.
09/19/2017	3	Added specific form numbers and gauge ID numbers to list of controlled operating and maintenance procedures and forms
09/18/2018	4	Revised procedure and form numbers to new numbering format, no procedures added or deleted

HDGL PLANS

HOT DIP GALVANIZING LINE PRECLEANER PROCESS EMISSION CONTROL SYSTEM MAP

HOT DIP GALVANIZING LINE SCR NO_x CONTROL SYSTEM MAP

MALFUNCTION ABATEMENT PLAN

**HOT DIP GALVANIZING LINE
PRECLEANER PROCESS EMISSION
CONTROL SYSTEM**

AK STEEL DEARBORN WORKS

Original Issue: August 5, 2013

Revised: September 19, 2018

PLAN(E)-W-30-07

AK Steel – Dearborn Works Hot Dip Galvanizing Line Precleaner Process Emission Control Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the Hot Dip Galvanizing Line (HDGL) Precleaner Process Emission Control System (Precleaner). This plan is intended to satisfy the requirements of Michigan Rule 911 and Permit to Install No. 120-16, Section EUHDGLCLEANER IV.1. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative Maintenance (PM) for the HDGL Precleaner. The procedure provides a description of the items or conditions that shall be inspected, the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-T2-50-00</i> Precleaner Environmental Maintenance Requirements
2. Identification of the major replacement parts for the HDGL Precleaner. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-T2-50-00</i> Precleaner Environmental Maintenance Requirements <i>FORM(E)-T2-50-00-01</i> Precleaner Spare Parts Inventory Checklist
3. HDGL Precleaner system operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	<i>QSOPE-T2-00-21</i> Daily HDGL Operations & Maintenance Requirements
4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	<i>QSOPE-T2-50-14</i> HDGL Precleaner Malfunction Procedure

2. **Supervisory Personnel:** The Responsible Official (RO) for implementing the MAP procedures is the General Manager – Dearborn Works. The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works HDGL: Department Manager, HDGL. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions or failures of the baghouse.

Parameter	Monitoring Method
Differential Pressure	Magnehelic Gauge/Differential pressure Gauge
Water Flow Rate	Flow Meter

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works’ interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the HDGL Precleaner.

Procedure	Reference
Preventative maintenance for the HDGL Precleaner.	<p><i>QSMPE-T2-50-00</i> Precleaner Environmental Maintenance Requirements</p> <p><i>FORM(E)-T2-50-00-02</i> Precleaner Scrubber Semi-Annual Checklist</p> <p><i>FORM(E)-T2-50-00-03</i> Precleaner Scrubber Annual Checklist</p>
Replacement parts for the HDGL Precleaner.	<p><i>QSMPE-T2-50-00</i> Precleaner Environmental Maintenance Requirements</p> <p><i>FORM(E)-T2-50-00-01</i> Precleaner Spare Parts Inventory Checklist</p>
Operational variables to monitor for the HDGL Precleaner.	<p><i>QSOPE-T2-00-21</i> Daily HDGL Operations & Maintenance Requirements</p> <p>Water Flow: MQ1 Gauge ID 3362 Differential Pressure: MQ1 Gauge ID 3528</p>
Equipment malfunctions.	<i>QSOPE-T2-50-14</i> HDGL Precleaner Malfunction Procedure

REVISION TABLE

Date	Revision	Revision Comments
August 5, 2013	1	Original Issue
February 29, 2016	2	Updated per AK Steel Standards
September 21, 2017	3	Updated permit number references, Added specific form numbers, Added gauge MQ1 ID numbers for Environmental operational variables
September 19, 2018	4	Updated numbering of procedures and forms, no procedures or forms added or removed from plan

MALFUNCTION ABATEMENT PLAN

HOT DIP GALVANIZING LINE

SCR NO_x CONTROL SYSTEM

AK STEEL DEARBORN WORKS

Original Issue: August 5, 2013

Revised: September 19, 2018

PLAN(E)-W-30-08

AK Steel – Dearborn Works Hot Dip Galvanizing Line SCR NO_x Control System Malfunction Abatement Plan: Roadmap

Purpose: This plan provides a roadmap to the Malfunction Abatement Plan (MAP) procedures for the Hot Dip Galvanizing Line (HDGL) SCR NO_x Control System Operation. This plan is intended to satisfy the requirements of Michigan Rule 911 and Permit No.120-16 Condition FGHDGLSCR IV.1. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this MAP. The referenced procedures are intended to provide direction to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the MAP as contained herein:

Procedure	Reference
1. Preventative Maintenance (PM) for the HDGL SCR NO_x Control System. The procedure provides a description of the items or conditions that shall be inspected, the frequency of the inspection or repair. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-T2-60-00</i> SCR NO _x Environmental Maintenance Requirements
2. Identification of the major replacement parts for the HDGL SCR NO_x Control System. The procedure is used to maintain an inventory major replacement parts for quick replacement in the event of air pollution control equipment failure. This requirement is pursuant to R 336.1911(2)(a).	<i>QSMPE-T2-60-00</i> SCR NO _x Environmental Maintenance Requirements <i>FORM(E)-T2-60-00-04</i> SCR Spare Parts Inventory Checklist Form
3. HDGL SCR NO_x Control System operational variables to monitor. The procedure provides a list of operational parameters and their operational ranges that will be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures. This requirement is pursuant to R 336.1911(2)(b).	<i>QSOPE-T2-00-21</i> Daily HDGL Operations & Maintenance Requirements
4. Equipment malfunctions. The procedure provides a description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits. This requirement is pursuant to R 336.1911(2)(c).	<i>QSOPE-T2-60-24</i> HDGL SCR NO _x Malfunction Procedure

2. **Supervisory Personnel:** The Responsible Official (RO) for implementing the MAP procedures is the General Manager – Dearborn Works. The RO has delegated the responsibilities associated with the RO to the following position within the Dearborn Works HDGL: Department Manager, HDGL. This requirement is pursuant to R 336.1911(2)(a).
3. **Monitoring:** AK Steel Dearborn Works will use the monitoring methods listed below to detect potential malfunctions of the HDGL SCR NO_x Control System.

Parameter	Monitoring Method
Temperature entering SCR	Thermocouples
NO _x exiting SCR	Process Monitor
Natural Gas Usage	Flow Meter
Urea Flow Rate	Flow Meter

4. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by this MAP shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
5. **Reporting:** Pursuant to Rule 336.1915(3)(j)(ii) *If the malfunction abatement plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction at the time the plan in initially developed, then the person shall revise the malfunction abatement plan within 45 days after the event occurs.* It is AK Steel Dearborn Works' interpretation that when needed, revising the equipment malfunctions procedure identified in Procedure #4 above would adequately address this rule.

A. REFERENCES: R 336.1911

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the MAP rules for the HDGL SCR NO_x Control System.

Procedure	Reference
Preventative maintenance for the HDGL SCR NO _x Control System.	<p><i>QSMPE-T2-60-00</i> SCR NO_x Environmental Maintenance Requirements</p> <p><i>FORM(E)-T2-60-00-02</i> SCR Non-Instrumentation Semi-Annual Checklist</p> <p><i>FORM(E)-T2-60-00-03</i> SCR CEMS Instrumentation Quarterly Checklist</p>
Replacement parts for the HDGL SCR NO _x Control System.	<p><i>QSMPE-T2-60-00</i> SCR NO_x Environmental Maintenance Requirements</p> <p><i>FORM(E)-T2-60-00-04</i> SCR Spare Parts Inventory Checklist Form</p>
Operational variables to monitor for the HDGL SCR NO _x Control System.	<p><i>QSOPE-T2-00-21</i> Daily HDGL Operations & Maintenance Requirements</p> <p>Urea Flow Rate: MQ1 Gauge ID Number 3233</p> <p>Furnace Natural Gas Usage: MQ1 Gauge ID Number 2909</p> <p><i>QSMPE-T2-05-23</i> Calibration of NO_x Analyzer for SCR</p>
Equipment malfunctions.	<i>QSOPE-T2-60-24</i> HDGL SCR NO _x Malfunction Procedure

REVISION TABLE

Date	Revision	Revision Comments
August 5, 2013	1	Original Issue
February 29, 2016	2	Updated per AK Steel standards
September 21, 2017	3	Updated permit references, added specific maintenance form numbers, added ID numbers for gauges monitoring operational variables
September 19, 2018	4	Updated numbering of procedures and forms, no procedures or forms added or removed from plan

ATTACHMENT C – CAM CALCULATIONS/PLAN

AK STEEL DEARBORN WORKS

COMPLIANCE ASSURANCE

MONITORING (CAM) PLAN

May 31, 2017

Revised October 17, 2019

PLAN(E)-W-00-11

Background:

40 CFR 64 requires designated monitoring for sources whose uncontrolled emissions are greater than the applicable major source threshold and has a control device that is designed to control those emissions. Certain exemptions exist with the applicable CAM rule to where a plan is not required. The most common exemption is if a parameter is explicitly addressed within another MACT/NESHAP rule. For example, the 0.01 gr/dscf PM standard for a Blast Furnace Casthouse is exempted because it is addressed with the Integrated Iron NESHAP Rule (Subpart FFFFF). Table 1, AK Steel Dearborn CAM Applicability Analysis, addresses all sources with any applicable air pollutants to assess if the requirements of CAM apply. Table 1 is attached at the end of this plan. Based on the analysis, individual plans describing the Emission Unit, Applicable Emission Limit, Monitoring Requirements, Control Technology, Proposed Monitoring Approach, Proposed Performance Criteria, and Justification for the selection of the performance indicators and the indicator ranges are detailed within this plan.

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Attachments:

Table 1: AK Steel Dearborn Works CAM Applicability Analysis

CAM Plan – AKDW EUCFURNACE Baghouse

I. BACKGROUND

A. Emission Unit

Description – Blast Furnace tapping, iron ladle filling, slag pot filling within Casthouse
Identification – EUCFURNACE Baghouse
Facility: AK Steel Dearborn Works
4001 Miller Road
Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.003 gr/dscf, 13.87 Lb/hr (EUCFURNACE I.5, I.7)
Particulate Matter < 10 Microns (PM10): 18.24 Lb/hr (EUCFURNACE I.9)
Particulate Matter < 2.5 Microns (PM2.5): 18.24 Lb/hr (EUCFURNACE I.11)
Opacity: 10% (EUCFURNACE I.1)

Monitoring Requirements: Weekly Visible emissions observation, baghouse compartment pressure drop, bag leak detection devices

C. Control Technology

Pulse-Jet Baghouse which filters approximately 500,000 cubic feet / min of air. Pre-control emissions of PM, PM10, and PM2.5 of 1630 TPY, Post control emissions of PM of 60.75 TPY, Post control emissions of PM10 and PM2.5 of 79.89 TPY

II. MONITORING APPROACH

	Pressure Drop Across Baghouse
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously recorded and manually recorded daily.
B. Indicator Range	An excursion is defined as a pressure drop lower than 2 in. H ₂ O or higher than 14 in. H ₂ O when casting. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 1" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	A snapshot of the pressure drop is taken on a daily basis and is recorded on the Blast Furnace Daily Environmental Report.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

A wide range is required for this source due to the variable flow conditions associated with the different baghouse modes. Experience has shown that as the overall differential pressure exceeds 14" H₂O, the baghouse is unable to meet its inlet pressure target required by the Operation and Maintenance Plan. Readings below 2" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the casthouse. Readings outside these ranges while casting will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan – AKDW EUBOFDESULF Baghouse

I. BACKGROUND

A. Emission Unit

Description – Desulfurization operation involving the injection of lime and magnesium to create a slag for sulfur removal from the molten iron. Slag is then skimmed off into a pot. Operations are controlled by a baghouse with a movable hood.

Identification – EUBOFDESULF Baghouse

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 7.7 Lb/hr (EUBOFDESULF I.5)

Particulate Matter < 10 Microns (PM10): 3.6 Lb/hr (EUBOFDESULF I.7)

Particulate Matter < 2.5 Microns (PM2.5): 3.6 Lb/hr (EUBOFDESULF I.8)

Monitoring Requirements: Monthly Visible emissions observation, baghouse compartment pressure drop, bag leak detection device

C. Control Technology

Shaker Baghouse with 6 compartments which filters approximately 90,000 cubic feet / min of air. Pre-control emissions of PM of 1591 TPY, PM10 of 302 TPY, and PM2.5 of 175 TPY, Post control emissions of PM of 33.73 TPY, Post control emissions of PM10 and PM2.5 of 15.77 TPY

II. MONITORING APPROACH

	Pressure Drop Across Baghouse
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously recorded and manually recorded daily.
B. Indicator Range	An excursion is defined as a pressure drop lower than 2 in. H ₂ O or higher than 9 in. H ₂ O during desulfurization or slag skimming operations. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 0.5" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	A snapshot of the pressure drop is taken every day and manually recorded.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 9" H₂O, the baghouse is unable to pull sufficient air flow to provide adequate capture of desulfurization emissions. Readings below 2" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the desulfurization process. Readings outside these ranges while desulfurizing or slag skimming will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan –AKDW EUBOF ESP

I. BACKGROUND

A. Emission Unit

Description – Basic Oxygen Furnace (BOF) including charging, oxygen blowing, tapping, and slag tapping. Two vessels controlled an electrostatic precipitator (primarily for oxygen blowing) and a secondary emissions baghouse (primarily for charging, tapping, and slag tapping).

Identification – EUBOF ESP Stack

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.0152 gr/dscf (EUBOF I.4)

Particulate Matter: 62.6 Lbs/hr (EUBOF I.6)

Particulate Matter < 10 Microns (PM10): 47.5 Lb/hr (EUBOF I.8)

Particulate Matter < 2.5 Microns (PM2.5): 46.85 Lb/hr (EUBOF I.10)

Manganese (Mn): 0.10 Lb/hr (FGBOFSHOP I.11)

Lead (Pb): 0.067 Lb/hr ((FGBOFSHOP I.10)

Note: Manganese and Lead Limits are a combination of ESP and Secondary Baghouse Stacks

Monitoring Requirements: Weekly Visible emissions observation, COMS

C. Control Technology

Joy Western Precipitator with 8 compartments, 4 fields per compartment manufactured in 1962. Pre-control emissions of PM, PM10, and PM2.5 of 37517 TPY, Pre-control emissions of Manganese of 59.93 TPY, Pre-control emissions of Lead of 40.15 TPY, Post control emissions of PM of 274.2 TPY, Post control emissions of PM10 of 208.1 TPY, Post Control emissions of PM2.5 of 205.2 TPY, Post Control emissions of Mn of 0.44 TPY, Post Control emissions of Pb of 0.29 TPY.

II. MONITORING APPROACH

	Opacity as measured by COMS
A. Indicator	Opacity at the ESP stack is measured by a continuous opacity monitor (COM) that meets the requirements of 40 CFR 63, Subpart FFFFF, NESHAP for Integrated Iron and Steel Manufacturing Facilities. It is continuously recorded.
B. Indicator Range	An excursion is defined as two failed attempts at corrective action, resulting in the reporting of a deviation of the 1-hour 10% opacity standard in accordance with MI-ROP-A8640-2016a, EUBOF VI.10.d (40 CFR 63.7833(g)(4))
C. QIP Threshold	3 separate events that lead to deviations as specified in MI-ROP-A8640-2016a, EUBOF VI.10.d (40 CFR 63.7833(g)(4)) in a semi-annual reporting period.

III. PERFORMANCE CRITERIA

	Opacity as measured by COMS
A. Data Representativeness	Opacity is directly measured with the ESP stack exhaust. The COMS is declared "out of control" if the daily calibration drift exceeds 2% opacity and/or the zero drift exceeds 4% opacity.
B. Verification of Operational Status	The COMS is checked once per shift for error status codes. Alarming is in place to notify operations when communication with the COMS is lost.
C. QA/QC Practices and Criteria	Calibration checks are performed on the COMS on a daily basis. Performance audits are conducted on a quarterly basis and zero-alignment error checks are performed on an annual basis.
D. Monitoring Frequency	Opacity is measured continuously.
E. Data Collection Procedure	Continuous opacity data is compressed into 6-minute and 1-hr block averages which are automatically recorded by the plant's data acquisition system.
Averaging Period	1-hour block averages

IV.JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Opacity as measured by the COMS is selected as the performance indicator because it is considered “presumptively acceptable monitoring” in accordance with 40 CFR § 64.4(b)(2), and is otherwise required to be used in accordance with 40 CFR § 64.3(d). The COMS is required by the Integrated Iron and Steel NESHAP (40 CFR 63 Subpart FFFFF), thus the COMS meets the performance specifications in 40 CFR § 64.3(d).

B. Rationale for Selection of Indicator Ranges

The CAM regulation “special criteria” for use of COMS in 40 CFR § 64.3(d)(3) specifies that the monitoring system design shall provide for reporting of excursions consistent with any period of reporting of excursions in an underlying requirement. The Iron and Steel NESHAP is the underlying requirement for the COMS. The NESHAP designates a 1-hour 10% opacity standard as a trigger for corrective action in 40 CFR 63.7833(g)(1-4). However, the reporting of an “excursion” from this standard only occurs after two failed attempts at corrective action during a 48-hour period, resulting in the reporting of a deviation of the 1-hour 10% opacity standard in accordance with 40 CFR § 68.7833(g)(4). This makes the reporting of a deviation for two failed attempts at corrective action during a 48-hour period after an exceedance of the 1-hour 10% opacity level appropriate as an indicator range for CAM.

The selected QIP threshold is 3 separate events that lead to deviations as specified in MI-ROP-A8640-2016a, EUBOF VI.10.d and 40 CFR 63.7833(g)(4) in a semi-annual reporting period. If the QIP threshold is exceeded, a QIP will be developed and implemented in accordance with the CAM regulations.

CAM Plan – AKDW FGBOFSHOP Secondary Baghouse

I. BACKGROUND

A. Emission Unit

Description – Baghouse to control emissions generated during vessel charging and tapping operation, hot metal reladling

Facility: AK Steel Dearborn Works
4001 Miller Road
Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.003 gr/dscf (FGBOFSHOP I.3)

Particulate Matter: 15.6 lb/hr (FGBOFSHOP I.5)

Particulate Matter < 10 Microns (PM10): 17.71 Lb/hr (FGBOFSHOP I.6)

Particulate Matter < 2.5 Microns (PM2.5): 17.71 Lb/hr (FGBOFSHOP I.7)

Opacity: 20%, 3-minute average (FGBOFSHOP VI.1)

Monitoring Requirements: Monthly Visible emissions observation, baghouse compartment pressure drop, bag leak detection devices

C. Control Technology

Reverse Air Baghouse which filters approximately 1,050,000 cubic feet / min of air.

Pre-control emissions of PM, PM10, and PM2.5 of 1637 TPY, Post control emissions of PM of 68.3 TPY, Post control emissions of PM10 and PM2.5 of 77.6 TPY

II. MONITORING APPROACH

Pressure Drop Across Baghouse	
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously recorded and manually recorded daily.
B. Indicator Range	An excursion is defined as a pressure drop lower than 0.5 in. H ₂ O or higher than 10 in. H ₂ O during charging, tapping, or reladling operations. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 0.2" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	A snapshot of the pressure drop is taken on a daily basis and is manually recorded.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fans. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 10" H₂O, the baghouse is unable pull sufficient air flow to provide adequate capture of charging, tapping, and hot metal pouring emissions. Readings below 0.5" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency for any secondary process. A wide range is required for this baghouse due to the wide range of flowrates associated with each secondary operation. Readings outside these ranges while charging, tapping, or reladling will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan – AKDW EULADLEREFINE1 Baghouse

I. BACKGROUND

A. Emission Unit

Description – Steel ladle refining operation using electrodes, stirring devices, and alloy addition to refine the steel prior to casting. All operations are controlled by a movable hood to a baghouse.

Identification – EULADLEREFINE1 Baghouse Stack

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.005 gr/dscf (EULADLEREFINE1 I.4)

Particulate Matter: 6.33 Lb/hr (EULADLEREFINE1 I.6)

Particulate Matter < 10 Microns (PM10): 6.65 Lb/hr (EULADLEREFINE1 I.7)

Particulate Matter < 2.5 Microns (PM2.5): 6.65 Lb/hr (EULADLEREFINE1 I.8)

Opacity: 5%, 6-minute average (EULADLEREFINE1 I.1)

Monitoring Requirements: Monthly Visible emissions observation, baghouse compartment pressure drop, bag leak detection device

C. Control Technology

Pulse Jet Baghouse with 6 compartments (of which one is used permanently as a spark box) which filters approximately 100,000 cubic feet / min of air. Pre-control emissions of PM, PM10, and PM2.5 of 579 TPY, Post control emissions of PM of 27.73 TPY, Post control emissions of PM10 and PM2.5 of 29.13 TPY

II. MONITORING APPROACH

	Pressure Drop Across Baghouse
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously recorded and manually recorded daily.
B. Indicator Range	An excursion is defined as a pressure drop lower than 2 in. H ₂ O or higher than 10 in. H ₂ O during a heat. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 0.5" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	A snapshot of the pressure drop is taken during the first heat every day and is recorded on the Caster Daily Environmental Report.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 10" H₂O, the baghouse is unable to pull sufficient air flow to provide adequate capture of LRF emissions. Readings below 2" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the ladle refining process. Readings outside these ranges during a heat will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan – AKDW EULADLEREFINE2 Baghouse

I. BACKGROUND

A. Emission Unit

Description – Steel ladle refining operation using electrodes, stirring devices, and alloy addition to refine the steel prior to casting. All operations are controlled by a movable hood to a baghouse.

Identification – EULADLEREFINE2 Baghouse Stack

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.005 gr/dscf (EULADLEREFINE2 I.4)

Particulate Matter: 3.72 Lb/hr (EULADLEREFINE2 I.6)

Particulate Matter < 10 Microns (PM10): 3.91 Lb/hr (EULADLEREFINE2 I.7)

Particulate Matter < 2.5 Microns (PM2.5): 3.91 Lb/hr (EULADLEREFINE2 I.7)

Opacity: 5%, 6-minute average (EULADLEREFINE2 I.1)

Monitoring Requirements: Monthly Visible emissions observation, baghouse compartment pressure drop, bag leak detection device

C. Control Technology

Pulse Jet Baghouse with 6 compartments which filters approximately 70,000 cubic feet / min of air. Pre-control emissions of PM, PM10, and PM2.5 of 579 TPY, Post control emissions of PM of 16.29 TPY, Post control emissions of PM10 and PM2.5 of 17.13 TPY

II. MONITORING APPROACH

	Pressure Drop Across Baghouse
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously recorded and manually recorded daily.
B. Indicator Range	An excursion is defined as a pressure drop lower than 2 in. H ₂ O or higher than 10 in. H ₂ O during a heat. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 0.5" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	A snapshot of the pressure drop is taken during the first heat every day and is recorded on the Caster Daily Environmental Report.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 10" H₂O, the baghouse is unable to pull sufficient air flow to provide adequate capture of LRF emissions. Readings below 2" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the ladle refining process. Readings outside these ranges during a heat will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan – AKDW EUVACUUMDEGASSER Flare

I. BACKGROUND

A. Emission Unit

Description – Vacuum degasser operation designed to refine special grades of steel. CO emissions generated by the process are controlled by a flare.

Identification – EUVACUUMDEGASSER Flare

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Carbon Monoxide: 2.42 Lb/hr (EUVACUUMDEGASSER I.1)

Monitoring Requirements: Quarterly Visible emissions observation, daily monitoring of pilot light status

C. Control Technology

Flare designed to achieve 99.5% destruction efficiency of off gas CO, Pre-Control emissions of CO of 2016 TPY.

II. MONITORING APPROACH

	Pilot Light Status On/Off
A. Indicator	Pilot light status on or off
B. Indicator Range	An excursion is defined as the pilot light being off while degassing when the status of the light is checked

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	N/A
B. Verification of Operational Status	Monthly inspections on performed on the pilot lights to manually verify that the pilot lights are operating as designed.
C. QA/QC Practices and Criteria	N/A
D. Monitoring Frequency	Pilot light status is monitored on a daily basis.
E. Data Collection Procedure	Pilot light status is recorded daily in the daily Caster Environmental Report.
Averaging Period	N/A

IV.JUSTIFICATION

C. Rationale for Selection of Performance Indicators

Pilot light status is selected as a performance indicator because it is the best indication that the flare is lit. Monitoring the pilot light status provides a means of detecting if the flare is operating as designed. The pilot light being on is a direct indication that the flare is lit and functioning properly. The pilot light being off during degassing operations is a direct indication that the flare is not lit and is not operating properly.

D. Rationale for Selection of Indicator Ranges

There are no "Indicator Ranges." The only readings that are taken pertain to the light either being on or off.

CAM Plan – AKDW EUMACHSCARF Baghouse

I. BACKGROUND

A. Emission Unit

Description – A machine scarfer equipped with a robotic arm to remove skin defects from slabs. The operation is enclosed and is controlled by a baghouse.

Identification – EUMACHSCARF Baghouse

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: MI-ROP-A8640-2016a

Emission Limits:

Particulate Matter: 0.003 gr/dscf (EUMACHSCARF I.3)

Particulate Matter < 10 Microns (PM10): 0.005 gr/dscf (EUMACHSCARF I.4)

Particulate Matter < 10 Microns (PM10): 4.52 Lb/hr (EUMACHSCARF I.5)

Particulate Matter < 2.5 Microns (PM2.5): 0.005 gr/dscf
(EUMACHSCARF I.6)

Particulate Matter < 2.5 Microns (PM2.5): 4.52 Lb/hr (EUMACHSCARF I.7)

Opacity: 5%, 6-minute average (EUMACHSCARF I.1)

Opacity: 25% 1.5-minute average (EUMACHSCARF I.2)

Monitoring Requirements: Weekly Visible emissions observation, once per shift compartment and overall pressure drop readings

C. Control Technology

Pulse Jet Baghouse with 4 compartments which filters approximately 140,000 cubic feet / min of air. Pre-control emissions of PM, PM10, and PM2.5 of 3415 TPY, Post control emissions of PM of 3.35 TPY, Post control emissions of PM10 and PM2.5 of 19.80 TPY

II. MONITORING APPROACH

Pressure Drop Across Baghouse	
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously monitored and manually recorded once per shift.
B. Indicator Range	An excursion is defined as a pressure drop lower than 7 in. H ₂ O or higher than 17 in. H ₂ O during scarfing operations. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of 0.5" H ₂ O
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	Overall pressure drop across the baghouse is manually recorded once per shift.
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 17" H₂O, the baghouse is unable to pull sufficient air flow to provide adequate capture of scarfing emissions. Readings below 7" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the scarfing process. Readings outside these ranges during scarfing operations will trigger an investigation, corrective actions, and a reporting requirement.

CAM Plan – AKDW EUSCALEBREAKER Baghouse

I. BACKGROUND

A. Emission Unit

Description – A series of rollers are used to straighten the coiled steel and to remove or loosen scale. Emissions from this operation are directed to a baghouse.

Identification – EUMACHSCARF Baghouse

Facility: AK Steel Dearborn Works

4001 Miller Road

Dearborn, Michigan 48120

B. Applicable Regulation, Emission Limit, Monitoring Requirements

Permit No.: PTI 120-16

Emission Limits:

Particulate Matter: 0.005 gr/dscf (EUSCALEBREAKER I.1)

Monitoring Requirements: Monthly non-certified Visible emissions observation

C. Control Technology

Single compartment pulse jet Baghouse which filters approximately 35,000 cubic feet / min of air. Pre-control emissions of PM of 231 TPY, Post control emissions of PM of 1.32 TPY.

II. MONITORING APPROACH

	Pressure Drop Across Baghouse
A. Indicator	Pressure drop across the baghouse is measured with a differential pressure gauge. It is continuously monitored and manually recorded once per shift.
B. Indicator Range	An excursion is defined as a pressure drop lower than 0.5 in. H ₂ O or higher than 7 in. H ₂ O during scalebreaking operations. Excursions trigger an investigation, corrective actions, and a reporting requirement.

III. PERFORMANCE CRITERIA

	Pressure Drop
A. Data Representativeness	Pressure tabs are located at the baghouse inlet and outlet. The gauge has a calibration accuracy of +/- 5%
B. Verification of Operational Status	NA
C. QA/QC Practices and Criteria	The pressure gauge is calibrated on an annual basis.
D. Monitoring Frequency	Pressure drop is monitored continuously.
E. Data Collection Procedure	Overall pressure drop across the baghouse is manually recorded daily
Averaging Period	N/A

IV. JUSTIFICATION

A. Rationale for Selection of Performance Indicators

Overall Pressure drop is selected as a performance indicator because it is the best indication of how well the baghouse is operating. Monitoring pressure drop provides a means of detecting a change in operation that could lead to an increase in emissions. An increase in pressure drop could indicate a problem with the cleaning system, a problem with excessive air flow, or a problem with bags binding. A decrease in pressure drop may indicate excessive broken or loose bags or a problem with the baghouse fan. Pressure drop provides the best means of verifying that there is airflow through the control device.

B. Rationale for Selection of Indicator Ranges

Experience has shown that as the overall differential pressure exceeds 7" H₂O, the baghouse is unable to pull sufficient air flow to provide adequate capture of process emissions. Readings below 0.5" H₂O would indicate that there is insufficient flow through the baghouse to provide proper capture efficiency in the process. Readings outside these ranges during scalebreaking operations will trigger an investigation, corrective actions, and a reporting requirement.

Change Log

Revision Date	Version	Changes
05/31/2017	0	Original Issue
10/17/2019	1	Update plan to AK template; Assigned a plan number

Table 1: Ak Steel Dearborn Works CAM Applicability Analysis

SOURCE INFORMATION		CAM ANALYSIS										IF CAM is Applicable	
Source	Equipment	Permitted Pollutant	Emission Limit	Does the unit use a control device to achieve compliance with the standard?	Pre-Control Emissions (TPY)	Major Source Threshold (TPY)	Does the unit have potential pre-control device emissions greater than 100% of the amount required for the source to be classified as a major source?	Do any of the exemptions in 64.2(b) apply?	Is the CAM Rule Applicable?	Does the unit have potential post-control device emissions greater than 100% of the amount required for the source to be classified as a major source?	Required Frequency of data collection		
EUBOF (Secondary Emissions)	Baghouse	PM	0.003 gr/dscf	Yes	1637	100	Yes	Yes	No	Yes	Daily	68.3	
		PM	0.01 gr/dscf	Yes	1637	100	Yes	Yes - Subject to I&S MACT	No	No	Daily	68.3	
		PM10	15.6 Lb/hr	Yes	1637	100	Yes	Yes	No	No	Daily	77.6	
		PM2.5	17.71 Lb/hr	Yes	1637	100	Yes	Yes	No	No	Daily	77.6	
		NOX	10.2 Lb/hr	No	1637	100	Yes	Yes	No	No	Daily	77.6	
		NOX	39.7 TPY	No	1637	100	Yes	Yes	No	No	Daily	77.6	
		Mn	0.07 Lb/hr	Yes	7.35	10 Individual	No	No	No	No	No		
		Pb	0.067 Lb/hr	Yes	7.03	25 Combined	No	No	No	No	No		
		Hg	0.0086 Lb/hr	Yes	0.90	25 Combined	No	No	No	No	No		
		EULADLEREFINE1	Baghouse	VE	5 %	Yes	N/A	N/A	N/A - No major source opacity trigger	No	No		
		PM	0.005 gr/dscf	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	27.73
		PM	0.01 gr/dscf	Yes	579.4	100	Yes	Yes	Yes - Subject to I&S MACT	No	No	Daily	27.73
PM	0.01 gr/dscf	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	27.73		
PM10	3.72 Lb/hr	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	27.73		
PM2.5	3.91 Lb/hr	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	27.73		
Pb	0.013 Lb/hr	Yes	2.0	10	No	N/A	N/A	No	No	Daily	29.13		
EULADLEREFINE2	Baghouse	VE	5 %	Yes	N/A	N/A	N/A - No major source opacity trigger	No	No				
PM	0.005 gr/dscf	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	29.13		
PM	0.005 gr/dscf	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	29.13		
PM10	3.91 Lb/hr	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	29.13		
PM2.5	3.91 Lb/hr	Yes	579.4	100	Yes	Yes	Yes	Yes	Yes	Daily	29.13		
EUVACUUMDEGASSER	Flare	CO	2.42 Lb/hr	Yes	2016	100	Yes	Yes	Yes	Daily	10.08		
CO	10.08 TPY	Yes	2016	100	Yes	Yes	Yes	Yes	Yes	Daily	10.08		
VE	0 %	Yes	N/A	N/A	N/A	N/A	N/A - No major source opacity trigger	No	No				
EUMACHSCARF	Baghouse	VE	5 %	Yes	N/A	N/A	N/A - No major source opacity trigger	No	No				
PM	0.003 gr/dscf	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	3.35		
PM	0.003 gr/dscf	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	3.35		
PM10	0.005 gr/dscf	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	19.80		
PM10	4.52 Lb/hr	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	19.80		
PM2.5	0.005 gr/dscf	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	19.80		
PM2.5	4.52 Lb/hr	Yes	3414.5	100	Yes	Yes	Yes	Yes	Yes	Daily	19.80		
FGRULE290 - EUBOFLIMERECEIVI	Baghouse	PM	0.005 gr/dscf	Yes	94.4	100	No	No	No				
EUCOKEUNLOADDEE	Baghouse	PM	0.005 gr/dscf	Yes	17.8	100	No	No	No				
EUSCALEBREAKEER	Baghouse	PM	0.005 gr/dscf	Yes	231.4	100	Yes	Yes	Yes	Yes	Daily	1.32	
EUNPKLINE	Scrubber	HCl	6 ppmv/v	Yes	N/A - Presumably greater than 10 tpy	10	Yes	Yes - Subject to Pickling MACT	No	No			
EUTANDMILL	Oil Mist Eliminator	PM10	0.004 gr/dscf	Yes	42.0	100	No	No	No				
VOC	0.9 Lb/hr	No	N/A	100	No	No	No	No	No				
Scrubber	0.441 Lb/hr	Yes	19.3	100	No	No	No	No	No				
EUIDGLCLEANER	Scrubber	PM10	0.441 Lb/hr	Yes	19.3	100	No	No	No				
NOX	14.1 TPY	Yes	46.9	100	No	No	No	No	No				
NOX	3.21 Lb/hr	Yes	46.9	100	No	No	No	No	No				
EUIDGLANNEAL	SCR	PM10	3.6 TPY	No	46.9	100	No	No	No				
NOX	2.19 Lb/hr	No	46.9	100	No	No	No	No	No				

Table 1: AK Steel Dearborn Works CAM Applicability Analysis

SOURCE INFORMATION				CAM ANALYSIS						IF CAM is Applicable		
Source	Equipment	Permitted Pollutant	Emission Limit	Does the unit use a control device to achieve compliance with the standard?	Pre-Control Emissions (TPY)	Major Source Threshold (TPY)	Does the unit have potential pre-control device emissions greater than 100% of the amount required for the source to be classified as a major source?	Do any of the exemptions in 64.2(b) apply?	Is the CAM Rule Applicable?	Post-Control Emissions (TPY)	Does the unit have potential post-control device emissions greater than 100% of the amount required for the source to be classified as a major source?	Required Frequency of data collection
EU COALHANDLING	Baghouse	VE	10 %	Yes	N/A	N/A	N/A - No major source opacity trigger	N/A	No			
		PM	0.005 gr/dscf	Yes	32.59	100	No	N/A	No			
		PM10	0.005 gr/dscf	Yes	32.59	100	No	N/A	No			
		PM2.5	0.005 gr/dscf	Yes	32.59	100	No	N/A	No			
EU COKE SCRNB LDGDD	Baghouse	VE	5 %	Yes	N/A	N/A	N/A - No major source opacity trigger	N/A	No			
EU RAW MATHANDLING	Baghouse	PM	1.0 Lb/hr	Yes	62.25	100	No	N/A	No			
		PM	4.39 TPY	Yes	62.25	100	No	N/A	No			
		VE	10 %	Yes	N/A	N/A	N/A - No major source opacity trigger	N/A	No			
EU CFURNACE	Baghouse	VE	10 %	Yes	N/A	N/A	N/A - No major source opacity trigger	N/A	No			
		PM	0.003 gr/dscf	Yes	1629.6	100	Yes	No	Yes	60.75	No	Daily
		PM	0.01 gr/dscf	Yes	1629.6	100	Yes	Yes - Subject to I&S MACT	No			
		PM	13.87 pph	Yes	1629.6	100	Yes	No	Yes	60.75	No	Daily
		PM10	18.24 pph	Yes	1629.6	100	Yes	No	Yes	79.89	No	Daily
		PM2.5	18.24 pph	Yes	1629.6	100	Yes	No	Yes	79.89	No	Daily
		SO2	179.65 pph	No					No			
		CO	56.25 pph	No					No			
		NOx	5.46 pph	No					No			
		VOC	9.92 pph	No					No			
		Pb	0.0077 pph	Yes	0.90	10 Individual 25 Combined	No	N/A	No			
		Mn	0.042 pph	Yes	4.93	10 Individual 25 Combined	No	N/A	No			
		EU BOFDESULF	Baghouse	VE	20 %	Yes	N/A	N/A	N/A - No major source opacity trigger	N/A	No	
PM	0.01 gr/dscf			Yes	1591.4	100	Yes	Yes - Subject to I&S MACT	No			
PM	7.7 Lb/hr			Yes	1591.4	100	Yes	No	Yes	33.73	No	Daily
PM10	3.6 Lb/hr			Yes	302.4	100	Yes	No	Yes	15.77	No	Daily
PM2.5	3.6 Lb/hr			Yes	175.1	100	Yes	No	Yes	15.77	No	Daily
Pb	0.0016 Lb/hr			Yes	0.33	10 Individual 25 Combined	No	N/A	No			
Mn	0.013 Lb/hr			Yes	2.69	10 Individual 25 Combined	No	N/A	No			
EU BOF	ESP	PM	0.0152 gr/dscf	Yes	37517	100	Yes	No	Yes	274.2	Yes	Minimum 15 min
		PM	0.02 gr/dscf	Yes	37517	100	Yes	Yes - Subject to I&S MACT	No			
		PM	62.6 Lb/hr	Yes	37517	100	Yes	No	Yes	274.2	Yes	Minimum 15 min
		PM10	47.5 Lb/hr	Yes	37517	100	Yes	No	Yes	208.1	Yes	Minimum 15 min
		PM2.5	46.85 Lb/hr	Yes	37517	100	Yes	No	Yes	205.2	Yes	Minimum 15 min
		NOx	52.9 Lb/hr	No					No			
		NOx	162.1 TPY	No					No			
		CO	7048 Lb/hr	No					No			
		Mn	0.10 Lb/hr	Yes	59.93	10 Individual 25 Combined	Yes	No	Yes	0.44	No	Daily
		Pb	0.067 Lb/hr	Yes	40.15	10 Individual 25 Combined	Yes	No	Yes	0.29	No	Daily
		Hg	0.0086 Lb/hr	Yes	5.15	10 Individual 25 Combined	Yes	No	Yes	0.04	No	Daily

ATTACHMENT D – FACILITY POTENTIAL TO EMIT CALCULATIONS

**NOTE: THIS ATTACHMENT CONTAINS CONSERVATIVE ESTIMATES FOR CALCULATING
MAXIMUM MATERIAL THROUGHPUT AND EMISSION RATES. THESE CONSERVATIVE
ASSUMPTIONS SHOULD NOT BE INTERPRETED AS LIMITS.**

Analysis AK Steel Dearborn Works HAP PTE (Controlled)

	Blast Furnace (lbs)	BOF (lbs)	Caster (lbs)	HSM (lbs)	Annealing (lbs)	Scarfiging (lbs)	PLTCM (lbs)	HDGL (lbs)	Emergency Engines (lbs)	Roads (lbs)	Total Tons
Lead	242.10	1371.66	306.77	3.69	0.59	0.06	0.00	0.69	0.00	0.00	0.96
Manganese	1069.52	4122.09	4555.33	2.80	0.44	315.56	16.28	0.52	0.00	294.70	5.19
Mercury	27.19	103.84	0.41	1.92	0.30	0.03	0.00	0.36	0.00	0.00	0.07
Other Metals	112.00	454.08	80.06	41.85	6.65	19.22	3.74	7.81	0.00	0.00	0.36
Benzene	3.46	1.78	0.73	15.49	2.46	0.26	0.00	2.89	0.00	0.00	0.01
Dichlorobenzene	1.98	1.02	0.42	8.85	1.41	0.15	0.00	1.65	0.00	0.00	0.01
Formaldehyde	515.64	63.70	26.18	553.05	87.83	9.33	0.00	103.44	13.57	0.00	0.69
Napthalene	1.01	0.52	0.21	4.50	0.71	0.08	0.00	0.84	0.00	0.00	0.00
Toluene	5.60	2.89	1.19	25.07	3.98	0.42	0.00	4.68	0.00	0.00	0.02
Misc. Organic HAPS	140.76	0.07	0.03	0.65	0.10	0.01	0.00	0.12	4.42	0.00	0.07
Hexane	19.13	5.27	2.16	45.72	7.26	0.77	0.00	8.53	0.27	0.00	0.04
HCl	0.00	0.00	0.00	0.00	0.00	0.00	4802.23	0.00	0.00	0.00	2.40
Unclassified HAPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.15	14.41	294.70	0.16
Cyanide	29.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Total HAPS	2168.27	6126.92	4973.50	703.58	111.73	345.89	4822.26	135.69	32.67	589.40	10.00

Ironmaking Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source	
C-BF Baghouse	Lead	7.700E-03	Lb/hr	Permit Limit	8760	Hours of Operation	0.034		0.034	67.5		Permit Limit - ROP - EUCLURNACE - P.38	
	Manganese	4.200E-02	Lb/hr	Permit Limit	8760	Tons of Iron Produced	0.184		0.184	367.9		Permit Limit - ROP - EUCLURNACE - P.38	
	Antimony	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
	Arsenic	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
	Beryllium	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
	Cadmium	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
	Chromium	8.40E-04	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.004		0.004	7.4	Based on 2012 ICR Testing		
	Cobalt	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
	Mercury	5.20E-05	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.5	Based on 2012 ICR Testing		
	Nickel	3.50E-03	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.015		0.015	30.7	Based on 2012 ICR Testing		
	Selenium	5.60E-03	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.025		0.025	49.1	Based on 2012 ICR Testing		
	Hexavalent Chromium	ND	lb/hr	April 2012 ICR Testing	8760.0	Hours of Operation	0.000		0.000	0.0	Based on 2012 ICR Testing		
C-BF Casthouse Roof Monitor	PM	1.670E-02	lb/ton	ROP Calculations	2920000	Tons of Iron Produced			24.38	48764	Maximum Iron Production (8000 TPD), ROP Calculation Methodology	Calculation Methodology: ROP Appendix 7.7-1 P. 133	
	Lead	2.650E-05	lb/ton	ROP Calculations	2920000	Tons of Iron Produced			0.039	77.4	Maximum Iron Production (8000 TPD), ROP Calculation Methodology	Calculation Methodology: ROP Appendix 7.7-1 P. 133	
	Manganese	1.550E-04	lb/ton	ROP Calculations	2920000	Tons of Iron Produced			0.226	452.6	Maximum Iron Production (8000 TPD), ROP Calculation Methodology	Calculation Methodology: ROP Appendix 7.7-1 P. 133	
	Arsenic	0.3	ppm	Waste Analytical for BF Baghouse Dust	2920000	Tons of Iron Produced			N/A	7.31E-06	0.0	Based on 2019 Waste Analytical for BH Dust	PPM x PM
	Chromium	66.0	ppm	Waste Analytical for BF Baghouse Dust	2920000	Tons of Iron Produced			N/A	1.61E-03	3.2	Based on 2019 Waste Analytical for BH Dust	PPM x PM
	Mercury	0.0	ppm	Waste Analytical for BF Baghouse Dust	2920000	Tons of Iron Produced			N/A	3.87E-10	0.0	Based on 2019 Waste Analytical for BH Dust	PPM x PM
	Selenium	0.9	ppm	Waste Analytical for BF Baghouse Dust	2920000	Tons of Iron Produced			N/A	1.99E-07	0.0	Based on 2019 Waste Analytical for BH Dust	PPM x PM
C-BF Stoves (BFG Gas Consumption)	Lead	1.100E-02	lb/hr	Permit Limit	8760	Hours of Operation	0.048		0.048	96.4		Permit Limit - ROP - EUCLURNACE - P.38-39	
	Manganese	1.200E-02	lb/hr	Permit Limit	8760	Hours of Operation	0.053		0.053	105.12		Permit Limit - ROP - EUCLURNACE - P.38-39	
	Mercury	3.000E-03	lb/hr	Permit Limit	8760	Hours of Operation	0.013		0.013	26.28		Permit Limit - ROP - EUCLURNACE - P.38-39	
	Antimony	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing	Maximum BFG Gas Usage based on 182-ISC PTE Calculations - See Tab B.4	
	Arsenic	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing		
	Beryllium	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing		
	Cadmium	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing		
	Chromium	2.19E-04	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.004		0.004	8.29	Based on 2012 ICR Testing		
	Cobalt	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing		
	Nickel	1.40E-04	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.003		0.003	5.30	Based on 2012 ICR Testing		
	Selenium	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing		
Hexavalent Chromium	ND	lb/mmf	March 2012 ICR Testing	37841	mmcf BFG	0.000		0.000	0.00	Based on 2012 ICR Testing			
Raw Material Handling Baghouse	PM	1.0	Lb/hr	Permit Limit	8760	Hours of Operation	N/A		4.38	8760			
	Manganese	2500	PPM	Engineering Estimate	8760	Hours of Operation	N/A		N/A	30.66	Based on 3500 PPM, Spec in pellet ore is 3000 PPM		
BF Slag Pits	PM10 (Filterable)	0.0216	lb/ton	AP-42	699600.0	Tons BF Slag	7.56		7.56	15111	3 step calculation - Dumping + Digging + Truck Loading - Used High Silt factor for dumping, low silt for others	AP42 Chapter 12.5 - Table 12.5-4	
	Manganese	7.776E-05	lb/ton	3600 ppm of PM10	699600.0	Tons BF Slag	0.03		0.03	54	Maximum Throughput calculated as 2019 throughput scaled up to 2920000 tons iron	182-ISC PTE Calculations - Tab B.2a. Indicated Manganese was 3600 ppm of the PM10	
Coke Unloading EE Baghouse (PM Emissions)	PM	0.085	lb/ton	FIRE / AP-42	1243393	tons coke	52.84	0.995	0.26	528.4	MAERS Factor	Tons scaled up based on 2019 Production and Coke Usage	
	Manganese	7320	ppm	Waste Analytical for Coke Breeze	1243393	tons coke	0.39	0.995	0.00	3.9	Based on 2008 Lab Analytical for Coke Breeze		
Coke Transfer DD	PM	0.085	lb/ton	FIRE / AP-42	1243393	tons coke	52.84	0.995	0.26	528.4	MAERS Factor	Tons scaled up based on 2019 Production and Coke Usage	
	Manganese	7320	ppm	Waste Analytical for Coke Breeze	1243393	tons coke	0.39	0.995	0.00	3.9	Based on 2008 Lab Analytical for Coke Breeze		
Tuyere Cooling Emergency Engine	PM10 (Primary)	7.90E-02	lb/mmf	MAERS	2.005	mmcf	0.00		0.00	0.16	mmcf calculated as 4.09 x Hours / 1020 - 500 hours used in calculation	EF based on MAERS Factors	
	Formaldehyde	5.280E-02	lb/mmbtu	AP-42	2045.000	mmbtu	0.05		0.05	107.98	mmbtu - mmcf x 1020	mmbtu calculated based on 500 hours	
	Hexane	1.110E-03	lb/mmbtu	AP-42	2045.000	mmbtu	0.00		0.00	2.27			
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	2045.000	mmbtu	0.02		0.02	37.42			
Hearth-Stage Emergency Engine	PM10 (Primary)	7.90E-02	lb/mmf	MAERS	3.029	mmcf	0.00		0.00	0.24	mmcf calculated as 6.18 x Hours / 1020 - 500 hours used in calculation	EF based on MAERS Factors	
	Formaldehyde	5.280E-02	lb/mmbtu	AP-42	3090.000	mmbtu	0.08		0.08	163.15	mmbtu - mmcf x 1020	mmbtu calculated based on 500 hours	
	Hexane	1.110E-03	lb/mmbtu	AP-42	3090.000	mmbtu	0.00		0.00	2.43			
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	3090.000	mmbtu	0.03		0.03	56.55			
Bosh-Stage Emergency Engine	PM10 (Primary)	9.66E-02	lb/mmf	MAERS	0.971	mmcf	0.00		0.00	9.41	mmcf calculated as 1.98 x Hours / 1020 - 500 hours used in calculation	EF based on MAERS Factors	
	Formaldehyde	2.050E-02	lb/mmbtu	AP-42	990.000	mmbtu	0.01		0.01	20.30	mmbtu - mmcf x 1020	mmbtu calculated based on 500 hours	
	Hexane	1.110E-03	lb/mmbtu	AP-42	990.000	mmbtu	0.00		0.00	1.10			
	Misc. Organic HAPS	1.190E-02	lb/mmbtu	AP-42	990.000	mmbtu	0.01		0.01	11.78			

Ironmaking Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
WSAC Emergency Engine	PM10 (Primary)	9.69E-02	lb/mmcf	MAERS	0.971	mcf	0.00		0.00	9.41	mcf calculated as 1.98 x Hours / 1020 - 500 hours used in calculation	EF based on MAERS Factors
	Formaldehyde	5.280E-02	lb/mmbtu	AP-42	990.000	mmbtu	0.03		0.03	52.27	mmbtu = mcf x 1020	mmbtu calculated based on 500 hours
	Hexane	1.110E-03	lb/mmbtu	AP-42	990.000	mmbtu	0.00		0.00	1.10		
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	990.000	mmbtu	0.01		0.01	18.12		
Guns and Drills Emergency Engine	PM10 (Primary)	9.69E-02	lb/mmcf	MAERS	0.5343	mcf	0.00		0.00	5.18	mcf calculated as 1.09 x Hours / 1020	EF based on MAERS Factors
	Formaldehyde	5.280E-02	lb/mmbtu	AP-42	545.000	mmbtu	0.01		0.01	28.78	mmbtu = mcf x 1020	mmbtu calculated based on 500 hours
	Hexane	1.110E-03	lb/mmbtu	AP-42	545.000	mmbtu	0.00		0.00	0.60		
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	545.000	mmbtu	0.00		0.00	9.97		
Gas Scrubber Emergency Engine	PM10 (Primary)	9.69E-02	lb/mmcf	MAERS	0.393	mcf	0.00		0.00	3.52	mcf calculated as 0.74 x Hours / 1020	EF based on MAERS Factors
	Formaldehyde	5.290E-02	lb/mmbtu	AP-42	370.000	mmbtu	0.01		0.01	19.54	mmbtu = mcf x 1020	mmbtu calculated based on 500 hours
	Hexane	1.110E-03	lb/mmbtu	AP-42	370.000	mmbtu	0.00		0.00	0.41		
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	370.000	mmbtu	0.00		0.00	6.77		
PCI Site (Coal Handling)						NO HAPS						
Bleeder Slips (Note that most openings are not due to slips; however, all openings are assumed to be due to slips for this calculation)	Lead	3.15E-04	lb/slip	PTI 182-05C Permit Application	199	slips	3.13E-05		3.13E-05	0.06	Volume of 0.15 mcf gas assumed for slips	182-05C PTE Calculations - Tab B.10
	Manganese	3.47E-04	lb/slip	PTI 182-05C Permit Application	199	slips	3.45E-05		3.45E-05	0.07	Maximum slip estimate based on 182-05C PTE Calculations	See Bleeder Emission factor Calculations
	Mercury	8.10E-05	lb/slip	PTI 182-05C Permit Application	199	slips	8.06E-06		8.06E-06	0.02		
Bleeder Planned Openings (Shutdowns)	Lead	7.39E-05	lb/opening	PTI 182-05C Permit Application	243	planned openings	6.98E-06		6.98E-06	0.02	Planned Openings = x 2 to account for startup and shutdown. Volume of 0.035211 mcf gas calculated for planned openings.	182-05C PTE Calculations - Tab B.10
	Manganese	8.13E-05	lb/opening	PTI 182-05C Permit Application	243	planned openings	9.88E-06		9.88E-06	0.02	Calculated maximum number of openings by assuming a planned shutdown every 3 days (2 openings every 3 days)	See Bleeder Emission factor Calculations
	Mercury	1.90E-05	lb/opening	PTI 182-05C Permit Application	243	planned openings	2.31E-06		2.31E-06	0.00		
Bleeders Planned Openings (Reseating Bleeder)	Lead	5.74E-05	lb/opening	PTI 182-05C Permit Application	120	openings	3.44E-06		3.44E-06	0.01	Reseat Openings Calculated assuming windrate of 70k, duration of 15 seconds, headspace calculation still applies. Calculated 0.027344 mcf gas	182-05C PTE Calculations - Tab B.10
	Manganese	8.13E-05	lb/opening	PTI 182-05C Permit Application	120	openings	4.88E-06		4.88E-06	0.01	Estimated maximum as 10 times / month	See Bleeder Emission factor Calculations
	Mercury	1.90E-05	lb/opening	PTI 182-05C Permit Application	120	openings	1.14E-06		1.14E-06	0.00		
Portable Screener						NO HAPS						
Pellet Ore Loading and Unloading	PM10 (Filterable)	2.200E-03	lb/ton	AP 42 Chapter 12.5 P11 182-05C Permit Application	4593696	tons ore	5.05		5.05	10106	Assume Mn of 3500 ppm of PM10 Emissions based on 182-05C PTE Calculations. Throughput calculated as 2019 throughput scaled up to 2920000 tons hot metal.	182-05C PTE Calculations Tab B.53 as reference but assumed no control, multiplied by 2 to account for multiple handlings
	Manganese	7.700E-06	lb/ton	AP 42 Chapter 12.5 P11 182-05C Permit Application	4593696.0	tons ore	0.02		0.02	35		
Pile Formation in yard	PM10 (Filterable)	5.14E-03	lb/ton	AP 42 Chapter 13.2 Engineering Estimate	833866	tons	2.14		2.14	4282	Assume Mn of 3500 ppm of PM10 Emissions based on 182-05C PTE Calculations for iron ore. Throughput calculated as 2019 throughput scaled up to 2920000 tons hot metal.	See 2019 Pile Emission Calculations - Multiple handlings assumed
	Manganese	1.797E-05	ppm	AP 42 Chapter 13.2 Engineering Estimate	696600.0		15		15	30		
BF Cooling Tower	Cyanide	3.410E-03	Lb/hr	Engineering Estimate	8760.0	Hours of Operation	0.01		0.01	30		
Natural Gas Sources	Arsenic	2.00E-04	lb/mmcf	AP-42	1648.471	mcf	1.65E-04		1.65E-04	0.33	Total Gas Usage based on 2019 prorated to maximum production	Blast Furnace Natural Gas PTE Calculations
	Beryllium	1.20E-05	lb/mmcf	AP-42	1648.471	mcf	9.89E-06		9.89E-06	0.02	Includes:	
	Cadmium	1.10E-03	lb/mmcf	AP-42	1648.471	mcf	9.07E-04		9.07E-04	1.81	C-Blast Furnace Stoves	
	Chromium	1.40E-03	lb/mmcf	AP-42	1648.471	mcf	1.15E-03		1.15E-03	2.31	C-BF Gas Suppression	
	Cobalt	8.40E-05	lb/mmcf	AP-42	1648.471	mcf	6.92E-05		6.92E-05	0.14	Coke Unloading Baghouse	
	Manganese	3.80E-04	lb/mmcf	AP-42	1648.471	mcf	3.13E-04		3.13E-04	0.63	Stockhouse Baghouse	
	Lead	5.00E-04	lb/mmcf	AP-42	1648.471	mcf	4.12E-04		4.12E-04	0.82	Treadwell Dryout	
	Mercury	2.60E-04	lb/mmcf	AP-42	1648.471	mcf	2.14E-04		2.14E-04	0.43		
	Nickel	2.10E-03	lb/mmcf	AP-42	1648.471	mcf	1.73E-03		1.73E-03	3.46	Basis of mcf was 2019 usage prorated to maximum tons hot metal	
	Selenium	2.40E-05	lb/mmcf	AP-42	1648.471	mcf	1.98E-05		1.98E-05	0.04	Exception was BF gas suppression which has a usage limit	
	Benzene	2.10E-03	lb/mmcf	AP-42	1648.471	mcf	1.73E-03		1.73E-03	3.46		
	Dichlorobenzene	1.20E-03	lb/mmcf	AP-42	1648.471	mcf	9.89E-04		9.89E-04	1.98		
	Formaldehyde	7.50E-02	lb/mmcf	AP-42	1648.471	mcf	6.18E-02		6.18E-02	123.84		
	Naphthalene	6.10E-04	lb/mmcf	AP-42	1648.471	mcf	5.03E-04		5.03E-04	1.01		
	Toluene	3.40E-03	lb/mmcf	AP-42	1648.471	mcf	2.80E-03		2.80E-03	5.60		
	Misc. Organic HAPS	8.80E-05	lb/mmcf	AP-42	1648.471	mcf	7.27E-05		7.27E-05	0.15		
	Hexane	6.20E-03	lb/mmcf	CARB Factor	1648.471	mcf	5.11E-03		5.11E-03	10.22		

Total HAP PTE (controlled), Pounds	
Arsenic	0.344
Beryllium	0.020
Lead	242.104
Manganese	1069.521
Antimony	0.000
Cadmium	1.813
Chromium	21.172
Cobalt	0.138
Mercury	27.187
Nickel	39.420
Selenium	49.096
Hexavalent Chromium	0.000
Formaldehyde	515.642
Hexane	19.134
Misc. Organic HAPS	140.759
Benzene	3.462
Dichlorobenzene	1.978
Naphthalene	1.006
Toluene	5.605
Cyanide	29.872
Misc. Metals	112.003
Total	2168.271

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

BOF Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Rate	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (Tons)	Controlled (Lbs)	Comments	Source	
BOF Charging Roof	PM	0.8	lb/ton	AP-42, Chapter 12.5	2920000	Tons of Iron Charged	876.0	0.98	17.52	35040	Calculation based on stack testing on SEC Baghouse - Used highest results from 2019 testing, Iron Based on Max BF Throughput (8000 TPD)	AP42 Chapter 12.5, Table 12.5-1 (Charging at Source)	
	Lead	1.170E-02	lb/ton	Stack Testing	2920000	Tons of Iron Charged	17.08	0.98	0.34	683.28		Charging Roof Pb, Mn, Hg Calculations	
	Manganese	4.890E-03	lb/ton	Stack Testing	2920000	Tons of Iron Charged	7.14	0.98	0.14	285.58			
	Mercury	3.870E-05	lb/ton	Stack Testing	2920000	Tons of Iron Charged	0.05	0.98	0.00	2.14			
	Copper	2.000E-04	lb/ton	MAERS	2920000	Tons of Iron Charged	0.29	0.98	0.01	11.68		Former MAERS EF	
	Chromium	780.0	PPM	Waste Analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.68	0.98	0.01	27.33		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Nickel	18.0	PPM	Waste Analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.02	0.98	0.00	0.63		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Selenium	0.8	PPM	Waste Analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.00	0.98	0.00	0.03		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
BOF Tapping Roof	PM	0.92	lb/ton	AP-42, Chapter 12.5	4052230	Tons of Steel Tapped	1884.0	0.98	37.28	7491		AP42 Chapter 12.5, Table 12.5-1 (Tapping at Source)	
	Lead	N/A	lb/ton	See Comments	4052230	Tons of Steel Tapped	N/A	N/A	N/A	N/A	Lead Emissions included in charging roof calculation	Permit Limit on maximum throughput	
	Manganese	N/A	lb/ton	See Comments	4052230	Tons of Steel Tapped	N/A	N/A	N/A	N/A	Manganese Emissions included in charging roof calculation		
	Mercury	N/A	lb/ton	See Comments	4052230	Tons of Steel Tapped	N/A	N/A	N/A	N/A	Mercury Emissions included in charging roof calculation		
	Copper	4.00E-04	lb/ton	MAERS	4052230	Tons of Steel Tapped	0.81	0.98	0.02	32.42		Calculation for charging for Pb, Mn, Hg includes all Fugitive Emissions from SEC Baghouse Controlled Sources	Former MAERS EF
	Chromium	780.0	PPM	Waste Analytical for SEC Baghouse Dust	4052230	Tons of Iron Charged	1.45	0.98	0.03	58.16		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Nickel	18.0	PPM	Waste Analytical for SEC Baghouse Dust	4052230	Tons of Iron Charged	0.03	0.98	0.00	1.34		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Selenium	0.8	PPM	Waste Analytical for SEC Baghouse Dust	4052230	Tons of Iron Charged	0.00	0.98	0.00	0.06		Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
BOF Slag Tap Roof	PM	0.92	lb/ton	Assume same as Tap	435714	Tons Slag Tapped	200.4	0.98	4.01	8017		Tapping Emission Factor for PT (throughput calculated as 2019 throughput prorated to maximum production)	
	Lead	N/A	lb/ton	See Comments	435714	Tons Slag Tapped	N/A	N/A	N/A	N/A	Lead Emissions included in charging roof calculation		
	Manganese	N/A	lb/ton	See Comments	435714	Tons Slag Tapped	N/A	N/A	N/A	N/A	Manganese Emissions included in charging roof calculation		
	Mercury	N/A	lb/ton	See Comments	435714	Tons Slag Tapped	N/A	N/A	N/A	N/A	Mercury Emissions included in charging roof calculation		
	Arsenic	1.3	PPM	Waste Analytical for BOF Slag	435714	Tons Slag Tapped	0.00	0.98	0.00	0.01		Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Chromium	1400	PPM	Waste Analytical for BOF Slag	435714	Tons Slag Tapped	0.28	0.98	0.01	11.22		Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Nickel	8.8	PPM	Waste Analytical for BOF Slag	435714	#REF!	0.00	0.98	0.00	0.07		Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Selenium	4.9	PPM	Waste Analytical for BOF Slag	435714	#REF!	0.00	0.98	0.00	0.04		Based on 2018 Waste Analytical for BOF Slag	PPM x PM
BOF SEC Baghouse	Lead	N/A	lb/hr	See Comments	8760	Hours of Operation	N/A	N/A	N/A	N/A	Combined limit with ESP - Included in ESP Calculations		
	Manganese	N/A	lb/hr	See Comments	8760	Hours of Operation	N/A	N/A	N/A	N/A	Combined limit with ESP - Included in ESP Calculations		
	Mercury	N/A	lb/hr	See Comments	8760	Hours of Operation	N/A	N/A	N/A	N/A	Combined limit with ESP - Included in ESP Calculations		
	Antimony	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Arsenic	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Beryllium	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Cadmium	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Chromium	2.50E-03	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.01	0.98	0.00	0.44		Based on 2012 ICR Testing	
	Cobalt	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Nickel	3.40E-03	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.01	0.98	0.00	0.60		Based on 2012 ICR Testing	
	Selenium	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	Hexavalent Chromium	ND	lb/hr	Jan. 2012 ICR Testing	8760	Hours of Operation	0.00	0.98	0.00	0.00		Based on 2012 ICR Testing	
	BOF ESP	Lead	0.067	lb/hr	Proposed Permit Limit	8760	Hours of Operation	0.29	0.29	586.9		Combined limit with SEC Baghouse - In ROP	Permit Limit - ROP - FGBQFSHOP P, 95
Manganese		0.10	lb/hr	Proposed Permit Limit	8760	Hours of Operation	0.44	0.44	876.0		Combined limit with SEC Baghouse - In ROP	Permit Limit - ROP - FGBQFSHOP P, 95	
Mercury		8.600E-03	lb/hr	Permit Limit	8760	Hours of Operation	0.04	0.04	75.3		Combined limit with SEC Baghouse - In ROP	Permit Limit - ROP - FGBQFSHOP P, 95	
Antimony		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Arsenic		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Beryllium		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Cadmium		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Chromium		1.60E-02	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.07	0.07	140.2			Based on 2012 ICR Testing	
Cobalt		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Nickel		9.40E-03	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.04	0.04	82.3			Based on 2012 ICR Testing	
Selenium		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
Hexavalent Chromium		ND	lb/hr	April 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
BOF Desulf Roof Monitor		PM	1.09	lb/ton	AO-42	2920000	Tons Iron	1591.40	0.93	111.40	222796		AP42 Chapter 12.5, Table 12.5-1 (Hot Metal Desulfurization, Uncontrolled)
	Lead	4.160E-04	lb/ton	Stack Testing	2920000	Tons Iron	0.61	0.93	0.043	85.0		Based on Most Recent Stack Test - Scaled Lead and Manganese to permit limit	
	Manganese	1.070E-02	lb/ton	Stack Testing	2920000	Tons Iron	15.62	0.93	1.084	2187.1		Desulf Roof Pb, Mn Calculations	
	Arsenic	33.0	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.05	0.93	0.004	7.4		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Cadmium	0.9	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.00	0.93	0.000	0.2		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Chromium	27.0	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.04	0.93	0.003	6.0		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Cobalt	5.9	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.01	0.93	0.001	1.3		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Mercury	0.2	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.00	0.93	0.000	0.0		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Nickel	12.0	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.02	0.93	0.001	2.7		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
	Selenium	5.0	PPM	Waste Analytical for Desulf Baghouse Dust	2920000	Tons Iron	0.01	0.93	0.001	1.1		Based on 2018 Waste Analytical for Desulf BH Dust	PPM x PM
BOF Desulf Stack	Lead	1.600E-03	lb/hr	Permit Limit	8760	Hours of Operation	0.01	0.01	14.0				
	Manganese	1.300E-02	lb/hr	Permit Limit	8760	Hours of Operation	0.06	0.06	113.9				
	Mercury	1.490E-03	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.01	0.01	13.1			Based on 2012 ICR Testing	
	Antimony	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Arsenic	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Beryllium	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Cadmium	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Chromium	6.40E-04	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.003	0.003	5.6			Based on 2012 ICR Testing	
	Cobalt	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Mercury	1.49E-03	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.007	0.007	13.1			Based on 2012 ICR Testing	
	Nickel	4.80E-04	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.002	0.002	4.2			Based on 2012 ICR Testing	
	Selenium	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	
	Hexavalent Chromium	ND	lb/hr	Feb 2012 ICR Testing	8760	Hours of Operation	0.00	0.00	0.0			Based on 2012 ICR Testing	

BOF Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Rate	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (Tons)	Controlled (Lbs)	Comments	Source
BOF Natural Gas	Arsenic	2.00E-04	lb/mmcf	AP-42	849.3552	mmcf	8.49E-05		8.49E-05	0.17	Total Gas Usage based on 2019 prorated to maximum production	Natural Gas PTE Calculations
	Beryllium	1.26E-05	lb/mmcf	AP-42	849.3552	mmcf	5.10E-06		5.10E-06	0.01		
	Cadmium	1.10E-03	lb/mmcf	AP-42	849.3552	mmcf	4.67E-04		4.67E-04	0.93		
	Chromium	1.40E-03	lb/mmcf	AP-42	849.3552	mmcf	5.95E-04		5.95E-04	1.19		
	Cobalt	8.40E-04	lb/mmcf	AP-42	849.3552	mmcf	3.57E-04		3.57E-04	0.71		
	Manganese	3.80E-04	lb/mmcf	AP-42	849.3552	mmcf	1.61E-04		1.61E-04	0.32		
	Lead	5.00E-04	lb/mmcf	AP-42	849.3552	mmcf	2.12E-04		2.12E-04	0.42		
	Mercury	2.60E-04	lb/mmcf	AP-42	849.3552	mmcf	1.10E-04		1.10E-04	0.22		
	Nickel	2.10E-03	lb/mmcf	AP-42	849.3552	mmcf	8.92E-04		8.92E-04	1.78		
	Selenium	2.40E-05	lb/mmcf	AP-42	849.3552	mmcf	1.02E-05		1.02E-05	0.02		
	Benzene	2.10E-03	lb/mmcf	AP-42	849.3552	mmcf	8.92E-04		8.92E-04	1.78		
	Dichlorobenzene	1.20E-03	lb/mmcf	AP-42	849.3552	mmcf	5.10E-04		5.10E-04	1.02		
	Formaldehyde	7.50E-02	lb/mmcf	AP-42	849.3552	mmcf	3.19E-02		3.19E-02	63.70		
	Naphthalene	6.10E-04	lb/mmcf	AP-42	849.3552	mmcf	2.59E-04		2.59E-04	0.52		
	Toluene	3.40E-03	lb/mmcf	AP-42	849.3552	mmcf	1.44E-03		1.44E-03	2.89		
	Misc. Organic HAPS	8.82E-05	lb/mmcf	AP-42	849.3552	mmcf	3.75E-05		3.75E-05	0.07		
	Hexane	6.20E-03	lb/mmcf	CARB	849.3552	mmcf	2.63E-03		2.63E-03	5.27		
BOF Lime Receiving	PT	0.6	lb/hr	Emission Limit	2190	Hours of Operation	0.66		0.66	1314.0	Michigan Rule 290 Permit Limit (Back-Calculated from grain loading limit)	Rule 290 Calculations (scaled to 8760 hours)
	Lead	1.35	PPM	Waste Analytical for Lime Baghouse Dust	2190	Tons Iron	N/A	N/A	0.000	0.0	Based on 2012 Waste Analytical for Lime BH Dust	PPM x PM
	Manganese	195	PPM	waste analytical for Lime Baghouse Dust	2190	Tons Iron	N/A	N/A	0.000	0.3	Based on 2012 Waste Analytical for Lime BH Dust	PPM x PM
Iron Dumping / Beaching	PM10 (Filterable)	0.19	lb/ton	AP42, Chapter 12.5	15270	tons iron beached	1.45		1.45	2901.3		
	Manganese	8.360E-04	ppm	182-05C PTE Calculations	15270	tons iron beached	0.01		0.01	12.8	Based on 4400 ppm Manganese in Hot Metal, throughput based on 182-05C PTE Calculations	182-05C PTE Calculations (Tab B.54)
Relanding Roof	PT	0.19	lb/ton	AP 42, Chapter 12.5	2920000	Tons of Iron Relanded	277.4	0.98	5.55	11098		ROP Appendix 7-1
	Lead	N/A	lb/ton	See Comments	2920000	tons iron	N/A	N/A	N/A	N/A	Lead Emissions included in charging roof calculation	Calculation for charging for Pb, Mn, Hg includes all Fugitive Emissions from SEC Baghouse Controlled Sources
	Manganese	N/A	lb/ton	See Comments	2920000	tons iron	N/A	N/A	N/A	N/A	Manganese Emissions included in charging roof calculation	
	Mercury	N/A	lb/ton	See Comments	2920000	tons iron	N/A	N/A	N/A	N/A	Mercury Emissions included in charging roof calculation	
	Chromium	780.0	PPM	Waste Analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.22	0.98	0.00	8.65	Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Nickel	18.0	PPM	Waste Analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.00	0.98	0.00	0.20	Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
	Selenium	0.8	PPM	waste analytical for SEC Baghouse Dust	2920000	Tons of Iron Charged	0.00	0.98	0.00	0.01	Based on 2018 Waste Analytical for SEC BH Dust	PPM x PM
Runway Slag (BOF)	PT	3.68	lb/ton	Other	43572	Tons Runway Slag	80.17	0.80	16.03	32069	2019 Data scaled up to tapping permit limit	Same as Slag Tap - Assume 4 Handlings
	Arsenic	1.3	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.00	0.80	0.00	0.04	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Chromium	1400	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.11	0.80	0.02	44.90	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Nickel	8.8	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.00	0.80	0.00	0.28	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Selenium	4.9	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.00	0.80	0.00	0.16	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Mercury	0.02	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.00	0.80	0.00	0.00	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Lead	53.00	PPM	Waste Analytical for BOF Slag	43572	Tons Runway Slag	0.00	0.80	0.00	1.70	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	Manganese	20000.00	PPM	waste analytical for BOF Slag	43572	Tons Runway Slag	1.60	0.80	0.32	641.38	Based on 2018 Waste Analytical for BOF Slag	PPM x PM
	BOF Fugitive Emissions in Building	PM10 (Filterable)	0.0271	lb/ton	AP-42 Chapter 12.5	112144	tons material	1.52	0.70	0.46	911.79	Assumed 4400 PPM, Prorated 2019 throughput to maximum production, assumed same emission factor
Manganese		1.192E-04	lb/ton	Engineering Estimate	112144	tons material	0.01	0.70	0.00	4.01		
Backup Slag Skimming	PM10 (Filterable)	0.029	lb/ton	All Materials	480000	Tons Hot Metal	0.00	0.70	0.00	3600.0	Max Throughput = 40000 tons per month (Max to be 290 exempt)	
	Manganese	5.66E-06	lb/ton	Rule 290 Calculations	480000	Tons Hot Metal	0.00	0.70	0.00	0.82		

Total HAP PTE (controlled), Pounds	
Arsenic	7.574
Beryllium	0.010
Lead	1371.663
Manganese	4122.087
Antimony	0.000
Cadmium	1.139
Chromium	303.673
Cobalt	2.028
Mercury	103.843
Nickel	94.127
Selenium	1.427
Hexavalent Chromium	0.000
Formaldehyde	63.702
Hexane	5.266
Misc. Organic HAPS	0.075
Benzene	1.784
Dichlorobenzene	1.019
Naphthalene	0.518
Toluene	2.888
Copper	44.098
Misc. Metals	454.077
Total	6128.922

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

Caster Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
No. 1 LRF Stack	Lead	2.200E-02	Lbs/hr	Permit Limit	8760	Hours of Operation	0.10		0.10	192.72		Permit Limit - ROP - EULADLEREFINE1 P. 70
	Antimony	ND	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.00		0.00	0.00	Based on 2011 ICR Testing	
	Arsenic	ND	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.00		0.00	0.00	Based on 2011 ICR Testing	
	Beryllium	7.80E-06	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.07	Based on 2011 ICR Testing	
	Cadmium	7.90E-05	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.69	Based on 2011 ICR Testing	
	Chromium	1.30E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.006		0.006	11.39	Based on 2011 ICR Testing	
	Cobalt	1.70E-04	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.001		0.001	1.49	Based on 2011 ICR Testing	
	Manganese	3.30E-01	Lbs/hr	Manganese Testing Analysis	8760	Hours of Operation	1.445		1.445	2890.80	Based on Statistical Analysis of Previous Mn Tests	Manganese Testing Analysis
	Mercury	1.80E-05	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.16	Based on 2011 ICR Testing	
	Nickel	1.30E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.006		0.006	11.39	Based on 2011 ICR Testing	
	Selenium	1.60E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.007		0.007	14.02	Based on 2011 ICR Testing	
No. 2 LRF Stack	Lead	1.3000E-02	Lbs/hr	Permit Limit	8760	Hours of Operation	0.06		0.06	113.88		Permit Limit - ROP - EULADLEREFINE2 P. 75
	Antimony	ND	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.00		0.00	0.00	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Arsenic	ND	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.00		0.00	0.00	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Beryllium	7.80E-06	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.07	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Cadmium	7.90E-05	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.69	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Chromium	1.30E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.006		0.006	11.39	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Cobalt	1.70E-04	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.001		0.001	1.49	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Manganese	1.90E-01	Lbs/hr	Manganese Testing Analysis	8760	Hours of Operation	0.832		0.832	1664.40	Based on Statistical Analysis of Previous Mn Tests	Manganese Testing Analysis
	Mercury	1.80E-05	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.000		0.000	0.16	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Nickel	1.30E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.006		0.006	11.39	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
	Selenium	1.60E-03	Lbs/hr	Dec 2011 ICR Testing	8760	Hours of Operation	0.007		0.007	14.02	Based on 2011 ICR Testing (Note: ICR Testing on LRF1 Only)	
Vacuum Degasser	NO HAPS											
Caster Natural Gas	Arsenic	2.00E-04	lb/mmcft	AP-42	349	mmcft	3.49E-05		3.49E-05	0.07	Maximum Gas Usage based on 2019 usage prorated to maximum production	Natural Gas PTE Calculations
	Beryllium	1.20E-05	lb/mmcft	AP-42	349	mmcft	2.09E-06		2.09E-06	0.00		
	Cadmium	1.10E-03	lb/mmcft	AP-42	349	mmcft	1.92E-04		1.92E-04	0.38		
	Chromium	1.40E-03	lb/mmcft	AP-42	349	mmcft	2.44E-04		2.44E-04	0.49		
	Cobalt	8.40E-04	lb/mmcft	AP-42	349	mmcft	1.47E-04		1.47E-04	0.29		
	Manganese	3.80E-04	lb/mmcft	AP-42	349	mmcft	6.63E-05		6.63E-05	0.13		
	Lead	5.00E-04	lb/mmcft	AP-42	349	mmcft	8.73E-05		8.73E-05	0.17		
	Mercury	2.60E-04	lb/mmcft	AP-42	349	mmcft	4.54E-05		4.54E-05	0.09		
	Nickel	2.10E-03	lb/mmcft	AP-42	349	mmcft	3.66E-04		3.66E-04	0.73		
	Selenium	2.40E-05	lb/mmcft	AP-42	349	mmcft	4.19E-06		4.19E-06	0.01		
	Benzene	2.10E-03	lb/mmcft	AP-42	349	mmcft	3.66E-04		3.66E-04	0.73		
	Dichlorobenzene	1.20E-03	lb/mmcft	AP-42	349	mmcft	2.09E-04		2.09E-04	0.42		
	Formaldehyde	7.50E-02	lb/mmcft	AP-42	349	mmcft	1.31E-02		1.31E-02	26.18		
	Naphthalene	6.10E-04	lb/mmcft	AP-42	349	mmcft	1.06E-04		1.06E-04	0.21		
	Toluene	3.40E-03	lb/mmcft	AP-42	349	mmcft	5.93E-04		5.93E-04	1.19		
	Misc. Organic HAPS	8.82E-05	lb/mmcft	AP-42	349	mmcft	1.54E-05		1.54E-05	0.03		
	Hexane	6.20E-03	lb/mmcft	CARB	349	mmcft	1.08E-03		1.08E-03	2.16		

Total HAP PTE (controlled), Pounds	
Arsenic	0.070
Beryllium	0.141
Lead	306.775
Manganese	4555.333
Antimony	0.000
Cadmium	1.788
Chromium	23.265
Cobalt	3.272
Mercury	0.406
Nickel	23.509
Selenium	28.040
Hexavalent Chromium	0.000
Formaldehyde	26.175
Hexane	2.164
Misc. Organic HAPS	0.031
Benzene	0.733
Dichlorobenzene	0.419
Naphthalene	0.213
Toluene	1.187
Misc. Metals	80.064
Total	4973.498

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

HSM Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basin	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
Reheat Furnace No. 1	Arsenic	2.00E-04	lb/mmcf	AP-42	2458	mmcf	2.46E-04		2.46E-04	0.49	Maximum Throughput calculated based on 182-05C PTE Calculations	182-05C PTE Calculations (Table B-1)
	Beryllium	1.20E-05	lb/mmcf	AP-42	2458	mmcf	1.47E-05		1.47E-05	0.03		
	Cadmium	1.10E-03	lb/mmcf	AP-42	2458	mmcf	1.35E-03		1.35E-03	2.70		
	Chromium	1.40E-03	lb/mmcf	AP-42	2458	mmcf	1.72E-03		1.72E-03	3.44		
	Cobalt	8.40E-04	lb/mmcf	AP-42	2458	mmcf	1.03E-03		1.03E-03	2.06		
	Manganese	3.80E-04	lb/mmcf	AP-42	2458	mmcf	4.67E-04		4.67E-04	0.93		
	Lead	5.00E-04	lb/mmcf	AP-42	2458	mmcf	6.15E-04		6.15E-04	1.23		
	Mercury	2.60E-04	lb/mmcf	AP-42	2458	mmcf	3.20E-04		3.20E-04	0.64		
	Nickel	2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
	Selenium	2.40E-05	lb/mmcf	AP-42	2458	mmcf	2.95E-05		2.95E-05	0.06		
	Benzene	2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
	Dichlorobenzene	1.20E-03	lb/mmcf	AP-42	2458	mmcf	1.47E-03		1.47E-03	2.95		
	Formaldehyde	7.50E-02	lb/mmcf	AP-42	2458	mmcf	9.22E-02		9.22E-02	184.35		
	Napthalene	6.10E-04	lb/mmcf	AP-42	2458	mmcf	7.50E-04		7.50E-04	1.50		
	Toluene	3.40E-03	lb/mmcf	AP-42	2458	mmcf	4.18E-03		4.18E-03	8.36		
	Misc. Organic HAPS	8.82E-05	lb/mmcf	AP-42	2458	mmcf	1.08E-04		1.08E-04	0.22		
	Hexane	6.20E-03	lb/mmcf	CARB	2458	mmcf	7.62E-03		7.62E-03	15.24		
	Reheat Furnace No. 2	Arsenic	2.00E-04	lb/mmcf	AP-42	2458	mmcf	2.46E-04		2.46E-04		
Beryllium		1.20E-05	lb/mmcf	AP-42	2458	mmcf	1.47E-05		1.47E-05	0.03		
Cadmium		1.10E-03	lb/mmcf	AP-42	2458	mmcf	1.35E-03		1.35E-03	2.70		
Chromium		1.40E-03	lb/mmcf	AP-42	2458	mmcf	1.72E-03		1.72E-03	3.44		
Cobalt		8.40E-04	lb/mmcf	AP-42	2458	mmcf	1.03E-03		1.03E-03	2.06		
Manganese		3.80E-04	lb/mmcf	AP-42	2458	mmcf	4.67E-04		4.67E-04	0.93		
Lead		5.00E-04	lb/mmcf	AP-42	2458	mmcf	6.15E-04		6.15E-04	1.23		
Mercury		2.60E-04	lb/mmcf	AP-42	2458	mmcf	3.20E-04		3.20E-04	0.64		
Nickel		2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
Selenium		2.40E-05	lb/mmcf	AP-42	2458	mmcf	2.95E-05		2.95E-05	0.06		
Benzene		2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
Dichlorobenzene		1.20E-03	lb/mmcf	AP-42	2458	mmcf	1.47E-03		1.47E-03	2.95		
Formaldehyde		7.50E-02	lb/mmcf	AP-42	2458	mmcf	9.22E-02		9.22E-02	184.35		
Napthalene		6.10E-04	lb/mmcf	AP-42	2458	mmcf	7.50E-04		7.50E-04	1.50		
Toluene		3.40E-03	lb/mmcf	AP-42	2458	mmcf	4.18E-03		4.18E-03	8.36		
Misc. Organic HAPS		8.82E-05	lb/mmcf	AP-42	2458	mmcf	1.08E-04		1.08E-04	0.22		
Hexane		6.20E-03	lb/mmcf	CARB	2458	mmcf	7.62E-03		7.62E-03	15.24		
Reheat Furnace No. 3		Arsenic	2.00E-04	lb/mmcf	AP-42	2458	mmcf	2.46E-04		2.46E-04	0.49	Maximum Throughput calculated based on 182-05C PTE Calculations
	Beryllium	1.20E-05	lb/mmcf	AP-42	2458	mmcf	1.47E-05		1.47E-05	0.03		
	Cadmium	1.10E-03	lb/mmcf	AP-42	2458	mmcf	1.35E-03		1.35E-03	2.70		
	Chromium	1.40E-03	lb/mmcf	AP-42	2458	mmcf	1.72E-03		1.72E-03	3.44		
	Cobalt	8.40E-04	lb/mmcf	AP-42	2458	mmcf	1.03E-03		1.03E-03	2.06		
	Manganese	3.80E-04	lb/mmcf	AP-42	2458	mmcf	4.67E-04		4.67E-04	0.93		
	Lead	5.00E-04	lb/mmcf	AP-42	2458	mmcf	6.15E-04		6.15E-04	1.23		
	Mercury	2.60E-04	lb/mmcf	AP-42	2458	mmcf	3.20E-04		3.20E-04	0.64		
	Nickel	2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
	Selenium	2.40E-05	lb/mmcf	AP-42	2458	mmcf	2.95E-05		2.95E-05	0.06		
	Benzene	2.10E-03	lb/mmcf	AP-42	2458	mmcf	2.58E-03		2.58E-03	5.16		
	Dichlorobenzene	1.20E-03	lb/mmcf	AP-42	2458	mmcf	1.47E-03		1.47E-03	2.95		
	Formaldehyde	7.50E-02	lb/mmcf	AP-42	2458	mmcf	9.22E-02		9.22E-02	184.35		
	Napthalene	6.10E-04	lb/mmcf	AP-42	2458	mmcf	7.50E-04		7.50E-04	1.50		
	Toluene	3.40E-03	lb/mmcf	AP-42	2458	mmcf	4.18E-03		4.18E-03	8.36		
	Misc. Organic HAPS	8.82E-05	lb/mmcf	AP-42	2458	mmcf	1.08E-04		1.08E-04	0.22		
	Hexane	6.20E-03	lb/mmcf	CARB	2458	mmcf	7.62E-03		7.62E-03	15.24		

Total HAP PTE (controlled), Pounds	
Arsenic	1.475
Beryllium	0.088
Lead	3.687
Manganese	2.802
Antimony	0.000
Cadmium	8.111
Chromium	10.324
Cobalt	6.194
Mercury	1.917
Nickel	15.485
Selenium	0.177
Hexavalent Chromium	0.000
Formaldehyde	553.050
Hexane	45.719
Misc. Organic HAPS	0.650
Benzene	15.485
Dichlorobenzene	8.849
Napthalene	4.498
Toluene	25.072
Misc. Metals	41.855
Total	703.584

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

Annealing / Temper Mill Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source	
Annealing Furnace	Arsenic	2.00E-04	lb/mnct	AP-42	1171	mnct	1.17E-04		1.17E-04	0.23	Maximum Throughput based on 182-05C PTE Calculations	182-05C PTE Calculations (Table B-1)	
	Beryllium	1.20E-05	lb/mnct	AP-42	1171	mnct	7.03E-06		7.03E-06	0.01			
	Cadmium	1.10E-03	lb/mnct	AP-42	1171	mnct	6.44E-04		6.44E-04	1.29			
	Chromium	1.40E-03	lb/mnct	AP-42	1171	mnct	8.20E-04		8.20E-04	1.64			
	Cobalt	8.40E-04	lb/mnct	AP-42	1171	mnct	4.92E-04		4.92E-04	0.98			
	Manganese	3.80E-04	lb/mnct	AP-42	1171	mnct	2.22E-04		2.22E-04	0.44			
	Lead	5.00E-04	lb/mnct	AP-42	1171	mnct	2.93E-04		2.93E-04	0.59			
	Mercury	2.60E-04	lb/mnct	AP-42	1171	mnct	1.52E-04		1.52E-04	0.30			
	Nickel	2.10E-03	lb/mnct	AP-42	1171	mnct	1.23E-03		1.23E-03	2.46			
	Selenium	2.40E-05	lb/mnct	AP-42	1171	mnct	1.41E-05		1.41E-05	0.03			
	Benzene	2.10E-03	lb/mnct	AP-42	1171	mnct	1.23E-03		1.23E-03	2.46			
	Dichlorobenzene	1.20E-03	lb/mnct	AP-42	1171	mnct	7.03E-04		7.03E-04	1.41			
	Formaldehyde	7.50E-02	lb/mnct	AP-42	1171	mnct	4.39E-02		4.39E-02	87.83			
	Naphthalene	6.10E-04	lb/mnct	AP-42	1171	mnct	3.57E-04		3.57E-04	0.71			
	Toluene	3.40E-03	lb/mnct	AP-42	1171	mnct	1.99E-03		1.99E-03	3.98			
	Misc. Organic HAPS	8.82E-05	lb/mnct	AP-42	1171	mnct	5.16E-05		5.16E-05	0.10			
	Hexane	6.20E-03	lb/mnct	CARB	1171	mnct	3.63E-03		3.63E-03	7.26			CARB
	Oiling of coils at Temper Mill	NO HAPS											

Total HAP PTE (controlled), Pounds	
Arsenic	0.234
Beryllium	0.014
Lead	0.586
Manganese	0.445
Antimony	0.000
Cadmium	1.288
Chromium	1.639
Cobalt	0.984
Mercury	0.304
Nickel	2.459
Selenium	0.028
Hexavalent Chromium	0.000
Formaldehyde	87.825
Hexane	7.260
Misc. Organic HAPS	0.103
Benzene	2.459
Dichlorobenzene	1.405
Naphthalene	0.714
Toluene	3.981
Misc. Metals	6.647
Total	111.730

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

Machine Scarfing Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lb)	Comments	Source			
Machine Scarfing Baghouse	PM10 (Primary)	4.5200	Lb/hr	Permit Limit	8760	Hours of Operation	19.80		19.80	39595.2					
	Manganese	2.0340E-02	Lb/hr	20-14 Application	8760	Hours of Operation	0.09		0.09	178.2	Based on 4510 ppm Manganese Concentration	20-14 Permit Application			
	Chromium	6.9608E-04	Lb/ton	20-14 Application	8760	Hours of Operation	0.00		0.00	6.1	Based on 154 ppm Chromium Concentration				
	Nickel	4.9720E-04	Lb/ton	20-14 Application	8760	Hours of Operation	0.00		0.00	4.4	Based on 4510 ppm Nickel Concentration				
Machine Scarfing - Roof Monitor (Manual Touchup)	PM10 (Filterable)	0.10	Lb/ton	AP42 - Chapter 12.5	300000	tons	15.00		15.00	30000.0	Throughput from 20-14 Permit Application				
	Manganese	4.5000E-04	Lb/ton	20-14 Application	300000	Hours of Operation	0.07		0.07	135.0	Based on 4510 ppm Manganese Concentration	20-14 Permit Application			
	Chromium	1.5400E-05	Lb/ton	20-14 Application	300000	Hours of Operation	0.00		0.00	4.6	Based on 154 ppm Chromium Concentration				
	Nickel	1.1000E-05	Lb/ton	20-14 Application	300000	Hours of Operation	0.00		0.00	3.3	Based on 4510 ppm Nickel Concentration				
Machine Scarfing - Roof Monitor (Slab cutting/slicing)	PM10 (Filterable)	0.98	Lb/1000 ft	PTI 20-14 Application	530	1000 feet cut	0.26		0.26	519.4	Throughput from 20-14 Permit Application				
	Manganese	4.4100E-03	Lb/1000 ft	20-14 Application	530	1000 feet cut	0.00		0.00	2.3	Based on 4510 ppm Manganese Concentration	20-14 Permit Application			
	Chromium	1.5092E-04	Lb/1000 ft	20-14 Application	530	1000 feet cut	0.00		0.00	0.1	Based on 154 ppm Chromium Concentration				
	Nickel	1.0780E-04	Lb/1000 ft	20-14 Application	530	1000 feet cut	0.00		0.00	0.1	Based on 4510 ppm Nickel Concentration				
Machine Scarfing Natural Gas	Arsenic	2.00E-04	Lb/mmcf	AP-42	124.36	mcf	1.24E-05		1.24E-05	0.02	Maximum throughput calculated as sum of natural gas usage presented in the P11 20-14 permit application	20-14 Permit Application			
	Beryllium	1.20E-05	Lb/mmcf	AP-42	124.36	mcf	7.46E-07		7.46E-07	0.00					
	Cadmium	1.10E-03	Lb/mmcf	AP-42	124.36	mcf	6.84E-05		6.84E-05	0.14					
	Chromium	1.40E-03	Lb/mmcf	AP-42	124.36	mcf	8.71E-05		8.71E-05	0.17					
	Cobalt	8.40E-04	Lb/mmcf	AP-42	124.36	mcf	5.22E-05		5.22E-05	0.10					
	Manganese	3.80E-04	Lb/mmcf	AP-42	124.36	mcf	2.36E-05		2.36E-05	0.05					
	Lead	5.00E-04	Lb/mmcf	AP-42	124.36	mcf	3.11E-05		3.11E-05	0.06					
	Mercury	2.60E-04	Lb/mmcf	AP-42	124.36	mcf	1.62E-05		1.62E-05	0.03					
	Nickel	2.10E-03	Lb/mmcf	AP-42	124.36	mcf	1.31E-04		1.31E-04	0.26					
	Selenium	2.40E-05	Lb/mmcf	AP-42	124.36	mcf	1.49E-06		1.49E-06	0.00					
	Benzene	2.10E-03	Lb/mmcf	AP-42	124.36	mcf	1.31E-04		1.31E-04	0.26					
	Dichlorobenzene	1.20E-03	Lb/mmcf	AP-42	124.36	mcf	7.46E-05		7.46E-05	0.15					
	Formaldehyde	7.50E-02	Lb/mmcf	AP-42	124.36	mcf	4.66E-03		4.66E-03	9.33					
	Naphthalene	6.10E-04	Lb/mmcf	AP-42	124.36	mcf	3.79E-05		3.79E-05	0.08					
	Toluene	3.40E-03	Lb/mmcf	AP-42	124.36	mcf	2.11E-04		2.11E-04	0.42					
	Misc. Organic HAPS	8.82E-05	Lb/mmcf	AP-42	124.36	mcf	5.48E-06		5.48E-06	0.01					
	Hexane	6.20E-03	Lb/mmcf	CARB	124.36	mcf	3.88E-04		3.88E-04	0.77					
	Grit Screener	PM10 (Filterable)	0.0086	Lb/ton	Rule 290 Calcs	75000	tons screened	0.32		0.32			645.00	Based on 5% of max throughput from 20-14 Permit Application (1500000 tons)	Rule 290 Calculations
		Manganese	4500	PPM	20-14 Application	75000	tons screened	0.00		0.00			2.90	Based on 4510 ppm Manganese Concentration	20-14 Permit Application, PM x PPM
		Chromium	154	PPM	20-14 Application	75000	tons screened	0.00		0.00			0.10	Based on 154 ppm Chromium Concentration	PM x PPM
Nickel		110	PPM	20-14 Application	75000	tons screened	0.00		0.00	0.07	Based on 4510 ppm Nickel Concentration	PM x PPM			

Total HAP PTE (controlled), Pounds	
Arsenic	0.025
Beryllium	0.001
Lead	0.062
Manganese	315.563
Antimony	0.000
Cadmium	0.137
Chromium	10.972
Cobalt	0.104
Mercury	0.032
Nickel	7.974
Selenium	0.003
Hexavalent Chromium	0.000
Formaldehyde	9.327
Hexane	0.771
Misc. Organic HAPS	0.011
Benzene	0.261
Dichlorobenzene	0.149
Naphthalene	0.076
Toluene	0.423
Misc. Metals	19.216
Total	345.892

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

PLTCM Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
Scale Breaker Baghouse	PM10 (Primary)	1.4300	lb/hr	Permit Limit	8760	Hours of Operation	6.26		6.26	12526.8	Lb/hr calculated from Permit Limit (in Gr/DSCF)	
	Cadmium	1.6	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.00		0.00	0.0	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
	Chromium	210	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.00		0.00	2.6	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
	Manganese	1300	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.01		0.01	16.3	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
	Mercury	0.02	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.00		0.00	0.0	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
	Nickel	84.0	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.00		0.00	1.1	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
	Selenium	3.3	PPM	Waste Analytical for Scalebreaker Baghouse Dust	8760	Hours of Operation	0.00		0.00	0.0	Based on 2018 Waste Analytical for Scalebreaker BH Dust	PPM x PM
Pickle Line Tank Farm Scrubber	HCl	0.0692	lb/hr	Estimate based on Permit Limit	8760	Hours of Operation	0.30		0.30	597.4		
Pickle Line Scrubber	HCl	0.480	lb/hr	Stack Testing	8760	Hours of Operation	2.10		2.10	4204.8	Calculated Lb/hr based on 6 ppmv limit	Lb/hr Calculation Sheet
Tandem Mill Fume Exhaust	No HAPS											

Total HAP PTE (controlled), Pounds	
HCl	4822.232
Cadmium	0.020
Chromium	2.631
Manganese	16.285
Mercury	0.000
Nickel	1.052
Selenium	0.041
Misc. Metals	3.744
Total	4822.261

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

HDGL Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basin	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source	
HDGL Pre-Cleaning Process							No HAPS						
HDGL Annealing Furnace SCR	Arsenic	2.00E-04	lb/mnct	AP-42	938.1	mnct	9.38E-05		9.38E-05	0.19	8-08 Permit Application - Sum of all Non-Building Heat Sources	8-08 Permit Application, P. 19	
	Beryllium	1.20E-05	lb/mnct	AP-42	938.1	mnct	5.63E-06		5.63E-06	0.01			
	Cadmium	1.10E-03	lb/mnct	AP-42	938.1	mnct	5.16E-04		5.16E-04	1.03			
	Chromium	1.40E-03	lb/mnct	AP-42	938.1	mnct	6.57E-04		6.57E-04	1.31			
	Cobalt	8.40E-04	lb/mnct	AP-42	938.1	mnct	3.94E-04		3.94E-04	0.79			
	Manganese	3.80E-04	lb/mnct	AP-42	938.1	mnct	1.78E-04		1.78E-04	0.36			
	Lead	5.00E-04	lb/mnct	AP-42	938.1	mnct	2.35E-04		2.35E-04	0.47			
	Mercury	2.60E-04	lb/mnct	AP-42	938.1	mnct	1.22E-04		1.22E-04	0.24			
	Nickel	2.10E-03	lb/mnct	AP-42	938.1	mnct	9.85E-04		9.85E-04	1.97			
	Selenium	2.40E-05	lb/mnct	AP-42	938.1	mnct	1.13E-05		1.13E-05	0.02			
	Benzene	2.10E-03	lb/mnct	AP-42	938.1	mnct	9.85E-04		9.85E-04	1.97			
	Dichlorobenzene	1.20E-03	lb/mnct	AP-42	938.1	mnct	5.63E-04		5.63E-04	1.13			
	Formaldehyde	7.50E-02	lb/mnct	AP-42	938.1	mnct	3.52E-02		3.52E-02	70.36			
	Naphthalene	6.10E-04	lb/mnct	AP-42	938.1	mnct	2.86E-04		2.86E-04	0.57			
	Toluene	3.40E-03	lb/mnct	AP-42	938.1	mnct	1.59E-03		1.59E-03	3.19			
	Misc. Organic HAPS	8.82E-05	lb/mnct	AP-42	938.1	mnct	4.14E-05		4.14E-05	0.08			
	Hexane	6.20E-03	lb/mnct	CARB	938.1	mnct	2.91E-03		2.91E-03	5.82			
	PLTCM/HDGL Building Natural Gas	Arsenic	2.00E-04	lb/mnct	AP-42	438	mnct	4.38E-05		4.38E-05			0.09
Beryllium		1.20E-05	lb/mnct	AP-42	438	mnct	2.63E-06		2.63E-06	0.01			
Cadmium		1.10E-03	lb/mnct	AP-42	438	mnct	2.41E-04		2.41E-04	0.48			
Chromium		1.40E-03	lb/mnct	AP-42	438	mnct	3.07E-04		3.07E-04	0.61			
Cobalt		8.40E-04	lb/mnct	AP-42	438	mnct	1.84E-04		1.84E-04	0.37			
Manganese		3.80E-04	lb/mnct	AP-42	438	mnct	8.32E-05		8.32E-05	0.17			
Lead		5.00E-04	lb/mnct	AP-42	438	mnct	1.10E-04		1.10E-04	0.22			
Mercury		2.60E-04	lb/mnct	AP-42	438	mnct	5.69E-05		5.69E-05	0.11			
Nickel		2.10E-03	lb/mnct	AP-42	438	mnct	4.60E-04		4.60E-04	0.92			
Selenium		2.40E-05	lb/mnct	AP-42	438	mnct	5.26E-06		5.26E-06	0.01			
Benzene		2.10E-03	lb/mnct	AP-42	438	mnct	4.60E-04		4.60E-04	0.92			
Dichlorobenzene		1.20E-03	lb/mnct	AP-42	438	mnct	2.63E-04		2.63E-04	0.53			
Formaldehyde		7.50E-02	lb/mnct	AP-42	438	mnct	1.64E-02		1.64E-02	32.85			
Naphthalene		6.10E-04	lb/mnct	AP-42	438	mnct	1.34E-04		1.34E-04	0.27			
Toluene		3.40E-03	lb/mnct	AP-42	438	mnct	7.45E-04		7.45E-04	1.49			
Misc. Organic HAPS		8.82E-05	lb/mnct	AP-42	438	mnct	1.93E-05		1.93E-05	0.04			
Hexane		6.20E-03	lb/mnct	CARB	438	mnct	1.36E-03		1.36E-03	2.72			
Skin Pass and Electrostatic Oiler							No HAPS						
HDGL Emergency Engine	Formaldehyde	7.89E-05	lb/mmbtu	AP-42	2946.000	mmbtu	0.00		0.00	0.23	2946 x Hours / 150	Permit Restriction of 150 operating Hours	
	Misc. HAPS	1.41E-03	lb/mmbtu	AP-42	2946.000	mmbtu	0.00		0.00	4.15			

Total HAP PTE (controlled), Pounds	
Arsenic	0.275
Beryllium	0.017
Lead	0.688
Manganese	0.523
Antimony	0.000
Cadmium	1.514
Chromium	1.927
Cobalt	1.156
Mercury	0.358
Nickel	2.890
Selenium	0.033
Hexavalent Chromium	0.000
Formaldehyde	103.440
Hexane	8.532
Misc. Organic HAPS	0.121
Benzene	2.890
Dichlorobenzene	1.651
Naphthalene	0.839
Toluene	4.679
Misc. HAPS	4.154
Misc. Metals	7.811
Total	135.686

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

Emergency Engine and Parts Washers Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
Screenhouse Emergency Engine	Formaldehyde	7.89E-05	lb/mmBtu	AP-42	4135.000	MMBTU	0.00		0.00	0.33	4135 x Hours / 250	Restricted to 250 hours in permit 8411
	Misc. HAPS	1.41E-03	lb/mmBtu	AP-42	4135.000	MMBTU	0.00		0.00	5.83		
Turbo Blower Room Emergency Engine	Formaldehyde	7.89E-05	lb/mmBtu	AP-42	1290.000	MMBTU	0.00		0.00	0.10	1290 x Hours / 500	Restricted to 500 hours to meet definition of Emergency Engine
	Misc. HAPS	1.41E-03	lb/mmBtu	AP-42	1290.000	MMBTU	0.00		0.00	1.82		
Y2K Emergency Engine (Screenhouse Y2K)	Formaldehyde	7.89E-05	lb/mmBtu	AP-42	2150.000	MMBTU	0.00		0.00	0.17	2150 x Hours / 500	Restricted to 500 hours to meet definition of Emergency Engine
	Misc. HAPS	1.41E-03	lb/mmBtu	AP-42	2150.000	MMBTU	0.00		0.00	3.03		
PLTCM Emergency Engine (John Deere Engine)	Formaldehyde	7.89E-05	lb/mmBtu	AP-42	849.200	MMBTU	0.00		0.00	0.07	BTU/hr x Hr / 1000000	Restricted to 500 hours to meet definition of Emergency Engine
	Misc. HAPS	1.41E-03	lb/mmBtu	AP-42	849.200	MMBTU	0.00		0.00	1.20		
Gate 2 Emergency Engine	Formaldehyde	5.280E-02	lb/mmbtu	AP-42	241.740	MMBTU	0.01		0.01	12.76	mmbtu = mmd x 1020	Restricted to 500 hours to meet definition of Emergency Engine
	Hexane	1.110E-03	lb/mmbtu	AP-42	241.740	MMBTU	0.00		0.00	0.27		
	Misc. Organic HAPS	1.830E-02	lb/mmbtu	AP-42	241.740	MMBTU	0.00		0.00	4.42		
Machine Scarfing	Formaldehyde	7.89E-05	lb/mmBtu	AP-42	1794.900	MMBTU	0.00		0.00	0.14	BTU/hr x Hr / 1000000	Restricted to 500 hours to meet definition of Emergency Engine
	Misc. HAPS	1.41E-03	lb/mmBtu	AP-42	1794.900	MMBTU	0.00		0.00	2.53		
Parts Washers												No HAPS

Total HAP PTE (controlled), Pounds	
Arsenic	0.000
Beryllium	0.000
Lead	0.000
Manganese	0.000
Antimony	0.000
Cadmium	0.000
Chromium	0.000
Cobalt	0.000
Mercury	0.000
Nickel	0.000
Selenium	0.000
Hexavalent Chromium	0.000
Formaldehyde	13.570
Hexane	0.288
Misc. Organic HAPS	4.424
Benzene	0.000
Dichlorobenzene	0.000
Naphthalene	0.000
Toluene	0.000
Misc. HAPS	14.409
Misc. Metals	0.000
Total	32.671

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

Roadway Fugitive Emissions HAP PTE Analysis

Source	Pollutant	Emission Factor	EF Unit	Basis	Maximum Throughput	Throughput Unit	Uncontrolled (Tons)	Control Efficiency	Controlled (tons)	Controlled (Lbs)	Comments	Source
All Roads	Manganese	294.7000	lb/year	CEC Study	N/A	N/A	0.15		0.15	294.70		CEC Fugitive Source Study
	Misc. HAPS	294.7000	lb/year	CEC Study	N/A	N/A	0.15		0.15	294.70		

Total HAP PTE (controlled), Pounds	
Manganese	294.700
Misc. HAPS	294.700
Total	589.400

Legend:	Manual Input Cell
	Included as reference only, not a part of HAP Calculation

LRF Baghouse Dust Analysis

Calculation from 182-05C Application with dust analysis

PM10 x (PPM Mn in dust/1000000) / 4 = Mn

Date Collected	Baghouse	Mn ppm
3/25/2003	LRF1	84000
11/14/2007	LRF1	50000
11/14/2007	LRF2	38000
11/21/2011	LRF1	54000
11/28/2011	LRF1	92000
12/8/2011	LRF1	66000

Average	64000
STDEV	20785
95% Confidence	21812
99% Confidence	34214
99.5% Confidence	40503
99.9% Confidence	58284
Max PPM at 95%	85812
Max PPM at 99%	98214
Max PPM at 99.5%	104503
Max PPM at 99.9%	122284

	LRF1		TPY
PM10 Limit =	6.65	lbs/hr	
Mn (95%) =	0.143	lbs/hr	0.62
Mn (99%) =	0.163	lbs/hr	0.72
Mn (99.5%) =	0.174	lbs/hr	0.76
Mn (99.9%) =	0.203	lbs/hr	0.89

	LRF2		TPY
PM10 Limit =	3.91	lbs/hr	
Mn (95%) =	0.084	lbs/hr	0.37
Mn (99%) =	0.096	lbs/hr	0.42
Mn (99.5%) =	0.102	lbs/hr	0.45
Mn (99.9%) =	0.120	lbs/hr	0.52

LRF Baghouse Stack Testing

Notes: PM10 Condensable fraction calculated as 0.05 x PM - Basis is 182-05C Permit Calculator

Stack Test Data

Date	Source	All units in Lbs/hr				Production
		Measured PM (filterable) - Lbs/hr	PM10 (Total) (estimated as 1.05 x PM)	Measured Mn (Lbs/hr)	Fraction Mn in PM10	
12/13/2011	LRF1	1.40	1.47	4.20E-03	0.0029	304.2
12/13/2011	LRF1	0.24	0.25	3.80E-03	0.0151	300.6 Note: half of MDL used to calculate PM
12/13/2011	LRF1	0.24	0.25	4.00E-03	0.0159	258.6 Note: half of MDL used to calculate PM
7/24/2012	LRF1	1.27	1.33	3.70E-02	0.0277	229.9
7/24/2012	LRF1	7.37	7.74	2.40E-02	0.0031	232.3
7/24/2012	LRF1	12.78	13.42	5.80E-02	0.0043	426
7/24/2012	LRF1	2.59	2.72	1.30E-02	0.0048	215.7
7/24/2012	LRF1	1.70	1.79	2.20E-02	0.0123	252.8
7/24/2012	LRF1	6.26	6.57	4.00E-02	0.0061	307.5
7/24/2012	LRF1	0.78	0.82	4.70E-03	0.0057	284.6
7/24/2012	LRF2	81.30	85.37	2.10E-01	0.0025	294.5
7/24/2012	LRF2	1.68	1.76	3.10E-03	0.0018	323.8
7/24/2012	LRF2	1.08	1.13	1.90E-03	0.0017	199.8
7/24/2012	LRF2	7.84	8.23	1.40E-02	0.0017	165.6
7/24/2012	LRF2	1.94	2.04	3.50E-03	0.0017	349.8
7/24/2012	LRF2	2.08	2.18	3.90E-03	0.0018	262.9
9/27/2012	LRF1	1.02	1.07	3.00E-03	0.0028	300.9
9/27/2012	LRF1	1.40	1.47	4.00E-03	0.0027	308.7
9/27/2012	LRF1	1.39	1.46	3.00E-03	0.0021	298.5
9/27/2012	LRF1	0.72	0.76	3.00E-03	0.0040	240.3
9/27/2012	LRF1	1.06	1.11	6.00E-03	0.0054	272.4
9/27/2012	LRF1	0.76	0.80	5.00E-03	0.0063	207.4
9/27/2012	LRF2	0.52	0.55	1.80E-02	0.0330	217.3
9/27/2012	LRF2	0.50	0.53	9.00E-03	0.0171	314.6
9/27/2012	LRF2	0.55	0.58	9.00E-03	0.0156	246.1
9/27/2012	LRF2	0.79	0.83	9.00E-03	0.0108	172.9
9/27/2012	LRF2	1.09	1.14	5.70E-02	0.0498	172.6
9/27/2012	LRF2	1.55	1.63	7.90E-02	0.0485	199.7
8/22/2013	LRF1	0.77	0.81	9.49E-03	0.0117	
8/22/2013	LRF1	0.91	0.96	6.58E-03	0.0069	
8/22/2013	LRF1	0.67	0.70	6.49E-03	0.0092	
8/22/2013	LRF1	0.67	0.70	5.76E-03	0.0082	
8/22/2013	LRF1	0.88	0.92	4.00E-03	0.0043	
8/22/2013	LRF1	0.43	0.45	3.13E-03	0.0069	
8/22/2013	LRF2	0.65	0.68	7.48E-03	0.0110	
8/22/2013	LRF2	0.23	0.24	3.35E-03	0.0139	
8/22/2013	LRF2	0.69	0.72	5.42E-03	0.0075	
8/22/2013	LRF2	0.65	0.68	7.26E-03	0.0106	
8/22/2013	LRF2	0.44	0.46	3.85E-03	0.0083	
8/22/2013	LRF2	0.29	0.30	1.66E-03	0.0055	

Statistical Analysis	
Average Mn	
Fraction	0.0103
Stdev	0.0113
Max Mn	
Fraction	0.0498

Calculations based on Average Test Results

	Manganese Fraction Confidence Level	Mn Fraction at designated confidence levels	PM 10 Limit - LRF1 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF1 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF1 (tons/yr)	PM 10 Limit - LRF2 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF2 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF1 (tons/yr)
95% Confidence Limit	0.0036	0.0139	6.65	0.092	0.40	3.91	0.054	0.24
99% Confidence Limit	0.0048	0.0151	6.65	0.101	0.44	3.91	0.059	0.26
99.5% Confidence Limit	0.0053	0.0156	6.65	0.104	0.45	3.91	0.061	0.27
99.9% Confidence Limit	0.0064	0.0166	6.65	0.111	0.48	3.91	0.065	0.29

Calculations based on Maximum Test Result

	Manganese Fraction	Calculated Mn at PM10 Limit - LRF1 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF2 (Lbs/hr)	Calculated Mn at PM10 Limit - LRF1 (tons/yr)	Calculated Mn at PM10 Limit - LRF2 (Lbs/hr)
Manganese Fraction =	0.0498	0.33	0.19	1.45	0.85

Average Testing Production - Demonstration of maximum operating rate				
LRF1 =	294.3	TPH		
LRF2 =	256.1	TPH		
Combined LRF =	550.3	TPH		
Production at Combined Rate	13208	TPD		
BOF Operating Limit	12200	TPD		
This demonstrates that during the testing, maximum capacity was achieved.				

Summary

Using Baghouse Dust Analysis as the basis and assuming maximum PM emissions, one calculated the following Manganese mass emissions:

Confidence Limit	LRF1 (pph)	LRF1 (tpy)	LRF2 (pph)	LRF2 (tpy)
95%	0.14	0.62	0.084	0.37
99%	0.16	0.72	0.096	0.42
99.5%	0.17	0.76	0.102	0.45
99.9%	0.20	0.89	0.120	0.52

Using Stack Testing where PM and Manganese was measured simultaneously as a basis, one calculated the following Manganese Mass Emissions

Confidence Limit	LRF1 (pph)	LRF1 (tpy)	LRF2 (pph)	LRF2 (tpy)
95%	0.09	0.40	0.054	0.24
99%	0.10	0.44	0.059	0.26
99.5%	0.10	0.45	0.061	0.27
99.9%	0.11	0.48	0.065	0.29
Max Value	0.33	1.45	0.19	0.85

The numbers reported in the current HAP analysis are:

LRF1 =	0.61	tpy
LRF2 =	0.36	tpy
Overall Facility Mn =	2.54	tpy

This roughly reflected the 95% Confidence Limit using the Baghouse Dust Analysis Method

Using the 99.9% Confidence Limit for the stack testing analysis:

LRF1 =	0.48	tpy
LRF2 =	0.29	tpy
Overall Facility Mn =	2.34	tpy

Using the maximum stack test value

LRF1 =	1.45	tpy
LRF2 =	0.85	tpy
Overall Facility Mn =	3.87	tpy

Conclusion

Regardless of the number used, the calculations yield less than half of the Manganese numbers that would trigger major source status. As a conservative estimate, the maximum stack test value will be used to calculate Mn emissions from the LRF. The spreadsheet will be modified to reflect this and will be kept on file at the facility.

**RTP and CEC - Manganese Emissions
from Fugitive Sources at AK Steel Dearborn Works**

RTP #	Road Traffic Estimated Manganese Emissions	Paved	UnPaved	
36	Blast Furnace Limestone Unpaved Haul Road Calculations		0.00004	ton/yr
37	BF use of BOF Slag as Raw Material Paved and Unpaved Haul Road Calculations	0.00074	0.00046	ton/yr
38	BF Flue Dust Transport on Paved and Unpaved Haul Road Calculations	0.00010	0.00004	ton/yr
39	BF B Scrap Transport on Paved and Unpaved Haul Road Calculations	0.01669	0.00314	ton/yr
40	BF Baghouse Dust (Vac Truck) Paved Haul Road Calculations	0.00009		ton/yr
41	BF PCI Transport Paved Haul Road Calculations	0.00065		ton/yr
42	BF Baghouse Dust (Roll-off Box) Paved Haul Road Calculations	0.00016		ton/yr
43	BOF Ladle Hauler Unpaved Haul Road Calculations		0.00600	ton/yr
44	BOF Scrap Transport on Paved and Unpaved Haul Road Calculations	0.02639	0.00524	ton/yr
45	BOF ESP Dust Transport on Paved and Unpaved Haul Road Calculations	0.00136	0.00055	ton/yr
46	Levy Iron Slag Hauler Unpaved Haul Road Calculations		0.00507	ton/yr
47	Levy WWTP Sludge and Flue Dust Transport on Paved and Unpaved Haul Road Calculations	0.00079	0.00014	ton/yr
48	Levy Steel Slag Hauler Unpaved Haul Road Calculations		0.00906	ton/yr
49	Levy Runway / Pit Slag Transport on Paved and Unpaved Haul Road Calculations	0.00027	0.00072	ton/yr
50	Levy Desulfurization Slag Hauler Unpaved Haul Road Calculations		0.00017	ton/yr
51	Levy BF Slag Product Transport on Paved and Unpaved Haul Road Calculations	0.00078	0.00060	ton/yr
52	Caster to HSM Slab Haulers Unpaved Haul Road Calculations		0.02496	ton/yr
Total Mn (ton/year)		0.0480	0.0562	
Total Pounds/year of Manganese (Paved and Unpaved)		208.4		

	Wind Mn (lb/year)	Handling Mn (lb/year)
Material Pile - Wind Erosion & Handling Emission Estimates		
S-1 - Debris Pile - east of lagoon - BF Filter Cake, Debris Pile - west of lagoon	10.33	0.06
S-2 - Dust catcher / flue dust - north portion of Miller Rd. storage	0.72	0.01
S-3 - Iron Ore - North Stock Yard	4.67	16.04
S-3 - Iron Ore - southwest of stockhouse	0.15	
S-3 - Iron Ore - south of stockhouse	0.63	
S-4 - Ore Fines - southwest corner of Laydown Yard	0.73	0.31
S-5 - Mill Scale	0.06	0.73
S-6 - Trim Ore - west of Levy yard, near river	1.30	0.00
S-7 - HBI Scrap - west of stockhouse	0.30	0.06
S-8 - FLEX B Scrap - southeast of stockhouse B SCRAP	0.07	
S-9 - Phoenix/ Masters/ Pro-V/ FPT Scrap - south of stockhouse B SCRAP	1.79	19.17
S-10 - South Yard floor scrapes - northeast portion of Laydown Yard	0.00	0.01
S-10 - South Yard floor scrapes - east portion of Miller Rd. storage	0.39	
S-11 - Mixed Debris Pile	1.76	4.49
S-12 - Blast Furnace Slag	0.27	10.29
S-13 - Desulf Slag (screened)	0.06	0.16
S-14 - BOF Slag	5.12	3.16
S-15 - Tundish Yard	2.90	0.54
Total Mn (Pound/year)		55.03

Summary of Fugitive Source Manganese Emissions	Pound/Year
Road Traffic	208.4
Wind Erosion on Storage Piles	31.25
Material Handling	55.03
Total	294.7

ATTACHMENT F – SUMMARY OF ROP REDLINE UPDATES

Permit Condition	Current ROP Language	Revision	Justification
Source-Wide Conditions V.1	At least 20% of the sources subject to testing requirements shall have been tested within one year of the effective date of the permit, at least 40% of the sources shall have been tested within two years of the effective date, at least 60% of the sources shall have been tested within three years of the effective date, at least 80% of the sources shall have been tested within four years of the effective date, and 100% of the sources shall have been tested within five years of the effective date. (R 336.1213(3))	Eliminate Permit Condition, replace with: 1. In the event that a source cannot be tested as scheduled due to a temporary shutdown, testing shall be conducted on that source with 60 days of startup.	The majority of testing within the ROP now has specific test date requirements (example: three years from previous test date) that must be adhered to. Because of this, this condition is now obsolete. In addition, AK Steel is seeking to address a situation where a source is idled at the time of the scheduled test which causes the test date to be missed (this becomes a problem with time-based testing. Example: Once every three years). Instead of immediately being out of compliance at startup, AK is seeking to allow some time to schedule a test and to get the source back up to steady state conditions before performing the next test.
Emission Unit Conditions Table	See Markup	Deleted: EUHANDSCARFING Added: EUSCALEBREAKER EUNPKLTANKS EUNPKLLINE EUNTANDMILL EU-ENGINE1 EU-ENGSH EUPKLMBLDHEAT EUHDGLBLDHEAT EUHDGLDRYER EUHDGLH2OHEATER EUHDGLANNEAL EUHDGLCLEANER EUHDGLSKINPASS EUHDGLES-OILING EUBACKUPSKIM EUGRTSCRN EURAWMATSCRN	Deleted sources are no longer added, added sources are from PTI 120-16, 84-11, and 8-08A as well as additional Rule 290 sources identified
EURAWMATHANDLING VI.4	No citations in current ROP - Sections being added to incorporate requirement to track natural gas usage	The permittee shall monitor and record, in a satisfactory manner, the total natural gas usage for EURAWMATHANDLING on a monthly, and 12-month rolling time period basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Natural gas usage for the stockhouse is reported in MAERS under the Stockhouse emission unit. While it can be assumed that natural gas usage is already implicitly covered in this section, it makes since to add a tracking requirement here to fully clarify this.
EUCFURNACE Description	This emission unit consists of the "C" Blast Furnace, a group of 4 stoves with a common stack, the cast house emission control system (collection hoods followed by a baghouse and stack), a blast furnace gas dust collector and venturi scrubber for removal of particulate from blast furnace gas generated by the "C" Blast Furnace, a semi-clean bleeder, and two dirty gas bleeders.	change "a semi-clean bleeder and two dirty gas bleeders" to "three gas bleeders."	The detailed description of the bleeders is irrelevant.
EUCFURNACE I.4	Visible Emissions limit of 20% opacity for EUCFURNACE "C" Furnace Bleeders	Add "except for 1 6-minute average per hour of not more than 27% opacity" to the limit description	The underlying rule includes the language in the proposed revision. The revision only adds clarity.
EUCFURNACE I.5	No citation for EUCFURNACE Stoves visible emissions limit	Add Visible Emissions limit of 20% opacity except for 1 6-minute average per hour of not more than 27% opacity for EUCFURNACE Stoves (R 336.1301(1)(a))	As visible emission readings are being conducted on the EUCFURNACE stoves on a regular basis, it makes sense to clarify the emissions limit in the table.
EUCFURNACE III.2	The permittee shall develop and implement a written startup, shutdown and malfunction plan for EUCFURNACE. The plan shall include proper operating procedures to minimize bleeder emissions.2 (R 336.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.

Permit Condition	Current ROP Language	Revision	Justification
EUCFURNACE III.3	The permittee shall not operate the stoves in EUCFURNACE unless a malfunction abatement plan (MAP) as described in Rule 911(2) has been submitted to the AQD District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the AQD District Supervisor.2 (R 336.1911, R 336.1912, R 336.2802)	Delete requirements concerning submittal of the MAP to AQD and replace with language to "maintain" the MAP and instructions on how to amend the MAP. See markup.	The MAP has been implemented and submitted to the AQD. The only requirement now is to maintain the MAP.
EUCFURNACE III.4	The permittee shall develop site-specific monitoring plans for "C" Blast Furnace Casthouse Emission Control Baghouse and make the plan available to the permitting authority upon request. The plan shall contain the following information: (40 CFR 63.7831(a))	Replace "develop" with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.
EUCFURNACE IV.3	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the SO2 emissions and flow from each EUCFURNACE baghouse stack and stove stack on a continuous basis.2 (R 336.2803, R 336.2804, R 336.2810)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.4	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the natural gas usage rate of the natural gas suppression system for EUCFURNACE.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.1702, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.8	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the natural gas usage rate of the stoves.2 (R 336.1205(1)(a) & (b), R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE IV.9	The permittee shall install, calibrate, maintain and operate in a satisfactory manner, a device to monitor and record the blast furnace gas usage rate of the stoves.2 (R 336.1205(1)(a) & (b), R 336.2801(ee), R 336.2802(4), 40 CFR Part 51 (Appendix S), R 336.2803, R 336.2804)	Delete "Install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE V.1	The permittee shall conduct performance tests for particulate matter emissions and opacity at least once every five years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUCFURNACE V.7	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5, CO, NOx, VOC, Pb, and Mn emission rates from EUCFURNACE baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Pb and Mn dust concentrations in the EUCFURNACE baghouse hoppers. Subsequent Pb and Mn sampling of the baghouse dust is not required. No less than 45 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and the District Office. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Mn and Pb, to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.1301, R 336.1361, R 336.1702, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete specific reference to May 12, 2014, Delete reference to Mn and Pb Dust Analysis as the "first testing" has already been completed. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1." See specific markup.	The initial testing and hopper dust analysis was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.

Permit Condition	Current ROP Language	Revision	Justification
EUCFURNACE V.8	Within three years of May 12, 2014, the permittee shall verify PM, PM10, PM2.5, NOx, CO, Pb, Mn, and total Hg emission rates from the EUCFURNACE stove stack, by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. Testing must be performed at normal operating conditions for EUCFURNACE stove stack. No less than 45 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and the District Office. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete specific reference to May 12, 2014 and replace with "Every three years." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1." See specific markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUCFURNACE VI.4	The permittee shall perform a non-certified visible emission observation for a minimum of 15 minutes for the EUCFURNACE bleeders at least once per month during planned blast furnace start up or shut down activities and a Method 9 certified visible emission observation of the EUCFURNACE bleeder at least once per quarter during planned blast furnace start up or shut down activities. Additionally, the permittee shall perform a Method 9 certified visible emission observation of the EUCFURNACE bleeder during all unplanned openings that last for more than thirty minutes. The permittee shall record each occurrence of bleeder stack opening, and the record shall include the date, start and stop time, and reason for each opening. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken including date, start time and stop time.2 (R 336.1301)	Add "unless impractical due to an emergency situation" to the requirement to perform the readings. Add language that the non-certified reading does not need to be performed in months where the certified reading is performed. See specific markup.	Shutdowns are relatively rare occurrences and can occur with minimal notice in it is an emergency situation. Delaying the shutdown to conduct a reading is not an option due to safety concerns. In addition, occasions have occurred where only 1 planned daytime bleeder opening occurred in a given quarter. AK Steel's typical practice has been to prioritize the certified reading over the non-certified reading. This has led to situations where the non-certified monthly reading has not been completed. AK Steel is looking to clarify this requirement to account for that type of situation.
EUCFURNACE VI.6	The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the SO2 emissions and flow from EUCFURNACE baghouse stack and stove stack on a continuous basis. The permittee shall install and operate each CERM system to meet the timelines, requirements and reporting detailed in Appendix 3.2-1 and shall use the CERM data for determining compliance with SC I.12, I.13, and I.14.2 (R 336.2810, R 336.2803, R 336.2804)	Delete "install"	Equipment has been installed - Ongoing requirements are to calibrate, maintain, and operate in a satisfactory manner
EUCFURNACE VI.7	The permittee shall prepare and operate at all times according to a written operation and maintenance plans for "C" Blast Furnace Casthouse Emission Control Baghouse. Each plan must address the following:	Delete "prepare"	As the plans have been prepared, the only ongoing requirement is to operate in accordance with the plan.
EUCFURNACE VI.31 to VI.36	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-14" W.C. defined as operating limit in S.C. 31. S.C. 32 through S.C. 36 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EUCFURNACE VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

Permit Condition	Current ROP Language	Revision	Justification
EUCFURNACE IX.4, IX.5	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EUTREADWELLDRIYOUT I.1	Visible Emissions limit of 20% opacity for EUTREADWELLDRIYOUT	Add "except for 1 6-minute average per hour of not more than 27% opacity" to the limit description	The underlying rule includes the language in the proposed revision. The revision only adds clarity.
EURELADLINGBOF I.2	Visible Emissions limit of 20% opacity for EURELADLINGBOF - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a), Table 1, Item 12	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EURELADLINGBOF. Note that AK Steel is not disputing the 20% limit imposed in S.C. 1.1. It is only making the case that the cited MACT limit is not applicable.
EURELADLINGBOF V.1 to V.3	1. The permittee shall conduct performance tests for opacity and PM no less frequently than once during the ROP renewal period. (40 CFR 63.7821) 2. Performance tests for visible emissions shall be conducted such that the opacity observations overlap with the performance tests for particulate of the BOF secondary baghouse. Performance testing requirements for particulate is contained in FGBOFSHOP. (40 CFR 63.7823(b)) 3. The permittee shall demonstrate compliance with the opacity limitation in SC 1.2 with a certified observer according to Method 9 except for the following: (40 CFR 63.7823(d)(1)(i)) a. Record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles rather than using the procedure specified in Section 2.4 of Method 9. (40 CFR 63.7823(d)(1)(ii)) b. Determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals. (40 CFR 63.7823(d)(1)(iii))	Eliminate Permit Condition	Testing requirements for the secondary baghouse are in the FGBOFSHOP section. Including all test requirements here is redundant.
EUBOFDESULF I.3	Visible Emissions limit of 20% opacity for EUBOFDESULF - Cites MACT Standard (40 CFR 63.7790(a), Table 1, Item 12	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EUBOFDESULF. Note that AK Steel is not disputing the 20% limit imposed in S.C. 1.2. It is only making the case that the cited MACT limit is not applicable.

Permit Condition	Current ROP Language	Revision	Justification
EUBOFDESULF III.2	The permittee shall develop and implement a written startup, shutdown and malfunction plan for EUBOFDESULF and the associated emission control system and operate in accordance with the plan during periods of startup, shutdown, and malfunction. (40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.
EUBOFDESULF V.1	The permittee shall conduct performance tests for particulate matter emissions and opacity at least once every 5 years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUBOFDESULF V.3 and V.4	3. Performance tests for visible emissions shall be conducted such that the opacity observations overlap with the performance tests for particulate. (40 CFR 63.7823(b)) 4. The permittee shall demonstrate compliance with the opacity limitation in SC I.3 with a certified observer according to Method 9 except for the following: (40 CFR 63.7823(d)(1)(i)) a. Record observations to the nearest 5 percent at 15-second intervals for at least three steel production cycles rather than using the procedure specified in Section 2.4 of Method 9. (40 CFR 63.7823(d)(1)(ii)) b. Determine the 3-minute block average opacity from the average of 12 consecutive observations recorded at 15-second intervals. (40 CFR 63.7823(d)(1)(iii))	Eliminate Permit Condition	As discussed previously, AK Steel believes that "Secondary" emissions do not include emissions from the Desulf. Therefore, there is no opacity limit associated with roof emissions from the Desulf operation and thus, no requirement to conduct an opacity performance test concurrently with the Desulf PM performance test.
EUBOFDESULF V.5	Within three years of May 12, 2014, the permittee shall verify the PM, PM10, PM2.5, Pb, and Mn emission rates from EUBOFDESULF baghouse stack, by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Pb and Mn dust concentrations in the EUBOFDESULF baghouse hoppers. Subsequent Pb and Mn sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.1228, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Delete specific reference to May 12, 2014, Delete reference to Mn and Pb Dust Analysis as the "first testing" has already been completed. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See specific markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUBOFDESULF VI.4	Except as allowed in SC VI.6, the permittee shall install, operate, and maintain a bag leak detection system meeting the following specifications on the baghouse control: (40 CFR 63.7831(f))	Delete "install"	Equipment has been installed - Ongoing requirements are to operate and maintain in a satisfactory manner
EUBOFDESULF VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-9" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EUBOFDESULF VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

Permit Condition	Current ROP Language	Revision	Justification
EUBOFDESULF IX.4 and IX.5	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EUBOF I.2	No citation for EUBOF ESP visible emissions limit	Add Visible Emissions limit of 20% opacity except for 1 6-minute average per hour of not more than 27% opacity for EUBOF ESP (R 336.1301(1)(a))	As visible emission readings are being conducted on the EUBOF ESP on a regular basis, it makes sense to clarify the emissions limit in the table.
EUBOF I.3	Visible emission limit of 20% opacity, 3-minute average, from BOF Shop Building	Added "Secondary Emissions" to Equipment	Clarification made to parallel the MACT requirement
EUBOF I.5	No citation for EUBOF Beaching visible emissions limit	Add Visible Emissions limit of 20% opacity, 3-minute average for EUBOF Outdoor Iron Beaching (Act 451 Section 324.5524(2))	As this section (VI.5) requires VE observations when beaching, it makes sense to include beaching in the table.
EUBOF III.3.a	a. The permittee shall prepare and operate at all times according to a written operation and maintenance plan for each capture system or control device subject to an operating limit in §63.7790(b). Each plan must address the elements in paragraphs (a)(i.) through (v.):	Delete "prepare"	As the plans have been prepared, the only ongoing requirement is to operate in accordance with the plan.
EUBOF III.4	The permittee shall develop and implement a written startup, shutdown and malfunction plan (SSM) for the BOF vessels and the associated emission control system. The permittee shall also develop a malfunction abatement plan (MAP) pursuant to the requirements of Rule 911(2) for the operation of the ESP. The MAP may be a stand-alone plan or combined with the SSM.2 (R 336.1910, R 36.1911, 40 CFR 63.7810(c), 40 CFR 63.7835(b), 40 CFR 63.6(e)(3))	Delete "develop and implement" and replace with "maintain"	As the plans have already been developed and implemented, they now just need to be maintained.
EUBOF III.8	ESP dust shall be moved by covered belt conveyor to a storage bin and, if transported offsite, the ESP dust, including coarse dust collected in a drop chamber, shall be wetted and transported by a covered truck, or shall be transported by a pneumatic truck to a landfill or other approved facility for recycling and/or disposal. (SIP No. 30-1993, Exhibit A, Paragraph 5 (B)(5))	Change to "ESP dust shall be moved by covered belt conveyor to a storage bin and, if transported offsite, the ESP dust, including coarse dust collected in a drop chamber shall either be wetted or loaded into a truck via a snorkel prior to being covered and transported by a covered truck, or shall be transported by a pneumatic truck to a landfill or other approved facility for recycling and/or disposal. (SIP No. 30-1993, Exhibit A, Paragraph 5 (B)(5))"	The original SIP said nothing about ESP dust being wetted at the silo; it says it was wetted with steam in a miller then moved by conveyor to storage bin. The water as currently added does nothing. A retractable snorkel has been added that is far more important in keeping the dust down during the truck loading process

Permit Condition	Current ROP Language	Revision	Justification
EUBOF III.9	<p>The permittee shall develop and make available for inspection upon request by the AQD a site-specific monitoring plan that addresses all of the following requirements for the BOF ESP: (40 CFR 63.7831(a))</p> <p>a. Installation of the CPMS sampling probe or other interface at a measurement location relative to each hooded emission point such that the measurement is representative of capture of the exhaust emissions; (40 CFR 63.7831(a)(1))</p> <p>b. Performance and equipment specifications for the sample interface, the parametric signal analyzer, and the data collection and reduction system; (40 CFR 63.7831(a)(2))</p> <p>c. Performance evaluation procedures and acceptance criteria; (40 CFR 63.7831(a)(3))</p> <p>d. Ongoing operation and maintenance procedures in accordance with the general requirements of 40 CFR 63.8(c)(1), (c)(3), (c)(4)(ii), (c)(7), and (c)(8); (40 CFR 63.7831(a)(4))</p> <p>e. Ongoing data quality assurance procedures in accordance with the general requirements of 40 CFR 63.8(d); (40 CFR 63.7831(a)(5))</p> <p>f. Ongoing recordkeeping and reporting procedures in accordance with the general requirements of 40 CFR 63.10(c), (e)(1), and (e)(2)(i). (40 CFR 63.7831(a)(6))</p> <p>g. Corrective action procedures that will be followed in the event an electrostatic precipitator exceeds the operating limit in 40 CFR 63.7790(b)(3). (40 CFR 63.7831(a)(8))</p>	Eliminate Permit Condition	The MACT requirement to maintain a site specific monitoring plan does not apply to an ESP. The citation 63.7831(a) references CPMS required by 63.7830. While that section is very specific about defining the monitoring systems for sinter plant discharge end, blast furnace casthouse, and secondary emissions as a CPMS, it does not use that language when speaking about an ESP. The specific requirements related to an ESP are covered in EUBOF VI.10 and EUBOF VI.16. The listed requirements for COMS are in place of the CPMS requirements, not in addition to the CPMS requirements.
EUBOF V.1	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. Testing shall be performed with test methods as specified in 40 CFR 63.7822. (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUBOF V.2	The permittee shall conduct performance tests for particulate matter emissions and opacity at least twice during the ROP renewal period. (40 CFR 63.7821(a))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUBOF V.7	The permittee shall verify visible emissions, PM, PM10, PM2.5, NOx, and CO emission rates from the EUBOF ESP stack (including BOF oxygen blows), by testing at owner's expense, in accordance with Department requirements, within 180 days of May 12, 2014, unless a test has been completed within two years prior to May 12, 2014 and the results submitted to the AQD for approval. The PM testing shall be performed with test methods as specified in Rule 336.1331. Subsequent testing will be required once every three years from the completion of the previous stack test. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804, R 336.2802(4))	Deleted references to testing within 180 days of May 12, 2014 and replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUBOF VI.7	<p>If applicable, the permittee shall operate and maintain the EUBOF ESP CPMS in continuous operation according to the site-specific monitoring plan. Unless otherwise specified, the CPMS shall: (40 CFR 63.7831(b))</p> <p>a. Complete a minimum of one cycle of operation for each successive 15-minute period and collect a minimum of three of the required four data points to constitute a valid hour of data; (40 CFR 63.7831(b)(1))</p> <p>b. Provide valid hourly data for at least 95 percent of every averaging period; and (40 CFR 63.7831(b)(2))</p> <p>c. Determine and record the hourly average of all recorded readings. (40 CFR 63.7831(b)(3))</p>	Eliminate Permit Condition	As discussed previously, AK Steel believes that the MACT requirement to maintain a site-specific monitoring plan does not apply to ESP's. The applicable requirements for ESP COMS are discussed in EUBOF VI.10 and EUBOF VI.16.
EUBOF VI.30 to EUBOF VI.34	No citations in current ROP - Sections being added to incorporate consent decree requirements related to the ESP	See specific markup - incorporated EGLE Civil Action No. 15-cv-11804 Paragraph 19.a, 19.b, 19.c, 21, and 22.	Revision make to incorporate applicable sections of active applicable consent decrees

Permit Condition	Current ROP Language	Revision	Justification
EUBOF VI.35 to EUBOF VI.40	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific excursion requirement defined as opacity that constitutes a deviation of the MACT limit. S.C. 36 through S.C. 40 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5, PM10, and Mn emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EUBOF VII.8	No citations in current ROP - Sections being added to incorporate consent decree reporting requirements	Added: By the 30th day after each calendar quarter (April 30, July 30, October 30, and January 30, permittee shall submit a quarterly report that includes each instance in which the 6-minute block average reading of the COM data for the ESP exceeds 20% opacity. For each instance, permittee shall: <ul style="list-style-type: none"> a. Identify the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.a) b. When the root cause is unknown, provide a description of efforts taken by permittee to investigate the root cause of each 6-minute block average reading that exceeds 20% opacity, including a copy of any related ESP operating records. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.b) c. Describe corrective actions taken in response to the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity, including but not limited to a copy of related work orders or other documents submitted to address the cause of the high reading. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.c) d. Describe preventative actions taken, if any, and actions to be taken, if any, by permittee to eliminate such instances of 6-minute block average readings that exceed 20% opacity in the future, along with a proposed schedule for taking such corrective action, or alternatively, a justification for taking no additional action to address such instances. (EPA and EGLE Civil Action No. 15-cv-11804 Paragraph 20.d) 	Revision make to incorporate applicable sections of active applicable consent decrees
EUBOF VII.9	No citations in current ROP - Sections being added to incorporate CAM reporting requirements	Added: Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EUBOF IX.10 and IX.11	No citations in current ROP - Sections being added to incorporate CAM Requirements	The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64) If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.

Permit Condition	Current ROP Language	Revision	Justification
EULADLEREFINE1 I.3	Visible Emissions limit of 20% opacity for EULADLEREFINE1 Roof Monitors - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a),	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EULADLEREFINE1. The cited MACT limit is not applicable.
EULADLEREFINE1 V.1	The permittee shall conduct performance tests for particulate matter emissions at least once every five years. (40 CFR 63.7821)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE1 V.3	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE1 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE1 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Deleted references to May 12, 2014 and to obtaining hopper samples on the first test. Replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE1 V.4	The permittee shall verify the capture efficiency for EULADLEREFINE1 using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))	Replace "within three years of May 12, 2014" with "every three years." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EULADLEREFINE VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

Permit Condition	Current ROP Language	Revision	Justification
EULADLEREFINE1 IX.4 and 5	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EULADLEREFINE2 I.3	Visible Emissions limit of 20% opacity for EULADLEREFINE1 Roof Monitors - Fugitive emissions from hot metal transfer operation building or enclosure - Cites MACT Standard (40 CFR 63.7790(a),	Eliminate Permit Condition	The referenced underlying requirement is for "Secondary" emissions. When read in conjunction with the definition for primary emissions, it is implied that the secondary emissions are generated at the vessel and do not include emissions from Hot Metal Transfer, Desulf, or LRF. Therefore, this permit condition is not applicable to EULADLEREFINE1. The cited MACT limit is not applicable.
EULADLEREFINE2 V.1	The permittee shall conduct performance tests for particulate matter emissions at least once during the ROP renewal period. (40 CFR 63.7821)	Change "at least once during the ROP Renewal Period" to "every five years." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE2 V.3	Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5 and Pb emission rates from the EULADLEREFINE2 baghouse stack by testing at owner's expense, in accordance with Department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after the date of issuance of this permit, the permittee shall obtain Pb dust concentrations in the EULADLEREFINE1 baghouse hoppers. Subsequent Pb sampling of the baghouse dust is not required. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including baghouse dust analysis for Pb, to the AQD within 60 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Deleted references to May 12, 2014 and to obtaining hopper samples on the first test. Replaced with the general requirement to test every three years from the completion of the previous test. Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EULADLEREFINE2 V.4	The permittee shall verify the capture efficiency for EULADLEREFINE2 using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))	Replace "within three years of May 12, 2014" with "every three years." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.

Permit Condition	Current ROP Language	Revision	Justification
EULADLEREFINE2 VI.16 to VI.21	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 16. S.C. 17 through S.C. 21 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EULADLEREFINE VII.6	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.
EULADLEREFINE2 IX.4 and 5	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EUVACUUMDEGASSER V.1	The permittee shall conduct a carbon monoxide emission test at least once during the five year life cycle of this permit. Performance of the stack test shall be according to the schedule stipulated in the Source Wide requirements - SC V.1 of this section or more frequently upon the request of the AQD. No less than 30 days prior to testing, a complete stack test protocol must be submitted to the AQD for approval. The final plan must be approved by the AQD prior to testing. (R 336.1213(3))	Replaced "during the five year life cycle of this permit" with "every five years." Added "Subsequent testing will be required once every five years from the completion of the previous stack test." Deleted reference to SC V.1. Added "Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test." Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1.	Changed to make more consistent with other sources. Also added clarification regarding submittal of the test report. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUVACUUMDEGASSER VI.3 to VI.8	No citations in current ROP - Sections being added to incorporate CAM Requirements	Pilot Light Status defined as operating limit in S.C. VI.3. S.C. VI.4 through VI.8 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the CO emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
EUVACUUMDEGASSER VII.4	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.

Permit Condition	Current ROP Language	Revision	Justification
EUVACUUMDEGASSER IX.1 and IX.2	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
EUMACHSCARF V.1	The permittee shall verify the visible emissions, PM, PM10, and PM2.5 emission rates from the EUMACHSCARF baghouse stack by testing at owner's expense, in accordance with Department requirements at least once every five years from completion of previous test. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 45 days following the last date of the test.2 (R 336.2001, R 336.2003, R 336.2004, R 336.2803, R 336.2804, R 336.2810)	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUHANDSCARFING	Eliminate Entire Section	Delete from ROP	Handscarfing has not been performed since Mid-2016 and the hand scarfing beds have been demolished. The operation that is covered by this permit section is no longer applicable.
EUSCALEBREAKER	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
EUSCALEBREAKER V.1	At least once every ROP permit term the permittee shall verify PM10 emission rates from EUSCALEBREAKER by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. See detailed markup.	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUPKLTANKS	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
EUPKLLINE	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal

Permit Condition	Current ROP Language	Revision	Justification
EUPKLLINE V.1	At least once every two and a half years verification of the HCl emission rate from the EUNPKLLINE pickling line process water scrubber stack SVNPKLINESCRUB, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1. (R 336.1225, 40 CFR 63.1161(a), 40 CFR 63.1162(a)(2))	Add "In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUTANDMILL	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
EUTANDMILL V.1	At least once every ROP permit term verification of the PM10 emission rate from the EUNTANDMILL mist eliminator stack, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. (R 336.1205, R 336.1213, R 336.2001)	Change "once every ROP permit term" to "once every five years", Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources, Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EUHDGLCLEANER	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
EUHDGLCLEANER V.1	At least once every ROP permit term the permittee shall conduct a particulate matter emission test from the EUHDGLCLEANER water scrubber stack, while in operation to control the caustic cleaning operation. No less than 30 days prior to testing, a complete stack test protocol must be submitted to the AQD District Office for approval. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years", Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources, Language added to confirm the applicability of the proposed S.C. Source wide V.1.
EU-ENGINE1	Entire Section	Incorporated into ROP from PTI 8-08A	PTI's are required to be incorporated into the ROP at the time of renewal
EU-ENGINE1 IX.1	The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGINE1. (40 CFR Part 60 Subparts A & IIII)	Eliminate Permit Condition	The permit conditions for this source already specify the applicable provisions of IIII - Namely either demonstrating compliance by purchasing a certified engine or requiring testing. A "catch all" term at the end is unnecessary.
EU-ENGSH	Entire Section	Incorporated into ROP from PTI 84-11	PTI's are required to be incorporated into the ROP at the time of renewal
EU-ENGSH IX.1	The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGSH. (40 CFR Part 60 Subparts A & IIII, 40 CFR 63.6590(c)(1))	Eliminate Permit Condition	The permit conditions for this source already specify the applicable provisions of IIII - Namely either demonstrating compliance by purchasing a certified engine or requiring testing. A "catch all" term at the end is unnecessary.

Permit Condition	Current ROP Language	Revision	Justification
PTI 84-11 and 8-08A Flexible Groups	Flexible groups contain the following requirements: Reporting: The permittee shall submit all applicable notifications specified in 40 CFR 63.7(b) and (c), 63.8 (e), (f)(4), and (f)(6), and 63.9(b) through (e), (g), and (h) by the dates specified. (40 CFR 63.6645(a)(3) and (f)) Other: The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. (40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)	Eliminate Flex Groups	The two conditions added by the Flex Group designations are irrelevant: AK Steel's analysis is that neither has any requirements specified by ZZZZ and neither has any notification requirements required by ZZZZ. As such, the inclusion of the flexible groups adds nothing.
Flexible Group Summary Table	Summary Table for Flexible Groups	Corrected description for FGANNEALFURNACES, Added 3 sources to FGRULE290 - See changes below to individual flexible group sections for further details. Added FGPLTCMHDGLHEAT, FGHGDLSCR, FGHGDLVOC from PTI 120-16, Added FG-RICEMACT < 500 HP, FG-RICEMACT > 500 HP, FG-III ENGINES to over requirements for Emergency Engines	See Justification in individual flexible group sections discussed below
FGBOFSHOP I.11	Manganese emission limit on secondary baghouse of 0.07 pph	Clarify limit as being on a PM10 basis	The limit is based on the PM10 ITSL and was derived as such. It should be applicable only to the PM10 fraction.
FGBOFSHOP I.12	Manganese combined emission limit on ESP and secondary baghouse of 0.10 pph	Clarify limit as being on a PM10 basis	The limit is based on the PM10 ITSL and was derived as such. It should be applicable only to the PM10 fraction.
FGBOFSHOP IV.2	The permittee shall operate and maintain the following modifications to FGBOFSHOP which were completed within 180 days of May 12, 2014: a. Install a steam ring or other equivalent barrier at A and B Vessels to mitigate the potential for emissions to escape through the lance hole, b. Close the gaps at the reline tower door/boiler hood door in the primary capture hood, and; c. Modify the charge hood flap to prevent emissions escaping during charge as the flap is drawn.2 (R 336.12051(a) & (b), R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition and Replace with requirement to have a plan: The permittee shall maintain an Emission Reduction Plan for the BOF Roof Monitor. The plan shall include a set of design and work practice standards that are designed to minimize FGBOFSHOP roof monitor emissions. The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the plan or amended plan shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits - Added as FGBOF III.2	These requirements are very prescriptive and are based on CFD modeling that was conducted in 2013. Having them spelled out in the Title V permit forces the facility to live with requirements that are outdated. The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP.
FGBOFSHOP V.1	The permittee shall conduct overlapping performance tests for particulate matter emissions from the BOF secondary baghouse and opacity from the BOF roof monitor (including reladling operation and BOF oxygen blows) at least once during the ROP renewal period. (40 CFR 63.7821)	Replace "at least once during the ROP renewal period" with "at least once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGBOFSHOP V.2	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	The permittee shall conduct performance tests for particulate matter emissions from the ESP stack (including BOF oxygen blows) at least twice during the ROP renewal period. Testing shall be performed only during the steel production cycle and sampling shall be performed over an integral number of steel production cycles. In the event that testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1 (40 CFR 63.7821, 40 CFR 63.7822(g)(1) and (2))	Language added to confirm the applicability of the proposed S.C. Source wide V.1.

Permit Condition	Current ROP Language	Revision	Justification
FGBOFSHOP V.6	<p>Within three years of May 12, 2014, the permittee shall verify visible emissions, PM, PM10, PM2.5, and NOx emission rates from the BOF secondary baghouse stack during typical operations (including reladling operation) by testing at owner's expense, in accordance with department requirements.</p> <p>Subsequent testing will be required once every three years from the completion of the previous stack test. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804, R 336.2802(4))</p>	Delete "Within three years of May 12, 2014" and replace with "Once every three years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the test shall be completed in accordance with S.C. Source Wide Conditions V.1."	The initial testing was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGBOFSHOP V.7	<p>Within three years of May 12, 2014, the permittee shall verify and quantify Mn, Pb, and total Hg emissions rates from the FGBOFSHOP (secondary baghouse stack and ESP stack simultaneously) by testing at owner's expense, in accordance with department requirements. Subsequent testing will be required once every three years from the completion of the previous stack test. In addition, at the time of the first testing after May 12, 2014, the permittee shall obtain Mn, Pb and Hg dust concentrations in both the ESP hoppers and the baghouse hoppers. Subsequent Mn, Pb and Hg sampling of the ESP and baghouse hoppers is not required, unless requested by the AQD District Supervisor. No less than 45 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results, including ESP and baghouse dust analysis for Mn, Pb and Hg, to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee))</p>	Delete "Within three years of May 12, 2014" and replace with "Once every three years", delete references to Mn, Pb, and Hg sampling of the ESP and Baghouse Hoppers. Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	The initial testing and hopper dust analysis was conducted as required. The ongoing requirement is now to perform the test once every three years from the completion of the previous test. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGBOFSHOP V.8	<p>The permittee shall verify the capture efficiency for FGBOFSHOP using computational fluid dynamics (CFD) modeling or other approved method within three years of May 12, 2014. The permittee shall perform CFD modeling or other approved method to verify the capture efficiency every three years thereafter. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD District Office. The AQD must approve the final plan prior to testing. The permittee shall submit a complete report of the analysis results to the AQD within 60 days following the completion of the analysis.2 (R 336.1205(1)(a) & (b), R 336.1301, R 336.2001, R 336.2003, R336.2004, R 336.2801(ee))</p>	Delete "within three years of May 12, 2014" and replace with "Once every three years." After FGBOFSHOP, add "reladling, charging, and tapping operations." Add "In the event that the verification cannot be performed by the scheduled test date due to the source being idled, the verification shall be completed in accordance with S.C. Source Wide Conditions V.1. "See detailed markup.	The initial CFD modeling was conducted as required. The ongoing requirement is now to perform the modeling once every three years from the completion of the previous modeling. In addition, since the modeling only applies to operations where the 98% capture efficiency apply, it should be clarified as applying only to reladling, charging, and tapping operations. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGBOFSHOP VI.22	<p>The permittee shall perform a Method 9C certified visible emission observation for the FGBOFSHOP roof monitors at least three times per week on separate days during BOF operations for a minimum of two hours which must include two complete heats. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken.2 (R 336.1331)</p>	Add the following before the corrective action clause: In the event that BOF operations are down for more than 36 hours within the week, the number of required readings is reduced to 2. In the event that BOF operations are down for more than 60 hours within the week, the number of required readings is reduced to one.	AK Steel is seeking relief on a condition that has been very difficult to meet - That is getting the full compliment of VE readings completed during weeks where an outage occurred. Several weekend observations have been performed to meet the requirement as currently written.
FGBOFSHOP VI.22.a	<p>If visible emissions from the EUBOFSHOP Roof Monitor exhibit opacity greater than 10%, on a three-minute average, the permittee shall investigate the reasons for the exceedance and shall verify that the appropriate work practices set forth in SC VI.22.b were followed. Any instance of EUBOFSHOP Roof Monitor opacity in excess of 10% for a 3-minute average shall be defined herein as a period of Elevated Opacity.</p>	Replace reference to SC VI.22.b with "the emission reduction plan for the BOF Roof Monitor."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.

Permit Condition	Current ROP Language	Revision	Justification
FGBOFSHOP VI.22.b	In the event of a period of Elevated Opacity, the permittee must be able to demonstrate that the following work practice standards for FGBOFSHOP were followed. The following work practices can be amended or revised upon approval of the AQD District Supervisor:	Eliminate the specific conditions within the Title V Permit and replace with "the permittee must be able to demonstrate that the work practice standards for FGBOFSHOP presented with the Emission Reduction Plan for the BOF Roof Monitor were followed."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.
FGBOFSHOP VI.23	The permittee shall monitor and record the work practice standards listed in SC VI.22.b using a data control system and work logs. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Replace reference to SC VI.22.b with "the emission reduction plan for the BOF Roof Monitor."	The proposed plan provides a mechanism to maintain a state approved emission reduction plan that is adaptable and can be changed without requiring changes to the ROP. Even though the current permit states that these work practices can be amended or revised, the mechanism for making the request and revising the permit is unclear. A plan would provide a mechanism that would streamline the process by leaving the ROP language untouched.
FGBOFSHOP VI.25	The permittee shall verify the fan flow conditions for the BOF Secondary Baghouse, as specified in the operation and maintenance plan, at least once per calendar year or more frequently as deemed necessary by the AQD District Supervisor. The flow rate verifications will be conducted in the ductwork riser connecting the charge and tap hoods to the main duct connecting it to the baghouse avoiding, to the extent possible, cyclonic flows. If the flow rate verification identifies a need to revise any set points, then the permittee shall update the fan speed and/or damper positions, as necessary, in the operation and maintenance plan as well as all procedures necessary to implement any such new set points. Any changes in the set points are subject to a retest under SC V.5. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Replace "fan speed and/or damper positions" with "setpoints"	This is too detailed. For example, the set point parameter for flow estimation was changed from fan speed to plenum pressure in 2019. Just referencing "setpoints" in the O&M plan is clear enough as the only setpoints presented are the flow estimation parameter and the damper position.
FGBOFSHOP VI.26	The permittee shall verify the damper positions for the BOF Secondary Baghouse on a quarterly basis. The permittee shall also inspect and calibrate the damper position to ensure that the actuator is achieving the desired set point for each operating scenario as defined in the operation and maintenance plan. The permittee shall keep the records on file at the facility and make them available to the department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition	This requirement is essentially a repeat of an item required by the SEC Baghouse CPMS Plan. FGBOFSHOP VI.7.c already requires AK Steel to define performance evaluation procedures and acceptance criteria for the chosen CPMS variables. The permit condition is redundant.

Permit Condition	Current ROP Language	Revision	Justification
FGBOFSHOP VI.27	The permittee shall verify the fan speed/amperage set point for the BOF Secondary Baghouse on a quarterly basis, this will include verification of fan speed measurements and calibrations using an independent measurement of the amperage/speed. The permittee shall keep the records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	Eliminate Permit Condition	This requirement is essentially a repeat of an item required by the SEC Baghouse CPMS Plan. FGBOFSHOP VI.7.c already requires AK Steel to define performance evaluation procedures and acceptance criteria for the chosen CPMS variables. The permit condition is redundant. For example, fan speed monitoring was replaced by plenum pressure monitoring in 2019. Even though fan speed monitoring is no longer required by the CPMS plan, this permit condition still requires that the fan speed set point be verified even though it is no longer relevant to anything. The CPMS plan is the appropriate place to require such inspections. It does not need to be separately pulled into the Title V permit as a stand alone condition.
FGBOFSHOP VI.29	No citations in current ROP - Condition being added to incorporate monitoring requirements for Natural Gas Sources within FGBOFSHOP.	Add the following: The permittee shall monitor and record, in a satisfactory manner, the total natural gas usage for FGBOFSHOP (which includes ladle pre-heaters and gas stingers) on a monthly, and 12-month rolling time period basis. The permittee shall keep all records on file at the facility and make them available to the Department upon request.2 (R 336.1205(1)(a) & (b), R 336.1225, R 336.2801(ee), R 336.2802(4), R 336.2803, R 336.2804)	While AK Steel believes that the natural gas sources are incorporated under this flexible group, we are seeking to add a monitoring requirement to fully clarify this.
FGBOFSHOP VI.30 to VI.35	No citations in current ROP - Sections being added to incorporate CAM Requirements	Specific pressure drop range of 2-10" W.C. defined as operating limit in S.C. 32. S.C. 33 through S.C. 36 added to incorporate remaining applicable provisions of the CAM Rule. See specific markup.	AK Steel determined in 2017 that they were subject to CAM requirements for this source due to the PM2.5 and PM10 emission limits. A plan was submitted to EGLE. This revision is to incorporate the plan operating limits into the permit.
FGBOFSHOP VII.8	No citations in current ROP - Sections being added to incorporate CAM Reporting Requirements	Added condition: "Each semiannual report of monitoring deviations shall include summary information on the number, duration and cause of excursions and/or exceedances and the corrective actions taken. If there were no excursions and/or exceedances in the reporting period, then this report shall include a statement that there were no excursions and/or exceedances. (40 CFR 64.9(a)(2)(i))"	Since this source is subject to CAM, the reporting requirements should be incorporated into the permit.
FGBOFSHOP IX.3 and IX.4	No citations in current ROP - Sections being added to incorporate CAM Requirements	Added conditions: "The permittee shall comply with all applicable requirements of 40 CFR Part 64. (40 CFR Part 64)" "If the permittee identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the permittee shall promptly notify the AQD and if necessary, submit a proposed modification to the ROP to address the necessary monitoring changes. Such a modification may include but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters. (40 CFR 64.7(e))"	Since this source is subject to CAM, the added requirements have been added as a "catch-all" to confirm the rule's applicability to this source.
FGANNEALFURNACES Description	52 annealing furnaces (composed of 34 hydrogen nitrogen annealing furnaces and 18 hydrogen annealing furnaces) located in the Cold Mill Building.	Change to the following: 18 Hydrogen Annealing Furnaces located in the cold mill building.	Change being made to specify current operational configuration. The other furnaces have all been demolished.

Permit Condition	Current ROP Language	Revision	Justification
FGHSMFURNACES123 V.1	The permittee shall verify NOx emission rates from a representative reheat furnace from FGHSMFURNACES123 by testing at owner's expense, in accordance with department requirements once every ROP renewal period. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test.2 (R 336.1205(1)(a) & (b), R 336.1801, R 336.2001, R 336.2003, R 336.2004, R 336.2801(ee), R 336.2803, R 336.2804)	Replace "once every ROP renewal period" with "once every 5 years from completion of the previous test." Change 60 day notification requirement to 30 days. "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions V.1."	Changed to make more consistent with other sources. Requested a shorter notification period as there is no underlying basis for the 60 day notification. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGHSMFURNACES123 VI.3	The permittee shall perform a Method 9 certified visible emission observation of the slab reheat furnaces 1, 2 & 3 respective stacks at least once a month during processing activity. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R 336.1213(3))	after observation, add "a representative slab reheat furnace 1,2,3"	Current practice has been to read all HSM stacks while the hot mill was operating. However, in most cases, this only covers one (or possibly 2) furnaces. Adding "a representative" provides clarity that the observation is being performed on stack that corresponds with the process, not necessarily on each particular furnace.
FGPLTCMHDGLHEAT	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
FGHDGLSCR	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
FGHDGLSCR V.1	At least once every ROP permit term the permittee shall verify NOx and ammonia emission rates from SVHDGL_SCR when FGHDGLSCR SCR, EUHDGLANNEAL, and EUHDGLH2OHEATER are in operation by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004)	Change "once every ROP permit term" to "once every five years." Add "In the event that the testing cannot be performed by the scheduled test date due to the source being idled, the testing shall be completed in accordance with S.C. Source Wide Conditions	Changed to make more consistent with other sources. Language added to confirm the applicability of the proposed S.C. Source wide V.1.
FGHDGLVOC	Entire Section	Incorporated into ROP from PTI 120-16	PTI's are required to be incorporated into the ROP at the time of renewal
FGENG2007>500 IX.1	The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007>500. (40 CFR Part 63, Subparts A and ZZZZ)	Delete condition and replace with the following two conditions: 1. The permittee may operate any engine within FGENG2007>500 for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, those 50 hours are counted towards the hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. (40 CFR 63.6640(f)) 2. The permittee must maintain on file a copy of the initial notification required under 63.10(b)(2)(xiv). (40 CFR 63.6655(a))	AK Steel is requesting that the specific RICE MACT requirements be spelled out within the permit instead of using a generic "catch-all" term

Permit Condition	Current ROP Language	Revision	Justification
FGENG2007<500 IX.1 and IX.2	<p>1. The permittee shall comply with all provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007<500. (40 CFR Part 63, Subparts A and ZZZZ)</p> <p>2. The permittee shall comply with all provisions of the New Source Performance Standards, as specified in 40 CFR Part 60, Subpart A and Subpart JJJJ, for Spark Ignition Stationary Reciprocating Internal Combustion Engines, as they apply to FGENG2007<500. (40 CFR Part 60, Subparts A and JJJJ)</p>	Eliminate Permit Conditions	AK Steel's analysis indicates that the engines in this group have no requirements pertaining to either ZZZZ or JJJJ. As such, the "catch-all" terms are unnecessary and should be deleted.
FG-RICE MACT < 500 HP	New Flexible Group	Created Flexible Group to incorporate applicable requirements of RICE MACT for Engines < 500 HP that are subject to ZZZZ. These requirements apply to EUENGGATE2, EUTBENGINE, and EUMACHSCARFEN.	Added flexible group as ROP is required to incorporate all applicable requirements.
FG-RICE MACT > 500 HP	New Flexible Group	Created Flexible Group to incorporate applicable requirements of RICE MACT for Engines > 500 HP that are subject to ZZZZ. These requirements apply to EUY2KENGINE.	Added flexible group as ROP is required to incorporate all applicable requirements.
FG-III Engines	New Flexible Group	Created Flexible Group to incorporate applicable requirements of RICE MACT for Engines that are subject to IIII. These requirements apply to EUPLTCMENGINE.	Added flexible group as ROP is required to incorporate all applicable requirements.
FGCOLDCLEANERS Description	Any cold cleaner that is grandfathered or exempt from Rule 201 pursuant to Rule 278 and Rule 281(h) or Rule 285(r)(iv). Existing cold cleaners were placed into operation prior to July 1, 1979. New cold cleaners were placed into operation on or after July 1, 1979.	Delete "grandfathered"	AK Steel does not have any "grandfathered" cold cleaners onsite
FGRULE290 Emission Units	<p>Emission Units: EUBOFLIMERECEIVI, EUCKOKEUNLOADEE</p> <p>POLLUTION CONTROL EQUIPMENT</p> <p>Baghouse for EUBOFLIMERECEIVI</p>	<p>For emission units, add:</p> <p>EUDESULFBUSKIMMER EUMSSCREENER EUBFPILESREENER</p> <p>For Pollution Control Equipment, add:</p> <p>EUCKOKEUNLOADEE</p>	Updated for additional rule 290 exempt sources identified after the last ROP renewal cycle
Appendix 3.2-1 SO2 Monitoring Continuous Emission Rate Monitoring System (CERMS) Requirements for EUCFURNACE, Item 1	For EUCFURNACE, the permittee shall implement and maintain the AQD approved Monitoring Plan. The Monitoring Plan shall include drawings or specifications showing proposed locations and descriptions of the required CERMS.	Delete "implement"	The plan has been implemented and approved, it now only needs to be maintained.
Appendix 3.2-1 SO2 Monitoring Continuous Emission Rate Monitoring System (CERMS) Requirements for EUCFURNACE, Item 2	For EUCFURNACE, within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the CERMS complies with the requirements of the corresponding Performance Specifications (PS) in the following table.	In place of testing, add "The annual Relative Accuracy Test Audit". In addition, AK Steel is seeking clarification on whether the 2 copies implies that a copy should be sent to the District Office and the TPU or that 2 copies should be sent to both the District Office and the TPU	Change being requested to clarify the "testing" specified within the condition.
Appendix 3.3-1 Continuous Opacity Monitoring System (COMS) Requirements, Item 1	Within 60 days of completion of testing, the permittee shall submit to the AQD two copies of the final report demonstrating the COMS complies with the requirements of Performance Specification (PS) 1.	<p>The applicability of this requirement is very confusing. AK Steel suggests the following language: In the event that a new opacity monitor is installed as a permanent replacement for the previous monitor, within 60 days of completion of the field certifications required by Performance Specification 1 (PS1), the permittee shall submit to the AQD two copies of the final report demonstrating the COMS complies with the requirements of PS1.</p> <p>In addition, AK Steel is seeking clarification on whether the 2 copies implies that a copy should be sent to the District Office and the TPU or that 2 copies should be sent to both the District Office and the TPU</p>	Change being requested to clarify the "testing" specified within the condition.

Permit Condition	Current ROP Language	Revision	Justification
Appendix 3.3-1 Continuous Opacity Monitoring System (COMS) Requirements, Item 4	The permittee shall perform an annual audit of the COMS using the procedures set forth in USEPA Publication 450/4-92-010, "Performance Audits Procedures for Opacity Monitors", or a procedure acceptable to AQD. Within 30 days after the completion of the audit, the results of the annual audit shall be submitted to the AQD.	<p>Replace permit condition with the following:</p> <p>The permittee shall conduct an annual zero alignment of the COMS by comparing the COMS simulated zero to the actual clear path zero using EPA Procedure 3 (Quality Assurance Requirements for Continuous Opacity Monitoring Systems at Stationary Sources) as a guideline. Within 30 days after the completion of the quarter in which the audit was performed, the results of the audit shall be submitted to the AQD along with the summary report referenced in item 5</p>	A review of the referenced publication made it clear that the annual clear path check was the "annual audit" that was being referred to. AK Steel is also requesting that instead of a report being required within 30 days after the completion of the audit, the report be submitted within 30 days after the completion of the quarter in which the audit was performed. This will make the reporting requirement the same as for other COMS reporting requirements.
Appendix 6-1	See Markup	<p>Insert PTI's being incorporated in Table - This is PTI 120-16, PTI 84-11, and PTI 8-08A. List out sources:</p> <p>PTI 120-16: Description - Construction of new PLTCM and HGDL Operation</p> <p>EUSCALEBREAKER EUPKLTANKS EUPKLLINE EUTANDMILL EUPKLTMBLDGHEAT EUHDGLCLEANER EIHDGLH2OHEATER EUHDGLANNEAL EUHDGLDRYER EUHDGLSKINPASS EUHDGLES_OILING EUHDGLBLDHEAT FGPLTCMHDGLHEAT FGHDGLSCR FGHDGLVOC</p> <p>PTI 84-11: Description: A 1750 kilowatts (KW) diesel-fueled emergency engine manufactured in 2006</p> <p>EU-ENGSH</p> <p>PTI 8-08A: Description: A 1780 kilowatts (KW) diesel-fueled emergency engine manufactured in 2010</p> <p>EU-ENGINE1</p>	Inputting specific PTI's incorporated into the updated ROP

ATTACHMENT G – LISTING OF EXEMPT EMISSION UNITS

Exempt Units required to be listed in an administratively complete application

Exempt Emission Unit ID	Description of Exempt Emission Unit	ROP Exemption	PTI Permit Exemption
EUPELLETORE	Unloading and movement of pellet ore to stockhouse	R336.1212(4)(i)	R336.1291
EUEEBHNGHEATERS	Heaters at EE Building	R336.1212(4)(c)	R336.1282(b)(i)
EUCOKEUNLOADEE	Coke Unloading EE Building	R336.1212(4)(h)	R336.1290
EUBACKUPSKIM	Back-up Slag Skimming Station at Desulf	R336.1212(4)(h)	R336.1290
EUBOFLIMERECEIVE	Basic Oxygen Furnace Lime Unloading Station and Baghouse	R336.1212(4)(h)	R336.1290
EUBOFSHOP	BOF Teeming Aisle Dumping Activities (Dumping Steel, Reladling Steel, Dumping Slag)	R336.1212(4)(i)	R336.1291
EUCASTER1NG	Strand 1 and 2 Natural Gas Sources - Includes Tundish Pre-heater, North Pre-heater, Strand 1 and Strand 2 Torches, Baumann Print Torch, 2 Tundish Dryers	R336.1212(4)(c)	R336.1282(b)(i)
EUCASTER2NG	Strand 3 Natural Gas Sources - Includes Tundish Pre-heater, South Pre-heater, Strand 3 Torche, 2 Tundish Dryers	R336.1212(4)(c)	R336.1282(b)(i)
EUGRITSCRN	Machine Scarfing Grit Screener	R336.1212(4)(h)	R336.1290
EURAWMATSCRN	Pile Screening Activities in BF laydown yard	R336.1212(4)(h)	R336.1290
EUENGGATE2	Emergency natural gas engine providing emergency lighting for Gate 2 Security Building	R336.1212(4)(e)	R336.1285(2)(g)
EUPLTCMENGINE	Emergency diesel engine located near PLTCM building	R336.1212(4)(e)	R336.1285(2)(g)
EUTBENGINE	Emergency Engine located near Turbo Blower Room and Powerhouse	R336.1212(4)(e)	R336.1285(2)(g)
EUY2KENGINE	Emergency Engine located near screenhouse	R336.1212(4)(e)	R336.1285(2)(g)
EUMACHSCARFEN	Emergency Engine located near Machine Scarfing Building	R336.1212(4)(e)	R336.1285(2)(g)

Exempt Units that do not need to be listed in an administratively complete application

EUCFURNACETROUGHMAINT	Periodic Maintenance on Casthouse Iron and Slag Runners	R336.1212(2)(b)	R336.1285(2)(a)
EUCFURNACEWWTP	Blast Furnace Waste Water Treatment Plant Cooling Towers	R336.1212(3)(a)	R336.1280(d)
EUAQPARTWASHERS	Aqueous Based Parts Washers	R336.1212(3)(b)	R336.1281(k)
EUBOFMAINT	BOF Vessel and Ladle Maintenance - Includes vessel gunning, refractory repair, nozzle cleaning activities	R336.1212(2)(b)	R336.1285(2)(a)
EUCASTER1	Strands 1 and 2 shaping / spray tower steam vents	R336.1212(3)(f)	R336.1285(2)(l)(i)
EUCASTER2	Strand 3 shaping / spray tower steam vents	R336.1212(3)(f)	R336.1285(2)(l)(i)
EUCASTER1CUT	Strand 1 and 2 Torch Cutting	R336.1212(3)(f)	R336.1285(2)(l)(vi)(B)
EUCASTER2CUT	Strand 3 Torch Cutting	R336.1212(3)(f)	R336.1285(2)(l)(vi)(B)
EUTUNDISHMAINT	Tundish Refractory Treatment and Spraying	R336.1212(2)(b)	R336.1285(2)(a)
EUCASTERWWTP	Caster WWTP Cooling Towers	R336.1212(3)(a)	R336.1280(d)
EUHSMGENERAL	General Hot Strip Mill Activities - Machining, Rolling, and Cooling Slabs	R336.1212(3)(f)	R336.1285(2)(l)(i)
EUHSMROLLRECOND	Hot Strip Mill - Roller reconditioning activities	R336.1212(2)(b)	R336.1285(2)(a)
EUPLTCMROLLRECOND	PLTCM - Roller reconditioning activities	R336.1212(2)(b)	R336.1285(2)(a)
EUTEMPERMILL	Temper Mill Electrostatic Oiling Application	R336.1212(3)(f)	R336.1285(r)(i)
EULABHOODVENT	Various lab hood ventilation at all departments	R336.1212(3)(D)	R336.1283(B)

ATTACHMENT H -

PERMITS TO INSTALL THAT HAVE NOT BEEN INCORPORATED INTO EXISTING ROP

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

August 15, 2011

**PERMIT TO INSTALL
8-08A**

**ISSUED TO
Severstal Dearborn, LLC**

**LOCATED AT
4001 Miller Road
Dearborn, Michigan**

**IN THE COUNTY OF
Wayne**

**STATE REGISTRATION NUMBER
A8604**

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

August 1, 2011

DATE PERMIT TO INSTALL APPROVED:

August 15, 2011

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
AQD	Air Quality Division	BTU	British Thermal Unit
BACT	Best Available Control Technology	°C	Degrees Celsius
CAA	Clean Air Act	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	dscf	Dry standard cubic foot
CFR	Code of Federal Regulations	dscm	Dry standard cubic meter
COM	Continuous Opacity Monitoring	°F	Degrees Fahrenheit
EPA	Environmental Protection Agency	gr	Grains
EU	Emission Unit	Hg	Mercury
FG	Flexible Group	hr	Hour
GACS	Gallon of Applied Coating Solids	H ₂ S	Hydrogen Sulfide
GC	General Condition	hp	Horsepower
HAP	Hazardous Air Pollutant	lb	Pound
HVLP	High Volume Low Pressure *	m	Meter
ID	Identification	mg	Milligram
LAER	Lowest Achievable Emission Rate	mm	Millimeter
MACT	Maximum Achievable Control Technology	MM	Million
MAERS	Michigan Air Emissions Reporting System	MW	Megawatts
MAP	Malfunction Abatement Plan	ng	Nanogram
MDEQ	Michigan Department of Environmental Quality (Department)	NO _x	Oxides of Nitrogen
MSDS	Material Safety Data Sheet	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM10	PM less than 10 microns diameter
NSPS	New Source Performance Standards	PM2.5	PM less than 2.5 microns diameter
NSR	New Source Review	pph	Pound per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonably Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SRN	State Registration Number	THC	Total Hydrocarbons
TAC	Toxic Air Contaminant	tpy	Tons per year
TEQ	Toxicity Equivalence Quotient	µg	Microgram
VE	Visible Emissions	VOC	Volatile Organic Compounds
		yr	Year

* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date/ Modification Date	Flexible Group ID
EU-ENGINE1	A 1780 kilowatts (kW) diesel-fueled emergency engine manufactured in 2010.	8/15/2011	FG-CI RICE MACT
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EU-ENGINE1

DESCRIPTION: A 1780 kilowatts (kW) diesel-fueled emergency engine manufactured in 2010. This engine services the hot dip galvanizing line (HDGL) building and the fire suppression systems of the HDGL and the Pickle Line Tandem Cold Mill (PLTCM). Additionally, the engine can be used for emergency lighting.

Flexible Group ID: N/A

POLLUTION CONTROL EQUIPMENT: N/A

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NMHC + NOx	6.4 g/kW-hr	Test Protocol	EU-ENGINE1	SC V.1 SC VI.2	40 CFR 60.4205(b)
2. CO	3.5 g/kW-hr	Test Protocol	EU-ENGINE1	SC V.1 SC VI.2	40 CFR 60.4205(b)
3. PM	0.20 g/kW-hr	Test Protocol	EU-ENGINE1	SC V.1 SC VI.2	40 CFR 60.4205(b)

II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel, in EU-ENGINE1 with the maximum sulfur content of 15 ppm (0.0015 percent) by weight. **(R 336.1205(1)(a), R 336.1402(1), 40 CFR 60.4207(b), 40 CFR 80.510(b))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EU-ENGINE1 for more than 150 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall comply with the emission standards listed in 40 CFR Part 60, Subpart IIII as applicable. The permittee shall do the following over the life of the engine, except as allowed under 40 CFR 60.4211(g):
 - a. Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;
 - b. Change only those emission-related settings that are permitted by the manufacturer; and
 - c. Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply. **(40 CFR 60.4211(a))**
3. The permittee may operate EU-ENGINE1 for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but

those 50 hours are counted towards the hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211(f))**

4. The permittee shall install and configure EU-ENGINE1 according to the manufacturer's emission-related specifications and written instructions. The permittee shall operate and maintain EU-ENGINE1 to achieve the emission standards as required in 40 CFR 60.4205, over the entire life of the engine. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.4205, 40 CFR 60.4206)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain EU-ENGINE1 with a non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225)**
2. The nameplate capacity of EU-ENGINE1 shall not exceed 1,780 kW, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall demonstrate compliance with NMHC+NO_x, CO and PM emissions by providing manufacturer certification that EU-ENGINE1 meets the emissions standards in SC I.1, I.2 and I.3; or, if the permittee does not install, configure, operate and maintain the engine and control device according to the manufacturer's emission-related written instructions, or changes emission-related settings in a way that is not permitted by the manufacturer, then the permittee must demonstrate compliance as follows:
 - a. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
 - b. The permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the permittee changes emission-related settings in a way that is not permitted by the manufacturer. The permittee shall conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

If testing is required, no less than 60 days prior to testing, the permittee must submit a complete stack-testing plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **((R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.4211(g)(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) & (3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

2. The permittee shall keep records to demonstrate compliance with emission standards as specified in 40 CFR 60.4205(b), according to one of the following methods:
 - a. Manufacturer certification documentation indicating that EU-ENGSH meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart IIII. The engine must be installed and configured according to the manufacturer's specifications.
 - b. If the engine and control device is operated or maintained in a manner other than according to the manufacturer's emission-related written instructions, as allowed by 40 CFR 60.4211(g), the permittee shall keep records of:
 - i) The maintenance plan and maintenance activities
 - ii) The initial performance test and subsequent performance tests, as required by 40 CFR 4211(g), according to the requirements specified in 40 CFR 60.4212, as applicable.

The permittee shall keep all records on file and make them available to the Department upon request. **(40 CFR 60.4211(c))**
3. The permittee shall monitor and record the hours of operation of EU-ENGINE1 on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall record the time of operation of EU-ENGINE1 and the reason it was in operation during that time. **(R 336.1205(1)(a) & (3))**
4. The permittee shall keep, in a satisfactory manner, fuel supplier certification records for EU-ENGINE1 for each delivery of the diesel fuel oil. The certification shall include the name of the oil supplier, sulfur content, and a statement that the fuel complies with the specifications under the definition of distillate oil in 40 CFR 60.41c. **(R 336.1205(1)(a) & (3), 40 CFR 80.510(b))**

VII. REPORTING

N/A

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ENGINE1	14	8	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGINE1. **(40 CFR Part 60 Subparts A & IIII)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FG-CI RICE MACT

FLEXIBLE GROUP CONDITIONS

New/Reconstructed CI Engines at a Major Source > 500 HP
Emergency and Limited Use

DESCRIPTION: New/Reconstructed CI Engines located at a Major Source > 500 HP, Emergency and Limited Use

Flexible Group ID: FG-CI RICE MACT
POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VII. REPORTING

1. The permittee shall submit all applicable notifications specified in 40 CFR 63.7(b) and (c), 63.8 (e), (f)(4), and (f)(6), and 63.9(b) through (e), (g), and (h) by the dates specified. **(40 CFR 63.6645(a)(3) and (f))**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. **(40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

August 15, 2011

**PERMIT TO INSTALL
84-11**

**ISSUED TO
Severstal Dearborn, LLC**

**LOCATED AT
4001 Miller Road
Dearborn, Michigan**

**IN THE COUNTY OF
Wayne**

**STATE REGISTRATION NUMBER
A8640**

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

July 22, 2011

DATE PERMIT TO INSTALL APPROVED:

August 15, 2011

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant/Measurement Abbreviations	
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* For High Volume Low Pressure (HVLP) applicators, the pressure measured at the HVLP gun air cap shall not exceed ten (10) pounds per square inch gauge (psig).

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
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6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.
12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**
13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EU-ENGSH	A 1,750 kilowatts (kW) diesel-fueled emergency engine manufactured in 2006.	February, 2008	FG-CI RICE MACT
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EU-ENGSH

DESCRIPTION: A 1,750 kilowatts (kW) diesel-fueled emergency engine manufactured in 2006. This engine is located near the Screen House building.

Flexible Group ID: FG-CI RICE MACT

POLLUTION CONTROL EQUIPMENT:

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	9.2 g/kW-hr	Test Protocol	EU-ENGSH	SC V.1 SC VI.2	40 CFR 60.4205(a)
2. HC	1.3 g/kW-hr	Test Protocol	EU-ENGSH	SC V.1 SC VI.2	40 CFR 60.4205(a)
3. CO	11.4 g/kW-hr	Test Protocol	EU-ENGSH	SC V.1 SC VI.2	40 CFR 60.4205(a)
4. PM	0.54 g/kW-hr	Test Protocol	EU-ENGSH	SC V.1 SC VI.2	40 CFR 60.4205(a)

II. MATERIAL LIMITS

1. The permittee shall burn only diesel fuel, in EU-ENGSH with the maximum sulfur content of 15 ppm (0.0015 percent) by weight. **(R 336.1205(1)(a), R 336.1402(1), 40 CFR 60.4207(b), 40 CFR 80.510(b))**

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate EU-ENGSH for more than 250 hours per year on a 12-month rolling time period basis as determined at the end of each calendar month. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
2. The permittee shall comply with the emission standards listed in 40 CFR Part 60, Subpart IIII as applicable. The permittee shall do the following over the life of the engine except as allowed under 40 CFR 60.4211(g):
 - a. Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;
 - b. Change only those emission-related settings that are permitted by the manufacturer; and
 - c. Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply. **(40 CFR 60.4211 (a))**
3. The permittee may operate EU-ENGSH for no more than 100 hours per 12-month rolling time period as determined at the end of each calendar month for the purpose of necessary maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Permittee may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency internal combustion engines beyond 100 hours

per year. Emergency stationary ICE may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply non-emergency power as part of a financial arrangement with another entity. **(40 CFR 60.4211(f))**

4. The permittee shall install and configure EU-ENGSH according to the manufacturer's emission-related specifications and written instructions. The permittee shall operate and maintain EU-ENGSH to achieve the emission standards as required in 40 CFR 60.4205, over the entire life of the engine. **(R 336.1205(1)(a) & (3), R 336.1225, R 336.1911, R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d), 40 CFR 60.4205, 40 CFR 60.4206)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall equip and maintain EU-ENGSH with non-resettable hours meters to track the operating hours. **(R 336.1205(1)(a) & (3), R 336.1225)**
2. The nameplate capacity of EU-ENGSH shall not exceed 1,750 kW-hr, as certified by the equipment manufacturer. **(R 336.1205(1)(a) & (3))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall demonstrate compliance with NO_x, HC, CO and PM emissions standards by providing manufacturer certification that EU-ENGSH meets the emissions standards in SC I.1, I.2, I.3, and I.4, or, if the permittee does not install, configure, operate and maintain the engine and control device according to the manufacturer's emission-related written instructions, or changes emission-related settings in a way that is not permitted by the manufacturer, then the permittee shall demonstrate compliance as follows:
 - a. The permittee shall keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions.
 - b. The permittee shall conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the permittee changes emission-related settings in a way that is not permitted by the manufacturer. The permittee shall conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

If testing is required, no less than 60 days prior to testing, the permittee must submit a complete stack-testing plan to the AQD. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **((R 336.2001, R 336.2003, R 336.2004, 40 CFR 60.4211(g)(3))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor by the last day of the calendar month, for the previous calendar month, unless otherwise specified in any monitoring/recordkeeping special condition. **(R 336.1205(1)(a) & (3), R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**

2. The permittee shall keep records to demonstrate compliance with emission standards as specified in 40 CFR 60.4205(a) according to one of the following methods:
 - a. Manufacturer certification documentation indicating that EU-ENGSH meets the applicable emission limitations contained in the federal Standards of Performance for New Stationary Sources 40 CFR Part 60 Subpart III. . The engine must be installed and configured according to the manufacturer's specifications.
 - b. Records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.
 - c. Records of engine manufacturer data indicating compliance with the standards.
 - d. Records of control device vendor data indicating compliance with the standards.
 - e. Records of an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in 40 CFR 60.4212, as applicable.

The permittee shall keep all records on file and make them available to the Department upon request.
(40 CFR 60.4211(b))

3. The permittee shall monitor and record the hours of operation of EU-ENGSH during emergencies and non-emergencies, on a monthly and 12-month rolling time period basis, in a manner acceptable to the District Supervisor, Air Quality Division. The permittee shall record the time of operation of EU-ENGSH and the reason it was in operation during that time. **(R 336.1205(1)(a) & (3), 40 CFR 60.4211(e), 40 CFR 60.4214(b))**
4. The permittee shall keep, in a satisfactory manner, fuel supplier certification records for EU-ENGSH for each delivery of the diesel fuel oil. The certification shall include the name of the oil supplier, sulfur content, and a statement that the fuel complies with the specifications under the definition of distillate oil in 40 CFR 60.41c. **(R 336.1205(1)(a) & (3), 40 CFR 80.510(b))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter/ Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SV-ENGSH	14	9	R 336.1225, R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d)

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all provisions of the federal Standards of Performance for New Stationary Sources as specified in 40 CFR Part 60 Subparts A and IIII, as they apply to EU-ENGSH. **(40 CFR Part 60 Subparts A & IIII, 40 CFR 63.6590(c)(1))**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-CI RICE MACT	A 1,750 kilowatts (kW) diesel-fueled emergency engine manufactured in 2006.	EU-ENGSH

FG-CI RICE MACT

FLEXIBLE GROUP CONDITIONS

New/Reconstructed CI Engines at a Major Source > 500 HP
Emergency and Limited Use

DESCRIPTION: New/Reconstructed CI Engines located at a Major Source > 500 HP, Emergency and Limited Use

Flexible Group ID: FG-CI RICE MACT

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VII. REPORTING

1. The permittee shall submit all applicable notifications specified in 40 CFR 63.7(b) and (c), 63.8 (e), (f)(4), and (f)(6), and 63.9(b) through (e), (g), and (h) by the dates specified. **(40 CFR 63.6645(a)(3) and (f))**

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR, Part 63, Subpart A and Subpart ZZZZ, for Stationary Reciprocating Internal Combustion Engines. **(40 CFR 63.6595(a)(2), 40 CFR, Part 63, Subparts A and ZZZZ)**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

August 18, 2016

**PERMIT TO INSTALL
120-16**

**ISSUED TO
AK Steel Dearborn Works**

**LOCATED AT
4001 Miller Road
Dearborn, Michigan**

**IN THE COUNTY OF
Wayne**

**STATE REGISTRATION NUMBER
A8640**

The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203:

July 21, 2016

DATE PERMIT TO INSTALL APPROVED:

August 18, 2016

SIGNATURE:

DATE PERMIT VOIDED:

SIGNATURE:

DATE PERMIT REVOKED:

SIGNATURE:

PERMIT TO INSTALL

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Common Abbreviations / Acronyms

Common Acronyms		Pollutant / Measurement Abbreviations	
AQD	Air Quality Division	acfm	Actual cubic feet per minute
BACT	Best Available Control Technology	BTU	British Thermal Unit
CAA	Clean Air Act	°C	Degrees Celsius
CAM	Compliance Assurance Monitoring	CO	Carbon Monoxide
CEM	Continuous Emission Monitoring	CO ₂ e	Carbon Dioxide Equivalent
CFR	Code of Federal Regulations	dscf	Dry standard cubic foot
COM	Continuous Opacity Monitoring	dscm	Dry standard cubic meter
Department/ department	Michigan Department of Environmental Quality	°F	Degrees Fahrenheit
EU	Emission Unit	gr	Grains
FG	Flexible Group	HAP	Hazardous Air Pollutant
GACS	Gallons of Applied Coating Solids	Hg	Mercury
GC	General Condition	hr	Hour
GHGs	Greenhouse Gases	HP	Horsepower
HVLP	High Volume Low Pressure*	H ₂ S	Hydrogen Sulfide
ID	Identification	kW	Kilowatt
IRSL	Initial Risk Screening Level	lb	Pound
ITSL	Initial Threshold Screening Level	m	Meter
LAER	Lowest Achievable Emission Rate	mg	Milligram
MACT	Maximum Achievable Control Technology	mm	Millimeter
MAERS	Michigan Air Emissions Reporting System	MM	Million
MAP	Malfunction Abatement Plan	MW	Megawatts
MDEQ	Michigan Department of Environmental Quality	NMOC	Non-methane Organic Compounds
MSDS	Material Safety Data Sheet	NO _x	Oxides of Nitrogen
NA	Not Applicable	ng	Nanogram
NAAQS	National Ambient Air Quality Standards	PM	Particulate Matter
NESHAP	National Emission Standard for Hazardous Air Pollutants	PM ₁₀	Particulate Matter equal to or less than 10 microns in diameter
NSPS	New Source Performance Standards	PM _{2.5}	Particulate Matter equal to or less than 2.5 microns in diameter
NSR	New Source Review	pph	Pounds per hour
PS	Performance Specification	ppm	Parts per million
PSD	Prevention of Significant Deterioration	ppmv	Parts per million by volume
PTE	Permanent Total Enclosure	ppmw	Parts per million by weight
PTI	Permit to Install	psia	Pounds per square inch absolute
RACT	Reasonable Available Control Technology	psig	Pounds per square inch gauge
ROP	Renewable Operating Permit	scf	Standard cubic feet
SC	Special Condition	sec	Seconds
SCR	Selective Catalytic Reduction	SO ₂	Sulfur Dioxide
SNCR	Selective Non-Catalytic Reduction	TAC	Toxic Air Contaminant
SRN	State Registration Number	Temp	Temperature
TEQ	Toxicity Equivalence Quotient	THC	Total Hydrocarbons
USEPA/EPA	United States Environmental Protection Agency	tpy	Tons per year
VE	Visible Emissions	µg	Microgram
		µm	Micrometer or Micron
		VOC	Volatile Organic Compounds
		yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 psig.

GENERAL CONDITIONS

1. The process or process equipment covered by this permit shall not be reconstructed, relocated, or modified, unless a Permit to Install authorizing such action is issued by the Department, except to the extent such action is exempt from the Permit to Install requirements by any applicable rule. **(R 336.1201(1))**
2. If the installation, construction, reconstruction, relocation, or modification of the equipment for which this permit has been approved has not commenced within 18 months, or has been interrupted for 18 months, this permit shall become void unless otherwise authorized by the Department. Furthermore, the permittee or the designated authorized agent shall notify the Department via the Supervisor, Permit Section, Air Quality Division, Michigan Department of Environmental Quality, P.O. Box 30260, Lansing, Michigan 48909-7760, if it is decided not to pursue the installation, construction, reconstruction, relocation, or modification of the equipment allowed by this Permit to Install. **(R 336.1201(4))**
3. If this Permit to Install is issued for a process or process equipment located at a stationary source that is not subject to the Renewable Operating Permit program requirements pursuant to R 336.1210, operation of the process or process equipment is allowed by this permit if the equipment performs in accordance with the terms and conditions of this Permit to Install. **(R 336.1201(6)(b))**
4. The Department may, after notice and opportunity for a hearing, revoke this Permit to Install if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of this permit or is violating the Department's rules or the Clean Air Act. **(R 336.1201(8), Section 5510 of Act 451, PA 1994)**
5. The terms and conditions of this Permit to Install shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by this Permit to Install. If the new owner or operator submits a written request to the Department pursuant to R 336.1219 and the Department approves the request, this permit will be amended to reflect the change of ownership or operational control. The request must include all of the information required by subrules (1)(a), (b), and (c) of R 336.1219 and shall be sent to the District Supervisor, Air Quality Division, Michigan Department of Environmental Quality. **(R 336.1219)**
6. Operation of this equipment shall not result in the emission of an air contaminant which causes injurious effects to human health or safety, animal life, plant life of significant economic value, or property, or which causes unreasonable interference with the comfortable enjoyment of life and property. **(R 336.1901)**
7. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the Department. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with the Department within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5). **(R 336.1912)**
8. Approval of this permit does not exempt the permittee from complying with any future applicable requirements which may be promulgated under Part 55 of 1994 PA 451, as amended or the Federal Clean Air Act.
9. Approval of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.
10. Operation of this equipment may be subject to other requirements of Part 55 of 1994 PA 451, as amended and the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R 336.1301, the permittee shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R 336.1303. **(R 336.1301)**
 - a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.
 - b) A visible emission limit specified by an applicable federal new source performance standard.
 - c) A visible emission limit specified as a condition of this Permit to Install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R 336.1370(2). **(R 336.1370)**

13. The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R 336.2001 and R 336.2003, under any of the conditions listed in R 336.2001. **(R 336.2001)**

SPECIAL CONDITIONS

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Installation Date / Modification Date	Flexible Group ID
EUSCALEBREAKER	Coil straightener and scale breaker	02/04/08	NA
EUNPKLTANKS	Steel pickling line tank farm	02/04/08	NA
EUNPKLLINE	Steel pickling process line	02/04/08	NA
EUNTANDMILL	Tandem cold rolling mill	02/04/08	NA
EUPKLTMBLDGHEAT	Pickling line and tandem mill building heaters	02/04/08	FGPLTCMHDGLHEAT
EUHDGLCLEANER	Hot dip galvanizing line (HDGL) pre-cleaning process	02/04/08	FGHDGLVOC
EUHDGLH2OHEATER	HDGL water heaters	02/04/08	FGHDGLSCR
EUHDGLANNEAL	HDGL annealing furnace	02/04/08	FGHDGLSCR
EUHDGLDRYER	HDGL natural gas fired dryer	02/04/08	FGPLTCMHDGLHEAT
EUHDGLSKINPASS	HDGL skin pass process (temper rolling mill)	02/04/08	FGHDGLVOC
EUHDGLES_OILING	HDGL electro-static oiling process	02/04/08	FGHDGLVOC
EUHDGLBLDGHEAT	HDGL building heaters	02/04/08	FGPLTCMHDGLHEAT
Changes to the equipment described in this table are subject to the requirements of R 336.1201, except as allowed by R 336.1278 to R 336.1290.			

The following conditions apply to: EUSCALEBREAKER

DESCRIPTION: Coil straightener and scale breaker

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: scale breaker baghouse

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM10 (filterable)	0.005 gr/dscf	Test Protocol*	EUSCALEBREAKER	SC V.1	R 336.1205(1)(a)

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the scale breaker process unless the baghouse is installed, maintained, and operated in a satisfactory manner. **(R 336.1205(3), R 336.1301, R 336.1331(c))**
2. The permittee shall not operate EUSCALEBREAKER unless a malfunction abatement plan (MAP) as described in Rule 911(2), for operation of the scalebreaker baghouse is implemented and maintained. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205(3), R 336.1301, R 336.1331(c) R 336.1911)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. At least once every ROP permit term the permittee shall verify PM10 emission rates from EUSCALEBREAKER by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. Permittee shall periodically inspect the baghouse to determine the operational and physical condition of the baghouse at least once per quarter. The baghouse shall be inspected as necessary immediately after a malfunction or failure of the baghouse or the process equipment to determine the reason for the malfunction or failure. Written records of each inspection and corrective action taken, if any, shall be maintained. **(R336.1910)**
2. The permittee shall perform a non-certified visible emission observation of the baghouse stack at least once a month during processing activity and keep a written record the results of the observation. The permittee shall initiate corrective action upon observation of visible emissions and shall keep a written record of each required observation and corrective action taken. **(R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVCS_SBBH	48	110	R 336.1201 (3)

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EUNPKLTANKS

DESCRIPTION: Steel pickling line tank farm

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Packed column scrubber using water to control hydrogen chloride (HCl) emissions from the pickling line tank farm

I. EMISSION LIMITS

NA

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall maintain and implement an Operation and Maintenance Plan (OMP) for the EUNPKLTANKS hydrogen chloride (HCl) storage tanks scrubber. **(40 CFR 63.1160(b)(2))**
2. The permittee shall not operate EUNPKLTANKS to load or unload tanks containing hydrochloric acid containing materials unless the water scrubber is installed, maintained, and operated in a satisfactory manner during such periods. **(R 336.1205(3), R 336.1225, 40 CFR 63.1159(b))**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall provide and operate, except during loading and unloading of acid, a closed-vent system for each EUNPKLTANKS hydrochloric acid storage vessel. **(40 CFR 63.1159(b))**
2. Loading and unloading in EUNPKLTANKS shall be conducted either through enclosed lines or each point where the acid is exposed to the atmosphere shall be equipped with a local fume capture system, ventilated through an air pollution control device. **(40 CFR 63.1159(b))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep a record of the liquid flow to the EUNPKLTANKS scrubber, daily. **(40 CFR 63.1162(a)(2), (R 336.1201(3))**
2. The permittee shall monitor and record the pressure drop across the EUNPKLTANKS scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance. **(R336.1225, R336.1910, 40 CFR 63.1162(c))**
3. The permittee shall inspect, and keep records of inspection findings for each EUNPKLTANKS hydrogen chloride (HCl) storage vessel semiannually to determine that the closed-vent system and the air pollution control device are installed and operating when required. **(R336.1225, 40 CFR 63.1162(c))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVNPKLTNKSCRUB	18	25	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EUNPKLLINE

DESCRIPTION: Steel pickling process line

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Packed column scrubber using water to control hydrogen chloride (HCl) emissions from the process equipment.

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. hydrogen chloride (HCl) (CAS No. 7647010)	6 ppmv from scrubber stack. Or A mass emission rate that corresponds to a control efficiency of at least 99 percent reduction based upon inlet concentration	Test Protocol*	EUNPKLLINE	SC V.1	R 336.1225, 40 CFR 63.1158(a)

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate unless the packed column scrubber is installed, maintained, and operated in a satisfactory manner. **(R 336.1205, R 336.1225, R 336.1910, 40 CFR Part 63 Subpart CCC)**
2. The permittee shall maintain and implement the site-specific operating parameter values for a minimum scrubber makeup water flow rate and recirculation water flow rate established from conducted EUNPKLLINE performance tests as required by 40 CFR Part 63.1161(b). The permittee shall determine the average make up water flow rate and recirculation water flow rate during each performance test and shall maintain and implement that number as the minimum scrubber makeup water flow rate and recirculation water flow rate until the next performance test and a new number is established. **(R 336.1201(3), 40 CFR 63.1161(b))**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. At least once every two and a half years verification of the HCl emission rate from the EUNPKLLINE pickling line process water scrubber stack SVNPKLINESCRUB, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance of the affected source for the period being tested. Upon request, the owner or operator shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests. **(R 336.1225, 40 CFR 63.1161(a), 40 CFR 63.1162(a)(2))**
2. The permittee shall conduct the performance test for the EUNPKLLINE pickling process and control device to either measure simultaneously the mass flows of HCl at the inlet and the outlet of the control device (to determine compliance with the applicable collection efficiency standard) or measure the concentration of HCl in gases exiting the process or the emission control device (to determine compliance with the applicable emission concentration standard). **(R 336.1201(3))**
3. Compliance with the applicable SC I.1 concentration standard or collection efficiency standard shall be determined by the average of three consecutive runs. Each run shall be conducted under conditions representative of normal process operations. **(40 CFR 63.7(3), (R 336.1201(3))**
4. During the EUNPKLLINE performance test, the permittee shall establish site-specific operating parameter values for the minimum scrubber makeup water flow rate and, if the scrubber operates with recirculation, the minimum recirculation water flow rate. **(40 CFR 63.1161(b))**
5. During the EUNPKLLINE performance test, the permittee shall monitor each operating parameter continuously and record them with sufficient frequency to establish a representative average value for that parameter, but no less frequently than once every 15 minutes. The permittee shall determine the operating parameter monitoring values as the averages of the values recorded during any of the runs for which results are used to verify compliance with the emission concentration or collection efficiency per S.C. I.1. **(40 CFR 63.1161(b))**
6. The permittee may conduct multiple performance tests to establish alternative compliant operating parameter values. Also, an owner or operator may reestablish compliant operating parameter values as part of any EUNPKLLINE performance test that is conducted subsequent to the initial test or tests. **(40 CFR 63.1161(b))**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall install, operate, and maintain systems for the measurement and recording of the EUNPKLLINE scrubber makeup water flow rate and, if required, recirculation water flow rate. These flow rates must be monitored continuously and recorded at least once per shift while the scrubber is operating. Operation of the wet scrubber with excursions of scrubber makeup water flow rate and recirculation water flow rate less than the minimum values established during the EUNPKLLINE performance test or tests will require initiation of corrective action as specified by the maintenance requirements in 40 CFR 63.1160(b)(2). **(40 CFR 63.1162(a)(2))**

2. The permittee shall keep a record of the following information for EUNPKLLINE:
- a) Operating parameters for the scrubbers established from the initial test conducted. **(40 CFR 63.1162(a)(4))**
 - b) Occurrence and duration of each malfunction of the pickling operation. **(40 CFR 63.1165(a)(1))**
 - c) Occurrence and duration of each malfunction of the scrubber(s). **(40 CFR 63.1165(a)(2))**
 - d) All maintenance performed on the scrubber(s). **(40 CFR 63.1165(a)(3))**
 - e) Actions taken during periods of malfunction to minimize emissions in accordance with §63.1159(c) and the dates of such actions (including corrective actions to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation) **(40 CFR 63.1165(a)(4))**
 - f) All required measurements needed to demonstrate compliance with the standard and to support data that the source is required to report, including, but not limited to, EUNPKLLINE performance test measurements (including initial and any subsequent performance tests) and measurements as may be necessary to determine the conditions of the initial test or subsequent tests. **(40 CFR 63.1165(a)(5))**
 - g) All results of initial or subsequent EUNPKLLINE performance tests. **(40 CFR 63.1165(a)(6))**
 - h) All documentation supporting initial notifications and notifications of EUNPKLLINE compliance status required by 40 CFR Part 63.9. **(40 CFR 63.1165(a)(9))**
 - i) The permittee shall keep and maintain the following records for EUNPKLLINE for five years from date of each record of:
 - 1) Scrubber makeup water flow rate and recirculation water flow rate.
 - 2) Calibration and manufacturer certification that monitoring devices are accurate to within 5 percent.
 - 3) Each maintenance inspection and repair, replacement, or other corrective actions **(40 CFR 63.1165(a)(10) and (b)(i, ii, iii))**
 - j) The permittee shall comply with the operation and maintenance requirements prescribed under 40 CFR § 63.6(e) of NESHAP Subpart A for the EUNPKLLINE pickling line and scrubber control device. **(40 CFR 63.1160(b)(1))**

VII. REPORTING

- 1. Permittee shall report the results of any performance test as part of the notification of compliance status as required in 40 CFR 63.1163. **(40 CFR 63.1164(a))**
- 2. No less than 60 days prior to testing, a complete stack test protocol must be submitted to AQD for approval and the time schedule of the testing to allow the AQD to have an observer present during the test. The final plan must be approved by the AQD prior to testing. **(40 CFR 63.1163(d))**
- 3. The permittee shall report EUNPKLLINE malfunctions in the following manner:
Reporting malfunctions. The number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded shall be stated in a semiannual report. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.1159(c), including actions taken to correct a malfunction. The report, to be certified by the owner or operator or other responsible official, shall be submitted semiannually and delivered or postmarked by the 30th day following the end of each calendar half. **(40 CFR 63.1164(c))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVNPKLINESCRUB	30	110	R 336.1225

IX. OTHER REQUIREMENTS

1. The permittee shall monitor emissions and operating and maintenance information for EUNPKLLINE in accordance with the National Emission Standards for Hazardous Air Pollutants as specified in 40 CFR Part 63 Subparts A and CCC. The permittee shall keep records of all source emissions and operating and maintenance information on file at the facility and make them available to the Department upon request. **(40 CFR Part 63 Subparts A & CCC)**
2. The permittee shall maintain and implement a written Operation and Maintenance Plan (OMP) for the EUNPKLLINE pickle line scrubbers. The OMP for the pickle line scrubbers must be consistent with good maintenance practices and must at a minimum:
 - i. Require monitoring and recording the pressure drop across the scrubber once per shift while the scrubber is operating in order to identify changes that may indicate a need for maintenance.
 - ii. Require the manufacturer's recommended maintenance at the recommended intervals on fresh solvent pumps, discharge pumps, and other liquid pumps, in addition to exhaust system and scrubber fans and motors associated with those pumps and fans.
 - iii. Require cleaning of the scrubber internals and mist eliminators at intervals sufficient to prevent buildup of solids or other fouling.
 - iv. Require an inspection of each scrubber at intervals of no less than 3 months with:
 - A. Cleaning or replacement of any plugged spray nozzles or other liquid delivery devices.
 - B. Repair or replacement of missing, misaligned, or damaged baffles, trays, or other internal components.
 - C. Repair or replacement of droplet eliminator elements as needed.
 - D. Repair or replacement of heat exchanger elements used to control the temperature of fluids entering or leaving the scrubber (if applicable).
 - E. Adjustment of damper settings for consistency with the required air flow.
 - v. Require an alternate means of scrubber inspection, if the scrubber is not equipped with a viewport or access hatch allowing visual inspection.
 - vi. Require the initiation of the applicable corrective action procedures specified in the OMP within one (1) working day of the detection of an operating problem and the completion of all corrective actions as soon as practicable.
 - vii. Require the maintenance of records containing the date of each inspection, the problem identified, a description of the repair, replacement, or other corrective action taken, the date of the repair, replacement, or other corrective action, and the signature of the responsible maintenance official. **(40 CFR 63.1160(b)(2), 40 CFR 63.1164(c), 40 CFR 63.6(e)(3), R 336.1201(3))**
3. Permittee may develop and implement alternative monitoring requirements for EUNPKLLINE subject to approval by the AQD District Supervisor. **(40 CFR 63.1162(a)(6))**
4. The permittee shall operate and maintain at all times each EUNPKLLINE emission source, including associated air pollution control equipment and monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require the permittee to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. **(40 CFR 63.1159(c), 40 CFR 63.6(e)(1)(i))**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EUNTANDMILL

DESCRIPTION: Tandem cold rolling mill

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT: Oil mist eliminator

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM10 (filterable)	0.004 gr/dscf	Test Protocol*	EUNTANDMILL	SC V.1	R 336.1331, R 336.1205(3)
2. VOC	0.9 pph	Test Protocol*	EUNTANDMILL	SC VI.3	R 336.1225, R 336.1205(3), R 336.1702(c)

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate EUNTANDMILL unless the mist eliminator is installed, maintained, and operated properly in order to reduce oil mist from the process. **(40 CFR 52.21(b)(3), R 336.1331, R 336.1205(3) R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. At least once every ROP permit term verification of the PM10 emission rate from the EUNTANDMILL mist eliminator stack, by testing at owner's expense, in accordance with Department requirements, will be required. No less than 30 days prior to testing, a complete test plan shall be submitted to the AQD. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD within 60 days following the last date of the test. **(R 336.1205, R 336.1213, R 336.2001)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep monthly records of the amount of rolling oil used in the EUNTANDMILL process. **(R 336.1205(3), R 336.1225)**
2. The permittee shall keep records of the VOC content for each rolling oil used in the EUNTANDMILL tandem mill rolling process. **(R 336.1205(3), R 336.1225)**
3. The permittee shall keep, in a satisfactory manner, monthly and previous 12-month records of VOC emission calculations for EUNTANDMILL based on the amounts of each rolling oil used and VOC content of each oil. The permittee shall keep all records on file at the facility for a period of at least five years and make them available to the Department upon request. **(R 336.1201(3), R 336.1702)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVNEWTCM_ME	114	95	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: EUHDGLCLEANER

DESCRIPTION: Hot dip galvanizing line (HDGL) pre-cleaning process

Flexible Group ID: FGFGHDGLVOC

POLLUTION CONTROL EQUIPMENT: Water scrubber to remove caustic

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM10 (caustic) (filterable)	0.441 pph	Test Protocol*	EUHDGLCLEANER	SC V.1	R 336.1331

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate the EUHDGLCLEANER HDGL pre-cleaning process unless the water scrubber is installed and operating properly. A minimum water flow rate, as determined during performance testing, shall be maintained. The permittee shall install a flow monitor to measure the water flow rate to the EUHDGLCLEANER scrubber and a means to continuously monitor pressure drop across the scrubber. **(R 336.1201(3), R 336.1205)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall implement and maintain a malfunction abatement plan (MAP) for the EUHDGLCLEANER HDGL line, including the pre-cleaning process equipment and the associated emission control system (water scrubber) and operate in accordance with the plan. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205(3), R 336.1301, R 336.1331(c) R 336.1911), (R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. At least once every ROP permit term the permittee shall conduct a particulate matter emission test from the EUHDGLCLEANER water scrubber stack, while in operation to control the caustic cleaning operation. No less than 30 days prior to testing, a complete stack test protocol must be submitted to the AQD District Office for approval. The final plan must be approved by the AQD prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep records of the following EUHDGLCLEANER information and shall make these records available to the AQD upon request:
 - a) The water flow rate reading of the water scrubber on a daily basis. **(R 336.1201(3))**
2. The permittee shall monitor and maintain, on a continuous basis, a water flow rate to the EUHDGLCLEANER scrubber of no less than the values determined during the initial stack testing that demonstrates compliance with the PM10 emission limit in this table. Records shall be kept of the scrubber water flow rate according to S.C. VI.1. **(R 336.1201(3))**
3. The permittee shall monitor, on a continuous basis, and record once per shift, the pressure drop across the EUHDGLCLEANER scrubber while the scrubber is operating in order to identify changes that may indicate a need for maintenance. The pressure drop should be within the manufacturer's acceptable range, as identified in the malfunction abatement plan. **(R 336.1225, R 336.1910)**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVHDGLCLEANER	30	140	R 336.1225

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGPLTCMHDGLHEAT	PLTCM AND HDGL BUILDINGS GAS FIRED HEATERS AND CLIMATE CONTROL	EUPKLTMBLDGHEAT, EUHDGLBLDGHEAT, EUHDGLDRYER
FGHDGLSCR	GAS-FIRED ANNEALING FURNACE AND WATER HEATERS	EUHDGLH2OHEATER, EUHDGLANNEAL
FGHDGLVOC	HDGL SOURCES OF VOC EMISSIONS	EUHDGLCLEANER EUHDGLSKINPASS EUHDGLES_OILING

The following conditions apply to: FGPLTCMHDGLHEAT

DESCRIPTION: PLTCM AND HDGL BUILDINGS GAS FIRED HEATERS AND CLIMATE CONTROL

Emission Units: EUPKLTMBLDGHEAT, EUHDGLBLDGHEAT, EUHDGLDRYER

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. PM	1.7 tpy	12-month rolling time period as determined at the end of each calendar month	FGPLTCMHDGLHEAT	SC VI.1	R 336.1201(3)
2. PM-10	1.7 tpy	12-month rolling time period as determined at the end of each calendar month	FGPLTCMHDGLHEAT	SC VI.1	R 336.1201(3)
3. NOx	21.9 tpy	12-month rolling time period as determined at the end of each calendar month	FGPLTCMHDGLHEAT	SC VI.1	R 336.1201(3)

II. MATERIAL LIMITS

Material	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Natural Gas	438 MMcf	12-month rolling time period as determined at the end of each calendar month	FGPLTCMHDGLHEAT	SC VI.2	R 336.1201(3)

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall calculate and record by the end of each calendar month the following from FGPLTCMHDGLHEAT:
 - a) emissions of PM monthly and 12-month rolling time period
 - b) emissions of PM-10 monthly and 12-month rolling time period
 - c) emissions of NOx monthly and 12-month rolling time period

The permittee shall calculate in a satisfactory manner, the annual NOx emissions from FGPLTCMHDGLHEAT, using the current U. S. EPA Compilation of Air Pollutant Emission Factors (AP-42) or other emission factors approved by the Department such as those used in the MAERS. **(R 336.1205(3))**

2. The permittee shall keep monthly and 12-month rolling records of the amount of combined natural gas fired in EUHDGLDRYER, EUPKLTMBLDGHEAT, and EUHDGLBLDGHEAT. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: FGHDGLSCR

DESCRIPTION: GAS-FIRED ANNEALING FURNACE AND WATER HEATERS

Emission Units: EUHDGLH2OHEATER, EUHDGLANNEAL

POLLUTION CONTROL EQUIPMENT: Selective Catalytic Reduction control device; EUHDGLH2OHEATER natural gas combustion emissions are ducted uncontrolled (downstream of the SCR) to SVHDGL_SCR.

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. NOx	3.21 pph	Test Protocol*	FGHDGLSCR	SC V.1	R 336.1205(1)(a)
2. NOx	14.1 tpy	12-month rolling time period as determined at the end of each calendar month	FGHDGLSCR	SC VI.3	R 336.1205(1)(a)
3. PM10	3.6 tpy	12-month rolling time period as determined at the end of each calendar month	FGHDGLSCR	SC VI.3	R 336.1205(1)(a)
4. ammonia (NH ₃) CAS No. 7664417	2.19 pph	Test Protocol*	FGHDGLSCR	SC V.1	R 336.1225

*Test Protocol shall specify averaging time.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The SCR unit shall be equipped with an automatic urea feed injection system. **(R 336.1201(3), R 336.1205)**
2. The permittee shall not operate the natural gas combustion sources of EUHDGLANNEAL unless the SCR is installed and operating properly. **(R 336.1201(3), R 336.1205)**

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall implement and maintain a preventative maintenance (PM) and malfunction abatement plan (MAP) for the SCR control unit. If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits. **(R 336.1205(3), R 336.1301, R 336.1331(c) R 336.1911), (R 336.1910)**

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. At least once every ROP permit term the permittee shall verify NOx and ammonia emission rates from SVHDGL_SCR when FGHDGLSCR SCR, EUHDGLANNEAL, and EUHDGLH2OHEATER are in operation by testing at owner's expense, in accordance with Department requirements. No less than 30 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. **(R 336.2001, R 336.2003, R 336.2004)**

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall record the following information and shall keep them on file for at least five years and make them available to the AQD upon request:
 - a) Occurrence of abnormal functions of the automatic control system of the automatic urea feed injection system of the SCR.
 - b) The amount of urea used per day.**(R 336.1201(3))**
2. The permittee shall keep a monthly record of the total amount of natural gas fired in EUHDGLH2OHEATER and EUHDGLANNEAL. **(R 336.1205(3))**
3. The permittee shall calculate and record, by the end of each calendar month, the following from FGHDGLSCR:
 - a) emissions of PM10, monthly and 12-month rolling time period.
 - b) emissions of NOx, monthly and 12-month rolling time period.

The combined NOx emissions from EUHDGLANNEAL and EUHDGLH2OHEATER shall be calculated based on the data reported under SC V.1. **(R 336.1205(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Diameter (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVHDGL_SCR	48	140	R 336.1804, R 336.1805

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

The following conditions apply to: FGHDGLVOC

DESCRIPTION: HDGL SOURCES OF VOC EMISSIONS

Emission Units: EUHDGLCLEANER, EUHDGLSKINPASS, EUHDGLES_OILING

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. VOC	10.0 tpy	12-month rolling time period as determined at the end of each calendar month	FGHDGLVOC	SC VI.3	R 336.1201(3), R 336.1702

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

NA

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall keep, in a satisfactory manner, records of the monthly usage, in gallons or pounds, of each VOC containing material used in all of the FGHDGLVOC emission units. **(R 336.1201(3))**
2. The permittee shall keep, in a satisfactory manner, records of the VOC content (in lb VOC/gallon or lb VOC/lb material) of each material used in all of the FGHDGLVOC emission units. **(R 336.1201(3))**
3. The permittee shall determine compliance with emission limit in SC I.1 by calculating VOC emissions based upon usages recorded in SC VI.1 and the VOC content recorded in SC VI.2, at the end of each calendar month. **(R 336.1201(3))**

VII. REPORTING

NA

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

ATTACHMENT I –

**CONSENT ORDERS/JUDGEMENTS THAT HAVE NOT BEEN INCORPORATED INTO
EXISTING ROP**

**REVISION TO FUGITIVE DUST CONTROL PLAN SLAG HANDLING (APPENDIX D TO
CONSENT ORDER 15-CV-11804)**

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

UNITED STATES OF AMERICA)
and the MICHIGAN DEPARTMENT)
OF ENVIRONMENTAL QUALITY,)

Plaintiffs,)

v.)

AK STEEL CORPORATION,)

Defendant.)

Civil Action No. 15-cv-11804

CONSENT DECREE

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I. INTRODUCTION

A. Plaintiff United States of America, on behalf of the United States Environmental Protection Agency (“EPA”), has filed a complaint in this action concurrently with this Consent Decree, alleging that Defendant, AK Steel Corporation, violated regulations that EPA has approved under Sections 110, 112 and 502 of the Clean Air Act (“Act”), 42 U.S.C. §§ 7410, 7412 and 7661a.

B. The Michigan Department of Environmental Quality (“MDEQ”) filed the Complaint as a co-plaintiff, alleging all of the claims made by the United States and also alleging that Defendant violated Rule 901 of Michigan’s Air Pollution Control Rules, 2002 A.A.C.S., R 336.1901 (“Michigan Regulation 336.1901”).

C. The Complaint alleges, *inter alia*, that during the past five years, the Defendant’s steel manufacturing facility, located at 4001 Miller Road in Dearborn, Wayne County, Michigan (the “Facility”), has emitted pollutants into the air from various emission sources in amounts that exceed limits established by the Michigan State Implementation Plan (“Michigan SIP”) and similar limits set forth in the Facility’s Renewable Operating Permit issued pursuant to Title V of the Act. In addition, the Complaint alleges that Defendant failed to operate, maintain and monitor certain processes at the Facility in violation of the National Emission Standards for Hazardous Air Pollutants (“NESHAP”) for the Integrated Iron and Steel Industry, 40 C.F.R. Part 63, Subpart FFFFF.

D. Between August 12, 2008 and the date of lodging of this Consent Decree, MDEQ and EPA issued various notices to Defendant alleging violations of Michigan and federal laws related to certain air emissions from the Facility. A complete list of these notices is attached hereto as Appendix A to this Consent Decree.

E. Defendant does not admit any liability arising out of the transactions or occurrences alleged in the Complaint.

F. This Consent Decree is intended to represent a comprehensive resolution of the claims alleged in the Complaint and the claims resolved through Section XIV (Effect of Settlement/Reservation of Rights) and to ensure that when the compliance measures required by this Decree have been fully implemented, the facility will be operated and maintained to prevent a recurrence of the violations alleged in the Complaint and the violations resolved through Section XIV (Effect of Settlement/Reservation of Rights).

G. EPA, MDEQ and Defendant (the “Parties”) recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and will avoid litigation among the Parties and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, before the taking of any testimony, without the adjudication or admission of any issue of fact or law except as provided in Section II, and with the consent of the Parties, IT IS HEREBY ADJUDGED, ORDERED, AND DECREED as follows:

II. JURISDICTION AND VENUE

1. This Court has jurisdiction over the subject matter of this action, pursuant to 28 U.S.C. §§ 1331, 1345 and 1355; and Sections 113(b) and 304(a) of the Act, 42 U.S.C. §§ 7413(b) and 7604(a), and over the Parties. This Court has supplemental jurisdiction over the state law claims asserted by MDEQ pursuant to 28 U.S.C. § 1367. Venue lies in this District pursuant to 28 U.S.C. §§ 1391(b) and 1395(a) and Section 113(b) of the Act, 42 U.S.C. § 7413(b), because the Defendant resides and is found in this District and because the violations alleged in the Complaint are alleged to have occurred within this District. For purposes of this Decree, or any action to enforce this Decree, Defendant consents to the Court's jurisdiction over this Decree and any such action and over Defendant and consents to venue in this judicial district.

2. For purposes of this Consent Decree, Defendant agrees that the Complaint states claims upon which relief may be granted pursuant to Section 113 of the Act, 42 U.S.C. § 7413, and Section 5530 of Michigan's Natural Resources and Environmental Protection Act, M.C.L. § 324.5530.

III. APPLICABILITY

3. The obligations of this Consent Decree apply to and are binding upon the United States and MDEQ, and upon Defendant and any successors, assigns, or other entities or persons otherwise bound by law.

4. No transfer of ownership or operation of the Facility, whether in compliance with the procedures of this Paragraph or otherwise, shall relieve Defendant of its obligation to ensure that the terms of this Consent Decree are implemented. At least 30 Days prior to such transfer, Defendant shall provide a copy of this Consent Decree to the proposed transferee and shall simultaneously provide written notice of the prospective transfer, together with a copy of the proposed written agreement, to EPA Region 5, the United States Attorney for the Eastern District of Michigan, the United States Department of Justice, and MDEQ in accordance with Section XVII (Notices). Any attempt to transfer ownership or operation of the Facility without complying with this Paragraph constitutes a violation of this Decree.

5. Defendant shall provide a copy of this Consent Decree to all officers, employees, and agents whose duties might reasonably include compliance with any provision of this Decree, as well as to any contractor retained to perform work required under this Consent Decree. Defendant shall condition any such new contract, and any pending contract that can be modified, upon performance of the work in conformity with the terms of this Consent Decree.

6. In any action to enforce this Consent Decree, Defendant shall not raise as a defense the failure by any of its officers, directors, employees, agents, or contractors to take any actions necessary to comply with the provisions of this Consent Decree.

IV. DEFINITIONS

7. Terms used in this Consent Decree that are defined in the Act or in regulations promulgated pursuant to the Act shall have the meanings assigned to them in the Act or such regulations, unless otherwise provided in this Decree. Whenever the terms set forth below are used in this Consent Decree, the following definitions shall apply:

“Act” shall mean the Clean Air Act, 42 U.S.C. §§ 7401 *et seq.*

“Basic Oxygen Furnace” or “BOF” shall mean the two 250-ton vessels at the Facility where molten iron and scrap steel are converted into molten steel through the use of high purity oxygen blowing.

“Complaint” shall mean the complaint filed by the United States and MDEQ in this action.

“Consent Decree” or “Decree” shall mean this Decree and all appendices attached hereto (listed in Section XXV).

“Continuous Opacity Monitor” or “COM” shall mean the automated monitor of opacity readings from the ESP stack at the Facility.

“Day” shall mean a calendar day unless expressly stated to be a business day. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the close of business of the next business day.

“Defendant” shall mean AK Steel Corporation.

“Environmental Management System” or “EMS” shall mean a management system providing the structure by which specific activities related to environmental protection and compliance can be effectively and efficiently carried out by Defendant at the Facility, which shall address, at a minimum: (1) the requirements of this Consent Decree (including but not limited to (i) protocols for ESP inspections, (ii) specifications for the annual training required by Paragraph 19.c, and (iii) a framework and set of requirements for environmental organizational management and management notification of environmental violations); and (2) the 12 EMS elements in Appendix B.

“EMS Audit” shall mean the audit conducted by the EMS Auditor pursuant to Paragraph 17 of this Consent Decree.

“EMS Auditor” shall mean SRI Quality System Registrar or other independent third party meeting the requirements of Paragraph 16 who is approved by EPA, in consultation with MDEQ, and contracted by Defendant to perform the duties set forth in Paragraph 17, including an evaluation of the adequacy of EMS implementation relative to the EMS Manual.

“EMS Audit Findings” shall mean a written summary of all instances of nonconformance with the EMS Manual noted during the EMS Audit, and all areas of concern identified during the course of that audit which, in the EMS Auditor’s judgment, merit further review or evaluation for potential EMS, environmental, or regulatory impacts.

“EMS Audit Report” shall mean a report setting forth the EMS Audit Findings resulting from the EMS Audit, which meets all of the requirements of Paragraph 17.b.

“EMS Audit Response and Action Plan” shall mean a comprehensive plan for bringing the Facility into full conformance with the EMS Manual and fully addressing all EMS Audit Findings identified in the EMS Audit Report.

“EMS Manual” shall mean the document created by the Defendant that has been approved by EPA, in consultation with MDEQ, which describes and documents the integrated EMS developed by Defendant for the Facility and contains an EMS implementation schedule.

“EPA” shall mean the United States Environmental Protection Agency.

“Effective Date” shall have the definition provided in Section XVII.

“Electrostatic Precipitator” or “ESP” shall mean the primary particulate emissions control equipment for the BOF and located west of the building containing the BOF.

“Facility” shall mean Defendant’s steel plant located in Dearborn, Michigan.

“ISO 14001” shall mean the International Standard for environmental management systems, reference number ISO 14001:2004(E), unless such version has been superseded by an updated version adopted by ISO, in which case the updated version applies.

“MDEQ” shall mean the Michigan Department of Environmental Quality.

“O&M Plan” shall mean the Operations & Maintenance Plan for the ESP, attached hereto as Appendix C, that sets forth operating parameters and maintenance procedures

for key and auxiliary equipment associated with the waste-gas cleaning system for the ESP.

“Paragraph” shall mean a portion of this Decree identified by an arabic numeral.

“Parties” shall mean the United States, MDEQ, and Defendant.

“Section” shall mean a portion of this Decree identified by a roman numeral.

“United States” shall mean the United States of America, acting on behalf of EPA.

V. CIVIL PENALTY

8. Within 30 Days after the Effective Date, Defendant shall pay the sum of \$1,353,126 as a civil penalty, together with interest accruing from the date on which the Consent Decree is lodged with the Court, at the rate specified in 28 U.S.C. § 1961 as of the date of lodging.

9. Defendant shall pay half of the civil penalty due under the preceding Paragraph (\$676,563) at <https://www.pay.gov> to the U.S. Department of Justice account, in accordance with instructions provided to Defendant by the Financial Litigation Unit (“FLU”) of the United States Attorney’s Office for the Eastern District of Michigan after the Effective Date. The payment instructions provided by the FLU shall include a Consolidated Debt Collection System (“CDCS”) number, which Defendant shall use to identify all payments required to be made in accordance with this Consent Decree. The FLU will provide the payment instructions to:

Joseph C. Alter
Vice President, General Counsel and
Chief Compliance Officer
AK Steel Corporation
9227 Centre Pointe Drive
West Chester, Ohio 45069
joe.alter@aksteel.com
(513) 425-5000

on behalf of Defendant. Defendant may change the individual to receive payment instructions on their behalf by providing written notice of such change to the United States and EPA in accordance with Section XVII (Notices). At the time of payment, Defendant shall send notice that payment has been made to: (i) EPA via email at acctsreceivable.cinwd@epa.gov or via regular mail at EPA Cincinnati Finance Office, 26 Martin Luther King Drive, Cincinnati, Ohio 45268; and (ii) the United States via email or regular mail in accordance with Section XVI. Such notice shall reference the CDCS Number and DOJ case number 90-5-2-1-10702.

10. Defendant shall not deduct any penalties paid under this Decree pursuant to this Section or Section X (Stipulated Penalties) in calculating its federal, state or local income tax.

11. Within 30 Days after the Effective Date, Defendant shall pay the remaining half of the civil penalty (\$676,563) to the General Fund of the State of Michigan in the form of a check made payable to the "State of Michigan" and mailed to the Michigan Department of Environmental Quality, Accounting Services Division, Cashier's Office, P.O. Box 30657, Lansing, Michigan 48909-8157. To ensure proper credit, all payments made to the State of Michigan pursuant to this Consent Decree shall include "Payment Identification Number AQD40081" on the front of the check and/or in the cover letter with the payment.

VI. COMPLIANCE REQUIREMENTS

A. ENVIRONMENTAL MANAGEMENT SYSTEM

12. Preparation of EMS Manual. Within eight (8) months of the Effective Date, Defendant shall draft and submit to EPA and MDEQ an EMS Manual which describes and documents the integrated EMS developed for the Facility and contains an EMS implementation schedule for all portions of the Facility containing emission sources referenced in a violation notice or notice of violation listed in Appendix A.

a. The EMS Manual shall (i) describe or contain, as appropriate, overarching policies, procedures, and programs that compose the EMS framework, and respective management systems, subsystems, and tasks for the elements listed in Appendix B, and (ii) describe specific procedures for implementing the requirements of this Consent Decree, including but not limited to (1) protocols for ESP inspections; (2) specifications for the annual training required by Paragraph 19.c, and (3) a framework and set of requirements for environmental organizational management and management notification of environmental violations.

b. If EPA, after consultation with MDEQ, determines that the EMS Manual or any revision thereof pursuant to Paragraph 14 fails to comply with the requirements of 12.a, then EPA, in consultation with MDEQ, will send Defendant a written notification of its determination within 60 days of receipt of the initial EMS Manual or any subsequent revision found deficient. Defendant must correct the deficiencies found within 30 days, unless the issue is submitted to dispute resolution.

13. Upon Defendant's receipt of EPA's approval of the EMS Manual, Defendant shall commence implementation of the EMS in accordance with the schedule contained in the EMS Manual.

14. Revisions of the EMS Manual. Any material revisions to the EMS Manual subsequent to its initial approval must be submitted to EPA for review and approval, in consultation with MDEQ.

15. EMS Audits. In accordance with the procedure set forth in Paragraph 16, Defendant shall hire an EMS Auditor to conduct an EMS Audit pursuant to Paragraph 17. Defendant shall bear all costs associated with the EMS Auditor, cooperate fully with the EMS Auditor, and provide the EMS Auditor with access to all records, employees, contractors, and areas of the Facility that the EMS Auditor deems reasonably necessary to effectively perform the duties described in Paragraph 17.

16. Selection of EMS Auditor. Defendant shall retain SRI Quality System Registrar to act as the EMS Auditor for the purposes of this Consent Decree, or shall select an alternate auditor in accordance with this Paragraph. If Defendant elects to select an alternate auditor, Defendant shall propose to EPA and MDEQ for approval a proposed alternate EMS Auditor who meets the qualification requirements of ISO 14001 and has expertise and competence in the regulatory programs under federal and state environmental laws. The proposed alternate EMS Auditor must have no direct financial stake in the outcome of the EMS Audit conducted pursuant to this Consent Decree. Defendant shall disclose to EPA and MDEQ any past or existing contractual or financial relationships when the proposed alternate EMS Auditor is identified.

a. EPA, in consultation with MDEQ, shall notify Defendant of whether it approves the proposed alternate EMS Auditor. If EPA, after consultation with MDEQ, does not approve the proposed alternate EMS Auditor, then Defendant shall submit another proposed alternate EMS Auditor to EPA and MDEQ within 30 Days of receipt of EPA's written notice. If after Defendant has submitted a second proposed alternate EMS Auditor, which must be submitted within 30 Days of receipt of written notice that EPA has not approved the second proposed auditor, the Parties are unable to agree on an EMS Auditor, the Parties agree to resolve the selection of the alternate EMS Auditor through the Dispute Resolution process in Section XII.

b. Within 10 Days of the date that EPA notifies Defendant of the approval of the proposed alternate EMS Auditor, Defendant shall retain the proposed alternate EMS Auditor, thereafter designated the "EMS Auditor," to perform an EMS Audit as further described in Paragraph 17 below.

17. Duties of the EMS Auditor. Defendant shall direct the EMS Auditor to perform the following duties:

a. The EMS Auditor shall perform an initial EMS Audit of the Defendant's EMS regarding the first six (6) months of implementation of the EMS. After the initial EMS Audit, Defendant shall conduct an EMS Audit once every six (6) calendar months. The scope of these EMS Audits shall be consistent with an ISO 14001 certification audit, recertification audit, or surveillance audit, as applicable based on the timing of the audit.

Each EMS Audit shall evaluate the adequacy of EMS implementation at the Facility as it relates to air emissions and identify areas of concern, from top Facility management down, throughout each major organizational unit with responsibilities under

the EMS. Each EMS Audit shall be conducted in accordance with ISO 14001, and shall determine the following:

- (i) Whether there is a defined system, subsystem, program, or planned task for the respective EMS element;
- (ii) To what extent the system, subsystem, program, or task has been implemented, and is being maintained;
- (iii) The adequacy of the Facility's internal self-assessment procedures for programs and tasks composing the EMS, including but not limited to a review of the Defendant's conformance with processes and procedures to achieve the target objective of zero opacity exceedances at the BOF ESP;
- (iv) Whether Defendant is effectively communicating environmental requirements to affected parts of the organization, or those working on behalf of the organization;
- (v) Whether written targets, objectives, and action plans for improving environmental performance are being achieved. Targets and objectives must include actions that reduce the risk of non-compliance with environmental requirements and minimize the potential for unplanned or unauthorized releases of hazardous or harmful contaminants.
- (vi) Whether further improvements should be made to the EMS; and
- (vii) Whether there are nonconformances from Defendant's written requirements or procedures.

b. The EMS Auditor shall develop an EMS Audit Report. Within 45 Days following the six month period that is the subject of the initial and each subsequent EMS Audit, the Defendant shall submit the EMS Audit Report to EPA and MDEQ. Each EMS Audit Report shall contain: (i) a summary of the audit process, including any obstacles encountered; (ii) detailed EMS Audit Findings, including the basis for each finding and each area of concern identified; (iii) identification of any EMS Audit Findings corrected or areas of concern addressed during the audit; (iv) recommendations for resolving any area of concern or otherwise achieving full implementation of the EMS Manual; and (v) a certification by the Defendant that the EMS Audit was conducted in accordance with the provisions of this Decree. Each EMS Audit Report after the initial EMS Audit Report may reference portions of prior EMS Audit Reports in the event there has been no intervening change in that portion.

18. Follow-Up Corrective Measures. Within 45 Days of receiving each EMS Audit Report, Defendant shall submit to EPA and MDEQ for review and approval a report responding to the EMS Audit Findings and areas of concern identified in each EMS Audit Report and

providing an action plan for expeditiously coming into full conformance with the provisions in the EMS (the "Audit Response and Action Plan"). Each Audit Response and Action Plan shall include the result of any root cause analysis, specific deliverables, responsibility assignments, and an implementation schedule for the identified actions and measures, including those that may have already been completed. Defendant may implement any Audit Response and Action Plan items prior to receiving EPA comment, but shall address any such comments in accordance with Paragraph 18.a, unless the issue is submitted to Dispute Resolution.

a. EPA, after consultation with MDEQ, will have 45 days from its receipt of the Audit Response and Action Plan from Defendant to provide comments on the Audit Response and Action Plan. If any comments are provided by EPA, Defendant shall, within 30 Days of receipt of EPA's comments, submit to EPA a final Audit Response and Action Plan responding to and addressing EPA's comments. If no comments are provided by EPA within 45 days of receiving the Audit Response and Action Plan, then the version of the EMS Audit Report provided pursuant to Paragraph 17 as modified by the respective Audit Response and Action Plan shall be deemed the final version. Defendant shall have the right to submit any issues to Dispute Resolution. If any issues are submitted to Dispute Resolution, Defendant shall submit a timely final Audit Response and Action Plan that responds to all issues not subject to Dispute Resolution.

b. After making any necessary modifications to each Audit Response and Action Plan based on EPA comments, if any, Defendant shall implement each final Audit Response and Action Plan in accordance with the schedules set forth therein.

B. ELECTROSTATIC PRECIPITATOR

19. O&M Plan.

a. Commencing no later than 30 days after the Effective Date of this Consent Decree, Defendant shall comply with the requirements set forth in the Operations & Maintenance Plan for the ESP ("O&M Plan"), attached hereto as Appendix C;

b. At least once per calendar year, but as frequently as necessary, Defendant shall review the O&M Plan to determine if any updates are necessary to maintain the effectiveness of all key and auxiliary equipment associated with the ESP. Defendant shall submit any updates to the O&M Plan to EPA. If EPA, after consultation with MDEQ, disagrees with any such updates, then EPA, in consultation with MDEQ, will send Defendant a written notification describing the disagreement within 60 days of receipt of Defendant's updates. Defendant may implement any O&M Plan updates, but shall discontinue any such updates in the event of EPA disagreement, unless the issue is submitted to dispute resolution; and

c. Once per calendar year, Defendant shall provide refresher training on the requirements of the O&M Plan to relevant personnel.

20. Defendant's Review of Continuous Opacity Monitoring (COM) data. By the 30th Day after each calendar quarter (April 30, July 30, October 30 and January 30) Defendant shall submit a quarterly report that includes each instance in which the 6-minute block average reading of the COM data for the ESP exceeds 20% opacity. For each instance, Defendant shall:

a. Identify the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity;

b. When the root cause is unknown, provide a description of efforts taken by Defendant to investigate the root cause of each 6-minute block average reading that exceeds 20% opacity, including a copy of any related ESP operating records;

c. Describe corrective actions taken in response to the root cause of each instance in which the 6-minute block average reading exceeds 20% opacity, including but not limited to a copy of related work orders or other documents submitted to address the cause of the high reading, if any; and

d. Describe preventative actions taken, if any, and actions to be taken, if any, by Defendant to eliminate such instances of 6-minute block average readings that exceed 20% opacity in the future, along with a proposed schedule for taking such corrective action, or, alternatively, a justification for taking no additional action to address such instances.

21. Defendant's Annual Inspection of the ESP. Within one year of the Effective Date and once per calendar year thereafter until termination of the Consent Decree, Defendant shall hire a third party consultant to conduct an inspection of the ESP. This inspection shall include a detailed and thorough evaluation of the ESP Chambers 1-8, the rapper system and the off-gas conditioning system and make recommendations for repair or improvement of operation, where appropriate. Within 60 days of receiving the report resulting from this inspection, Defendant shall provide to EPA and MDEQ the inspection report and Defendant's analysis of the report's findings and steps taken, if any, and steps to be taken, if any, for repair or improvement of operation of the ESP with a timely schedule for implementation. If any deficiency in maintenance is identified, Defendant shall address such deficiency, if necessary, in updates to the O&M Plan under Paragraph 19(b).

22. EPA's Review of Defendant's Future Corrective Action. If EPA, after consultation with MDEQ, disagrees with any portion of Defendant's conclusions concerning the recommendations for repair or improvement of ESP operation contained in the annual inspection report required by Paragraph 21, or actions planned or not planned to address exceedances reported in Paragraph 20.d, then EPA, in consultation with MDEQ, will send Defendant a written notification describing the disagreement within 60 days of receipt of Defendant's

conclusions. If Defendant objects to any modified or additional corrective action required by EPA, it may dispute EPA's determination pursuant to Section XII (Dispute Resolution). If no dispute is initiated, Defendant shall carry out the corrective action sought by EPA.

C. FUGITIVE DUST EMISSIONS

23. Fugitive Dust Control Plan for Slag Handling.

a. Commencing no later than 30 days after the Effective Date of this Consent Decree, Defendant shall comply with the requirements set forth in the Fugitive Dust Control Plan for Slag Handling ("Fugitive Dust Plan"), attached hereto as Appendix D;

b. At least once per calendar year, Defendant shall review the Fugitive Dust Plan to determine if any updates are necessary to maintain the effectiveness of all key and auxiliary equipment. Defendant shall submit any updates to the Fugitive Dust Plan to MDEQ for approval. Defendant may implement any Fugitive Dust Plan updates prior to receiving MDEQ approval, but shall discontinue any such updates in the event of MDEQ disapproval, unless the issue is submitted to Dispute Resolution; and

c. The Fugitive Dust Plan shall be revised if the MDEQ determines it is insufficient to meet the applicable visible emissions limitations. A revised Fugitive Dust Plan shall be submitted to MDEQ for review and approval within 30 days after MDEQ provides written notification that the plan is insufficient, unless the issue is submitted to Dispute Resolution.

VII. PERMITS

24. Where any compliance obligation under this Section requires Defendant to obtain a federal, state, or local permit or approval, Defendant shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals. Defendant may seek relief under the provisions of Section XI (Force Majeure) for any delay in the performance of any such obligation resulting from a failure to obtain, or a delay in obtaining, any permit or approval required to fulfill such obligation, if Defendant has submitted timely and complete applications and has taken all other actions necessary to obtain all such permits or approvals.

25. Permits to Ensure Survival of Certain Consent Decree Terms. Prior to termination of this Consent Decree, Defendant shall submit complete applications to MDEQ to incorporate the O&M Plan set forth in Appendix C into a non-Title V, federally enforceable permit to install that will survive termination of this Consent Decree. Additionally, prior to termination of this Consent Decree, Defendant shall submit a complete application to MDEQ to incorporate the Fugitive Dust Plan set forth in Appendix D into a non-Title V state-enforceable only permit to install that will survive termination of this Consent Decree. All permits shall authorize Defendant to make updates and revisions to the O&M Plan and the Fugitive Dust

Control Plan and shall not require that permit amendments be obtained to authorize such updates and revisions.

26. Modifications to Title V Operating Permits. Prior to termination of this Consent Decree, Defendant shall submit complete applications to MDEQ to modify, amend, or revise the Facility's Title V permit to incorporate the injunctive relief components identified in the preceding Paragraph into the Title V permit. The Parties agree that the incorporation of these provisions into the Title V Permit shall be done in accordance with MDEQ's Title V rules.

VIII. SUPPLEMENTAL ENVIRONMENTAL PROJECT

27. Defendant shall implement a Supplemental Environmental Project ("SEP"), the Salina Schools Air Filtration Project, in accordance with all provisions of Appendix E.

28. Defendant is responsible for the satisfactory completion of the SEP in accordance with the requirements of this Decree. Defendant may use contractors or consultants in planning and implementing the SEP.

29. With regard to the SEP, Defendant certifies the truth and accuracy of each of the following:

a. that all cost information provided to EPA in connection with EPA's approval of the SEP is complete and accurate and that Defendant in good faith estimates that the cost to implement the SEP is \$337,000;

b. that, as of the date of executing this Decree, Defendant is not required to perform or develop the SEP by any federal, state, or local law or regulation and is not required to perform or develop the SEP by agreement, grant, or as injunctive relief awarded in any other action in any forum;

c. that the SEP is not a project that has any direct financial benefit to Defendant;

d. that Defendant has not received and will not receive credit for the SEP in any other enforcement action;

e. that Defendant will not receive any reimbursement for any portion of the SEP from any other person; and

f. that (i) Defendant is not a party to any open federal financial assistance transaction that is funding or could fund the same activity as the SEP described in Paragraph 27; and (ii) Defendant has inquired of the Dearborn Public Schools whether it is a party to an open federal financial assistance transaction that is funding or could fund the same activity as the SEP and has been informed by Dearborn Public Schools that it is not a party to such a transaction. For purposes of these certifications, the term "open

federal financial assistance transaction” refers to a grant, cooperative agreement, loan, federally-guaranteed loan guarantee, or other mechanism for providing federal financial assistance whose performance period has not yet expired.

30. SEP Completion Report

a. Within 30 days after the date set for completion of the SEP, Defendant shall submit a SEP Completion Report to the United States and MDEQ, in accordance with Section XVI (Notices). The SEP Completion Report shall contain the following information:

- (1) a detailed description of the SEP as implemented;
- (2) a description of any problems encountered in completing the SEP and the solutions thereto;
- (3) an itemized list of all eligible SEP costs expended;
- (4) certification that the SEP has been fully implemented pursuant to the provisions of this Decree; and
- (5) a description of the environmental and public health benefits resulting from implementation of the SEP (with a quantification of the benefits and pollutant reductions, if feasible).

31. EPA may, in its sole discretion, require information in addition to that described in the preceding Paragraph, in order to evaluate Defendant’s completion report.

32. After receiving the SEP Completion Report, EPA, after consultation with MDEQ, shall notify Defendant whether or not Defendant has satisfactorily completed the SEP. If Defendant has not completed the SEP in accordance with this Consent Decree, stipulated penalties may be assessed under Section X.

33. Disputes concerning the satisfactory performance of the SEP and the amount of eligible SEP costs may be resolved under Section XII (Dispute Resolution). No other disputes arising under this Section shall be subject to Dispute Resolution.

34. Each submission required under this Section shall be signed by an official with knowledge of the SEP and shall bear the certification language set forth in Paragraph 41.

35. Any public statement, oral or written, in print, film, or other media, made by Defendant making reference to the SEP under this Decree shall include the following language: “This project was undertaken in connection with the settlement of an enforcement action, United States and Michigan v. AK Steel Corporation, taken on behalf of the U.S. Environmental

Protection Agency and the Michigan Department of Environmental Quality under the Clean Air Act.”

36. For federal income tax purposes, Defendant agrees that it will neither capitalize into inventory or basis nor deduct any costs or expenditures incurred in performing the SEP.

IX. REPORTING REQUIREMENTS

37. Within 30 Days after the end of each calendar quarter (i.e., by April 30, July 30, October 30, and January 30) after lodging of this Consent Decree, until termination of this Decree pursuant to Section XX, Defendant shall:

a. submit to EPA and MDEQ by electronic mail the quarterly report described in Paragraph 20, together with any changes made to the O&M Plan and copies or print outs of all maintenance records or information related to the ESP required by Paragraph 20.c.

b. submit to MDEQ by electronic mail a quarterly report for the preceding quarter that shall contain the status of the activities required by Paragraph 23.

38. Within 45 days following the six month period that is the subject of the initial and each subsequent EMS Audit, the Defendant shall submit the EMS Audit Report to EPA and MDEQ.

39. Whenever (1) any violation of this Consent Decree, or (2) any violation of any applicable permits required by this Consent Decree, or (3) any event affecting Defendant’s performance under this Consent Decree, may pose an immediate threat to the public health or welfare or the environment, Defendant shall notify EPA and MDEQ orally or by electronic or facsimile transmission as soon as possible, but no later than 24 hours after Defendant first knew of the violation or event. This procedure is in addition to the requirements set forth in the preceding Paragraph.

40. All reports shall be submitted to the persons designated in Section XVI (Notices). The following periodic reports submitted by Defendants pursuant to this Consent Decree shall be made publicly available, absent any material claimed to be confidential business information under 40 C.F.R. Part 2, upon written request to AK Steel at its postal address listed in Section XVI (Notices), (“ATTN: Environmental Affairs General Manager”):

- Audit reports, prepared pursuant to paragraph 17.b;
- Audit Response and Action Plans, prepared pursuant to paragraph 18;
- Quarterly reports of COM data, prepared pursuant to paragraph 20; and
- ESP annual inspection reports, prepared pursuant to paragraph 21.

41. Each report submitted by Defendant under this Section shall be signed by an official of the submitting party and include the following certification:

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

42. This certification requirement does not apply to emergency or similar notifications where compliance would be impractical. Where the timing requirements of Paragraph 39 make inclusion of this certification in a report submitted pursuant to Paragraph 39 impractical, Defendant shall provide this certification as a supplement to the initial report.

43. The reporting requirements of this Consent Decree do not relieve Defendant of any reporting obligations required by the Act or implementing regulations, or by any other federal, state, or local law, regulation, permit, or other requirement.

44. Any information provided pursuant to this Consent Decree may be used by the United States or MDEQ in any proceeding to enforce the provisions of this Consent Decree and as otherwise permitted by law.

X. STIPULATED PENALTIES

45. Defendant shall be liable for stipulated penalties to the United States and MDEQ for violations of this Consent Decree as specified below, unless excused under Section XI (Force Majeure). A violation includes failing to perform any obligation required by the terms of this Decree, including any work plan or schedule approved under this Decree, according to all applicable requirements of this Decree and within the specified time schedules established by or approved under this Decree.

46. Late Payment of Civil Penalty. If Defendant fails to pay the civil penalty required to be paid under Section V (Civil Penalty) when due, Defendant shall pay a stipulated penalty of \$1000 per Day for each Day that the payment is late.

47. Compliance Milestones.

a. The following stipulated penalties shall accrue per violation per Day for each violation of the requirements identified in Paragraph 47.b:

<u>Penalty Per Violation Per day</u>	<u>Period of Noncompliance</u>
\$350.....	1st through 14th day
\$750.....	15th through 30th day
\$3,250	31st day and beyond

- b. Compliance milestones subject to stipulated penalties:
- (1) EMS requirements set forth in Paragraphs 12 through 18;
 - (2) ESP O&M requirements set forth in Paragraphs 19 through 22.

c. The following stipulated penalties shall accrue per violation per Day for each violation of the requirements identified in Paragraph 23:

<u>Penalty Per Violation Per day</u>	<u>Period of Noncompliance</u>
\$300	1st through 5th day
\$750	6th through 10th day
\$3,250	11th day and beyond

48. SEP Completion.

a. If Defendant fails to satisfactorily complete the SEP by the deadline set forth in Paragraph 27, Defendant shall pay stipulated penalties for each day for which it fails to satisfactorily complete the SEP, as follows:

<u>Penalty Per Violation Per day</u>	<u>Period of Noncompliance</u>
\$200	1st through 14th day
\$500	15th through 30th day
\$1,000	31st day and beyond

b. If Defendant fails to implement the SEP, or abandons work on the SEP, Defendant shall pay a stipulated penalty of \$269,600. The penalty under this subparagraph shall accrue as of the date specified for completing the SEP or the date performance ceases, whichever is earlier.

49. Reporting Requirements. The following stipulated penalties shall accrue per violation per Day for each violation of the reporting requirements of Section IX.

<u>Penalty Per Violation Per day</u>	<u>Period of Noncompliance</u>
\$300.....	1st through 14th day
\$750.....	15th through 30th day
\$3,250	31st day and beyond

50. Stipulated penalties under this Section shall begin to accrue on the Day after performance is due or on the Day a violation occurs, whichever is applicable, and shall continue to accrue until performance is satisfactorily completed or until the violation ceases. Stipulated penalties shall accrue simultaneously for separate violations of this Consent Decree.

51. The United States, or MDEQ, or both, may seek stipulated penalties under this Section by sending a written demand to Defendant, or by either Plaintiff sending a written demand to the Defendant, with a copy simultaneously sent to the other Plaintiff. Either Plaintiff may waive stipulated penalties or reduce the amount of stipulated penalties it seeks, in the unreviewable exercise of its discretion and in accordance with this Paragraph. Where both Plaintiffs seek stipulated penalties for the same violation of this Consent Decree, Defendant shall pay 50 percent to the United States and 50 percent to MDEQ. Where only one Plaintiff demands stipulated penalties for a violation, and the other Plaintiff does not join in the demand within 15 Days of receiving the demand, or timely joins in the demand but subsequently elects to waive or reduce stipulated penalties for that violation, Defendant shall pay the full stipulated penalties due for the violation to the Plaintiff making the demand less any amount paid to the other Plaintiff.

52. Stipulated penalties shall continue to accrue as provided in Paragraphs 46 through 49, during any Dispute Resolution, but need not be paid until the following:

a. If the dispute is resolved by agreement or by a decision of EPA or MDEQ that is not appealed to the Court, Defendant shall pay accrued penalties determined to be owing, together with interest, to the United States or MDEQ within 30 Days of the effective date of the agreement or the receipt of EPA's or MDEQ's decision or order.

b. If the dispute is appealed to the Court and the United States or MDEQ prevails in whole or in part, Defendant shall pay all accrued penalties determined by the Court to be owing, together with interest, within 60 Days of receiving the Court's decision or order, except as provided in subparagraph c, below.

c. If any Party appeals the District Court's decision, Defendant shall pay all accrued penalties determined to be owing, together with interest, within 15 Days of receiving the final appellate court decision.

53. Defendant shall pay stipulated penalties owing to the United States in the manner set forth and with the confirmation notices required by Paragraph 9, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid. Defendant shall pay stipulated penalties owing to MDEQ in the manner set forth in Paragraph 11, except that the transmittal letter shall state that the payment is for stipulated penalties and shall state for which violation(s) the penalties are being paid.

54. If Defendant fails to pay stipulated penalties according to the terms of this Consent Decree, Defendant shall be liable for interest on such penalties, as provided for in 28 U.S.C. § 1961, accruing as of the date payment became due. Nothing in this Paragraph shall be construed to limit the United States or MDEQ from seeking any remedy otherwise provided by law for Defendant's failure to pay any stipulated penalties.

55. Subject to the provisions of Section XIV (Effect of Settlement/Reservation of Rights), the stipulated penalties provided for in this Consent Decree shall be in addition to any

other rights, remedies, or sanctions available to the United States or MDEQ for Defendant's violation of this Consent Decree or applicable law. Where a violation of this Consent Decree is also a violation of the Act or Michigan Regulation 336.1901, Defendant shall be allowed a credit, for any stipulated penalties paid, against any statutory penalties imposed for such violation.

XI. FORCE MAJEURE

56. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Defendant, of any entity controlled by Defendant, or of Defendant's contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Defendant's best efforts to fulfill the obligation. The requirement that Defendant exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any such event (a) as it is occurring and (b) after it has occurred to prevent or minimize any resulting delay to the greatest extent possible. "Force Majeure" does not include Defendant's financial inability to perform any obligation under this Consent Decree.

57. If any event occurs or has occurred that may delay or prevent the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Defendant shall provide written notice to EPA and MDEQ within seven days of when Defendant first knew that the event might cause a delay or interruption. The notice shall include an explanation and description of the reasons for the delay or interruption; the anticipated duration of the delay or interruption; all actions taken or to be taken to prevent or minimize the delay or interruption; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or interruption or the effect of the delay or interruption; Defendant's rationale for attributing such delay or interruption to a force majeure event if it intends to assert such a claim; and a statement as to whether, in the opinion of Defendant, such event may cause or contribute to an endangerment to public health, welfare or the environment. Defendant shall include with any notice all available documentation supporting the claim that the delay or interruption was attributable to a force majeure event. Failure to comply with the above requirements shall preclude Defendant from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Defendant shall be deemed to know of any circumstance of which Defendant, any entity controlled by Defendant, or Defendant's contractors knew or should have known.

58. If EPA, after a reasonable opportunity for review and comment by MDEQ, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by MDEQ, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. EPA will notify Defendant in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

59. If EPA, after a reasonable opportunity for review and comment by MDEQ, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Defendant in writing of its decision.

60. If Defendant elects to invoke the dispute resolution procedures set forth in Section XII (Dispute Resolution), it shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Defendant shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Defendant complied with the requirements of Paragraphs 56 and 57. If Defendant carries this burden, the delay at issue shall be deemed not to be a violation by Defendant of the affected obligation of this Consent Decree identified to EPA and the Court.

XII. DISPUTE RESOLUTION

61. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. Defendant's failure to seek resolution of a dispute under this Section shall preclude Defendant from raising any such issue as a defense to an action by the United States or MDEQ to enforce any obligation of Defendant arising under this Decree.

62. Informal Dispute Resolution. Any dispute subject to Dispute Resolution under this Consent Decree shall first be the subject of informal negotiations. The dispute shall be considered to have arisen when Defendant sends the United States and MDEQ a written Notice of Dispute. Such Notice of Dispute shall state clearly the matter in dispute. The period of informal negotiations shall not exceed 20 Days from the date the dispute arises, unless that period is modified by written agreement. If the Parties cannot resolve a dispute by informal negotiations, then the position advanced by the United States, (or MDEQ for disputes related to Paragraph 23) shall be considered binding unless, within 20 Days after the conclusion of the informal negotiation period, Defendant invokes formal dispute resolution procedures as set forth below.

63. Formal Dispute Resolution. Defendant shall invoke formal dispute resolution procedures, within the time period provided in the preceding Paragraph, by serving on the United States and MDEQ a written Statement of Position regarding the matter in dispute. The Statement of Position shall include, but need not be limited to, any factual data, analysis, or opinion supporting Defendant's position and any supporting documentation relied upon by Defendant.

64. The United States (or MDEQ for disputes related to Paragraph 23) shall serve its Statement of Position within 45 Days of receipt of Defendant's Statement of Position. The United States' (or, as applicable, MDEQ's) Statement of Position shall include, but need not be

limited to, any factual data, analysis, or opinion supporting that position and any supporting documentation relied upon by Plaintiff. The Plaintiff's Statement of Position shall be binding on Defendant, unless Defendant files a motion for judicial review of the dispute in accordance with the following Paragraph.

65. Defendant may seek judicial review of the dispute by filing with the Court and serving on the United States and MDEQ, in accordance with Section XVII (Notices), a motion requesting judicial resolution of the dispute. The motion must be filed within ten Days of receipt of the Plaintiff's Statement of Position pursuant to the preceding Paragraph. The motion shall contain a written statement of Defendant's position on the matter in dispute, including any supporting factual data, analysis, opinion, or documentation, and shall set forth the relief requested and any schedule within which the dispute must be resolved for orderly implementation of the Consent Decree.

66. The United States (or MDEQ for disputes related to Paragraph 23) shall respond to Defendant's motion within the time period allowed by the Local Rules of this Court. Defendant may file a reply memorandum, to the extent permitted by the Local Rules.

67. Standard of Review. Except as otherwise provided in this Consent Decree, in any other dispute brought under Paragraph 63, Defendant shall bear the burden of demonstrating that its position complies with this Consent Decree and that it is entitled to relief under applicable principles of law. The United States reserves the right to argue that its position is reviewable only on the administrative record and must be upheld unless arbitrary and capricious or otherwise not in accordance with law, and Defendant reserves the right to oppose this position.

68. The invocation of dispute resolution procedures under this Section shall not, by itself, extend, postpone, or affect in any way any obligation of Defendant under this Consent Decree, unless and until final resolution of the dispute so provides. Stipulated penalties with respect to the disputed matter shall continue to accrue from the first Day of noncompliance, but payment shall be stayed pending resolution of the dispute as provided in Paragraph 52. If Defendant does not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section X (Stipulated Penalties).

XIII. INFORMATION COLLECTION AND RETENTION

69. The United States, MDEQ, and their representatives, including attorneys, contractors, and consultants, shall have the right of entry into any facility covered by this Consent Decree, at all reasonable times, upon presentation of credentials, to:

- a. monitor the progress of activities required under this Consent Decree;
- b. verify any data or information submitted to the United States or MDEQ in accordance with the terms of this Consent Decree;

- c. obtain samples and, upon request, splits of any samples taken by Defendant or its representatives, contractors, or consultants;
- d. obtain documentary evidence, including photographs and similar data; and
- e. assess Defendant's compliance with this Consent Decree.

70. Upon request, Defendant shall provide EPA and MDEQ or their authorized representatives splits of any samples taken by Defendant to the extent technically feasible. Upon request, EPA and MDEQ shall provide Defendant splits of any samples taken by EPA or MDEQ to the extent technically feasible.

71. Defendant may also assert that information required to be provided under this Section, including documentary evidence obtained pursuant to Paragraph 69.d., is protected as Confidential Business Information ("CBI") under 40 C.F.R. Part 2. As to any information that Defendant seeks to protect as CBI, Defendant shall follow the procedures set forth in 40 C.F.R. Part 2.

72. This Consent Decree in no way limits or affects any right of entry and inspection, or any right to obtain information, held by the United States or MDEQ pursuant to applicable federal or state laws, regulations, or permits, nor does it limit or affect any duty or obligation of Defendant to maintain documents, records, or other information imposed by applicable federal or state laws, regulations, or permits.

XIV. EFFECT OF SETTLEMENT/RESERVATION OF RIGHTS

73. This Consent Decree resolves the civil claims of the United States and MDEQ for the violations alleged in the Complaint filed in this action through the date of lodging. This Consent Decree also resolves any administrative or civil judicial actions that could be brought by the United States or MDEQ regarding violations alleged in the notices listed in Appendix A.

74. The United States and MDEQ reserve all legal and equitable remedies available to enforce the provisions of this Consent Decree, except as expressly stated in Paragraph 73. This Consent Decree shall not be construed to limit the rights of the United States or MDEQ to obtain penalties or injunctive relief under the Act or implementing regulations, or under other federal or state laws, regulations, or permit conditions, except as expressly specified in Paragraph 73. The United States and MDEQ further reserve all legal and equitable remedies to address any imminent and substantial endangerment to the public health or welfare or the environment arising at, or posed by, Defendant's Facility, whether related to the violations addressed in this Consent Decree or otherwise.

75. In any subsequent administrative or judicial proceeding initiated by the United States or MDEQ for injunctive relief, civil penalties, other appropriate relief relating to the Facility, Defendant shall not assert, and may not maintain, any defense or claim based upon the

principles of waiver, res judicata, collateral estoppel, issue preclusion, claim preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or MDEQ in the subsequent proceeding were or should have been brought in the instant case, except with respect to claims that have been specifically resolved pursuant to Paragraph 73.

76. This Consent Decree is not a permit, or a modification of any permit, under any federal, state, or local laws or regulations. Defendant is responsible for achieving and maintaining complete compliance with all applicable federal, state, and local laws, regulations, and permits; and Defendant's compliance with this Consent Decree shall be no defense to any action commenced pursuant to any such laws, regulations, or permits, except as set forth herein. The United States and MDEQ do not, by their consent to the entry of this Consent Decree, warrant or aver in any manner that Defendant's compliance with any aspect of this Consent Decree will result in compliance with any provisions of the Act, 42 U.S.C. § 7401 *et seq.*, or with any other provisions of federal, state, or local laws, regulations, or permits.

77. This Consent Decree does not limit or affect the rights of Defendant or of the United States or MDEQ against any third parties, not party to this Consent Decree, nor does it limit the rights of third parties, not party to this Consent Decree, against Defendant, except as otherwise provided by law.

78. This Consent Decree shall not be construed to create rights in, or grant any cause of action to, any third party not party to this Consent Decree.

XV. COSTS

79. The Parties shall bear their own costs of this action, including attorneys' fees, except that the United States and MDEQ shall be entitled to collect the costs (including attorneys' fees) incurred in any action necessary to collect any portion of the civil penalty or any stipulated penalties due but not paid by Defendant.

XVI. NOTICES

80. Unless otherwise specified in this Decree, whenever notifications, submissions, or communications are required by this Consent Decree, they shall be made in writing, sent by U.S. Mail (and also by electronic mail where provided), and addressed as follows:

As to the United States (by email): eescasemanagement.enrd@usdoj.gov
Re: DJ # 90-5-2-1-10702

As to the United States (by mail): EES Case Management Unit
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-5-2-1-10702

As to EPA (by mail and email): Kasey Barton
Associate Regional Counsel
Environmental Protection Agency, Region 5
77 West Jackson Blvd. (C-14J)
Chicago, IL 60604-3590
(312) 886-7163
Barton.kasey@epa.gov

and

Daniel Schaufelberger
Environmental Scientist
Environmental Protection Agency, Region 5
77 West Jackson Blvd. (AE-17J)
Chicago, IL 60604-3590
(312) 886-4044
schaufelberger.daniel@epa.gov

As to MDEQ (by mail and email): Neil D. Gordon
Michigan Department of Attorney General
Environment, Natural Resources
and Agriculture Division
P.O. Box 30755
Lansing, MI 48909
Gordonn1@michigan.gov

and

Michael Kovalchick
Michigan Department of Environmental Quality
Air Quality Division

P.O. Box 30260
Lansing, MI 48909
(517) 284-6769
kovalchickm@michigan.gov

As to Defendant (by mail and email): Joseph C. Alter
AK Steel Corporation
9227 Centre Point Drive
West Chester, Ohio 45069
(513) 425-5000
joe.alter@aksteel.com

and

David Miracle
AK Steel Corporation
9227 Centre Point Drive
West Chester, Ohio 45069
(513) 425-5000
dave.miracle@aksteel.com

81. Any Party may, by written notice to the other Parties, change its designated notice recipient or notice address provided above.

82. Notices submitted pursuant to this Section shall be deemed submitted upon mailing, unless otherwise provided in this Consent Decree or by mutual agreement of the Parties in writing.

XVII. EFFECTIVE DATE

83. The Effective Date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court or a motion to enter the Consent Decree is granted, whichever occurs first, as recorded on the Court's docket.

XVIII. RETENTION OF JURISDICTION

84. The Court shall retain jurisdiction over this case until termination of this Consent Decree, for the purpose of resolving disputes arising under this Decree or entering orders modifying this Decree, pursuant to Sections XII and XIX, or effectuating or enforcing compliance with the terms of this Decree.

XIX. MODIFICATION

85. The terms of this Consent Decree, including any attached appendices, may be modified only by a subsequent written agreement signed by all the Parties. Where the modification constitutes a material change to this Decree, it shall be effective only upon approval by the Court.

86. Any disputes concerning modification of this Decree shall be resolved pursuant to Section XII (Dispute Resolution), provided, however, that, instead of the burden of proof provided by Paragraph 67, the Party seeking the modification bears the burden of demonstrating that it is entitled to the requested modification in accordance with Federal Rule of Civil Procedure 60(b).

XX. TERMINATION

87. This Consent Decree may be terminated when the United States determines (after consultation with MDEQ) that Defendant has satisfactorily completed performance of its Compliance Requirement obligations in Section VI, including implementing and auditing its EMS, and carrying out the requirements relating to the Electrostatic Precipitator and Fugitive Dust Emissions; implemented the SEP; received new or amended non-Title V permits based upon the applications submitted by Defendant pursuant to Paragraph 25; received new or amended Title V permits based upon the applications submitted by Defendant pursuant to Paragraph 26; has paid the civil penalty and any accrued stipulated penalties as required by this Consent Decree; and five years has passed since the Effective Date of this Consent Decree. The Parties shall file with the Court an appropriate stipulation reciting that the requirements of the Consent Decree have been met and requesting termination of the Decree.

88. Following receipt by the United States and MDEQ of Defendant's Request for Termination, the Parties shall confer informally concerning the Request and any disagreement that the Parties may have as to whether Defendant has satisfactorily complied with the requirements for termination of this Consent Decree. If the United States after consultation with MDEQ agrees that the Decree may be terminated, the Parties shall submit, for the Court's approval, a joint stipulation terminating the Decree.

89. If the United States after consultation with MDEQ does not agree that the Decree may be terminated, Defendant may invoke Dispute Resolution under Section XII. However, Defendant shall not seek Dispute Resolution of any dispute regarding termination until 60 Days after service of its Request for Termination.

XXI. PUBLIC PARTICIPATION

90. This Consent Decree shall be lodged with the Court for a period of not less than 30 Days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent

Decree disclose facts or considerations indicating that the Consent Decree is inappropriate, improper, or inadequate. Defendant consents to entry of this Consent Decree without further notice and agrees not to withdraw from or oppose entry of this Consent Decree by the Court or to challenge any provision of the Decree, unless the United States has notified Defendant in writing that it no longer supports entry of the Decree.

XXII. SIGNATORIES/SERVICE

91. Each undersigned representative of Defendant, MDEQ and the Assistant Attorney General for the Environment and Natural Resources Division of the Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind the Party he or she represents to this document.

92. This Consent Decree may be signed in counterparts, and its validity shall not be challenged on that basis. Defendant agrees to accept service of process by mail with respect to all matters arising under or relating to this Consent Decree and to waive the formal service requirements set forth in Rules 4 and 5 of the Federal Rules of Civil Procedure and any applicable Local Rules of this Court including, but not limited to, service of a summons.

XXIII. INTEGRATION

93. This Consent Decree constitutes the final, complete, and exclusive agreement and understanding among the Parties with respect to the settlement embodied in the Decree and supersedes all prior agreements and understandings, whether oral or written, concerning the settlement embodied herein. No other document, nor any representation, inducement, agreement, understanding, or promise, constitutes any part of this Decree or the settlement it represents, nor shall it be used in construing the terms of this Decree.

XXIV. FINAL JUDGMENT

94. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment of the Court as to the United States, MDEQ, and Defendant.

XXV. APPENDICES

95. The following Appendices are attached to and made part of this Consent Decree:

“Appendix A” is the list of violation notices and notices of violation;

“Appendix B” is the Compliance-Focused EMS Elements;

“Appendix C” is the Operations & Maintenance Plan for the BOF ESP;

“Appendix D” is the Fugitive Dust Control Plan for Slag Handling; and

“Appendix E” is the Supplemental Environmental Project, Salina Schools Air Filtration Project

Dated and entered this 13th day of August, 2015



UNITED STATES DISTRICT JUDGE

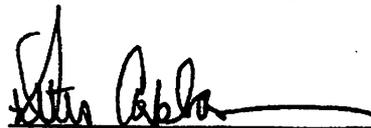
FOR THE UNITED STATES OF AMERICA:

5/19/2015
Date


JOHN C. CRUDEN
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice


MICHAEL J. ZOELLER
Trial Attorney
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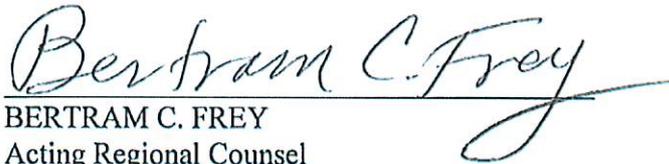
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Eastern District of Michigan


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P30643
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FOR THE U.S. ENVIRONMENTAL PROTECTION
AGENCY:



SUSAN HEDMAN
Regional Administrator
U.S. Environmental Protection Agency, Region 5



BERTRAM C. FREY
Acting Regional Counsel
U.S. Environmental Protection Agency, Region 5



KASEY BARTON
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Associate Regional Counsel
U.S. Environmental Protection Agency, Region 5
Office of Regional Counsel
77 West Jackson Blvd.
Chicago, IL 60604-3507
(312) 886-7163

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FOR THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY:

BILL SCHUETTE
Attorney General

 4/30/15

NEIL D. GORDON
Assistant Attorney General
Michigan Department of Attorney General
Environment, Natural Resources and Agriculture Division
P.O. Box 30755
Lansing, MI 48909
(517) 373-7540

 4/30/15

LYNN FIEDLER
Chief, Air Quality Division
Michigan Department Environmental Quality
P.O. Box 30260
Lansing, MI 48909
(517) 284-6773

FOR AK STEEL CORPORATION:

4/10/15

Date



JOSEPH C. ALTER
Vice President, General Counsel and
Chief Compliance Officer
AK Steel Corporation
9227 Centre Pointe Drive
West Chester, Ohio 45069
(513) 425-5000

Index to Appendices

Appendix A: List of Violation Notices and Notices of Violation

Appendix B: Compliance-Focused Environmental Management System Elements

Appendix C: Operations & Maintenance Plan for the BOF ESP

Appendix D: Fugitive Dust Control Plan for Slag Handling

Appendix E: Supplemental Environmental Project

APPENDIX A

LIST OF VIOLATION NOTICES AND NOTICES OF VIOLATION

<u>VN or NOV Date</u>	<u>Authority</u>	<u>VN or NOV Date</u>	<u>Authority</u>
8/12/2008	MDEQ	1/30/2013	MDEQ
10/06/2008	MDEQ	3/5/2013	EPA
2/24/2009	MDEQ	3/8/2013	MDEQ
4/23/2009	MDEQ	3/27/2013	MDEQ
7/17/2009	MDEQ	5/13/2013	MDEQ
10/7/2009	MDEQ	4/15/2014	MDEQ
10/28/2009	MDEQ	9/2/2014	MDEQ
1/6/2010	MDEQ	10/27/2014	MDEQ
2/11/2010	MDEQ		
5/18/2010	MDEQ		
8/18/2010	MDEQ		
10/28/2010	MDEQ		
11/22/2010	MDEQ		
12/10/2010	MDEQ		
1/5/2011	MDEQ		
3/15/2011	MDEQ		
4/28/2011	MDEQ		
8/16/2011	MDEQ		
9/20/2011	MDEQ		
10/24/2011	MDEQ		
12/8/2011	MDEQ		
3/29/2012	MDEQ		
5/1/2012	MDEQ		
5/10/2012	MDEQ		
5/16/2012	MDEQ		
6/15/2012	EPA		
6/29/2012	MDEQ		
7/19/2012	MDEQ		
7/31/2012	MDEQ		
8/14/2012	MDEQ		
9/13/2012	MDEQ		
9/13/2012	MDEQ		
9/27/2012	MDEQ		
11/14/2012	MDEQ		
11/29/2012	MDEQ		
1/24/2013	MDEQ		

APPENDIX B

COMPLIANCE-FOCUSED ENVIRONMENTAL MANAGEMENT SYSTEM ELEMENTS

United States, et al. v. AK Steel Corporation/Dearborn Works

1. Environmental Policy

- a. This policy, upon which the EMS is based, must clearly communicate management commitment to achieving compliance with applicable federal, state, and local environmental statutes, regulations, enforceable agreements, and permits regarding air emissions (hereafter, “environmental requirements”), minimizing risks to the environment from unplanned or unauthorized air emissions, and continual improvement in environmental performance. The policy should also state management’s intent to provide adequate personnel and other resources for the EMS.

2. Organization, Personnel, and Oversight of EMS

- a. Identifies and defines specific duties, roles, responsibilities, and authorities of key environmental staff in implementing and sustaining the EMS (e.g., could include position descriptions and/or performance standards for all environmental department personnel, and excerpts from others having specific environmental duties, and regulatory compliance responsibilities).
- b. Includes organization charts that identify environmental duties and regulatory compliance responsibilities.
- c. Includes ongoing means of communicating environmental issues and information among the various levels and functions of the organization, to include all persons working for or on behalf of the organization (e.g., on-site service providers and contractors who function as *de facto* employees), and for receiving and addressing their concerns.

3. Accountability and Responsibility

- a. Specifies accountability and environmental responsibilities of organization’s managers, and managers of other organizations acting on its behalf for environmental protection and risk reduction measures, assuring compliance, required reporting to regulatory agencies, and corrective actions implemented in their area(s) of responsibility.

- b. Describes potential consequences for departure from specified operating procedures, including liability for civil/administrative penalties imposed as a result of noncompliance.

4. Environmental Requirements

- a. Describes process for identifying potentially applicable environmental requirements; interpreting their applicability to specific operations, and emissions; and effectively communicating those applicable environmental requirements to affected persons working for or on behalf of the organization.
- b. Describes a process for developing, implementing and maintaining ongoing internal compliance monitoring to ensure that facility activities conform to applicable environmental requirements. Compliance monitoring shall include inspections and measurements, as appropriate.
- c. Describes procedures for prospectively identifying and obtaining information about changes and proposed changes in environmental requirements, and incorporating those changes into the EMS (i.e., regulatory “change management”).
- d. Describes a procedure for communicating with regulatory agencies regarding environmental requirements and regulatory compliance.

5. Assessment, Prevention, and Control

- a. Identifies an ongoing process for assessing operations, for the purposes of preventing, controlling, or minimizing reasonably foreseeable releases of air pollutants, environmental process hazards, and risks of noncompliance with environmental requirements. This process shall include identifying operations where equipment malfunctions and deterioration, and/or operator errors or deliberate malfeasance, are causing, or have the potential to cause: (1) unplanned or unauthorized releases of hazardous or harmful air pollutants, (2) a threat to human health or the environment, or (3) noncompliance with environmental requirements.
- b. Describes process for identifying operations and activities where documented operating criteria, such as standard operating procedures (SOPs), are needed to prevent noncompliance or unplanned/unauthorized releases of hazardous or harmful air pollutants, and defines a uniform process for developing, approving and implementing the documented operating criteria.

- c. Describes a system for conducting and documenting routine, objective, self-inspections, especially at locations identified by the process described in (a) above, to check for malfunctions, deterioration, worker adherence to operating criteria, unusual situations, and unauthorized or unplanned releases.
- d. Describes a “management of change” process to ensure identification and consideration of environmental requirements, the environmental aspects/impacts, and potential operator errors or deliberate malfeasance during planning, design, and operation of ongoing, new, and/or changing buildings, processes, equipment, maintenance activities, and products.

6. Environmental Incident and Non-compliance Investigations

- a. Describes standard procedures and requirements for internal and external reporting of environmental incidents and noncompliance with environmental requirements.
- b. Establishes procedures for investigation, and prompt and appropriate correction of noncompliance. The investigation process includes root-cause analysis of identified problems to aid in developing the corrective actions.
- c. Describes a system for development, tracking, and effectiveness verification of corrective and preventative actions.

7. Environmental Training, Awareness, and Competence

- a. Identifies specific education and training required for organization personnel or those acting on its behalf, as well as process for documenting training provided
- b. Describes program to ensure that organization employees or those acting on its behalf are aware of its environmental policies and procedures, environmental requirements, and their roles and responsibilities within the environmental management system.
- c. Describes program for ensuring that personnel responsible for meeting and maintaining compliance with environmental requirements are competent on the basis of appropriate education, training, and/or experience.
- d. Identifies training on how to recognize operations where equipment malfunctions and deterioration, and/or operator errors or deliberate malfeasance, are causing, or have the potential to cause: (1) unplanned or unauthorized releases of hazardous or harmful air pollutants to the environment, (2) a threat to human health or the environment, or (3) noncompliance with environmental requirements.

8. Environmental Planning and Organizational Decision-Making

- a. Describes how environmental planning will be integrated into organizational decision-making, including plans and decisions on capital improvements, product and process design, training programs, and maintenance activities.
- b. Requires establishing, on an annual basis, written targets, objectives, and action plans for improving environmental performance, by at least each operating organizational subunit with environmental responsibilities, as appropriate, including those for contractor operations conducted at the facility, and how specified actions will be tracked and progress reported. Targets and objectives must include actions that reduce the risk of noncompliance with environmental requirements and minimize the potential for unplanned or unauthorized releases of hazardous or harmful contaminants.

9. Maintenance of Records and Documentation

- a. Identifies the types of records developed in support of the EMS (including audits and reviews), who maintains them and, where appropriate, security measures to prevent their unauthorized disclosure, and protocols for responding to inquiries and requests for release of information.
- b. Specifies the data management systems for any internal environmental data.
- c. Specifies document control procedures.

10. Continuing Program Evaluation and Improvement

- a. Describes program for periodic (at least annually) evaluation of the EMS, which specifies a process for translating assessment results into EMS improvements. The program shall include communicating findings and action plans to affected organization employees or those acting on its behalf.
- b. Describes a program for periodic audits of facility compliance with environmental requirements. Audit results are reported to upper management and instances of noncompliance are addressed through the process described in element 6 above.

11. Public Involvement/Community Outreach

- a. Describes a program for ongoing community education and involvement in the environmental aspects of the organization's operations and general environmental awareness.

APPENDIX C

OPERATIONS & MAINTENANCE PLAN FOR THE BOF ESP

OPERATION AND MAINTENANCE PLAN

BOF

ELECTROSTATIC PRECIPITATOR (ESP)

AK STEEL DEARBORN WORKS

May 22, 2006

Revised March 30, 2015

ED-PL-W-20-01

AK Steel – Dearborn Works BOF Electrostatic Precipitator (ESP) Operations and Maintenance Plan: Roadmap

Purpose: This plan provides a roadmap to the Operations and Maintenance (O & M) procedures for the BOF Electrostatic Precipitator (ESP). This plan is intended to satisfy the requirements of the Integrated Iron and Steel Maximum Achievable Control Technology (MACT) rules to have a written plan pursuant to 40 CFR 63.7800(b) and 40 CFR 63.6(e)(1)(i). This plan also satisfies Permit No. 182-05C requirement EUBOF III.1. The roadmap directs interested parties to the appropriate written operational control document contained in the facility document management system. Revisions to the operational control documents are not considered revisions to this O & M Plan. These procedures describe O & M of the source and the pollution control equipment (electrostatic precipitator) to comply with the relevant MACT rules. The referenced procedures are intended to provide direction to operate and maintain affected sources, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, at least to the levels required by the relevant standard. This plan, if implemented correctly, will also reduce the reporting burden associated with these periods.

1. Detailed Procedures: The facility will operate and maintain the source and associated air pollution control equipment in accordance with the procedures specified in the O & M plan as contained herein:

Procedure	Reference
1. Preventative maintenance (PM) for the BOF ESP. A PM schedule must be developed consistent with the manufacturer's instructions for routine and long-term maintenance. These requirements are pursuant to 40 CFR 63.7800(b)(2).	45531 – Mech – Inspection – 1212: (ID Fan 1 mechanical inspection)
	45532 – Mech – Inspection – 2212: (ID Fan 2 mechanical inspection)
	45533 – Mech – Inspection – 3212: (ID Fan 3 mechanical inspection)
	45534 – Mech – Inspection – 4212: (ID Fan 4 mechanical inspection)
	45500 –Mech– Inspection – 222: (Precipitator Roof (Rapper) electrical inspection)
	45500 – Elec – Inspection – 223 – SCH: (Precipitator conveyer(s) electrical inspection)
	45501 - Mech- Inspection – 3213- SCH: (Precipitator conveyer

Procedure	Reference
	<p>mechanical inspection)</p> <p>45560 – Elec – Inspection – 1 – SCH: (Downcomer draft transmitter inspection)</p> <p>42547 – Mech – Repetitive – 8: Millwater strainer cleaning, 2nd floor mechanical room and 1st floor behind MG Room)</p> <p>ESP Quarterly CPMS Damper Inspection form</p>
<p>2. ESP Continuous Opacity Monitor System (COMS) corrective action procedure. In the event emissions from an ESP equipped with a COMS exceeds a six minute average opacity of 15 percent, an investigation as to the cause of the opacity must be completed. This investigation includes the following:</p> <ul style="list-style-type: none"> • Prompt assessment by the ESP operator upon occurrence of opacity above 15% as to whether immediate corrective action is warranted. • Prompt completion by the ESP operator of the Checksheet for 6-Minute Opacity (PO-B2-80-78E-1) to make an initial assessment of root cause of opacity above 15%. • Periodic completion of the 6-Minute Average Opacity Investigation Spreadsheet (PO-B2-81-99E-2) at least once per week to evaluate and assess trends and root causes of opacity above 15%. <p>In the event emissions from an ESP equipped with a COMS exceeds an hourly average opacity of 10 percent, corrective action must be initiated within one hour to determine the cause of the alarm. Corrective action must be initiated within 24 hours to correct the cause of the problem, and the corrective action must be completed as soon as practicable. These requirements are pursuant to 40 CFR 63.7833(g).</p>	<p>PO-B2-81-99E (ESP 15% 6-Minute Opacity Investigation Procedure)</p> <p>PO-B2-80-78E (15% 6-Minute ESP Operator Alarm Response)</p> <p>PO-B2-81-98E (ESP 10% One Hour Elevated Opacity Investigation Procedure)</p>
<p>3. BOF ESP system inspection procedures. The</p>	

Procedure	Reference
<p>following equipment shall be inspected at intervals of no less than monthly. The procedures provide how to evaluate each component and to repair, replace or isolate each component. If established procedures are not followed, excess emission, repeated failure, or further damage could result. A record of each inspection will be maintained for 5 years.</p> <p>a. Hoods, ductwork, dampers, and expansion joints. Monthly inspections of the equipment that is important to the performance of the total capture system (e.g., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). The operation and maintenance plan also must include requirements to repair any defect or deficiency in the capture system before the next scheduled inspection. These requirements are pursuant to 40 CFR 63.7800(b)(1).</p> <p>Initiate Corrective Action Procedure for monthly required inspections. These requirements are pursuant to 40 CFR 63.6(e)(1)(i) and 63.7830(a). Corrective Action: The Integrated Iron and Steel MACT rules do not address a specific time for initiating and completing corrective actions regarding issues identified during preventative maintenance inspections. Dearborn Works' policy is to address such corrective actions as soon as practical (and may want to include capture systems corrective actions prior to the next monthly inspection.). The BOF cannot operate when the ESP is not in operation.</p> <p>Inspection recordkeeping and certification procedures. A record of each inspection will be kept for 5 years. These requirements are pursuant to 40 CFR 63.7842(a)(3) and 63.7843(b).</p>	<p>45500 – Mech – Inspection – 1214: Precipitator weekly pollution inspection</p> <p>Boiler Pulpit Readings</p> <p>Vibration Analysis</p> <p>ESP Operations Shift Checksheet</p> <p>PO-B2-00-12E (Environmental Inspection Corrective Action Follow-Up Procedure)</p>
<p>4. Off-Gas Conditioning System (Required to be included in this plan by EUBOF III.1 of Permit</p>	<p>PO-B2-80-71E Boiler/Precipitator Spray System Operation: PO-B2-81-</p>

Procedure	Reference
182-05C). This system provides additional air-atomized water spray and must be maintained as part of the off gas conditioning system.	15E: Boiler/Precipitator Changing Spray H2O Set Points.

2. **Responsible Official (RO):** The person who is designated to have the overall responsibility for managing compliance to the Integrated Iron and Steel MACT rules and implementing the O & M procedures. This person is the signature authority for the records and reports as required in these plans. The RO for the plant is General Manager - Dearborn Works.
3. **Roles and Responsibilities:** The RO has delegated the responsibilities associated with the RO to the following position within the BOF: Steelmaking Department Manager.
4. **Training:** Personnel responsible for the air pollution control equipment must have adequate knowledge to operate, troubleshoot, maintain the air pollution control equipment as established in the Operating and Maintenance procedures. Each person must be trained on the tasks and responsibilities they are required to perform and a record of the training maintained in accordance with departmental procedures.
5. **Monitoring:** Fan draft (static pressure) at the bottom of the downcomer is the designated operational monitoring component of the continuous parametric monitoring system (CPMS). The COMS is also monitored and averaged on an hourly basis.
6. **Recordkeeping:** Specific recordkeeping requirements will be contained in each procedure, as appropriate. In general, files of all information required by the Integrated Iron and Steel MACT rules shall be maintained in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.
7. **Reporting** COMS opacity deviations are required to be reported to the Agency on a periodic basis according to the Facility Title V permit or the Integrated Iron and Steel MACT rules schedule.

A. **REFERENCES:** 40 Code of Fed. Reg. Subpart FFFFF – 40 CFR 63.7780

List of Manufacturer's Recommended BOF ESP Preventative Maintenance Procedures⁽¹⁾ with Incorporated Dearborn Works Preventative Maintenance Procedures

Original 1963 Recommended O&M	Is the 1963 Recommendation Applicable in 2015?	AK Steel Interpretation	Reference
DAILY			
"Take switchboard readings. (Preferably hourly, or at least once per shift)"	No	References outdated/obsolete technology. Data is displayed on computer screens.	Incorporated in "ESP Parameter/ Opacity Monitoring Check Sheet", "BOF Precip - E - Field Electric Readings"
"Check that all insulator compartments are receiving proper ventilation."	No	It is the opinion of AK Steel that the daily inspection requirement is excessive and should be conducted on a weekly basis.	Incorporated in "Weekly ESP Checks"
"A periodic check of the hopper and dust bin heater thermostats should be made to insure their proper functioning"	No	It is the opinion of AK Steel that the daily inspection requirement is excessive and should be conducted on a weekly basis.	Incorporated in "Weekly ESP Checks"

(1) Page 108 from ESP Operating Manual, Book 2.

Original 1963 Recommended O&M	Is the 1963 Recommendation Applicable in 2015?	AK Steel Interpretation	Reference
WEEKLY			
"Remove dust and foreign matter from electrical equipment."	Yes	Incorporated in procedure PO-B2-81-05E: Weekly Precipitator Filter Change Out.	-
"Check signal horn and signal lights to see that they are functioning properly."	No	References outdated/obsolete technology. Signal lights identified the starting of a heat so that the Operators would go back into the Pulpit.	The Pulpit is continuously staffed.
"Check operation of the dust valves and conveyors."	Yes	Incorporated in "ESP Parametric/Opacity Monitoring Checksheet"	-

List of Controlled Operating and Maintenance Procedures and Forms

The following procedures listed in this plan serve as the required procedures and forms to comply with the Iron and Steel MACT rules for the BOF ESP.

Procedure	Reference
ID Fan 1 mechanical inspection	45531 - Mech - Inspection - 1212
ID Fan 2 mechanical inspection	45532 - Mech - Inspection - 2212
ID Fan 3 mechanical inspection	45533 - Mech - Inspection - 3212
ID Fan 4 mechanical inspection	45534 - Mech - Inspection - 4212
Precipitator Roof (Rapper) electrical inspection	45500 - Elec - Inspection - 222
Precipitator conveyor(s) electrical inspection	45500 - Elec - Inspection - 223 - SCH
Precipitator conveyor mechanical inspection	45501 - Mech - Inspection - 3213 - SCH
Downcomer draft transmitter inspection	45560 - Elec - Inspection - 1 - SCH
Millwater strainer cleaning, 2 nd floor mechanical room and 1 st floor behind MG Room)	42547 - Mech - Repetitive - 8
ESP Quarterly CPMS Damper Inspection	ESP Quarterly CPMS Damper Inspection Form
Investigation of >15% 6-Minute Opacity Alarm	PO-B2-81-99E
15% 6-Minute ESP Operator Alarm Response	PO-B2-80-78E
Investigation of >10% 1-Hour Opacity Alarm	PO-B2-81-98E
Precipitator weekly pollution inspection	45500 - Mech - Inspection - 1214
Boiler Pulpit Readings	PO-B2-81-23E-1
Verification of fan erosion / buildup	Monthly Vibration Report
ESP Operations Shift Checksheet	PO-B2-81-04E-2
Environmental Inspection Corrective Action Follow-Up Procedure	PO-B2-00-12E
Boiler/Precipitator Spray System Operation	PO-B2-80-71E
Boiler/Precipitator Changing Spray H ₂ O Set Points	PO-B2-81-15E
ESP Parameter/Opacity Monitoring Checksheet	PO-B2-81-04E-1
BOF Precip E-Field Electric Readings	PO-B2-81-04E-4
Weekly Air Dryer and Hopper and Dust Bin Heater Check	Weekly ESP Electrician Checks
Weekly Precipitator Filter Change Out	PO-B2-81-05E

REVISION TABLE

Date	Revision Comments
May 22, 2006	Original Issue
October 15, 2007	Combined all MACT plans
April 15, 2011	Revised plan with new facility name
September 3, 2013	Plan revised by SNC Lavalin
June 24, 2014	Updated by SNC Lavalin
November 5, 2014	O & M Plan revised by AK Steel
January 12, 2015	Updated O & M Plan to include 15% 6-minute opacity procedure and fixed procedure numbers referenced in O & M plan.
March 30, 2015	Updated O & M Plan to include procedure for ESP Operators to follow in the event of a 6-minute 15% or greater COMS alarm (PO-B2-80-78E).

APPENDIX D

FUGITIVE DUST CONTROL PLAN FOR SLAG HANDLING

This Fugitive Dust Control Plan for Slag Handling (“Fugitive Dust Plan”) for AK Steel Dearborn Works applies to the handling of slag generated from the blast furnaces (“blast furnace slag”) and slag, scrap steel, steel, and lime that accumulates in the areas underneath the basic oxygen furnaces (“runway slag”).

I. Blast Furnace Slag

A. Process Description

1. Molten blast furnace slag produced by the blast furnaces is poured into slag pots. The slag pots are picked up and transported to three blast furnace slag pits by slag pot carriers.
2. Prior to receiving molten slag, a blast furnace slag pit is reconstructed using solidified, hot slag excavated from a previous blast furnace slag pit. The solidified slag is used to create the floor and side walls of the reconstructed slag pit. Hot slag is used to ensure no water is trapped within the pit floor. The presence of water in the pit floor creates a safety concern, due to the potential for an explosion when molten slag is poured into the pit.
3. Molten blast furnace slag is dumped from slag pots into a reconstructed slag pit for 24 hours. After a 24-hour shift, the pit is closed and a new pit is opened for receiving slag. The empty slag pots are returned to the blast furnace for reuse. Periodically, a skin of slag will harden on the inside of a slag pot, and the pot will be knocked to remove the skin prior to reuse.
4. After a blast furnace slag pit is full and closed for receipt of additional molten slag, water is used to accelerate the cooling of the molten slag in the pit and to reduce particulate matter emissions during future slag processing. Potassium permanganate is added to the water to prevent potential hydrogen sulfide emissions.
5. After the blast furnace slag in the slag pit has cooled and solidified adequately to allow safe processing, a front end loader is used to fracture the solidified slab of slag into pieces small enough to facilitate excavation by the front end loader. The slag pits may be sprayed with additional water during this initial step of slag processing, at the operator’s discretion, to further solidify the slag. Due to the high potential for

creating explosive conditions, additional watering of the pits during this initial step of slag processing is carefully monitored.

6. The excavated slag is placed into temporary stockpiles prior to shipment off-site for further processing. The slag in the temporary stockpiles is sprayed with water to accelerate the cooling process and to minimize particulate emissions during truck loading.
7. Each water spray has a water delivery capacity of 30 gallons per minute.

B. Control Measures

1. Water sprays shall be used to quench and solidify the blast furnace slag in the blast furnace slag pits. Potassium permanganate shall be added to the water to prevent hydrogen sulfide emissions.
2. Inspections shall be performed at least once each month to determine the operational condition of the water sprays at the blast furnace slag pits. A written record of the inspections shall be maintained and shall include a description of any failure of the water sprays, the reasons for the failure, and the corrective action(s) taken.
3. Inspections shall be performed at least once each month to determine the operational condition of the equipment that injects potassium permanganate into the water used in the water sprays at the blast furnace slag pits. A written record of the inspections shall be maintained and shall include a description of any failure of the equipment, the reasons for the failure, and the corrective action(s) taken.
4. Water shall be sprayed on the temporary stockpiles of partially processed slag to minimize particulate emissions during future material handling operations, including truck loading. At least two water sprays shall be maintained and operational.
5. Inspections shall be performed at least once each month to determine the operational condition of the water sprays. A written record of the inspections shall be maintained and shall include a description of any failure of the water sprays, the reasons for the failure, and the corrective action(s) taken.
6. Dump heights from loader buckets shall be no more than two feet above the side board of the truck bed.

7. A Method 9 certified visible emission observation of digging slag in the blast furnace slag pits shall be performed at least once every two weeks for a minimum of 15 minutes for each observation. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained of each required observation and corrective action taken.
8. A Method 9 certified visible emission observation of loading slag from the temporary stockpiles into trucks shall be performed at least once every two weeks for a minimum of 15 minutes. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained of each required observation and corrective action taken.

II. Runway Slag

A. Process Description

1. The areas underneath the two basic oxygen furnaces are known as “runways.” Slag, scrap steel, steel, and lime accumulate in the runways. The conglomeration of these accumulated materials is known as “runway slag.”
2. The runways are cleaned periodically to remove accumulated runway slag. The slag is removed from each runway approximately three times per day by a front end loader.
3. Runway slag is loaded into trucks on the east side of the Basic Oxygen Furnace (“BOF”) building. The runway slag is either (a) loaded directly into trucks after it is removed from a runway by a front end loader or (b) a front end loader first places the slag into a temporary stockpile and later removes the slag from the temporary stockpile and loads it into trucks. Fugitive dust is controlled with water during these material handling operations through the use of atomized mist technology or water sprays during truck loading and through the use of atomized mist technology or water sprays to saturate the slag prior to its removal from the temporary stockpiles.
4. Trucks loaded with dry runway slag are driven to the truck watering station, located adjacent to the desulfurization slag pot watering station, where the runway slag is watered in the truck to control particulate matter emissions during subsequent dumping and processing. After watering, the trucks transport the runway slag to the BOF slag pits or debris staging area for

further processing. The truck watering station sprays water at a rate of approximately 10 gallons per minute.

5. After a runway is cleaned, a layer of BOF slag is placed on the floor of the runway to facilitate future cleaning efforts.

B. Control Measures

1. Fugitive dust shall be controlled with water through the use of atomized mist technology or water sprays during truck loading and through the use of atomized mist technology or water sprays to saturate the slag prior to its removal from the temporary stockpiles.
2. Dry runway slag in trucks shall be watered sufficiently at the truck watering station to minimize particulate matter emissions during subsequent dumping and processing.
3. Dump heights from loader buckets shall be no more than two feet above the side board of the truck.
4. Inspections shall be performed at least once each month to determine the operational condition of all emission control equipment employed (e.g. the water atomizing equipment, water sprays). A written record of the inspections shall be maintained and shall include any failure of the emission control equipment, the reasons for the failure, and the corrective action taken.
5. A Method 9 certified visible emission observation of loading runway slag into trucks shall be performed at least once every two weeks for a minimum of 15 minutes. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained for each required observation and corrective action taken.

APPENDIX E

SUPPLEMENTAL ENVIRONMENTAL PROJECT

Salina Schools Air Filtration Project

I. DESCRIPTION

The project involves the procurement and installation of an enhanced air filtration system at the Salina Elementary School and Salina Intermediate School in Dearborn, Michigan, which will result in improved air quality within the school.

The primary focus of the project is to replace the two schools' existing passive air filtration systems with a new more effective active filtration system, specifically the Dynamic Air V8 Cleaning System, manufactured by Dynamic Air Quality Solutions. The system will be retrofitted into the schools' existing air handling units.

The Dynamic Air V8 Cleaning System combines elements of both passive filters and active electrostatic precipitators to enhance particulate removal. Based on manufacturer's specifications, it is estimated that the new system has the ability to remove approximately 30% more sub-micron particles than the schools' existing passive filters. In addition, based on manufacturer's specifications, it is estimated that the Dynamic Air V8 Cleaning System has the ability to remove approximately 60% of gaseous odors and volatile organic compounds (VOCs), whereas the schools' existing passive air filtration system does not remove any VOCs or other gasses.

The Dynamic Air V8 Cleaning System will also provide additional benefits beyond improved indoor air quality. There should be a reduction in fan energy consumption due to reduced static pressure. Also, there should be a reduction in maintenance costs due to fewer filtration changes. The schools' existing passive filter media has to be replaced approximately 3 to 4 times per year, while the filters for the Dynamic Air V8 Cleaning System only have to be replaced approximately once every 5 years.

II. SCOPE OF WORK

The project will in general include the following:

1. Salina Intermediate School
 - Purchase and install Dynamic filters in three Basement air handlers, two Band Room air handlers, one Auditorium air handler, three classroom units and one Cafeteria Remote Thermal Unit (RTU).
 - Remove and dispose of old filter systems.
 - Purchase and install 30-Ton Condensing unit and DX coil to serve Auditorium.

2. Salina Elementary School
- Purchase and install Dynamic filters in twenty-four classroom units.
 - Purchase and install two Trane roof mounted custom filter housing with Dynamic filters pre-installed in the housing.

III. SCHEDULE

Task	Timing
Contract Execution with Contractor	Within 14 Days of Effective Date
Equipment Order and Lead Time for Procurement	Within 70 Days of Effective Date
Installation and Startup	Within 120 Days of Effective Date

IV. ESTIMATED COST

	Cost
Equipment	\$204,000
Installation	\$133,000
PROJECT TOTAL	\$337,000

AK Steel Corporation

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Dearborn, MI 48121-1699

TELEPHONE (313) 845-3217

James E. Earl

Environmental Affairs Manager
Dearborn Works

February 11, 2016

Via E-mail and U.S. Mail

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Detroit District Office
Cadillac Place, Suite 2-300
3058 West Grand Blvd
Detroit, MI 48202

Subject: AK Steel Dearborn Works – Revision to Fugitive Dust Control Plan Slag Handling (Appendix D to Consent Order 15-cv-11804)

Dear Mr. Gordon, Mr. Kovalchick and Ms. McLemore:

AK Steel is submitting for MDEQ's approval the enclosed revised Fugitive Dust Control Plan pursuant to Paragraph 23 of the above-referenced Consent Order. As discussed below, this revised plan provides AK Steel with the option to conduct the truck loading of runway slag inside of a building.



Since the implementation of the Consent Order, a total of 10 visible emission observations have been conducted on the runway slag loading operation where atomized mist technology is used to control fugitive dust. Two of the observations, on January 18 and on February 1, exceeded the 20% 3-minute opacity standard. The root causes of the exceedances are unknown.

AK Steel believes that the atomized mist technology remains an effective means to control fugitive dust, as it is a proven technology for material handling operations, and is in use to control fugitive dust from slag handling at numerous steel mills. Nonetheless, AK Steel has taken the proactive approach of seeking additional options for loading the runway slag in order to ensure compliance with the opacity standard.

In that regard, AK Steel has assessed its ability to load the runway slag onto trucks inside of a building. Loading the slag inside a building utilizes the structure itself to control fugitive dust by allowing dust to settle within the building, and by shielding the loading operation from wind and other elements of weather. AK Steel is currently performing trials for runway slag loading in the BOF building. We are also evaluating the option of using a portion of a storage building directly west of the BOF. These trials and evaluations are necessary due to logistic and safety considerations associated with conducting these operations indoors. While AK Steel believes it can successfully conduct these operations within a building and intends to do so, AK Steel needs to maintain the ability to conduct the operation outside utilizing the atomized mist technology.

AK Steel has revised the attached Fugitive Dust Control Plan to include this additional option of loading runway slag inside a building, and to identify the procedure for conducting Method 9 observations. In the event that loading of the truck occurs within a building, AK Steel will evaluate the fugitive dust emissions based on opacity readings of the building openings. In accordance with Paragraph 23.b, AK Steel intends to implement this beneficial change immediately.

Mr. Neil Gordan, Mr. Michael Kovalchick, Ms. Wilhemina McLemore
February 11, 2016
Page 2 of 2

If you have any questions, please contact me at 313-845-3217.

Sincerely,



James E. Earl, Environmental Affairs Manager

Cc: Pat Gallo
Tim Halls
Katie Kistler
Nicholas Kohlhas
Dave Miracle
Randy Parker
David Pate
Amanda Smith

Attachment: Revised Fugitive Dust Control Plan for Slag Handling

APPENDIX D

FUGITIVE DUST CONTROL PLAN FOR SLAG HANDLING

This Fugitive Dust Control Plan for Slag Handling (“Fugitive Dust Plan”) for AK Steel Dearborn Works applies to the handling of slag generated from the blast furnaces (“blast furnace slag”) and slag, scrap steel, steel, and lime that accumulates in the areas underneath the basic oxygen furnaces (“runway slag”).

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A. Process Description

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2. Prior to receiving molten slag, a blast furnace slag pit is reconstructed using solidified, hot slag excavated from a previous blast furnace slag pit. The solidified slag is used to create the floor and side walls of the reconstructed slag pit. Hot slag is used to ensure no water is trapped within the pit floor. The presence of water in the pit floor creates a safety concern, due to the potential for an explosion when molten slag is poured into the pit.
3. Molten blast furnace slag is dumped from slag pots into a reconstructed slag pit for 24 hours. After a 24-hour shift, the pit is closed and a new pit is opened for receiving slag. The empty slag pots are returned to the blast furnace for reuse. Periodically, a skin of slag will harden on the inside of a slag pot, and the pot will be knocked to remove the skin prior to reuse.
4. After a blast furnace slag pit is full and closed for receipt of additional molten slag, water is used to accelerate the cooling of the molten slag in the pit and to reduce particulate matter emissions during future slag processing. Potassium permanganate is added to the water to prevent potential hydrogen sulfide emissions.
5. After the blast furnace slag in the slag pit has cooled and solidified adequately to allow safe processing, a front end loader is used to fracture the solidified slab of slag into pieces small enough to facilitate excavation by the front end loader. The slag pits may be sprayed with additional water during this initial step of slag processing, at the operator’s discretion, to further solidify the slag. Due to the high potential for creating explosive conditions, additional watering of the pits during this initial step of slag processing is carefully monitored.

6. The excavated slag is placed into temporary stockpiles prior to shipment off-site for further processing. The slag in the temporary stockpiles is sprayed with water to accelerate the cooling process and to minimize particulate emissions during truck loading.
7. Each water spray has a water delivery capacity of 30 gallons per minute.

B. Control Measures

1. Water sprays shall be used to quench and solidify the blast furnace slag in the blast furnace slag pits. Potassium permanganate shall be added to the water to prevent hydrogen sulfide emissions.
2. Inspections shall be performed at least once each month to determine the operational condition of the water sprays at the blast furnace slag pits. A written record of the inspections shall be maintained and shall include a description of any failure of the water sprays, the reasons for the failure, and the corrective action(s) taken.
3. Inspections shall be performed at least once each month to determine the operational condition of the equipment that injects potassium permanganate into the water used in the water sprays at the blast furnace slag pits. A written record of the inspections shall be maintained and shall include a description of any failure of the equipment, the reasons for the failure, and the corrective action(s) taken.
4. Water shall be sprayed on the temporary stockpiles of partially processed slag to minimize particulate emissions during future material handling operations, including truck loading. At least two water sprays shall be maintained and operational.
5. Inspections shall be performed at least once each month to determine the operational condition of the water sprays. A written record of the inspections shall be maintained and shall include a description of any failure of the water sprays, the reasons for the failure, and the corrective action(s) taken.
6. Dump heights from loader buckets shall be no more than two feet above the side board of the truck bed.
7. A Method 9 certified visible emission observation of digging slag in the blast furnace slag pits shall be performed at least once every two weeks for a minimum of 15 minutes for each observation. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained of each required observation and corrective action taken.

8. A Method 9 certified visible emission observation of loading slag from the temporary stockpiles into trucks shall be performed at least once every two weeks for a minimum of 15 minutes. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained of each required observation and corrective action taken.

II. Runway Slag

A. Process Description

1. The areas underneath the two basic oxygen furnaces are known as “runways.” Slag, scrap steel, steel, and lime accumulate in the runways. The conglomeration of these accumulated materials is known as “runway slag.”
2. The runways are cleaned periodically to remove accumulated runway slag. The slag is removed from each runway approximately three times per day by a front end loader.
3. Runway slag is loaded into trucks outside on the east side of the Basic Oxygen Furnace (“BOF”) building, or inside a building. The runway slag is either (a) loaded directly into trucks after it is removed from a runway by a front end loader or (b) a front end loader first places the slag into a temporary stockpile and later removes the slag from the temporary stockpile and loads it into trucks. Fugitive dust is controlled with water when these material handling operations take place outside a building, through the use of atomized mist technology or water sprays during truck loading and through the use of atomized mist technology or water sprays to saturate the slag prior to its removal from the temporary stockpiles. When these material handling operations take place inside a building, fugitive dust is controlled by the building structure itself.
4. Trucks loaded with dry runway slag are driven to the truck watering station, located adjacent to the desulfurization slag pot watering station, where the runway slag is watered in the truck to control particulate matter emissions during subsequent dumping and processing. After watering, the trucks transport the runway slag to the BOF slag pits or debris staging area for further processing. The truck watering station sprays water at a rate of approximately 10 gallons per minute.
5. After a runway is cleaned, a layer of BOF slag is placed on the floor of the runway to facilitate future cleaning efforts.

B. Control Measures

1. Fugitive dust shall be controlled with water when material handling operations take place outside a building, through the use of atomized mist technology or water sprays during truck loading and through the use of atomized mist technology or water sprays to saturate the slag prior to its removal from the temporary stockpiles. When material handling operations take place inside a building, fugitive dust is controlled by the building structure itself.
2. Dry runway slag in trucks shall be watered sufficiently at the truck watering station to minimize particulate matter emissions during subsequent dumping and processing.
3. Dump heights from loader buckets shall be no more than two feet above the side board of the truck.
4. Inspections shall be performed at least once each month to determine the operational condition of all emission control equipment employed (e.g. the water atomizing equipment, water sprays). A written record of the inspections shall be maintained and shall include any failure of the emission control equipment, the reasons for the failure, and the corrective action taken.
5. A Method 9 certified visible emission observation of loading runway slag into trucks shall be performed at least once every two weeks for a minimum of 15 minutes. If this activity takes place inside a building, the observation shall be performed on building egress points while loading the runway slag into the trucks. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained for each required observation and corrective action taken.



September 9, 2020

District Supervisor
EGLE Detroit - AQD
Detroit Field Office, Cadillac Place
3058 W. Grand Blvd., Suite 2-300
Detroit, MI 48202-6058

Subject: Edw. C. Levy Company Operations at the AK Steel Dearborn Works
MI-ROP-A8640-2016a
Renewable Operating Permit Section 2

Dear Ms. McLemore:

Enclosed is an application for renewal of ROP No. MI-ROP-A8460-2016a Section 2 for Edw. C. Levy Co. (Levy) operations located within the AK Steel Dearborn Works. The ROP application package has also been submitted electronically in accordance with the EGLE procedure for obtaining an administrative completeness determination within 15 days.

If you have any questions regarding this submittal or need additional information, please contact me at 313-820-4057 or mperko@edwclevy.net or Tom Green, Director of EHS at 313-690-0139 or tgreen@edwclevy.net.

Sincerely,

Matthew Perko

Edw. C. Levy Co.
Environmental Engineer
Mobile: 313-820-4057
mperko@edwclevy.net

Attachments:

- Item 1: Renewable Operating Permit Renewal Application Form
- Item 2: Markup of ROP Section 2
- Item 3: Document "AI-SUMMARY"
- Item 4: Document "AI-FDP" (Fugitive Dust Plan)
- Item 5: Document "AI-MAP" (Malfunction Abatement Plan) for FG-DESULFWATER-STN

CC: Jim Earl, Environmental Manager, AK Steel
David Pate, Environmental Engineer, AK Steel
Tom Green, Edw. C. Levy Co.
Holly Herner, Arcadis

Levy Renewal for AK Steel ROP Section 2
September 2020

Item 1: Renewable Operating Permit Renewal Application Form



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, “Renewable Operating Permits (ROP)/Title V”, then “ROP Forms & Templates”).

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN A8640	SIC Code 3295	NAICS Code 327992	Existing ROP Number MI-ROP-A8640-2016a	Section Number (if applicable) 2
Source Name Edw. C. Levy Co.				
Street Address 4001 Miller Road				
City Dearborn	State MI	ZIP Code 48120	County Wayne	
Section/Town/Range (if address not available)				
Source Description Edw. C. Levy Co. operates blast furnace slag pits; a runway slag watering operation; and a desulfurization slag watering station and associated operations under ROP Section 2 of AK Steel's Air Permit. Levy's operations are dependent on the co-located steel mill for their raw material.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Edw. C. Levy Co.	Section Number (if applicable) 2			
Mailing address (<input type="checkbox"/> check if same as source address) 8800 Dix Ave.				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA

Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Matt Perko		Title Environmental Engineer		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) 8800 Dix Ave.				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number 313-820-4057		E-mail address mperko@edwclevy.net		

Contact 2 Name (optional) Tom Green		Title Director, EHS		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) 8800 Dix Ave.				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number 313-690-0139		E-mail address tgreen@edwclevy.net		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name J. Keith Walker II		Title General Operations Manager		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) 8800 Dix Ave.				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number 260-417-6331		E-mail address kwalker@edwclevy.net		

Responsible Official 2 Name (optional) Russell Burke		Title Director Steel Mill Services		
Company Name & Mailing address (<input type="checkbox"/> check if same as source address) 8800 Dix Ave.				
City Detroit	State MI	ZIP Code 48209	County Wayne	Country USA
Phone number 313-429-2601		E-mail address rburke@edwclevy.net		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input type="checkbox"/> Copies of all Permit(s) to Install (PTIs) that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input type="checkbox"/> Criteria Pollutant/Hazardous Air Pollutant (HAP) Potential to Emit Calculations	<input type="checkbox"/> Cross-State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g., Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input type="checkbox"/> Other, explain:

Compliance Statement	
This source is in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.	
If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.	

Name and Title of the Responsible Official (Print or Type)

J. Keith Walker II, General Operations Manager

As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

Signature of Responsible Official

Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1.	Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes , identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2.	Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C3.	Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes , a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No
C4.	Has this stationary source added or modified equipment since the last ROP renewal that changes the potential to emit (PTE) for criteria pollutant (CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOC, lead) emissions? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers, or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. If No , criteria pollutant potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C5.	Has this stationary source added or modified equipment since the last ROP renewal that changes the PTE for hazardous air pollutants (HAPs) regulated by Section 112 of the federal Clean Air Act? If Yes , include potential emission calculations (or the PTI and/or ROP revision application numbers or other references for the PTE demonstration) for the added or modified equipment on an AI-001 Form. Fugitive emissions must be included in HAP emission calculations. If No , HAP potential emission calculations do not need to be included.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C6.	Are any emission units subject to the Cross-State Air Pollution Rule (CSAPR)? If Yes , identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C7.	Are any emission units subject to the federal Acid Rain Program? If Yes , identify the specific emission unit(s) subject to the federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8.	Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes , identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. If the CAM Plan has been updated, include an updated copy. Is a CAM plan included with this application? If a CAM Plan is included, check the type of proposed monitoring included in the Plan: 1. Monitoring proposed by the source based on performance of the control device, or 2. Presumptively Acceptable Monitoring, if eligible	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> <input type="checkbox"/>
C9.	Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes , then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10.	Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes , then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/>	Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-FDP, AI-MAP, AI-Summary	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 212(4) Citation [e.g. Rule 212(4)(c)]	Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

<p>E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If <u>Yes</u>, identify changes and additions on Part F, Part G and/or Part H.</p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If <u>Yes</u>, identify the stack(s) that was/were not reported on applicable MAERS form(s).</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If <u>Yes</u>, complete Part F with the appropriate information.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>E4. Have any emission units identified in the existing ROP been dismantled? If <u>Yes</u>, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.</p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>Comments:</p> <p>Facility fugitive emissions are regulated under the source-wide conditions listed in B. of the ROP and include fugitive emissions from stockpiles, loading and unloading of material, and paved and unpaved roadways and areas. Requirements are also captured in the Fugitive Dust Control plan (Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A) included in AI FDP.</p>	
<p><input checked="" type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-FDP, AI-SUMMARY</p>	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to **all** emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
 If No, go to Part G.

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/Modified/Reconstructed

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID:

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If <u>Yes</u> , answer the questions below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If <u>Yes</u> , describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If <u>Yes</u> , identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If <u>Yes</u> , on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If <u>Yes</u> , list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
The Consent Order, Attachment A (FDP) is included in the current ROP. However, Levy is requesting updates to the FDP as indicated in AI-FDP.	
H6. Does the source propose to add, change and/or delete source-wide requirements? If <u>Yes</u> , identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
See AI SUMMARY of the requested changes to the existing ROP and AI-FDP that includes the existing FDP and proposed FDP for Edw. C. Levy Company. The requested changes also reflect modification to description of: process controls in B .Source Wide III.A.2.; clarification for watering stockpile areas and activities in B. Source-Wide Conditions III.B.1.; updates to watering of unpaved roads in C.2.a.; and clarification for water sprays on crushing and screening operations in B. Source Wide III.D.1.	
H7. Are you proposing to streamline any requirements? If <u>Yes</u> , identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete **emission limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H9. Does the source propose to add, change and/or delete **material limit** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H10. Does the source propose to add, change and/or delete **process/operational restriction** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

See **AI SUMMARY** of the requested changes to the existing ROP and the ROP mark-up.

H11. Does the source propose to add, change and/or delete **design/equipment parameter** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H12. Does the source propose to add, change and/or delete **testing/sampling** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H13. Does the source propose to add, change and/or delete **monitoring/recordkeeping** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H14. Does the source propose to add, change and/or delete **reporting** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Correct semiannual and annual reporting date listed in FGDESULFWATER-STN to match the May/November reporting dates for the other emission units in ROP Section 2. See **AI SUMMARY** of the requested changes to the existing ROP and the ROP mark-up.

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID:
AI-SUMMARY, AI-FDP



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 2

1. Additional Information ID

AI-SUMMARY

Additional Information

2. Is This Information Confidential?

Yes No

Attached is a summary of the proposed changes that Levy is requesting in their current ROP Section 2, followed by a marked up copy of the ROP Section 2.



RENEWABLE OPERATING PERMIT APPLICATION AI-001: ADDITIONAL INFORMATION

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SRN: A8640

Section Number (if applicable): 2

1. Additional Information ID
AI-FDP

Additional Information

2. Is This Information Confidential?

Yes No

3. Narrative

Attached here is the facility's Fugitive Dust Control Plan (FDP), Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A and the proposed, updated FDP previously submitted to EGLE for review and approval.



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: A8640

Section Number (if applicable): 2

1. Additional Information ID
AI-MAP

Additional Information

2. Is This Information Confidential?

Yes No

3. Narrative

Attached here is the facility's Malfunction Abatement Plan (MAP) associated with FGDESULFWATER-STN.

Page 1 of 1

Michigan Department of Environment, Great Lakes, and Energy - Air Quality Division



Levy Renewal for AK Steel ROP Section 2
September 2020

Item 2: Markup of ROP Section 2

SECTION 2 – EDW. C. LEVY COMPANY

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, “Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:”² **(R 336.1301(1))**
 - a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner’s or operator’s expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**

Monitoring/Recordkeeping

16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate. **(R 336.1213(3)(b))**
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a Responsible Official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
19. A Responsible Official shall certify to the appropriate AQD District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**
20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
 - a. Submitting a certification by a Responsible Official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - b. Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a Responsible Official which states that, “based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete”. The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a Responsible Official in a manner consistent with the CAA.² **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
 - a. The applicable requirements are included and are specifically identified in the ROP.
 - b. The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.

Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.

27. Nothing in this ROP shall alter or affect any of the following:
 - a. The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - b. The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - c. The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

- d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

- 30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
- 31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
- 32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(10))**
- 33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

- 34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
 - a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
 - d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(8))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F.
37. If the permittee is subject to 40 CFR Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term “motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall comply with the requirements of 40 CFR Part 68, no later than the latest of the following dates as provided in 40 CFR 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c)). **(40 CFR Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

Permit To Install (PTI)

43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.² **(R 336.1219)**
46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months of the original PTI issuance date, or has been interrupted for 18 months, the applicable terms and conditions from that PTI, as incorporated into the ROP, shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state-only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to Section 2 of the stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

DESCRIPTION

Requirements applicable to blast furnace pit area and blast furnace alley area

POLLUTION CONTROL EQUIPMENT

NA

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible emissions	20 opacity% ²	3-minute average	Fugitive dust emissions from sources other than roads, lots, or storage piles	Method 9D, SC VI.2	Act 451 Section 324.5524(2)
2. Visible emissions	5 opacity % ²	3-minute average*	Fugitive dust emissions from any road, lot or storage pile, including any material handling activity at a storage pile.	Method 9D, SC VI.2	Act 451 Section 324.5524(2)
*This shall not apply to storage pile material handling activities when wind speeds are in excess of 25 miles per hour					

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

A. PROCESS CONTROL MEASURES

1. To minimize the fugitive emissions from the loading of trucks and the transporting of material off-site, the following operating practices shall be adhered to:
 - a. All trucks transporting finished product with the potential to emit fugitive particulates shall be tarped before leaving the property.
 - b. Drop heights of the front end loader bucket will be no more than two (2) feet above sideboard of the trucks.
(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.A)
2. Control of emissions due to vehicle movement about the stockpiles shall be accomplished by applying lignosulfonate, calcium chloride, or an equivalent or more effective material to the traveled areas among the piles. When lignosulfonate is used, the application rate of 5 gal/100 sq. ft. shall be used, the diluted ratio shall be 3:1, ~~and it~~ and the application frequency for a chemical suppressant shall be once per month between March and October. The actual square footage to be controlled shall be dependent upon the amount of material in storage.
(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.A)

3. Spilled material under conveyors shall be attended to on an ongoing basis. Spillage on roadways shall be removed daily. A truck operator who has spilled material onto the road shall be notified so that appropriate action can be taken to prevent future incidences.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.A)

B. STOCKPILE AREAS and ACTIVITIES.

1. Raw slag shall be watered prior to transfer by front end loader to the grizzly/feeder at the beginning of the process plant. ~~Water is added to the material at a rate of 4.0 gallons per ton of slag processed.~~ Raw materials are watered to maintain product moisture specifications and for fugitive dust control purposes. Volume of water added to slag processed is estimated and proper watering is confirmed by acceptable visible emissions.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.B)

2. Load-out emissions shall be controlled by limiting drop height of the bucket to a maximum of two (2) feet above the sideboard of the truck.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.B)

C. ROADWAYS AND PARKING LOTS

1. Paved Roads

- a. Paved roads shall be cleaned as necessary, during operating hours, weather permitting, with a power flush or wet/vacuum truck.
- b. Track-out shall be cleaned up daily when it occurs.
- c. Speed limit on paved roads is 15 MPH.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.C)

2. Unpaved Roads

- a. Unpaved roads shall be treated with a lignosulfonate, calcium chloride (or equivalent) dust suppressant. If lignosulfate is used, the application rate shall be no less than 0.45 gallons of solution per square yard with dilution ratio of 3:1. The application frequency of a chemical suppressant shall be once per month between March and October.
- b. Speed limit on unpaved roads is 5 MPH.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.C)

D. PROCESS EMISSIONS (Crushing, Screening, Conveying, and Transfer)

1. Crushing / Screening operations shall be equipped with water sprays for fugitive dust control. Materials shall be wetted with water sprays prior to entering the crushing/screening operations. These water sprays are used as necessary to minimize fugitive emissions.
2. Conveying and transferring for those conveyors and transfer points covered under Exhibit A shall be equipped with covered conveyors, water sprays, side shields, or scope for fugitive dust control as described under 3.A and D.
3. Load-out emission shall be controlled by limited drop height to a maximum of two (2) feet above the sideboard of the truck. All trucks transporting finished products with the potential to emit fugitive particulate shall be tarped.

(Consent Order SIP 18-1993 (Revised 9/9/94), Exhibit A, Section 3.D)

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

1. The permittee shall record the data and information specified in Appendix 4.1-2. Required Records for Fugitive Dust Sources and shall keep the record for a period of at least two years, and shall be made available to AQD upon written or verbal request. The permittee may use alternate formats with the approval by the AQD District Supervisor for recording equivalent information without the need to modify or amend this permit **(Consent Order SIP 18-1993, (Revised 9/9/94), Exhibit A, Addendum), R 336.1213(3))**
2. The permittee shall perform a non-certified visible emission observation of the fugitive dust sources at least 5 days per week, excluding non-operating days during March through October. The permittee shall perform a certified visible emission observation of a representative set of the fugitive dust sources mentioned in Appendix 4-2 of this permit at least once per month during March through October. The representative set must include a paved road, an unpaved road, and a storage pile. A different set of fugitive dust sources must be observed each month. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. **(R 336.1213(3))**
3. The permittee shall implement and maintain the Hydrogen Sulfide Monitoring Protocol for Rule 406 submitted and approved by AQD on April 1, 2011 or any subsequent amendment to the protocol. Amendments to the protocol must be approved by the AQD District Supervisor. If, at any time, the AQD determines that the protocol is inadequate, the permittee shall amend the protocol within 45 days upon request from the AQD District Supervisor.² **(R 336.1406(2), R 336.1213(3))**

See Appendix 4-2

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for reporting period July 1 to December 31 and November 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for the previous calendar year. **(R 336.1213(4)(c))**
4. Quarterly report shall be submitted by the permittee to AQD identifying each day in which emission limit, operational requirement, or recording requirement, as specified in SIP No. 18-1993 (Revised 9/9/94) Exhibit A (Fugitive Dust Control Plan), were not met. This report shall, for each instance, explain the reason that the emission limit, operational requirement, or record keeping requirement was not met, the duration of the event, the remedial action taken, and a description of the steps which were taken to prevent a recurrence. These reports shall be submitted within 30 days following the end of the calendar quarter in which the data were collected. **(Consent Order SIP 18-1993 (Revised 9/9/94), Paragraph 11)**

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

1. The conditions contained in this ROP for which a Consent Order is the only identified applicable requirement shall be considered null and void upon the effective date of termination of the Consent Order. The effective date of termination is defined for the purposes of the conditions as the date upon which the Termination Order is signed by the Chief of the Air Quality Division or by an authorized U.S Environmental Protection Agency representative. **(R 336.1213(3))**
2. The conditions contained in this ROP for which a Consent Judgment or Consent Decree is the only identified applicable requirement shall be considered null and void upon the effective date of termination of the Consent Judgment or Decree. The effective date of termination is defined for the purposes of the conditions as the date upon which a Stipulation and Order for Termination is signed by a Circuit Court Judge or by a United States District Court Judge or Magistrate Justice. **(R 336.1213(3))**
3. Each responsible official shall certify annually the compliance status of the stationary source with all stationary source-wide conditions. This certification shall be included as part of the annual certification of compliance as required in the General Conditions in Part A and Rule 213(4)(c). **(R 336.1213(4)(c))**
4. When the odor of hydrogen sulfide is found to exist beyond the property line of AK Steel Dearborn Works the permittee shall not cause or allow the concentration of hydrogen sulfide to exceed 0.005 parts per million by volume for a maximum period of 2 minutes.² **(R 336.1406(2))**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUBLSTFCESLAGPIT	Edw. C. Levy Co. dumps pots containing blast furnace slag collected from the Blast furnaces. Dumped slag is quenched with water sprays containing potassium permanganate, or an equivalent agent, to control odor. After thorough quenching, Edw. C. Levy Co. loads the material into trucks for processing off - site.	1/31/91	NA
EURUNWAYSLAGWTR	BOF runway slag watering station is located adjacent to the desulfurization slag watering station. Levy digs the runway slag with a front-end loader and the slag is put into a truck or temporary storage pile for future loading into a truck. The runway slag is transported to the watering station for dust control. After watering, the material is further processed.	5/09/97	NA

**EUBLSTFCESLAGPIT
EMISSION UNIT CONDITIONS**

DESCRIPTION

Edw. C. Levy Co. dumps pots containing blast furnace slag collected from the Blast furnaces. Dumped slag is quenched with water sprays containing potassium permanganate, or an equivalent agent, to control odor. After thorough quenching, Edw. C. Levy Co. loads the material into trucks for processing off-site.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Water sprays

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	20% opacity ²	3 minute average	Fugitive dust emissions from sources other than roads, lots, or storage piles associated with EUBLSTFCESLAGPIT	SC VI.1, VI. 2	Act 451 of 1994, Part 55, Section 5524(2)
2. Visible Emissions	5% opacity ²	3 minute average*	Fugitive dust emissions from any road, lot or storage pile, including any material handling activity at a storage pile associated with EUBLSTFCESLAGPIT	SC VI.1, VI.2	Act 451 of 1994, Part 55, Section 5524(2)

*This shall not apply to storage pile material handling activities when wind speeds are in excess of 25 miles per hour

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall quench the dumped slag by water sprays before digging. **(Consent Order SIP 18-1993, (Revised 9/9/94), Exhibit A, Section 3.A)**
2. The permittee shall reduce hydrogen sulfide emissions generated at the blast furnace slag pits servicing AK Steel Dearborn Works Blast Furnaces B and C by installing and properly maintaining the potassium permanganate or equivalent agent quenching system.² **(R 336.1910, R 336.1901)**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall perform a Method 9D certified visible emission observation of a representative slag dumping or digging operation at least once every two weeks for a minimum of 15 minutes during dumping or digging operation. The permittee shall initiate corrective action upon observation of visible emissions in excess of the applicable visible emission limitation and shall keep a written record of each required observation and corrective action taken. (R 336.1213(3))
2. The permittee shall conduct periodic inspections for the purpose of determining the operational condition of the water spray systems on slag pits dumping area, and if necessary, the reasons for malfunction or failure. These inspections shall be conducted during scheduled outages or downtimes, and immediately after observing visible emissions, but not less frequently than at least once a month and shall keep a written record of each inspection and corrective action taken if any. (R 336.1213(3))

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for reporting period July 1 to December 31 and November 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EURUNWAYS LAGWTR
EMISSION UNIT CONDITIONS**

DESCRIPTION

BOF runway slag watering station is located adjacent to the desulfurization slag watering station. Levy digs the runway slag with a front-end loader and the slag is put into a truck or temporary storage pile for future loading into a truck. The runway slag is transported to the watering station for dust control. After watering, the material is further processed.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Water sprays

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Visible Emissions	20% opacity ²	3 minute average	Fugitive dust emissions from sources other than roads, lots, or storage piles associated with EURUNWAYS LAGWTR	SC VI.1, VI.2	Act 451 of 1994, Part 55, Section 5524(2)
2. Visible Emissions	5% opacity ²	3 minute average*	Fugitive dust emissions from any road, lot or storage pile, including any material handling activity at a storage pile associated with EURUNWAYS LAGWTR	SC VI.1, VI.2	Act 451 of 1994, Part 55, Section 5524(2)
* This shall not apply to storage pile material handling activities when wind speeds are in excess of 25 miles per hour					

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall adhere to the fugitive dust control plan for slag handling. (R 336.1371)

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. A Method 9D certified visible emission observation of loading runway slag into trucks shall be performed at least once every two weeks for a minimum of 15 minutes or other frequency as specified in the approved fugitive dust control plan. If this activity takes place inside a building, the observation shall be performed on building egress points while loading the runway slag into the trucks. Corrective action shall be initiated upon observation of visible emissions in excess of the applicable visible emission limitation and a written record shall be maintained for each required observation and corrective action taken. (R336.1213(3))
2. The permittee shall inspect, at least once each month, to determine the operational condition of all emission control equipment employed (e.g. the water atomizing equipment, water sprays). A written record of the inspections shall be maintained and shall include any failure of the emission control equipment, the reasons for the failure, and the corrective action taken. (R336.1213(3))

VI. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for reporting period July 1 to December 31 and November 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by May 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8-2

VIII. STACK/VENT RESTRICTION(S)

NA

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines the terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGDESULF E WATER-STN	A desulfurization slag pot water station, slag dump station, one natural gas fired re-heater station, and a slag screening operation. The water station consists of 10 water spray stations. The re-heater station utilizes a natural gas flame torch.	NA

**FGDESULFWTR-STN
FLEX GROUP CONDITIONS**

DESCRIPTION

A desulfurization slag pot water station, slag dump station, a grizzly screen, and one natural gas fired re-heater station. The water station consists of 10 water spray stations. The re-heater station utilizes a 1 MMBtu/hr natural gas flame torch.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Water sprays

I. EMISSION LIMITS

Pollutant	Limit	Time Period / Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1. Visible Emissions	20% opacity ²	3 minute average	Fugitive dust emissions from sources other than roads, lots, or storage piles associated with FGDESULFWTR-STN	SC VI.1, VI.2, VI.4	Act 451 of 1994, Part 55, Section 5524(2)
2. Visible Emissions	5% opacity ²	3 minute average *	Fugitive dust emissions from any road, lot or storage pile, including any material handling activity at a storage pile associated with FGDESULFWTR-STN	SC VI.1, VI.2, VI.4	Act 451 of 1994, Part 55, Section 5524(2)

* Pursuant to Rule 324.5524(2), the 5% opacity limit for storage pile material handling activities does not apply when wind speeds are in excess of 25 miles per hour.

II. MATERIAL LIMITS

NA

III. PROCESS/OPERATIONAL RESTRICTIONS

- The permittee shall not use untreated wastewater or process water without prior written approval of the Air Quality Division for FGDESULFWTR-STN¹. **(R 336.1224, R 336.1225)**
- The permittee shall not operate FGDESULFWTR-STN unless the water spray system is maintained and operated in a satisfactory manner. Satisfactory operation of FG-DESULFWTR-STN is defined as maintaining the visible emissions limit from the desulfurization pot dumping area.² **(R 336.1301, R 336.1910)**
- The permittee shall not operate FGDESULFWTR-STN unless a malfunction abatement plan (MAP) as described in Rule 911(2), for the water spray system and odor control system is implemented and maintained. The MAP shall be submitted within 30 days of permit issuance and must be approved by AQD prior to start-up of FGDESULFWTR-STN. The MAP shall, at a minimum, specify the following:

- a. A complete preventative maintenance program including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.
- b. An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.
- c. A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

If at any time the MAP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, the permittee shall amend the MAP within 45 days after such an event occurs. The permittee shall also amend the MAP within 45 days, if new equipment is installed or upon request from the District Supervisor. The permittee shall submit the MAP and any amendments to the MAP to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of submittal, the MAP or amended MAP shall be considered approved. Until an amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.² **(R 336.1911)**

4. The permittee shall only utilize natural gas in the re-heater portion of FGDESULFWTR-STN.² **(R 336.1205(3))**
5. The permittee shall water the desulfurization slag in the pots at the desulfurization slag pot watering station for at least twenty-four (24) hours before the desulfurization slag pot is dumped at the desulfurization slag pot dump station for processing.² **(R 336.1910)**
6. The permittee shall not operate FGDESULFWTR-STN unless the odor control system (the use of potassium permanganate (or equivalent) in the water spray system) is maintained and operated in a satisfactory manner.² **(R 336.1910)**

IV. DESIGN/EQUIPMENT PARAMETERS

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall perform visible emission observations of the desulfurization slag dump station at least once every two weeks while FGDESULFWTR-STN is operating using Test Method 9d. A certified reader shall perform each reading. If excessive visible emissions are observed, the permittee shall determine the cause of the excessive visible emissions and implement corrective measures to eliminate the excessive visible emissions.² **(R 336.1301, Act 451 of 1994, Part 55, Section 5524(2), R 336.1303, R 336.1910)**
2. The permittee shall maintain records of visible emission reading results and corrective actions implemented to eliminate any identified excessive visible emissions.² **(R 336.1912)**
3. The permittee shall maintain the following records on a daily basis whenever FGDESULFWTR-STN is being used: **(R 336.1912)**
 - a. The total amount of water used in FGDESULFWTR-STN.
 - b. The total number of slag pots dumped at the desulfurization slag dump station within the calendar day.

- c. When watering begins for each slag pot.
 - d. When watering ends for each slag pot.
 - e. Records to demonstrate that the MAP is being implemented²
4. The permittee shall maintain records, in a satisfactory manner, to demonstrate that each desulfurization slag pot was watered at the watering station for a minimum of twenty-four (24) hours before it was dumped at the desulfurization slag pot dump station for processing.² **(R 336.1910)**

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by ~~March-May~~ 15 for reporting period July 1 to December 31 and ~~September-November~~ 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by ~~March-May~~ 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8-2

VIII. STACK/VENT RESTRICTIONS

NA

IX. OTHER REQUIREMENTS

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1-2. Abbreviations and Acronyms

The following is an alphabetical listing of abbreviations/acronyms that may be used in this permit.

AQD	Air Quality Division	MM	Million
acfm	Actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	MW	Megawatts
BTU	British Thermal Unit	NA	Not Applicable
°C	Degrees Celsius	NAAQS	National Ambient Air Quality Standards
CAA	Federal Clean Air Act	NESHAP	National Emission Standard for Hazardous Air Pollutants
CAM	Compliance Assurance Monitoring	NMOC	Non-methane Organic Compounds
CEM	Continuous Emission Monitoring	NOx	Oxides of Nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
COM	Continuous Opacity Monitoring	PM	Particulate Matter
department	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns in diameter
dscf	Dry standard cubic foot	pph	Pound per hour
dscm	Dry standard cubic meter	ppm	Parts per million
EPA	United States Environmental Protection Agency	ppmv	Parts per million by volume
EU	Emission Unit	ppmw	Parts per million by weight
°F	Degrees Fahrenheit	PS	Performance Specification
FG	Flexible Group	PSD	Prevention of Significant Deterioration
GACS	Gallon of Applied Coating Solids	psia	Pounds per square inch absolute
gr	Grains	psig	Pounds per square inch gauge
HAP	Hazardous Air Pollutant	PeTE	Permanent Total Enclosure
Hg	Mercury	PTI	Permit to Install
hr	Hour	RACT	Reasonable Available Control Technology
HP	Horsepower	ROP	Renewable Operating Permit
H ₂ S	Hydrogen Sulfide	SC	Special Condition
HVLP	High Volume Low Pressure *	scf	Standard cubic feet
ID	Identification (Number)	sec	Seconds
IRSL	Initial Risk Screening Level	SCR	Selective Catalytic Reduction
ITSL	Initial Threshold Screening Level	SO ₂	Sulfur Dioxide
LAER	Lowest Achievable Emission Rate	SRN	State Registration Number
lb	Pound	TAC	Toxic Air Contaminant
m	Meter	Temp	Temperature
MACT	Maximum Achievable Control Technology	THC	Total Hydrocarbons
MAERS	Michigan Air Emissions Reporting System	tpy	Tons per year
MAP	Malfunction Abatement Plan	µg	Microgram
MDEQ	Michigan Department of Environmental Quality	VE	Visible Emissions
mg	Milligram	VOC	Volatile Organic Compounds
mm	Millimeter	yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 pounds per square inch gauge (psig).

Appendix 2-2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. (R 336.1213(4)(a), R 336.1119(a)(ii))

Appendix 3-2. Monitoring Requirements

Specific monitoring requirement procedures, methods or specifications are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 4-2. Recordkeeping

The permittee shall use the following approved formats and procedures for the recordkeeping requirements referenced in the Conditions for the requirements applicable to blast furnace pit area and blast furnace alley area for Section 2 of this ROP. Alternative formats must be approved by the AQD District Supervisor.

4.1-2 Required Records for Fugitive Dust Sources

- A. Unpaved Roads / Lots
 1. Date of Treatment
 2. Control Measure Used
 3. Responsible Person's Initial
 4. Name of Product Applied
 5. Amount of Solution / Water Applied
 6. Dilution Ratio
 7. Road Segment / Lot Identification

- B. Paved Roads / Lots
 1. Date of Treatment
 2. Control Measure Used
 3. Responsible Person's Initial
 4. Road Segment / Lot Identification

- C. Storage Piles / Material Handling
 1. Date of Treatment
 2. Control Measure Used
 3. Responsible Person's Initial
 4. Dilution Ratio
 5. Amount of Dust Suppressant / Water Applied
 6. Identification of Pile / Material Handling Operation Treated
 7. Equipment Used

Appendix 5-2. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6-2. Permits to Install

The following table lists any PTIs issued or ROP revision applications received since the effective date of the previously issued ROP No. MI-ROP-A8640-2016. Those ROP revision applications that are being issued concurrently with this ROP renewal are identified by an asterisk (*). Those revision applications not listed with an asterisk were processed prior to this renewal.

~~Source-Wide PTI No MI-PTI-A8640-2016 is being reissued as Source-Wide PTI No. MI-PTI-A8640-2016a~~

Permit to Install Number	ROP Revision Application Number	Description of Equipment or Change	Corresponding Emission Unit(s) or Flexible Group(s)
70-13	201600073	Desulfurization slag pot watering	FGDESULFWTR-STN

~~There are no PTI being incorporated into this ROP.~~

Appendix 7-2. Emission Calculations

There are no specific emission calculations to be used for this ROP. Therefore, this appendix is not applicable.

Appendix 8-2. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ Report Certification form (EQP 5736) and MDEQ Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

Levy Renewal for AK Steel ROP Section 2
September 2020

Item 3: Document “AI-SUMMARY”

AI-Summary Levy – AK Steel ROP Section 2 – 4001 Miller Road, Dearborn, MI (C.9, E.1)

Emission Unit or Flexible Group ID	Emission Unit Description	Installation/Modification Date	C.9 Plan required to be Submitted	E.1 Additions, changes or deletions to terms, conditions, & underlying applicable requirements
SOURCE-WIDE CONDITIONS	Blast Furnace Pit and Blast Furnace Alley Area	1/31/1991	Yes - see AI FDP	Yes – see Part H
EUBLSTFCESLAGPIT	Edw. C. Levy Co. dumps pots containing blast furnace slag collected from the Blast furnaces. Dumped slag is quenched with water sprays containing potassium permanganate, or an equivalent agent, to control odor. After thorough quenching, Edw. C. Levy Co. loads the material into trucks for processing off-site.	1/31/1991	NA	NA
EURUNWAYS�AGWTR	BOF runway slag watering station is located adjacent to the desulfurization slag watering station. Levy digs the runway slag with a front-end loader and the slag is put into a truck or temporary storage pile for future loading into a truck. The runway slag is transported to the watering station for dust control. After watering, the material is further processed.	05/09/1997	NA	NA

Emission Unit or Flexible Group ID	Emission Unit Description	Installation/Modification Date	C.9 Plan required to be Submitted	E.1 Additions, changes or deletions to terms, conditions, & underlying applicable requirements
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FGDESULFWATER-STN

A desulfurization slag pot water station, slag dump station, a grizzly screen, and one natural gas fired re-heater station. The water station consists of 10 water spray stations. The re-heater station utilizes a 1 MMBtu/hr natural gas flame torch.

9/16/2013

Yes - see AI MAP

NA

AI-Summary Plant 6 – 13800 Mellon, Detroit, Michigan (H.1, H.5, H.6)

Emission Unit ID	H.1 Changes to Incorporate not included in Sections F or G	H.5 Consent Order where requirements not included in the ROP	H.6 Add, change, and/or delete source-wide requirements
SOURCE-WIDE CONDITIONS	Yes- See AI FDP for proposed updates to the Consent Order FDP	Yes – See AI FDP	<p>Update B.III. A.2, C.2.a to reflect requested changes to chemical suppressant type and application frequency.</p> <p>Update B.III.B.1 to update permit condition for stockpile dust control methods.</p> <p>Update B.III.D.1 to standardize language for water sprays on process emissions with updated FDP.</p>
EUBLSTFCESLAGPIT	N/A	NA	NA
EURUNWAYSFLAGWTR	NA	NA	NA
FGDESULFWATER-STN	NA	NA	NA

AI-Summary Levy – AK Steel ROP Section 2 – 4001 Miller Road, Dearborn, MI (H.10, H14)

Emission Unit ID	H.10 Add, Change, or delete process or operational requirements	H.14 Add, change, or delete reporting requirements?
SOURCE-WIDE CONDITIONS	<p>Update B.III. A.2, C.2.a to reflect requested changes to chemical suppressant type and application frequency.</p> <p>Update B.III.B.1 to standardize language for stockpile dust control methods with updated FDP.</p> <p>Update B.III.D.1 to standardize language for water sprays on process emissions with updated FDP.</p>	NA
EUBLSTFCESLAGPIT	NA	NA
EURUNWAYSLAGWTR	NA	NA
FGDESULFWATER-STN	NA	<p>Correct VII.2 and VII.3 to change the semi-annual reporting dates to May 15 and November 15, and the annual reporting date to May 15 to match the date requirement of other Emission Units in ROP Section 2</p>

Levy Renewal for AK Steel ROP Section 2
September 2020

Item 4: Document “AI-FDP” (Fugitive Dust Plan)



July 9, 2020

Ms. Katie Koster
EGLE Detroit - AQD
Detroit Field Office, Cadillac Place
3058 W. Grand Blvd., Suite 2-300
Detroit, MI 48202-6058

Subject: Edw. C. Levy Co. Plant 6
Consent Order SIP 18-1993 (Revised 1994), Exhibit A
Fugitive Dust Control Plan Update Request
SRN4243
MI-ROP-B4243-2016

Dear Ms. Koster:

The Edw. C. Levy Co. (Levy) operates a slag processing plant (Plant 6) located at 13800 Mellon Ave., Detroit, MI 48217. The facility operates under both an ROP (MI-ROP-B4243-2016) and a Fugitive Dust Plan (Consent Order SIP 18-1993 (Revised 1994), Exhibit A — Fugitive Dust Control Plan) for the minimization of criteria pollutant emissions. The Fugitive Dust Control Plan (FDP) is referenced in the ROP under Section B. SOURCE-WIDE CONDITIONS.

While in general the same, both the operations at Plant 6 and the fugitive dust controls have been updated over the past twenty years. As permitted in Section B.IX of the ROP and Section 13.B of the Consent Order 18-1993 (Consent Order), Levy requests approval from EGLE to update the FDP.

As discussed in the Consent Order and referenced in ROP B4243, Levy may revise the FDP provided that the following conditions are met:

- The provisions of the Control Programs continue to apply to the subject operation or process.
- Levy demonstrates in writing, that the proposed revision does not result in an increase in the level of fugitive dust or particulate emissions and submits the demonstration to the EGLE for approval.

Per the Consent Order, EGLE shall approve or disapprove the proposed change, in writing, within 45 days from receiving proposed changes. If EGLE disapproves the proposed change, the disapproval must describe the specific reasons for the decision and must be forwarded to Levy. Upon approval of a change, EGLE shall notify U.S.EPA, in writing, of the revised provisions which are enforceable for the facility.

Enclosed please find (1) the proposed, updated FDP, (2) the existing Consent Order including the Exhibit A — Fugitive Dust Control Plan, and (3) the demonstration that the updated FDP will provide consistent control of particulates and not contribute to an increase in the level of fugitive dust or particulate matter emissions. The updated FDP also includes the Addendum for recordkeeping and updated figures consistent with the current FDP. The updated FDP would replace Exhibit A, the Addendum for recordkeeping, and the figures in Consent Order SIP 18-1993 (Revised 1994), Exhibit A.



If you have any questions regarding this submittal or need additional information, please contact me at 313-690-0139 or tgreen@edwclevy.net or Matt Perko, Environmental Engineer, at 313-820-4057 or mperko@edwclevy.net.

Sincerely,

A handwritten signature in black ink, appearing to read "Thomas E. Green".

Tom Green

Edw. C. Levy Co.
Director, EHS
Mobile: 313-690-0139
tgreen@edwclevy.net

EXHIBIT A
FUGITIVE DUST CONTROL PLAN
EDW. C. LEVY CO. – PLANT #6

July 2020

1. Facility Name and Address

Edw. C. Levy Co.
Plant #6
13800 Mellon
Detroit, Michigan 48127

2. Name and Address of Responsible Person

<RESPONSIBLE OFFICIAL>
Edw. C. Levy Co.
8800 Dix Avenue
Detroit, Michigan 48209

3. Facility Process Summary and Controls

A. Source Process Description

Edw. C. Levy Co. (Levy) operates a slag processing facility located at 13800 Mellon, Detroit, Michigan, known as Plant #6. The Plant #6 operation processes the steel furnace slag and other iron and steel making co-products generated by the collocated steel mill's Basic Oxygen Furnace (BOF).

Plant #6 operations consist of the BOF slag pits, slag processing operations (known as Levy Plant #6) located on the steel mill property adjacent to the Rouge River, and additional processing operations on the opposite side of the Rouge River (known as the Detroit Side) on Levy property. The operations on opposite sides of the Rouge River are connected by a bridge conveyor system. Key operations on the Detroit Side include the Deister Screen and Conveyor System. The attached Figures illustrate the general layout of Levy Plant #6.

Levy Plant #6 - Pot carriers transport molten steel furnace slag from the steel mill to the BOF slag dump station at Levy Plant #6. At the dump station, the molten slag is dumped, and then quenched by water sprays. The quenched slag is removed from the pits by front end loaders and stockpiled prior to processing. This stockpiled slag is the primary raw feed for the slag processing plant. Caster and runway slags are brought to Levy Plant #6 in haul trucks or on pallet box carriers. These slags are watered in the trucks or pallet boxes prior to dumping at the BOF slag pits. Front end loaders transfer slag from the raw feed stockpile to the plant feeder, the first processing step of the slag plant. The slag plant operates at a maximum rate of 400 tph.

Skulls, the steel/slag crust that forms inside a slag pot, are removed from the slag pots at the slag pot knock station. The slag pot knock station is equipped with a partial enclosure that was designed to control particulate emissions. After cooling, the skulls are transferred to the drop

ball crane area to separate the large pieces of steel from the slag. The steel is recycled by the steel mill and the slag is further processed.

Processing equipment associated with the slag plant includes a feeder, up to two screens, a crusher, and up to ten conveyors and stackers. The processing plant extracts the metals from the slag, which are returned to the steel mill for reuse. The slag is crushed and screened to produce different sizes of finished product. The slag plant also includes a bridge conveyor that transports the material to the Detroit side for additional processing at the Deister Screen and Conveyor System processes. Raw or processed slag products may also be directly loaded into trucks from the steel mill side of the operation for off-site transport instead of being sent across the bridge conveyor to the Detroit side.

Deister Screen and Conveyor System Processes - Non-metallic slag is screened to produce various finished construction products. Finished products are loaded by front end loaders and transported by customer-owned or operated trucks. Processing equipment associated with the Deister Screen operation includes thirteen conveyors/knuckle conveyors, and the screen. Processing equipment associated with the Conveyor System includes five additional conveyors.

B. Fugitive Dust Control Measures

Fugitive dust control measures are implemented to minimize emissions from both primary process activities and supporting activities. Control measures include the following:

I. Levy Plant #6, Deister Screen, and Conveyor System Processes:

Fugitive emissions are minimized during processing of steel furnace slag by the following control measures:

- Raw slag is watered in the slag pits prior to excavation and delivery to the slag plant for screening and crushing activities.
- A partial enclosure is maintained at the pot knocking station to reduce fugitive emissions.
- Water sprays are located at the slag raw feed stockpile, and prior to all screens and crushers on the slag plant. These water sprays are used as necessary to minimize fugitive emissions.
- Conveyors are equipped to minimize fugitive emissions by using methods such as conveyor covers, water sprays, side shields, etc., as necessary.
- Water sprays are installed on finished product stackers for use as needed to minimize fugitive emissions.
- Opacity observations are completed every two weeks on the slag plant dumping or digging, pot knocking, slag plant components (within EUSLAGPLANT), Deister Screen, Conveyor System, and on slag truck loading to confirm visible emissions are below opacity limitations.

II. Material Stockpiling and Transport:

Materials are stockpiled at various stages of processing and as finished products. Fugitive emissions are minimized for materials during stockpiling, storage, loading and transport by performing the following:

- Material spilled beneath conveyors is managed on an ongoing basis.
- All trucks transporting finished products that have the potential to emit fugitive emissions are tarped before leaving the property.
- Drop heights of the front-end loader bucket are no more than two feet above the sideboard of the trucks.
- Additional water is added to the finished product stockpiles, if emissions from load-out exceed 5% opacity.

III. Roadway and Vehicle Movement Areas:

The attached Figures show the unpaved and paved road areas that are maintained as detailed below.

Paved:

- Paved roads are inspected and cleaned as necessary during operating hours, weather permitting with a power flush truck or wet/vacuum truck.
- Track out on paved roads is cleaned daily as it occurs.
- The paved road speed limit is limited to 15 miles per hour.

Unpaved:

- Fugitive emissions on unpaved areas are controlled by applying a solution of chemical suppressant (lignosulfonate, calcium chloride, or equivalent), or water, monthly. Chemical suppressant will be applied during the months of March through October.
- A water truck is used, as necessary and weather permitting, between water, chemical suppressant, or equivalent treatments.
- The unpaved road speed limit is restricted to 5 miles per hour.
- Fugitive emissions generated by vehicle traffic in unpaved areas around the stockpiles are controlled by applying a solution of chemical suppressant, water, or equivalent, monthly. Chemical suppressant will be applied during the months of March through October.

General:

- Material spilled on roadways is removed daily.
- Truck operators are notified promptly if they spill material on a roadway to prevent future incidences.

4. EGLE Required Recordkeeping Requirements - Fugitive Dust Sources

A. Unpaved Roads/Lots

- Date of Treatment
- Control Measure Used
- Name of Employee
- Name of product Applied
- Amount of Solution/Water Applied
- Dilution Ratio (if applicable)
- Road Segment/Lot Identification

B. Paved Roads/Lots

- Date of Treatment
- Control Measure Used
- Name of Employee
- Road Segment/Lot Identification

C. Storage Piles/ Material Handling

- Date of Treatment
- Control Measure Used
- Name of Employee
- Dilution Ratio (if applicable)
- Amount of Dust Suppressant/Water Applied
- Identification of Pile/Material Handling Operation Treated
- Equipment Used



BLAST FURNACE PIT

-- UNPAVED ROADS

LEVY PLANT 6 FUGITIVE DUST PLAN – 2020 UPDATE	
BLAST FURNACE ROADWAYS AREA 1 OF 4	
 ARCADIS Design & Consultancy for natural and built assets	FIGURE 1



— PAVED ROADS
-- UNPAVED ROADS

LEVY PLANT 6
FUGITIVE DUST PLAN – 2020 UPDATE

DETROIT SIDE ROADWAYS
AREA 2 OF 4



FIGURE
2



BOF

-- UNPAVED ROADS

LEVY PLANT 6
FUGITIVE DUST PLAN – 2020 UPDATE

**BASIC OXYGEN FURNACE (BOF)
ROADWAYS**
SOUTH END OF BOF AREA 3 OF 4



FIGURE
3



SLAG PLANT

Rouge River

-- UNPAVED ROADS

LEVY PLANT 6 FUGITIVE DUST PLAN – 2020 UPDATE	
AK STEEL SIDE ROADWAYS STEEL MILL SIDE AREA 4 OF 4	
 ARCADIS Design & Consultancy for natural and built assets	FIGURE 4

Levy Plant 6 - Demonstration of Fugitive Dust and Particulate Emission Equivalent Controls

This demonstration shows that the updated Fugitive Dust Control Plan (FDP) for Levy Plant 6 will not result in an increase in fugitive dust or particulate emissions from the existing FDP that is included in the facility's Consent Order SIP 18-1993 (Revised 1994), Exhibit A. The updated FDP includes controls that are in general the same and are as protective of the environment as the controls detailed in the existing FDP. The differences are mostly in organization of the information and in some cases allowing flexibility in application of controls. The assumptions for calculating potential and actual emissions are consistent. The proposed changes will not increase production or change equipment or material handling processes. Levy will continue to keep records of fugitive dust controls implemented. Each section of the existing FDP is shown below with the relevant information from the proposed FDP.

Summary of Facility Processes

In general, the processes operated at Levy Plant 6 and described in the FDP are consistent between the existing FDP and the updated version. The facility operates the following basic processes: the BOF slag pits, slag processing operations (known as Levy Plant #6) located on steel mill property adjacent to the Rouge River, and additional slag processing operations on the opposite side of the Rouge River (known as the Detroit Side) on Levy property. The operations on opposite sides of the Rouge River are connected by a bridge conveyor system. Key operations on the Detroit Side include the Deister Screen and Conveyor System. The updated FDP describes the processes with more detail and consistent with the renewable operating permit (ROP B4243).

It should be noted that the existing FDP provides an incomplete list of specific points in the plants with a numbering system that is not consistent with current operations. Conveyors, stackers and other points within the processes are not numbered or identified in this way. In addition, the Controls on Equipment List (Section 3.A. of existing FDP) is not useful because the identified points within the list are almost all points without control. The Controls on Equipment list in the existing FDP does not provide value and Levy requests it be removed.

The control points in the Controls on Equipment list that do identify dust controls have been specifically correlated in the updated FDP to show that these controls are still in place and what part of the process is being controlled. These references are included in the material processing section.

Materials Processing

Following the process description, the existing FDP provides general controls or actions utilized during material processing. Levy will continue to perform these actions which include:

- Watering and quenching materials as required prior to processing – included in section B.I of Updated FDP
- A partial enclosure is maintained at the pot knocking station – included in section B.I of updated FDP.

- Water sprays are located at the slag raw feed stockpile, and prior to all screens and crushers on the slag plant – included in section B.I of updated FDP.
- Conveyors are equipped with conveyor covers, water sprays, side shields, etc., as necessary - included in section B.I of updated FDP.
- Water sprays are installed on finished product stackers for use as needed – included in section B.I of updated FDP.
- Tarping trucks transporting finished product – included in section B.II of updated FDP
- Limiting drop heights to two feet above sideboard of the trucks – included in section B.II of updated FDP
- Washing wheels (weather permitting) of trucks transporting finished product or waste materials – included in section B.II of updated FDP
- Watering finished product stockpiles, if emissions from load-out exceed 5% opacity – included in section B.II of updated FDP

Stockpile Areas and Activities

The existing FDP provides general controls or actions utilized for control of stockpiling of raw materials and finished products. Levy will continue to perform these actions which include:

- Quenching and watering of raw materials as required prior to processing — included in section B.I of updated FDP
- Watering of slag products – included in section B.II of updated FDP
- Load out of finished products – included in section B.II of updated FDP.

Watering and the use of chemical wetting agents are the principal means for control of aggregate storage pile emissions. The quantity of dust emissions from aggregate storage operations varies with the volume of aggregate passing through the storage cycle. Emissions also depend on the age of the pile, moisture content, and proportion of aggregate fines. As the material piles at Plant 6 have not changed in material throughput, moisture content nor percent of fines, no emission increases will occur due to the proposed changes to the FDP.

Paved and Unpaved Roads

The existing FDP provides general controls or actions utilized for control on paved roads. Levy will continue to perform these actions as included in section B. III of updated FDP. In general, the quantity of particulate emissions from resuspension of loose material on the road surface is based on the vehicle miles traveled, precipitation or watering of the roads, the road surface silt loading, average weight (tons) of the vehicles traveling the road, and vehicle speed (unpaved). Controls for paved roads include vacuum sweeping, water flushing, and broom sweeping and flushing. In order to limit emissions from unpaved roads, Levy will continue to limit the speed, weight and number of vehicles and to continue surface treatment, such as watering or chemical dust suppressants (lignosulfonate, calcium chloride, or equivalent). Levy proposes to add calcium chloride as a possible chemical suppressant as it is widely available and known in the industry to be highly effective for this purpose. Levy also proposes to apply chemical suppressant on a monthly basis during the months of March through October.

The proposed changes to the FDP will not impact the vehicle miles traveled or the weight of the vehicles. The road surface silt loading and the annual precipitation will remain the same. Levy proposes to continue to inspect and clean paved roads and limit the vehicle speed to 15 miles per hour. Levy proposes to continue to treat unpaved roads and limit the vehicle speed to 5 miles per hour.

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF THE DIRECTOR

)
In the matter of administrative proceedings)
involving the EDWARD C. LEVY CO., PLANT #6,)
a corporation organized under the laws)
of the State of Michigan and doing business)
at 13800 Mellon in the City of Detroit,)
County of Wayne, State of Michigan.)

SIP No. 18-1993
Revised: 9/9/94

STIPULATION FOR ENTRY OF FINAL ORDER
BY
CONSENT

This proceeding results from provisions of the Federal Clean Air Act ("CAA"), 42 U.S.C. Section 7401 et seq., as amended by the Clean Air Act Amendments of 1990, P.L. No. 101-549, 104 Stat. 2399 (Nov. 15, 1990), that designate a portion of Wayne County as non-attainment for PM-10 (particulate matter less than 10 micrometers) and require a State Implementation Plan ("SIP"), based on legally enforceable control measures, that provides for a demonstration of attainment and maintenance of the primary National Ambient Air Quality Standard ("NAAQS") for PM-10 in Wayne County. Further, pursuant to Section 15 of the Michigan Air Pollution Act, 1965 PA 348, as amended ("Act 348"), companies in the standard industrial classifications listed in 15(1), and which are located in areas listed in Table 36 of R 336.1371 of the Michigan administrative code, are required to develop and implement an approved fugitive dust control operating program and to have the program embodied in a legally enforceable order or as part of an approved permit to install or operate.

The Edward C. Levy Co. ("Company") owns and operates Levy Plant #6 ("Plant"), which is a slag processing facility, located at 13800 Mellon, City of Detroit, County of Wayne, State of Michigan. The Michigan Department of Natural Resources ("MDNR") alleges that the Plant is a significant source of fugitive dust emissions which contribute to the non-attainment problem. Further, the requirements for the control of fugitive dust, set forth in Section 15 of Act 348, apply to the Plant.

The Company and the MDNR stipulate as follows:

1. The Air Pollution Act, 1965 PA 348, as amended, ("Act 348"), MCL 336.11 et seq; MSA 14.58(1) et seq is an act to control air pollution in this state.

2. The Director of the MDNR ("Director") is authorized pursuant to Section 5 of Act 348 to administer and enforce all provisions of Act 348.

3. The Director has delegated authority to the Air Quality Division ("AQD Chief") to enter into the Consent Order.

4. The resolution of this matter by a Consent Order pursuant to Section 16c of Act 348 is proper and acceptable.

5. This Consent Order becomes effective on the date of execution ("effective date of this Consent Order") by the AQD Chief.

6. The emissions of fugitive dust from the Plant are subject to the opacity limitations and prohibitions contained in Sections 15 and 15a of Act 348. The particulate matter and fugitive dust emissions from the Plant must not cause or contribute to a violation of the PM-10 NAAQS. Further, the CAA and Act 348 require the application of all reasonably available control measures ("RACM") for the control of PM-10 emissions.

7. This Consent Order is designed to ensure attainment and maintenance of the PM-10 NAAQS, compliance with Sections 15 and 15a of Act 348, and compliance with the RACM requirements of the CAA and Act 348.

COMPLIANCE PROGRAM

8. On and after the effective date of this Consent Order, the Company shall fully comply with the provisions and requirements of the fugitive dust control operating program and Recordkeeping for Fugitive Dust Sources Addendum, which is attached as Exhibit A, incorporated by reference, and made an enforceable part of this Consent Order.

RECORDKEEPING AND REPORTING

9. On and after the effective date of this Consent Order, the Company shall keep records as specified in Exhibit A.

10. On and after the effective date of this Consent Order, the records required pursuant to this Consent Order shall be kept on file at the Company for a period of at least two (2) years, and shall be made available to MDNR upon written or verbal request.

11. Beginning with the calendar quarter starting after the effective date of this Consent Order, and quarterly thereafter, the Company shall submit to MDNR a report identifying each day in which any emission limit, operational requirement, or recordkeeping requirement, as specified in Exhibit A, was not met. This report shall, for each instance, explain the reason that the emission limit, operational requirement, or recordkeeping requirement was not met, the duration of the event, the remedial action taken, and a description of the steps which were taken to prevent a recurrence. The reports shall be submitted within

30 days following the end of the calendar quarter in which the data were collected.

GENERAL PROVISIONS

12. Upon entry, this Consent Order, along with other supporting documentation required by the United States Environmental Protection Agency ("U.S.EPA"), shall be submitted to the U.S.EPA for approval as a revision to the Michigan SIP in accordance with Part D, Section 171 et seq., of the Federal Clean Air Act, as amended by Section 105 of the Clean Air Act Amendments of 1990. This Consent Order shall become effective immediately upon entry, except that this Consent Order shall have no effect on the federally-approved SIP unless and until the submitted SIP revision request is formally approved by the U.S.EPA.

13. Upon entry of this Consent Order, the Company may change it's processes, modify the fugitive dust control program contained in Exhibit A, or modify the particulate emission control program contained in Exhibit B ("Control Programs"), in accordance with the following:

A. Process Change

(1) The Company may change it's operations or processes which are sources of particulate and fugitive dust provided all of the following conditions are met:

- (a) The provisions of the Control Programs continue to apply to the subject operation or process;
- (b) The change does not result in an increase in the level of fugitive dust or particulate emissions;
- (c) The change is approved.

- (2) The Company shall submit to MDNR a written description of the proposed change and how it meets the requirements of 13(A)(1).
- (3) The MDNR shall approve or disapprove the proposed change, in writing, within 45 days from receiving a proposed change which meets the requirements of 13(A)(1).
- (4) Should the MDNR disapprove the proposed change, the disapproval must describe the specific reasons for the decision and must be forwarded to the Company.

B. Control Program Revision

- (1) The Company may revise the Control Programs provided both of the following conditions are met:
 - (a) The Company demonstrates*, in writing, that the proposed revision does not result in an increase in the level of fugitive dust or particulate emissions and submits the demonstration to the MDNR for approval.
 - (b) The revision is approved.
- (2) The MDNR shall approve or disapprove the proposed revision, in writing, within 45 days from receiving a proposed revision using an applicable U.S.EPA approved method to demonstrate the proposed revision meets the requirements of 13(B)(1).
- (3) Should the MDNR disapprove the proposed revision, the disapproval must describe the specific reasons for the decision and must be forwarded to the Company.

C. U.S.EPA Notification

Upon approval of a change pursuant to subsection A above, or a substitution of a control measure pursuant to subsection B above, MDNR shall notify U.S.EPA, in writing, of the revised provisions which are enforceable for the facility.

D. Minor Modification

Upon adoption by the MDNR, and upon approval by U.S.EPA, of operating permit rules to implement the Permit Modification provisions recited at 40 CFR 70.7 (e), the Company may modify a fugitive dust or particulate emission source referred to in this Consent Order according to the terms and conditions contained in the operating permit rules.

E. Minor Modification Approval

Upon MDNR approval of a minor modification pursuant to subsection D above, the MDNR shall submit the approved minor modification to U.S.EPA as a proposed revision to the Michigan SIP.

F. Other Applicable Requirements

Any process change, control program revision, or minor modification made pursuant to this Paragraph does not affect the company's obligation to obtain a permit to install or operate required by Federal law or regulation, or contained in Part 2 of the Air Pollution Control ("APC") Rules and any other applicable requirement contained in the APC Rules or Act 348.

- * - Demonstrations made pursuant to 13(B)(1)(a) involving chemical dust suppressant applications on unpaved roads shall be made using only petroleum resins, asphalt emulsions, or acrylic cements unless otherwise explicitly provided for by the applicable U.S.EPA approved SIP or U.S.EPA approved method.

14. This abatement program is not a variance subject to the 12 month limitation specified in Section 22 of the Air Pollution Act, being MCLA 336.32.

15. The provisions of this Consent Order shall be binding on the parties to this action, their officers, servants, employees, and attorneys, and on those persons in active concert or participation with them who receive actual notice of this Consent Order. In the event the Edward C. Levy Co. sells or transfers Plant #6, it shall advise any purchaser or transferee of the existence of this Consent Order in connection with such sale or transfer. Within 30 calendar days, the Edward C. Levy Co. shall also notify MDNR Staff, in writing of such sale or transfer, the identity and address of any purchaser or transferee, and confirm the fact that notice of this Consent Order has been given to the purchaser or transferee. The purchaser must provide written agreement, to the Company, to assume the compliance responsibilities of the Consent Order and provide a copy of the agreement to the MDNR Staff.

16. Pursuant to the requirements of Section 5h of Act 348, the public was notified of a 30-day public comment period on this Consent Order which began on March 1, 1993 and a public hearing on this Consent Order which was held on March 30, 1993.

17. Section 16e of Act 348 may serve as a source of authority but not a limitation under which this Consent Order may be enforced. Further, the Michigan

Environmental Protection Act ("MEPA"), 1970 PA 127, MCLA 691.1201 et seq; MSA 14.528(201) et seq; and all other applicable laws may be used to enforce this Consent Order.

I, the undersigned, who is signing this Stipulation and Order for the Company, certify that I am fully authorized by the Company to enter into this Consent Order and to execute and legally bind the Company to it.

Approved as to Form and Content:

EDW. C. LEVY CO. PLANT 6

EDWARD C. LEVY CO., PLANT #6

By: [Signature]

Dated: 9-28-94

The above signatory subscribed and sworn to before me this 23rd day of September, 1994.

Nancy Ann Hughes
Notary Public

NANCY ANN HUGHES
NOTARY PUBLIC STATE OF MICHIGAN
WAYNE COUNTY
MY COMMISSION EXP. SEPT 3, 1996

Approved as to Content:

Dennis M. Drake

Dennis M. Drake, Acting Chief
AIR QUALITY DIVISION
DEPARTMENT OF NATURAL RESOURCES

Dated: 10/12/94

Approved as to Form:

James L. Stroghar

A. Michael Leffler
Assistant Attorney General, In Charge
DEPARTMENT OF ATTORNEY GENERAL
NATURAL RESOURCES DIVISION

Dated: 10/11/94

FINAL ORDER

The Chief of the Air Quality Division having had opportunity to review the Consent Order and having been delegated authority to enter into Consent Orders by the Director of the Michigan Department of Natural Resources pursuant to the provisions of the Air Pollution Control Act;

IT IS ORDERED that this Consent Order is approved and shall be entered in the record of the MDNR as a Final Order.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

By: *Dennis M. Drake*
Dennis M. Drake, Acting Chief
Air Quality Division

Dated: 10/12/94

EXHIBIT A
FUGITIVE DUST CONTROL PLAN
EDWARD C. LEVY CO. - PLANT #6

1. Facility Name and Address:

Edward C. Levy Co.
Plant #6
13800 Mellon
Detroit, Michigan 48127

2. Name and Address of Responsible Person:

Gail Reninger
Edward C. Levy Co.
8800 Dix Avenue
Detroit, Michigan 48209

3. Summary of Source Descriptions and Control Measures:

A. Process Description

The Edward C. Levy Co. (Levy) operates a slag processing facility located at 13800 Mellon, Detroit, MI, known as Plant 6. The facility operates at a maximum 400 tph. Pot carriers transport molten slag from three separate locations; from the Rouge Steel caster operations, the BOF, and the electric arc furnace. The pots are all dumped at the same pot dump station. The slag is cooled by water sprays before digging. Front endloaders dig the slag and stockpile it at the material handling stockpile, adjacent to the process plant, where additional water is added. Front endloaders are used to transfer the material from the material handling stockpile to the grizzly that feeds the process plant.

Skulls are moved from the pot dump area to the skull breaking area to be broken by a drop ball crane into small enough pieces to be reused by the steel mill.

The process plant extracts the metals from the slag and the metals are returned to the steel mill for reuse. The slag is crushed and screened to produce three sizes of finished product.

Product Name	Moisture Content %	Passing 200 Mesh %
1/2" Down	6.3	14.50
3X	1-3.5	0.20
25X	2.5	1.30

The plant consists of a grizzly/feeder, 8 conveyors, 1 crusher, 3 screens, and 3 stackers. Water sprays are located at the crusher/screen tower north of the Rouge River, at the first transfer point south of the river, and on the 1/2" Down stacker.

Moisture content of raw feed material ranges from 2 to 5 percent. Moisture content of slag aggregate ranges from 1 to 6.3 percent. Fugitive emission control is necessary only on the 1/2" Down material where the particle size

passing a 200 mesh sieve is greater than 1.5%. Control of the material is accomplished by water sprays at the end of stacker #1.

Controls on Process Equipment

Grizzly/Feeder	Material Watered Before Feeding
Conveyor #1	Uncovered, Material Still Wet
Crusher/Screen Tower	Water Sprays
Conveyor #9	Uncovered
Conveyor #10	Uncovered
Conveyor #2	Uncovered
Conveyor #3	Uncovered
Bridge Conveyor (BC)	Side Shields
Conveyor #4	Water Spray, 180 Degree Covers
Conveyor #5	Uncovered
Stacker #1	Covered, Water Spray, Scope
Stacker #2	Covered
Stacker #3	Uncovered

The finished product is loaded by front endloaders and transported by customer owned and hired trucks. To minimize the fugitive emissions from the loading of trucks and the transporting of material off-site, the following operating practices will be adhered to:

1. All trucks transporting finished product will be tarped before leaving the property.
2. Drop heights of the front endloader bucket will be no more than two (2) feet above sideboard of the trucks.

Control of emissions due to vehicle movement about the stockpiles is accomplished by applying lignosulfonate to the travelled areas among the piles. Application rate of 5 gal/100 sq. ft. will be used. The diluted ratio is 3:1, and the application frequency is once per month. The actual square footage to be controlled will be dependent upon the amount of material in storage.

Spilled material under conveyors will be attended to on an ongoing basis. Spillage on roadways will be removed daily. A truck operator who has spilled material onto the road will be notified so that appropriate action can be taken to prevent future incidences.

B. Stockpile Areas and Activities

Edward C. Levy Co. Plant 6 stockpiles both raw slag and finished slag products on the property.

Raw Slag - the raw slag, after being quenched, is dug from the pot dump area and stockpiled in the material handling stockpile adjacent to the process plant. The material is watered, and then transferred by front endloader to the grizzly/feeder at the beginning of the process plant.

Finished Slag Products - the raw slag is crushed and screened to produce three sizes of finished products. Water is added to the material at a rate of 4.0 gallons per ton of slag processed (a table of the finished products with moisture contents and % passing 200 mesh sieve can be found in the Process Description). The material is stockpiled by three stackers; two of the stackers are covered, one of which has water sprays and a scope.

Load-out of finished product is by front endloader. Load-out emissions are controlled by limiting drop height of the bucket to a maximum of two (2) feet above the sideboard of the truck. All trucks transporting finished product will be tarped before leaving the property.

C. Roadways and Parking Lots

Edward C. Levy Co. Plant 6 has both paved and unpaved roads.

Paved - the paved roads will be cleaned daily, during operating hours, weather permitting, with a power flush or wet/vacuum truck. Track-out will be cleaned up daily when it occurs. Speed limit on paved roads is 15 MPH.

Unpaved - the unpaved roads will be treated with a lignosulfonate dust suppressant at a rate of 0.45 gallons of solution per square yard. The dilution ratio is 3:1. Additionally, speed limits on unpaved roads are restricted to 5 MPH.

D. Process Emissions (Crushing, Screening, Conveying, and Transfer)

Crushing/Screening Operations - water sprays.

Conveying and Transferring - covered conveyors, water sprays, side shields, scope.

Load-Out - limited drop height, trucks are tarped.

(Note: See attached DNR required Recordkeeping for Fugitive Dust Sources Addendum for additional information.)

ADDENDUM

RECORDKEEPING FOR FUGITIVE DUST SOURCES

REQUIRED RECORDS

UNPAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. NAME OF PRODUCT APPLIED
5. AMOUNT OF SOLUTION/WATER APPLIED
6. DILUTION RATIO
7. ROAD SEGMENT/LOT IDENTIFICATION

PAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. ROAD SEGMENT/LOT IDENTIFICATION

STORAGE PILES/MATERIAL
HANDLING

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. DILUTION RATIO (IF APPLICABLE)
5. AMOUNT OF DUST SUPPRESSANT/WATER
APPLIED
6. IDENTIFICATION OF PILE/MATERIAL
HANDLING OPERATION TREATED
7. EQUIPMENT USED

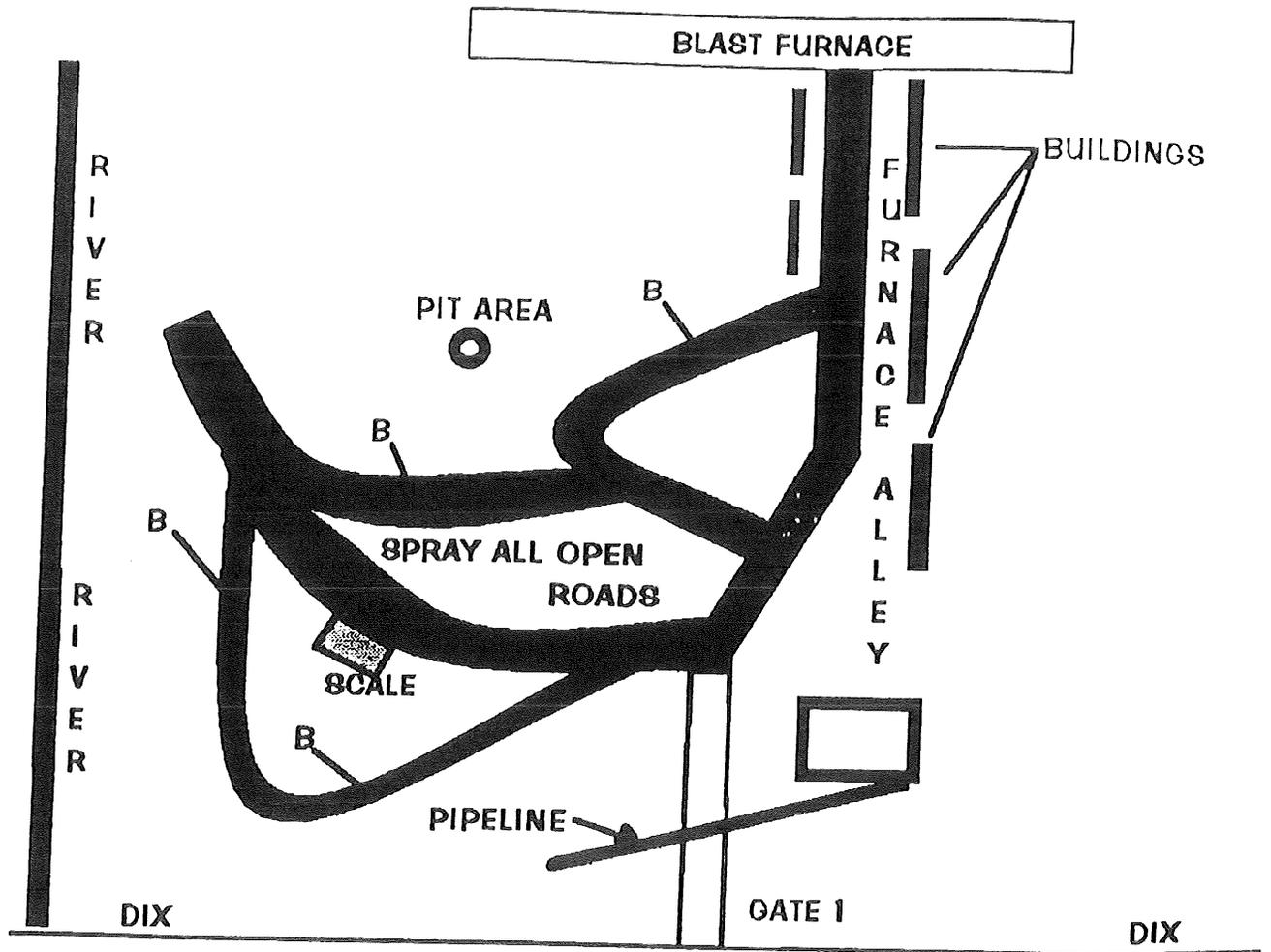
OPTIONAL RECORDS

WEATHER CONDITIONS

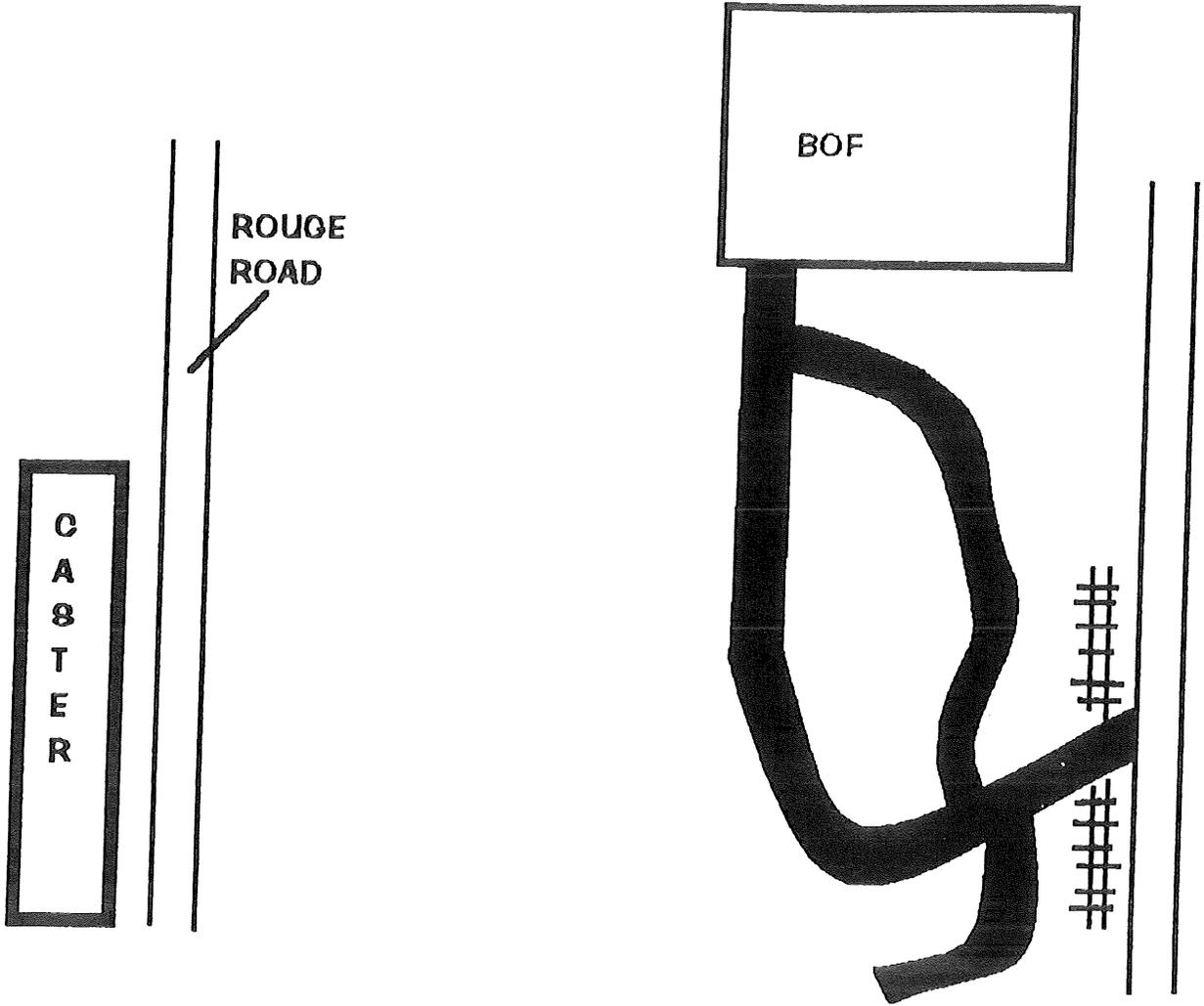
1. PRECIPITATION
2. TEMPERATURE
3. WIND DIRECTION AND VELOCITY

A-4

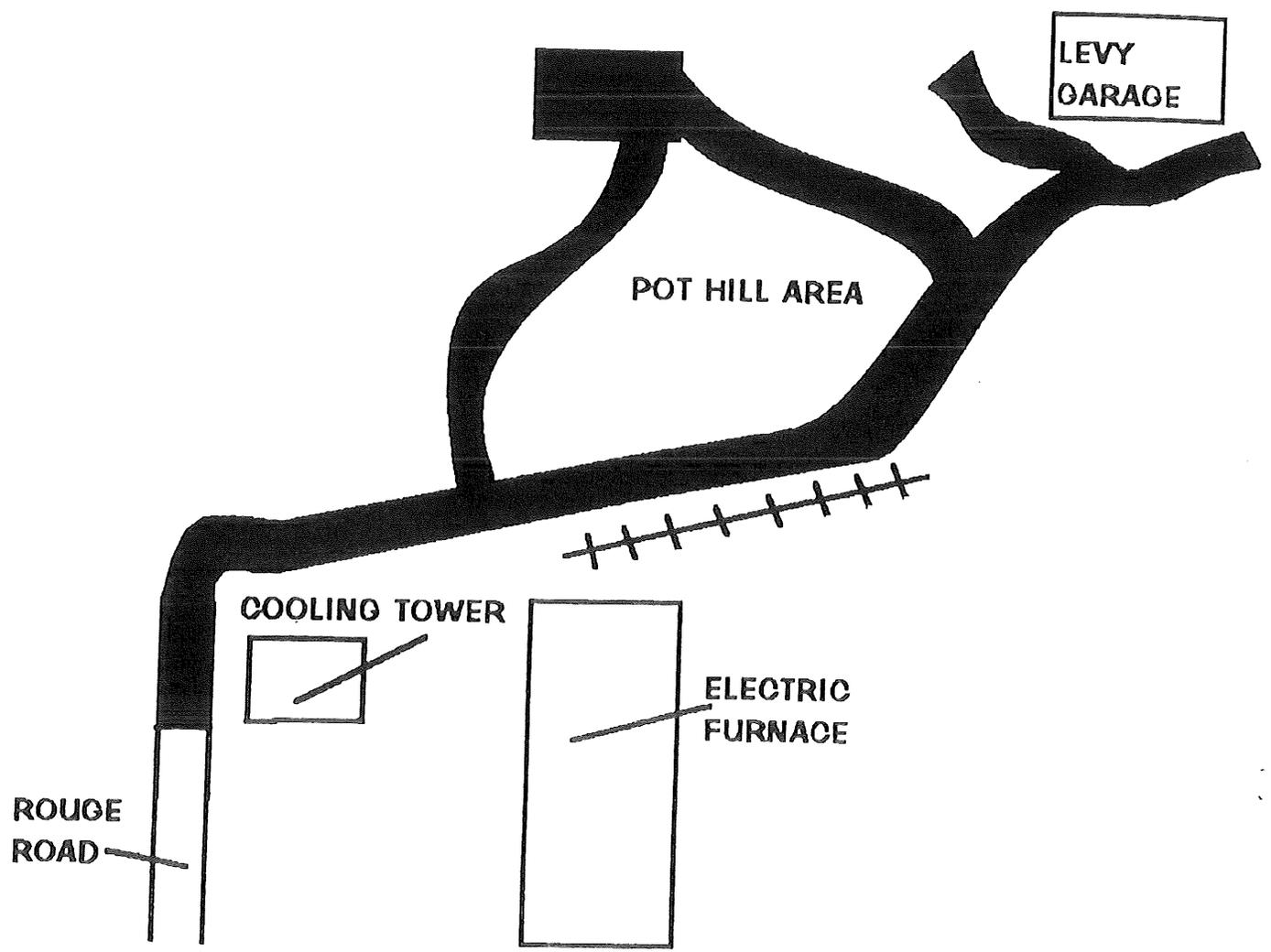
LEVY-PLANT #6 BLAST FURNACE



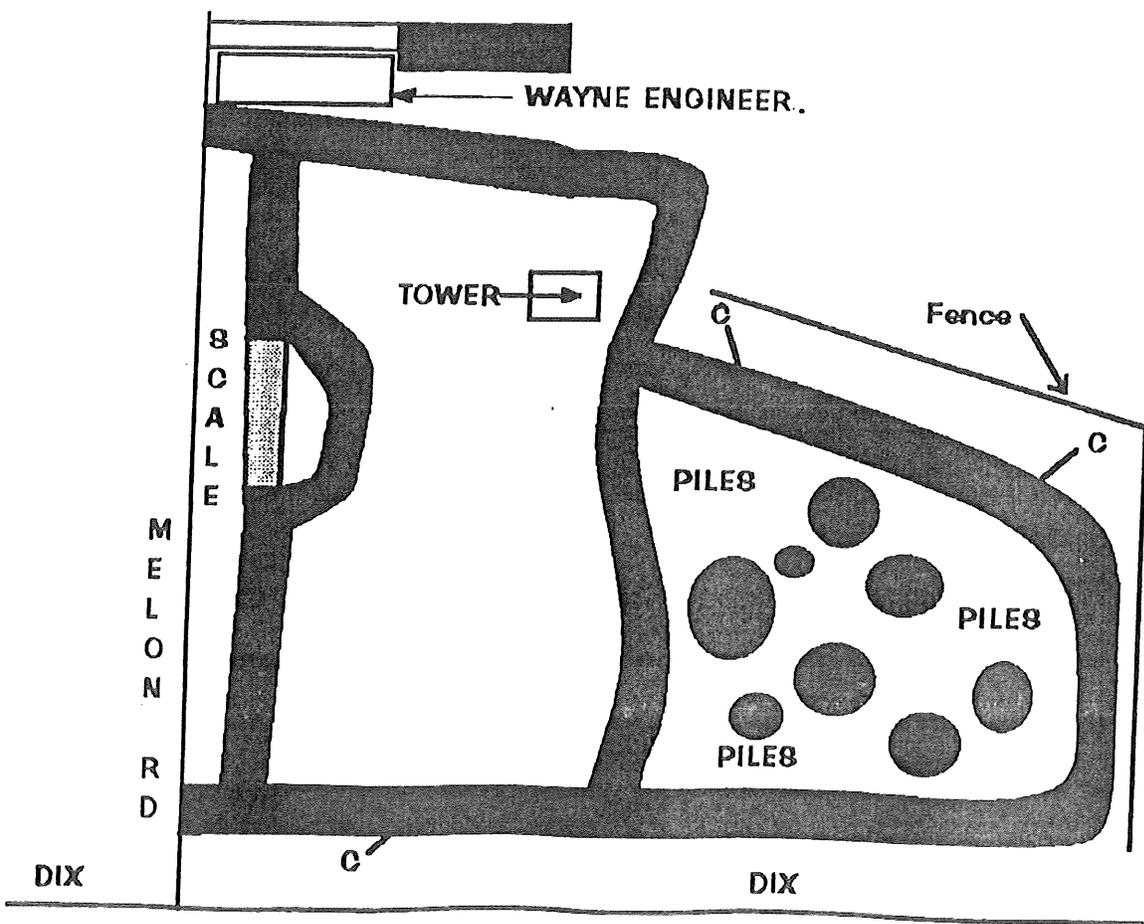
LEVY-BOF



LEVY-PLANT #6



LEVY-PLANT #6 DETROIT SIDE



Levy Renewal for AK Steel ROP Section 2
September 2020

Item 5: Document “AI-MAP” (Malfunction Abatement Plan) for FG-DESULFWATER-STN



TITLE: Desulf Slag Pot Watering Station O&M Plan	PROCEDURE NO.: ENV-005-P004
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***Desulfurization Slag Pot Watering Station
Operation & Maintenance Plan (OMP)
Malfunction Abatement Plan (MAP)***

Edw. C. Levy Co.

4001 Miller Road

Dearborn, MI 48120

AK Steel – Dearborn Works ROP No. MI-ROP-A8640-2016a

Section 2

Revision 5

August 28, 2020

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FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station O&M Plan_08282020	PAGE 1 OF 13	REV. 5
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APPENDIX C, Desulf Slag Pot Reheat Station – As-Built Drawings Appendix C

APPENDIX D, Desulf Slag Pot Watering Process – Replacement Parts Inventory Appendix D

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APPENDIX F, FORMS Appendix F

APPENDIX G, AK Steel ROP Section 2 Appendix G

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

1 Introduction

The desulfurization (desulf) slag pot watering process consists of three basic components: the desulf slag pot watering station, dump station and preheat station.

Desulf slag is generated during AK Steel Dearborn Works (AK Steel) steel making process at the Basic Oxygen Furnace (BOF). At the BOF, AK Steel places molten desulf slag into slag pots owned by the Edw. C. Levy Co. (Levy). Levy transports the full slag pots to the desulf slag pot watering station for quenching of the desulf slag. Once the slag is quenched, the solidified slag is dumped from the slag pots into the desulf slag dump station. The slag is removed from the dump station, broken in the drop ball area as needed, processed over a grizzly screen and loaded into trucks for shipment off-site. The empty slag pots are taken to the desulf slag pot reheat station to be prepared for return to the BOF.

The desulf slag pot watering process is designed to control particulate and odor emissions from the desulf slag material handling operations. To ensure this process is effective in controlling emissions, it must be properly operated and maintained.

The purpose of this Plan is to provide guidance on how to properly operate and maintain the desulf slag pot watering system. This plan includes the following information:

- Description of primary equipment
- Identification of responsible managers
- Operating procedures
- Inspection and maintenance procedures & schedules
- Air permit limits
- Monitoring, record keeping and reporting requirements
- Training requirements

If at any time this plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction, Levy shall amend the plan within 45 days after such an event occurs. Levy shall also amend the plan within 45 days, if new equipment is installed or upon request from the EGLE District Supervisor. In the event of significant (that is, not administrative in nature) changes Levy shall submit the plan and any amendments to the plan to the EGLE AQD District Supervisor for review and approval. Until an amended plan is approved, Levy shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

2 Desulf Slag Pot Watering Process Primary Equipment

2.1 Desulf Slag Pot Watering Station

The main components of the desulf slag pot watering station are the water feed line, a concrete holding tank, a pump to recirculate water, a water meter, an odor control system, and plumbing to distribute water to the 10 pot watering stations.

The odor control system consists of a mixing tank, mixer, pump and associated piping.

The desulf slag pot watering station was constructed by DeMaria Contracting in 2014.

Drawings are provided in Appendix A.

- Appendix A, Desulf Slag Pot Watering Station - Drawings

A list of critical replacement parts, with required inventory levels, for the entire desulf slag pot watering process is provided in Appendix D.

- Appendix D, Desulf Slag Pot Watering Process – Replacement Parts Inventory

2.2 Desulf Slag Pot Dump Station

The main components of the desulf slag pot dump station are the dump station pit, a ramp, and a grizzly screen.

The desulf slag pot dump station was constructed by DeMaria Contracting in 2014.

Drawings are provided in Appendix B.

- Appendix B, Desulf Slag Pot Dump Station - Drawings
- **No critical replacement parts required for dump station**

2.3 Desulf Slag Pot Reheat Station

The main components of the desulf slag pot reheat station are the natural gas supply line, gas burners, and pot stand.

The desulf slag pot reheat stand was constructed by DeMaria Contracting in 2014.

Drawings are provided in Appendix C.

- Appendix C, Desulf Slag Pot Reheat Station - Drawings

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

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A list of critical replacement parts, with required inventory levels, for the entire desulf slag pot watering process is provided in Appendix D.

- Appendix D, Desulf Slag Pot Watering Process – Replacement Parts Inventory

3 Responsible Management

The following individuals are responsible for operating this system in compliance with the environmental permit and this plan:

Randy Cullen

Operations Manager
Edw. C. Levy Co., Plant 6
(313) 253-3581 – Office Phone
(313) 706-1400 – Cell Phone

Keith Walker

General Operations Manager
Edw. C. Levy Co.
(313) 429-2215 – Office Phone
(260) 417-6331 – Cell Phone

Russ Burke

Director, Steel Mill Division
Edw. C. Levy Co.
(313) 429-2601 – Office Phone
(313) 720-9238 – Cell Phone

The following individuals are responsible for providing environmental support for the compliant operation of this system:

Tom Green

Director, Environmental Services
Edw. C. Levy Co.
(313) 690-0139 – Cell Phone

Matt Perko

Environmental Engineer
Edw. C. Levy Co.
(313) 820-4057 – Cell Phone

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TITLE: Desulf Slag Pot Watering Station O&M Plan	PROCEDURE NO.: ENV-005-P004
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4 Desulf Slag Pot Watering Process – Operating Procedures

The desulf slag pot watering process consists of three basic components: the desulf slag pot watering station, dump station and preheat station.

Desulf slag is generated during AK Steel’s steel making process at the Basic Oxygen Furnace (BOF). At the BOF, AK Steel places molten desulf slag into slag pots owned by the Edw. C. Levy Co. (Levy). Levy transports the full slag pots to the desulf slag pot watering station for water quenching of the desulf slag. Once the slag is quenched, the solidified slag is dumped from the slag pots into the desulf slag dump station. The slag is removed from the dump station, processed over a grizzly screen, broken in the drop ball area as needed, and loaded into trucks for shipment off-site. The empty slag pots are taken to the desulf slag pot reheat station to be prepared for return to the BOF.

The detailed operating procedures for the desulf slag pot watering process are contained in a work instruction, JBSA: Desulf Slag Pot Watering Process, which is incorporated by reference into this plan and is included in Appendix E.

- Appendix E, JBSA: Desulf Slag Pot Watering Process

5 Inspection and Maintenance Procedures

Inspection and preventative maintenance of the desulf slag pot watering system is critical to its operation. The following table lists inspection and maintenance procedures that are required to be performed on the desulf slag pot watering system.

Inspections shall be documented using EMS-005-F004 Desulf Watering Station Water Spray Equipment Inspection Log and entered into the Levy Environmental Assistance Program (LEAP).

The visible emission observations required in the following tables are not the certified visible emission readings that are required by the air permit. The certified visible emission readings are discussed in Section 7 of this plan.

The visible emission observations identified in the following tables are conducted by trained employees. A trained employee is an employee who has worked at the plant at least one month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The operation observed shall be the part of the operation that would normally be expected to cause the highest amount of emissions.

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TITLE:
Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:
ENV-005-P004

SLAG POT WATERING STATION

Parameter	PM Activity	Normal Operating Range	Frequency of PM Activity	Potential Corrective Action Responses to Out of Spec Situations	Required Response Time Frame To Repair System	Individual Responsible
Water Treatment System – Potassium Permanganate Flow	<p>Check the potassium permanganate level in the holding tank.</p> <p>Survey the area for rotten egg odor and record observation.</p>	<p>1/3 to Full</p> <p>Normal / Abnormal</p>	Daily while process in operation	<ol style="list-style-type: none"> 1. Inspect for Leaks. 2. Fill potassium permanganate tank, as necessary 3. Repair/Replace Pump. 4. Check lines for blockage. 5. Use hydrogen sulfide (H2S) meter to determine H2S levels in the area and at the property line. 6. Notify Levy Environmental Services Department (ESD) immediately 7. Record out of spec condition and corrective action in LEAP 	8 hours	Plant Manager or Designee

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TITLE: Desulf Slag Pot Watering Station O&M Plan	PROCEDURE NO.: ENV-005-P004
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Water Flow to Pot Watering Stations	Visually inspect water flow to each station. Read the water meter and record reading	Normal / Abnormal (Equal volume of water to each station) Water Supply Rate: 300 - 500 (Gal/Min)	Daily while process in operation	<ol style="list-style-type: none"> 1. Inspect for leaks 2. Verify all valves are properly open 3. Inspect water lines for mineral deposits. (ANNUAL) 4. Clean water lines. (ANNUAL) 5. Verify water supply to the system is normal. 6. Replace/Repair Pump 7. Clean water meter or replace 8. Notify Levy ESD immediately 9. Record out of spec condition and corrective action in LEAP 	8 hours	Plant Manager or Designee
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TITLE:
Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:
ENV-005-P004

SLAG POT DUMP STATION						
Parameter	PM Activity	Normal Operating Range	Frequency of PM Activity	Corrective Action Response to Out of Spec Situations	Required Response Time Frame	Individual Responsible
Visible Emission During Pot Dump	Observe visual emission during pot dumping and record observation	Normal / Abnormal	Every pot dump	<ol style="list-style-type: none"> 1. Contact supervision if abnormal 2. Verify that the pot was watered for 24 hours 3. Inspect the volume of water delivered to the station where the pot was watered. 4. Inspect the slag for excess steel 5. Make necessary corrections and communications 6. Add water to the dumped slag prior to further handling 7. Notify Levy ESD immediately 8. Record out of spec condition and corrective action in LEAP 	8 hours	Pot Carrier Operator

SLAG POT REHEAT STATION						
Parameter	PM Activity	Normal Operating Range	Frequency of PM Activity	Corrective Action Response to Out of Spec Situations	Required Response Time Frame	Individual Responsible
Gas Flow / Flame	Visually check	On/Off	Daily while process in operation	<ol style="list-style-type: none"> 1. Ensure main gas valve is in open position. 2. Relight gas burner. 3. Inspect gas lines for leaks and repair 	8 hours	Pot Carrier Operator

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TITLE:
Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:
ENV-005-P004

GENERAL PLANT FUGITIVE DUST (SCREEN, ROADWAYS, LOADER DUMPS (including digging), STORAGE PILES)						
Parameter	PM Activity	Normal Operating Range	Frequency of PM Activity	Corrective Action Response to Out of Spec Situations	Required Response Time Frame	Individual Responsible
Visible dust emissions	Conduct visible emission observations and record	Normal or Abnormal	Daily during normal daylight operations (1 observation per day)	1. Apply water or other dust suppressant. 2. Implement water sprays where needed. 3. Shutdown or adjust activities or processes as needed to reduce emissions. 4. Continue to monitor visible emissions until normal. 5. Notify ESD immediately 6. Record out of spec condition and corrective action in LEAP	8 Hours.	Plant Manager or Designee

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

6 Desulf Slag Pot Watering Process – Air Permit Limits

Title V ROP Permit No. MI-ROP-A8640-2016a Section 2 established the following permit limits and operational restrictions for the desulf slag pot watering station.

In accordance with the special conditions listed in the air permit, the emission limits for the process are as follows:

- a) Visible emissions from roads, lots or storage piles (including any material handling at the storage piles) are limited to 5% opacity, based upon a 3-minute average, using test method 9d as specified by Permit Condition SC V.1 for FGDESULFWTR-STN. This 5% opacity limit for storage pile material handling activities does not apply when wind speeds are in excess of 25 mph.
- b) Visible emissions from all other fugitive activities are limited to 20% opacity, based upon a 3-minute average, using test method 9d as specified by Permit Condition SC V.1 for FGDESULFWTR-STN.

In accordance with special conditions of the air permit, operational restrictions for the process are as follows:

- a) Levy shall not use untreated wastewater or process water without prior written approval of the EGLE AQD.
- b) Levy shall not operate the desulf slag pot watering station unless the water spray system is maintained and operated in a satisfactory manner. Satisfactory operation is defined as maintaining the visible emissions limit from the process at or below permitted levels.
- c) Levy shall only utilize natural gas in the slag pot re-heater station.
- d) Levy shall water the desulf slag in the pots at the desulf slag pot watering station for at least twenty-four (24) hours before the desulf slag pot is dumped at the desulf slag dump station.
- e) Levy shall not operate the desulf slag pot watering station unless the odor control system is maintained and operated in a satisfactory manner. The odor control system shall utilize potassium permanganate or equivalent chemicals to control odor.

A complete copy of ROP Section 2 is provided in Appendix G.

- Appendix G, AK Steel ROP Section 2

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

7 Desulf Slag Pot Watering Process – Monitoring, Record Keeping and Reporting Requirements

In accordance with ROP MI-ROP-A8640-2016a Section 2, the following monitoring, record keeping and reporting requirements shall be met and records shall be maintained on-site for five years.

7.1 Monitoring and Record Keeping Requirements

In accordance with the special conditions listed in the air permit and ENV-005-P001 Certified Visible Emission Contractor Procedure, the record keeping requirements for the process are as follows:

- a) Levy shall perform visible emissions observations of the desulf slag dump station at least once every two weeks while the process is operating, using Test Method 9d. A certified reader shall perform each reading. If excessive visible emissions are observed, Levy shall determine the cause of the excessive visible emissions and implement corrective measures to eliminate the emissions.
- b) Levy shall maintain records of visible emission reading results and corrective actions implemented to eliminate any identified excessive visible emissions using LEAP.
- c) Levy shall maintain the following records on a DAILY basis, as indicated in parentheses and forms located in Appendix F, whenever the desulf slag pot watering station is being used:
 - a. The total amount of water used in the desulf slag pot watering station (Recorded on EMS-005-F004 Desulf Watering Station Water Spray Equipment Inspection Log)
 - b. The total number of slag pots dumped at the desulf slag dump station within a calendar day (EMS-005-F005 Desulf Slag Pot Movement Form)
 - c. The date and time when watering begins for each slag pot (EMS-005-F005 Desulf Slag Pot Movement Form)
 - d. The date and time when watering ends for each slag pot (EMS-005-F005 Desulf Slag Pot Movement Form)
 - e. Records to demonstrate that this O&M plan is being implemented (EMS-005-F004 Desulf Watering Station Water Spray Equipment Inspection Log)

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	TITLE: Desulf Slag Pot Watering Station O&M Plan	PROCEDURE NO.: ENV-005-P004
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- d) Levy shall maintain operator training records.
- e) Levy shall maintain records, in a satisfactory manner, to demonstrate that each desulf slag pot was watered at the watering station for a minimum of 24 hours before it was dumped at the desulf slag dump station, using LEAP.

7.2 Reporting Requirements

In accordance with General Condition 7 of the air permit, Levy shall provide notice of an abnormal condition, start-up, shutdown, or malfunction, that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to EGLE. The notice shall be provided not later than two business days after start-up, shutdown, or discovery of the abnormal condition or malfunction. Written reports, if required, must be filed with EGLE within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5).

8 Training

Training on the operation and maintenance of the desulf slag pot watering station is provided by the plant manager or his designee. Training is provided to pot carrier operators, maintenance workers, and supervision that may be involved in the operation or maintenance of the desulf slag pot watering process. This training is conducted annually or whenever there is a change in procedures.

The training includes the following topics:

- Operating procedures
- Permit limits
- Monitoring and record keeping requirements
- Inspection and maintenance procedures and schedules
- Trouble shooting and corrective actions
- Location of the O&M Plan
- Visible emissions (normal vs. abnormal)
- Water flow to each station (normal vs. abnormal)

Any change to the operation of the desulf slag pot watering process will require refresher training.

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TITLE:

Desulf Slag Pot Watering Station O&M Plan

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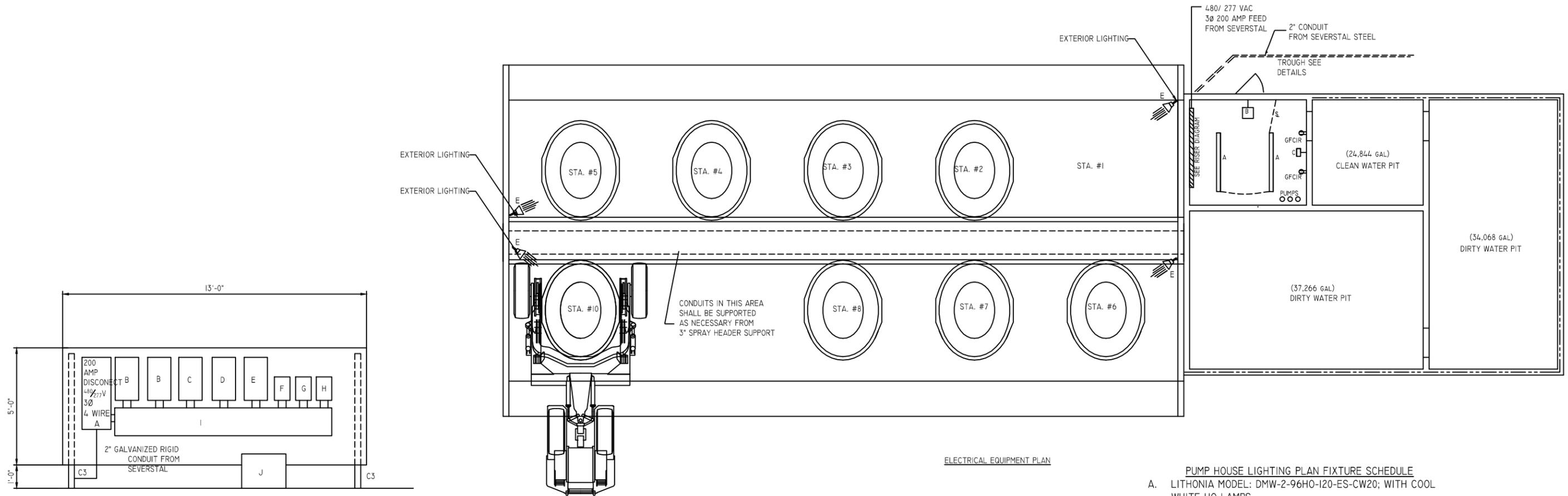
APPENDIX A

Desulf Slag Pot Watering Station –Drawings

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**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5



ELECTRICAL EQUIPMENT PLAN

PUMP HOUSE RISER DIAGRAM SCHEDULE

- A. 200 AMP FUSABLE DISCONNECT; SQUARE D P/N: H364NAWK.
- B. SIZE 2 COMBINATION STARTER D P/N: 8538SDA84V02S.
- C. SIZE 1 COMBINATION STARTER D P/N: 8538SCA84V02S.
- D. 60 AMP FUSABLE DISCONNECT; SQUARE D P/N H362AWK.
- E. 100 AMP BREAKER PANEL; SQUARE D P/N: Q0120M100, WITH QOC20UI00S COVER.
- F. OUTDOOR LIGHTING TIMER; INTERMATIC P/N: 8903LA80V02.
- G. 8 POLE OUT DOOR LIGHTING CONTACTOR; SQUARE D P/N: 8903LA80V02.
- H. 30 AMP FUSABLE DISCONNECT; SQUARE D P/N: H361AWK.
- I. 6X6X72 HOFFMANN WIRING TROUGH; P/N: F-66T72HC.
- J. 25KVA 480/240-120 SINGLE PHASE LIGHTING TRANSFORMER; SQUARE D P/N: EE25S3H.

GENERAL NOTES

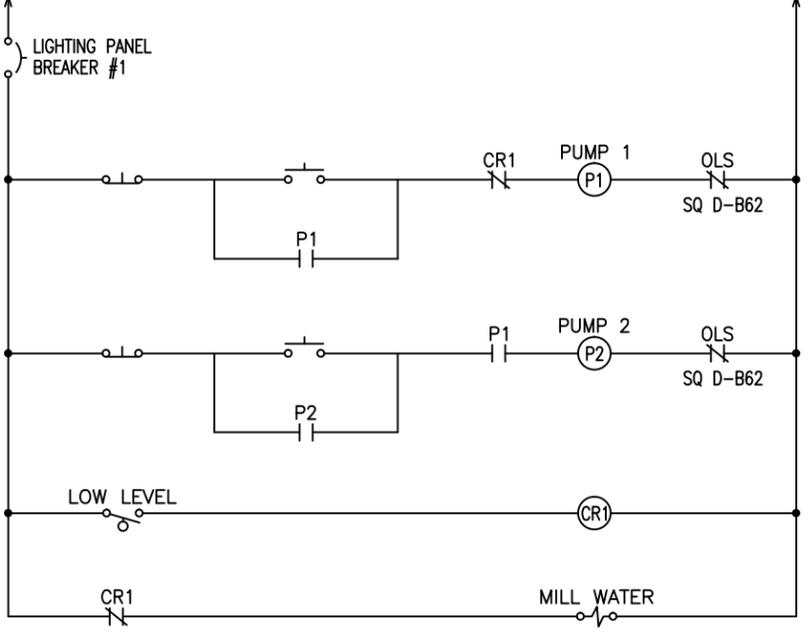
- 1. ALL COMBINATION STARTERS SHALL INCLUDE A STOP-START PUSH BUTTON KIT; SQUARE D P/N:9999SA3.
- 2. LOAD CENTER SHALL BE SUPPLIED WITH TWENTY SQUARE D Q0129 CIRCUIT BREAKERS.
- 3. ALL DISCONNECTS SHALL BE FUSED WITH COOPER-BUSSMANN LOW PEAK STYLE FUSES.

PUMP HOUSE LIGHTING PLAN FIXTURE SCHEDULE

- A. LITHONIA MODEL: DMW-2-96HO-120-ES-CW20; WITH COOL WHITE HO LAMPS.
- B. LITHONIA MODEL: LHQM-S-W-3-R-M4; LED EXIT/EMERGENCY LIGHT COMBINATION.
- C. Q-MARK MODEL: MUHI04; 480 VAC UNIT HEATER WITH #B10 MOUNTING BRACKET & #UHMTI SPST THERMOSTAT.
- D. GFCIR; MODEL: GFR5362TR. WITH IN SERVICE COVERS.
- E. HUBBEL MODEL: MVM-1000H-268; 1000 WATT METAL HALIDE FIXTURE.

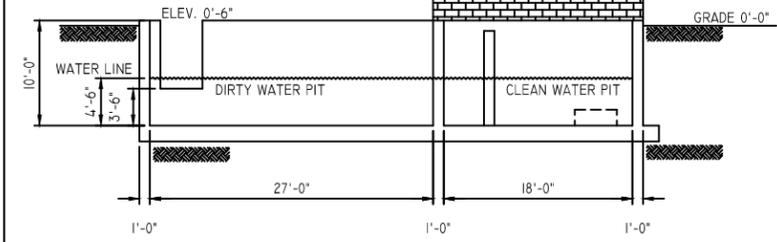
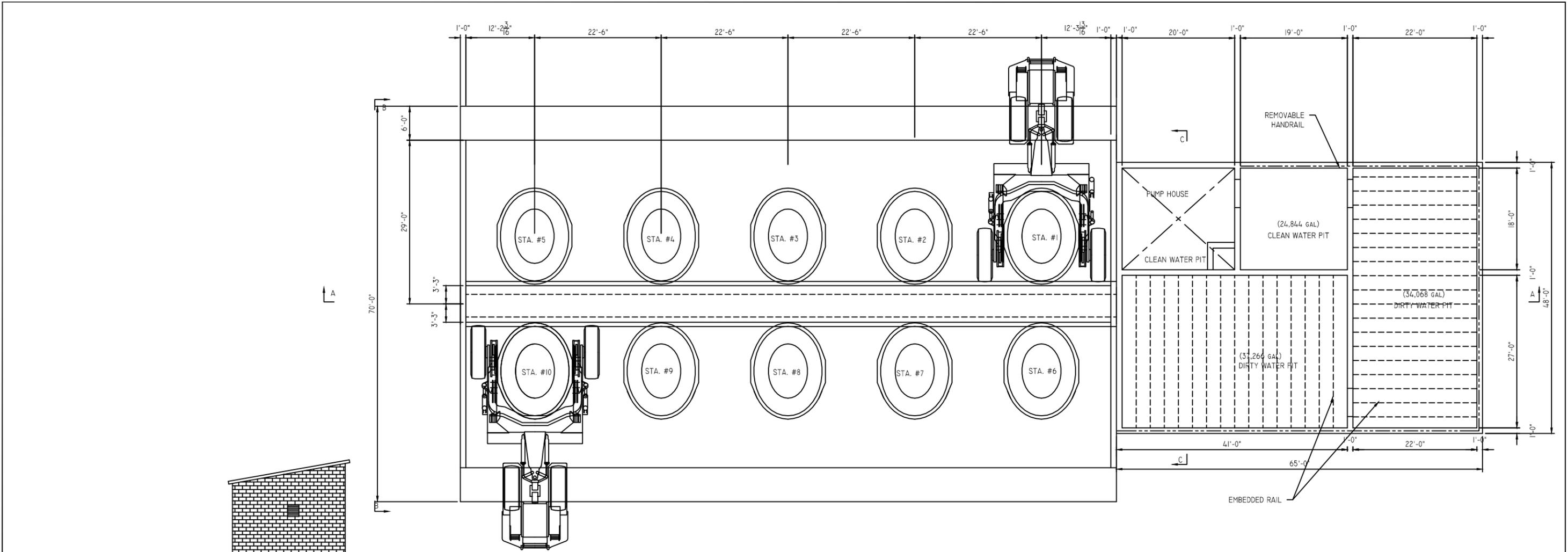
GENERAL NOTES

- 1. ALL WORK SHALL COMPLY WITH THE 2011 EDITION OF THE NATIONAL ELECTRICAL CODE.
- 2. ALL CONDUIT SHALL BE GALVANIZED RIGID METAL. MINIMUM SIZE SHALL BE 3/4 INCH.
- 3. WALL MOUNTED SWITCHES & RECEPTACLES SHALL BE MOUNTED AT 48 INCH AFF.
- 4. ALL WIRE SHALL BE COPPER IN MATERIAL WITH TYPE THHN INSULATION.

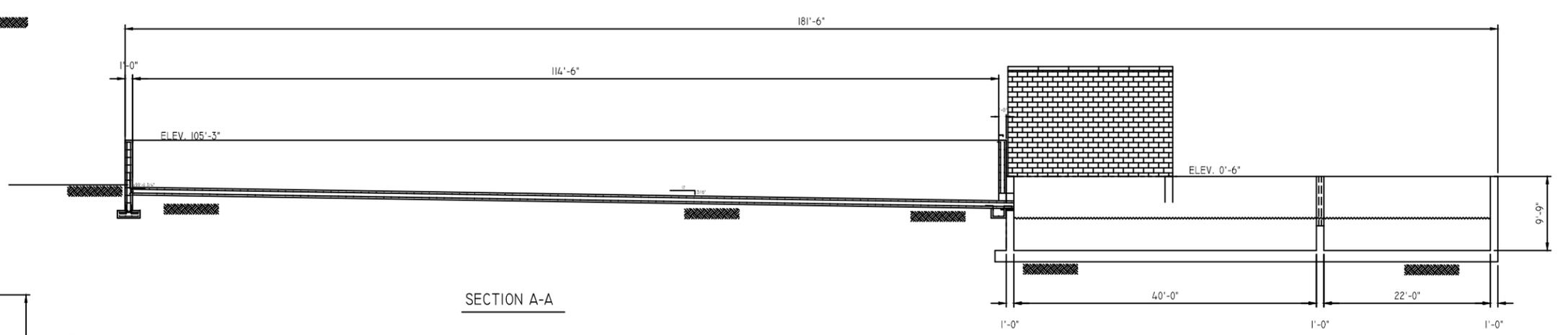


ELECTRICAL LADDER LOGIC

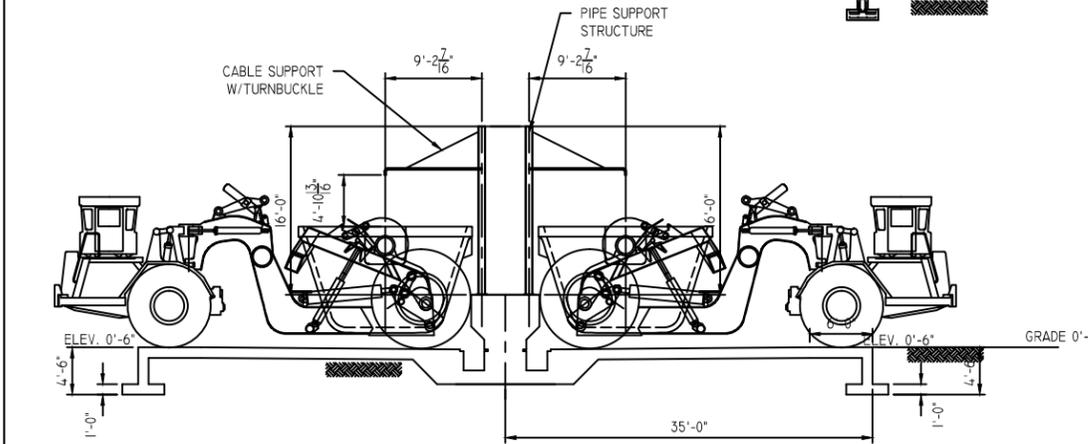
* * * *	ALL DIMENSIONS ARE IN INCHES	THIS DRAWING AND THE INFORMATION CONTAINED THEREIN ARE THE PROPERTY OF EDW. C. LEVY CO. THIS DRAWING MAY CONTAIN CONFIDENTIAL SUBJECT MATTER WHICH MAY NOT BE USED, COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF EDW. C. LEVY CO.	EDW. C. LEVY CO. 9300 DIX AVENUE DEARBORN, MI 48120 (313) 843-7200 TITLE: MISC. ELECTRICAL DETAILS DR. HENRY ATALLAH DATE: 3-12-2012 PLANT: KISH #6 CK JS/MS SCALE: NONE DRAWING NUMBER: PL6-069-E-001-000-01
* * * *	TOLERANCES UNLESS OTHERWISE NOTED:		
* * * *	X. +/- 1/16"		
* * * *	.XX +/- .010"		
* * * *	.XXX +/- .005"		
* * * *	ANGULAR DIMS +/- 1°		
* * * *	NOTE:		
* * * *	1/4" X 1/2" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.		
* * * *	ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.		
DATE	NO.		



SECTION C-C



SECTION A-A



SECTION B-B

- NOTES:
- 1) AT PUMP HOUSE
 - A) 2-PUMPS (ONE STAND BY)
 - B) MECHANICAL FLOAT LEVEL CONTROLLER OR EQUAL FOR MAKE-UP WATER
 - 2) AT EACH WATERING STATION
 - A) SPRAY NOZZLE W/24 GPM AT 10 PSI
 - B) SIGNS TO BE PROVIDED AT EACH STATION 1,2,3&4
SIZE 12"SQ X 11 GA PL WHITE WITH BLACK NUMBERS

DATE	NO.	BY	DESCRIPTION OF REVISION
4-10-12	1	JG	REVISED BUILDING

ALL DIMENSIONS ARE IN INCHES
TOLERANCES UNLESS OTHERWISE NOTED:
X. +/- 1/16"
.XX +/- .010"
.XXX +/- .005"
ANGULAR DIMS +/- 1°

NOTE:
11"x17" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.

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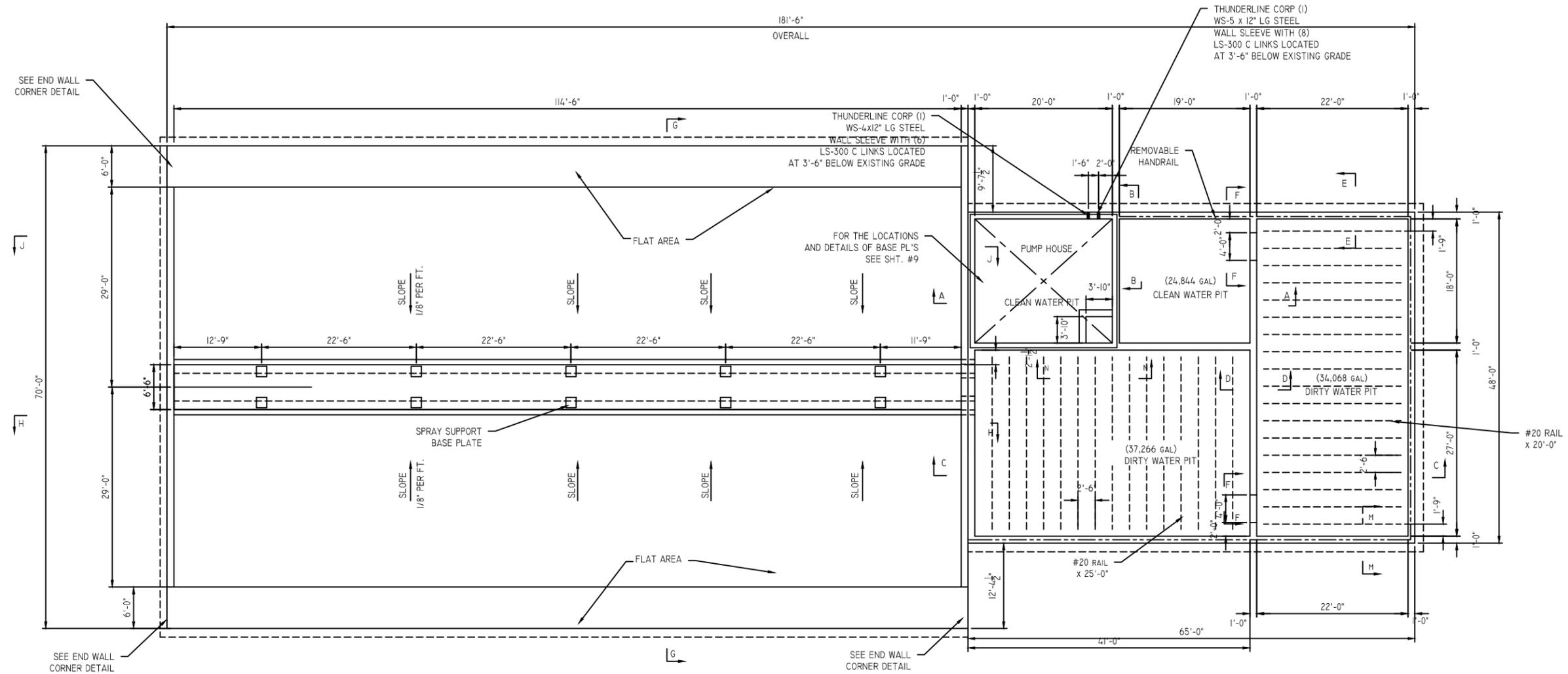
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EDW. C. LEVY CO.
9300 DIX AVENUE
DEARBORN, MI 48120 (313) 843-7200

TITLE: KISH POT WATERING SYSTEM
GENERAL ARRANGEMENT

DR. JRG DATE: 12-15-11 PLANT: LEVY #6
CK SCALE: 1/8"=1'-0"

DRAWING NUMBER: PL6-069-G-001-001-01



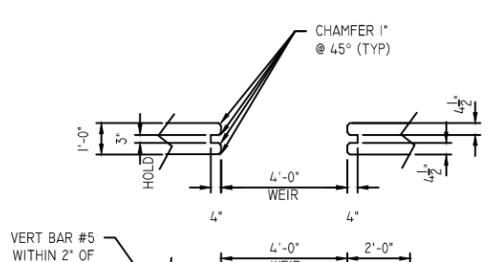
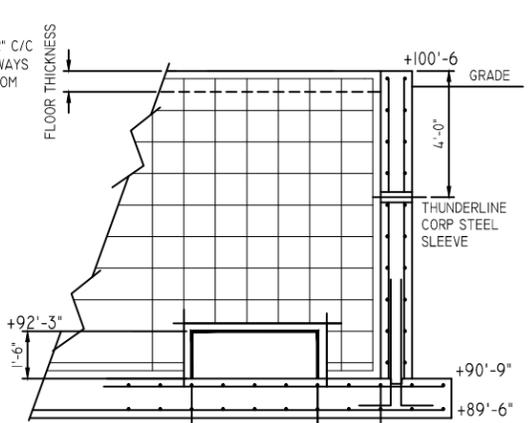
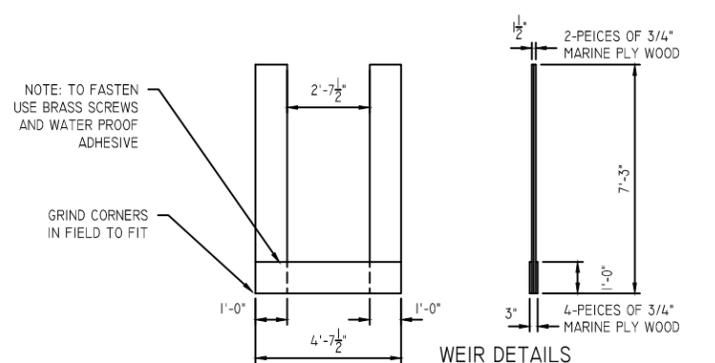
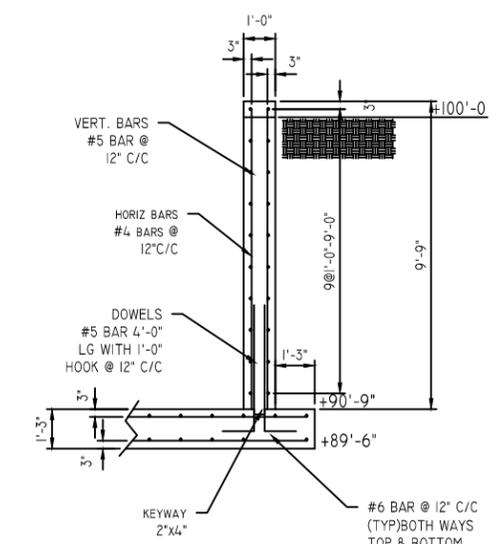
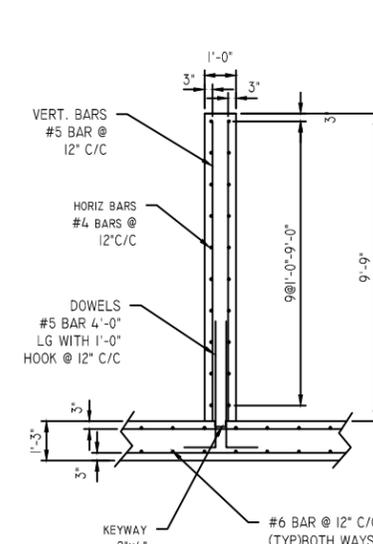
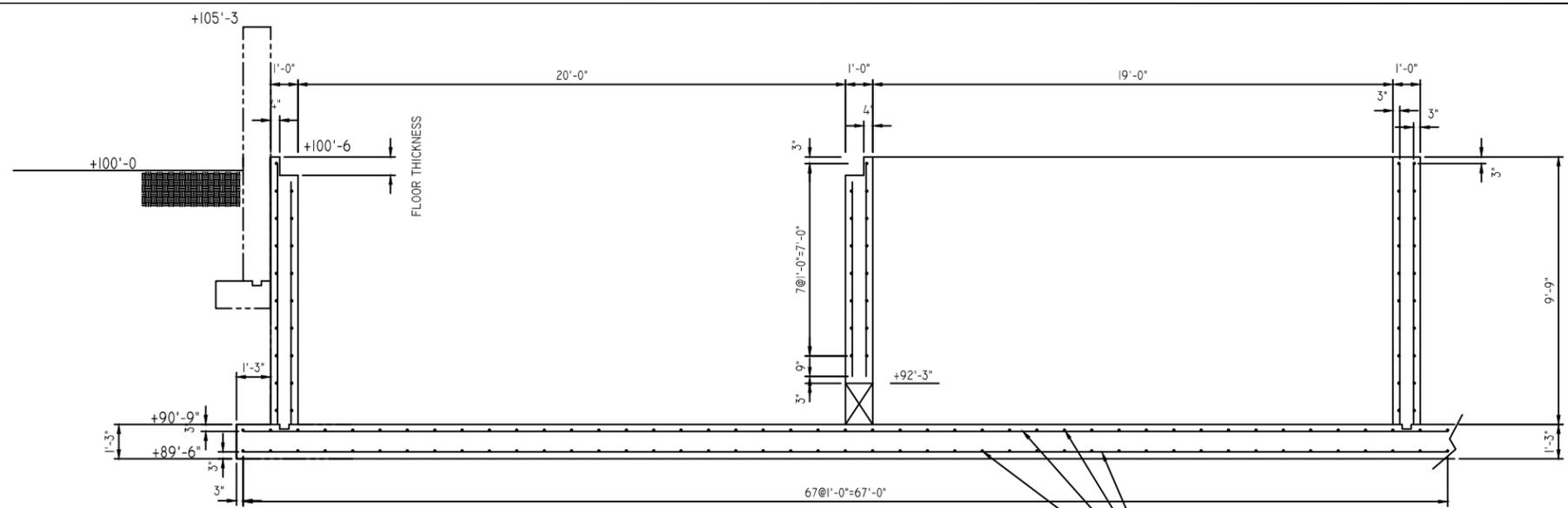
CONCRETE SPECIFICATIONS

- 1) ALL CONCRETE SHALL BE 4000 PSI AIR ENTRAINED AT AN AGE OF 28 DAYS. WINTERIZATION SHALL BE PROVIDED AS NEEDED.
- 2) ALL REINFORCING BARS SHALL BE NEW BILLET STEEL COMPLYING WITH THE ASTM-A15, HARD OR INTERMEDIATE GRADE, PROPERLY SHOP FABRICATED.
- 3) CONCRETE TO BE TESTED AT RANDOM EVERY 200 CUBIC YARDS OR PART THEREOF OF EACH MIX DESIGN POURED IN ANY ONE DAY. TEST ACCORDING TO ASTM C31-69
- 4) WATERSTOP TO BE "DUMB-BELL" TYPE POLY-VINYL CHLORIDE. WATERSTOP TO BE CONTINUOUS THROUGHOUT.
- 5) ALL OUTSIDE, EXPOSED HORIZONTAL AND VERTICAL EDGES TO BE CHAMFERED 1" AT 45° (TYP.)
- 6) ALL FINISHES TO BE SPECIFIED IN FIELD, BY ENGINEER

BACKFILL SPECIFICATIONS

- 1) ALL MATERIALS TO BE EXCAVATED TO A MINIMUM OF 24" BELOW ALL FOOTINGS, PADS AND SLABS AT VARIOUS ELEVATIONS.
- 2) FILL MATERIAL TO BE 21AA BF SLAG, INSTALLED IN APPROXIMATELY 6" LIFTS AND COMPACTED TO 95% PROCTOR DENSITY.
- 3) AFTER FILL IS INSTALLED FOR EVERY 1250 SQ. FT. OF AREA: (1) COMPACTION TESTS SHALL BE TAKEN; ALSO (1) MOISTURE DENSITY TESTS FOR FILL MATERIAL

* * * *	ALL DIMENSIONS ARE IN INCHES	THIS DRAWING AND THE INFORMATION CONTAINED THEREIN ARE THE PROPERTY OF EDW. C. LEVY CO. THIS DRAWING MAY CONTAIN CONFIDENTIAL SUBJECT MATTER WHICH MAY NOT BE USED, COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF EDW. C. LEVY CO.	EDW. C. LEVY CO. 9300 DIX AVENUE DEARBORN, MI 48120 (313) 843-7200	
* * * *	TOLERANCES UNLESS OTHERWISE NOTED:			
* * * *	X. +/- 1/16"			
* * * *	.XX +/- .010"			
* * * *	.XXX +/- .005"			
* * * *	ANGULAR DIMS +/- 1°	ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.	DRAWING NUMBER PL6-069-G-001-001-02	
* * * *	NOTE:			
* * * *	1/4"=1' REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.			
* * * *				
* * * *				
3-21-12	1	JRG	MIRROR PLAN VIEW	DR. JRG DATE: 3-1-12 PLANT: CK XX/XX SCALE: 1/8"=1'-0" PLANT #6
DATE	NO.	BY	DESCRIPTION OF REVISION	



SECTION "A-A"

SECTION "D-D"
INSIDE WALL DETAIL
(TYP)

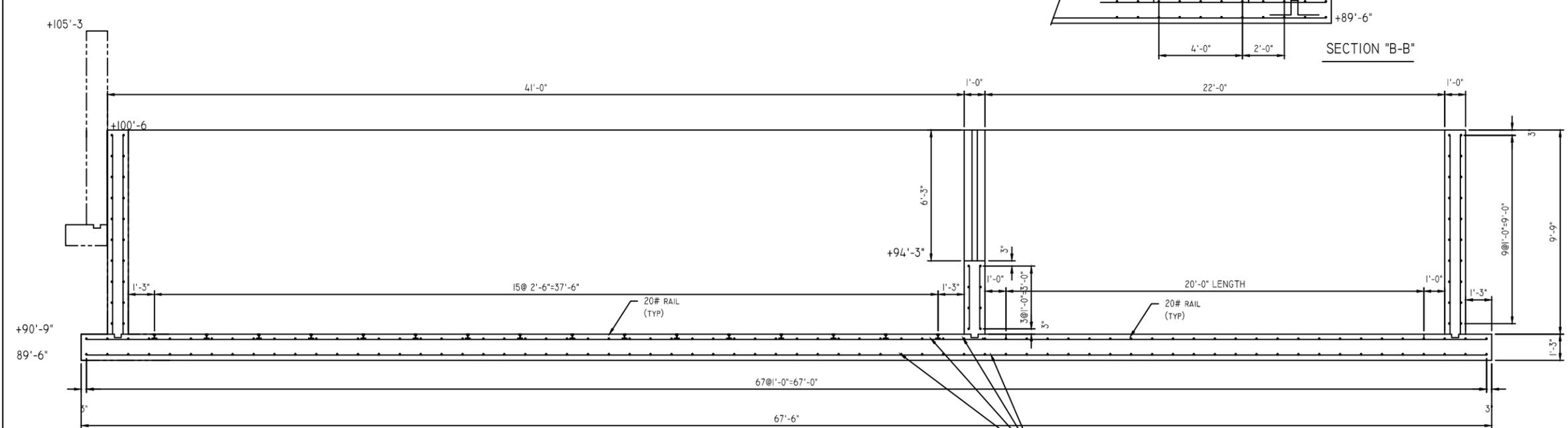
SECTION "E-E"
OUTSIDE WALL DETAIL
(TYP)

WEIR DETAILS

SECTION "B-B"

SECTION "F-F"
WEIR OPENING DETAIL
(TYP)

SECTION "B-B"



SECTION "C-C"

#6 BAR @ 12" C/C
(TYP)BOTH WAYS
TOP & BOTTOM

DATE	NO.	BY	DESCRIPTION OF REVISION

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X. +/- 1/16"
.XX +/- .010"
.XXX +/- .005"
ANGULAR DIMS +/- 1°
NOTE:
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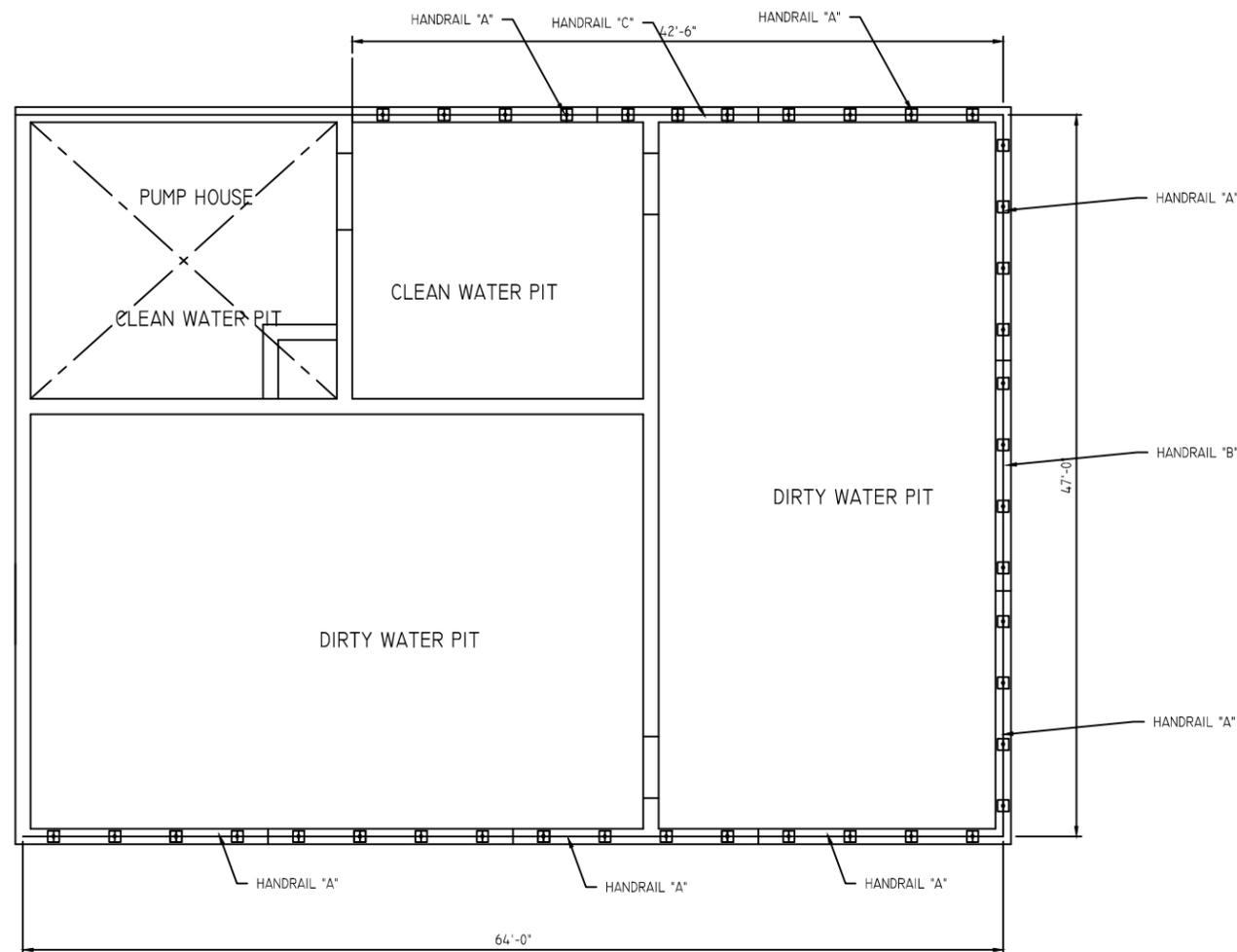
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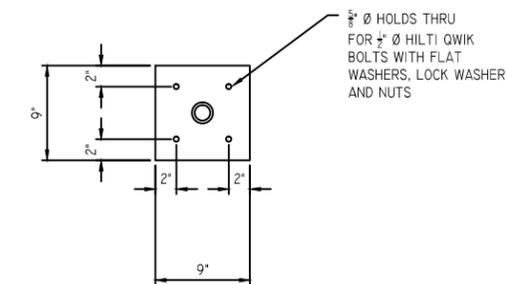
TITLE: CONCRETE DETAILS

DR: JRG DATE: 3-2-12 PLANT: PLANT #6
CK: SCALE: 3/8"=1'-0"

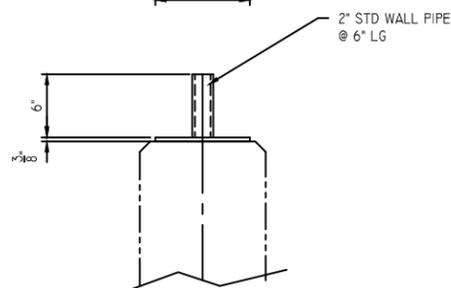
DRAWING NUMBER: PL6-069-G-001-001-03



PLAN VIEW

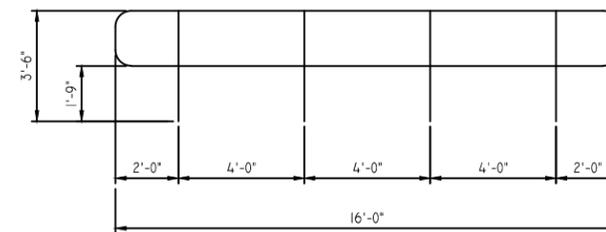


5/8" Ø HOLDS THRU FOR 1/2" Ø HILTI QWIK BOLTS WITH FLAT WASHERS, LOCK WASHER AND NUTS

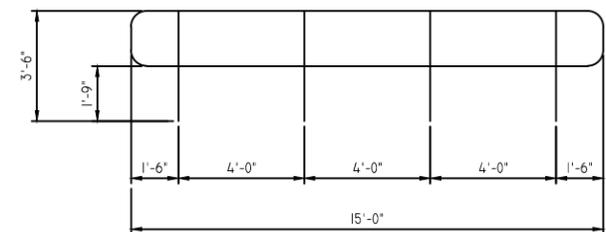


2" STD WALL PIPE @ 6" LG

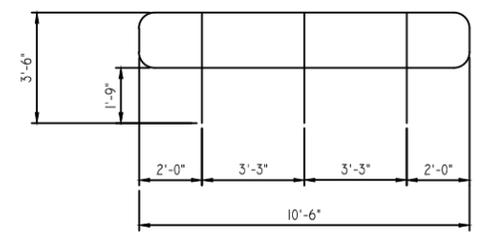
HANDRAIL ANCHORS



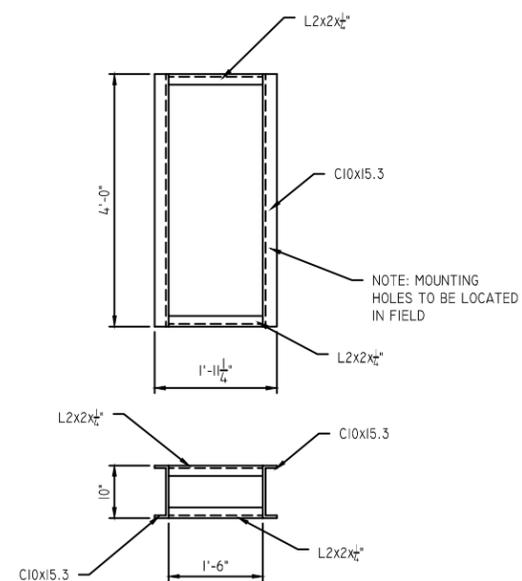
HANDRAIL DETAIL "A"



HANDRAIL DETAIL "B"



HANDRAIL DETAIL "C"



PUMP SUPPORT
2- REQ'D

HANDRAIL & RAIL ANCHOR SPECIFICATIONS

- 1) ALL HANDRAIL TO BE MADE FROM 1 1/2" DIA. STD. PIPE
- 2) HANDRAIL & ANCHORS PAINT SCHEDULE-
 - A) 1-SHOP COAT ZINC CHROMATE PRIMER STANDARD DETROIT PAINT CO #1829 OR EQUAL
 - B) 1-SHOP COAT (FINISH COAT) SAFETY YELLOW STANDARD DETROIT PAINT CO #S1270 SILICONE ALKYD ENAMEL OR EQUAL

NOTE: PAINT TO BE RETOUCED IN FIELD AS NEEDED

DATE	NO.	BY	DESCRIPTION OF REVISION
4-5-12	2	JRG	ADDED PUMP SUPPORTS
3-21-12	1	JRG	MIRROR PLAN VIEW

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 TOLERANCES UNLESS OTHERWISE NOTED:
 X. +/- 1/16"
 .XX +/- .010"
 .XXX +/- .005"
 ANGULAR DIMS +/- 1°
 NOTE:
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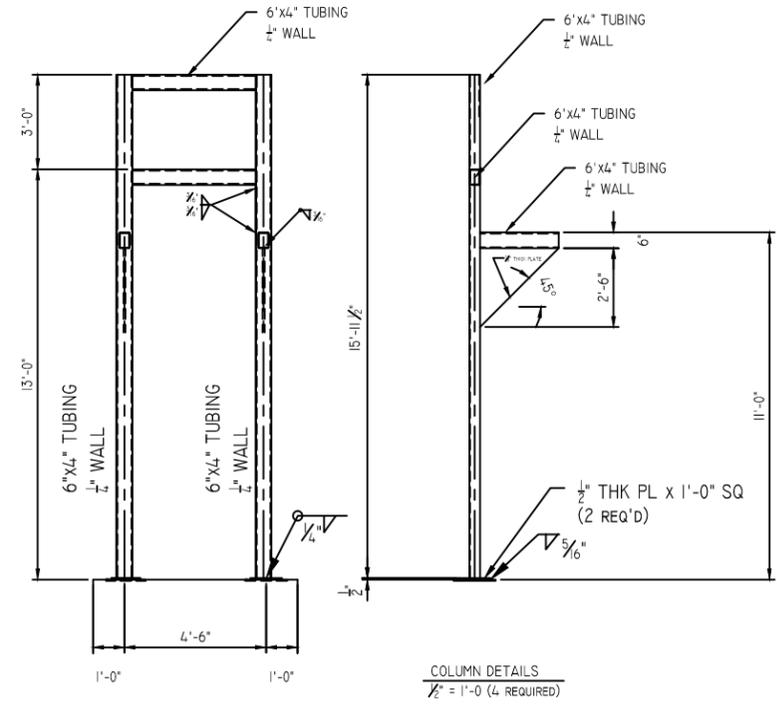
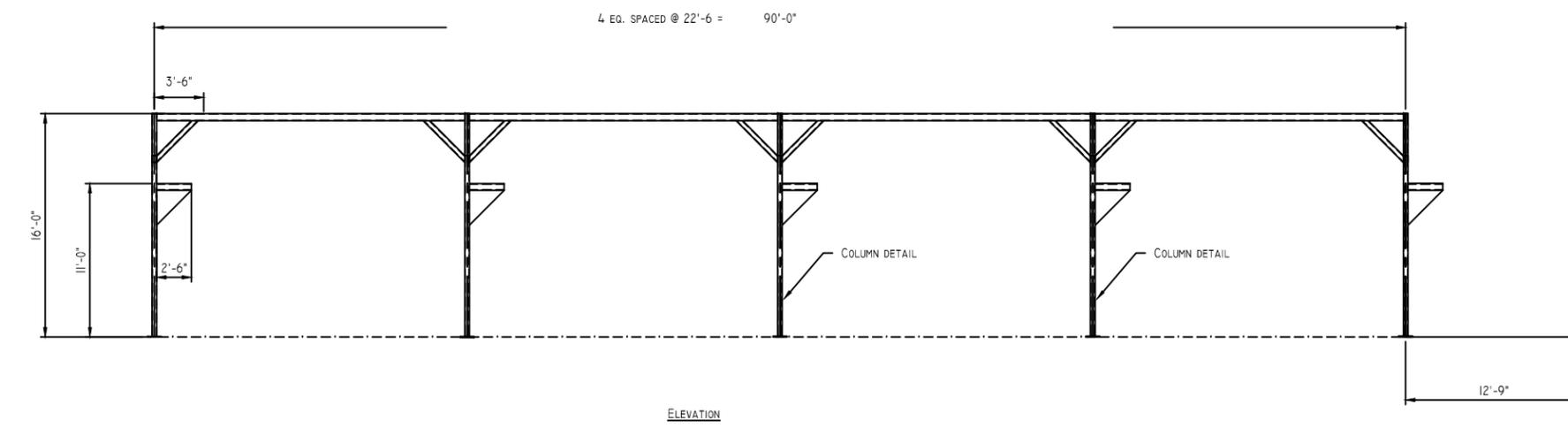
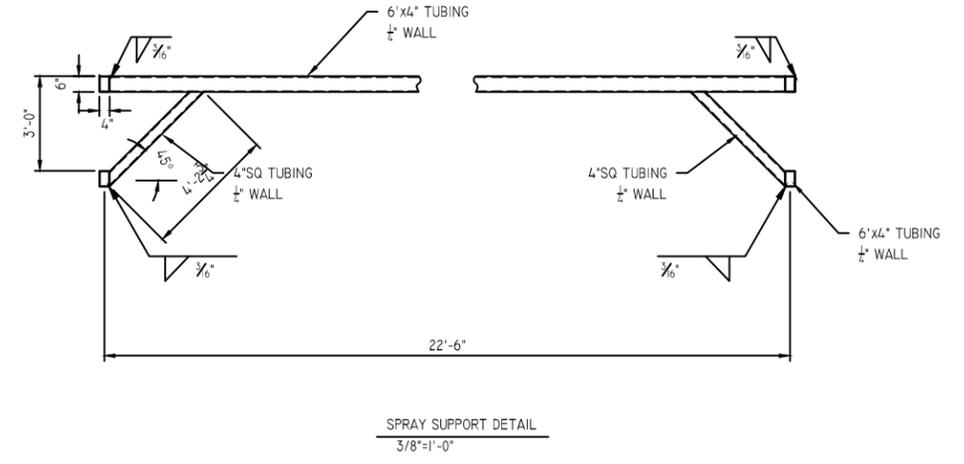
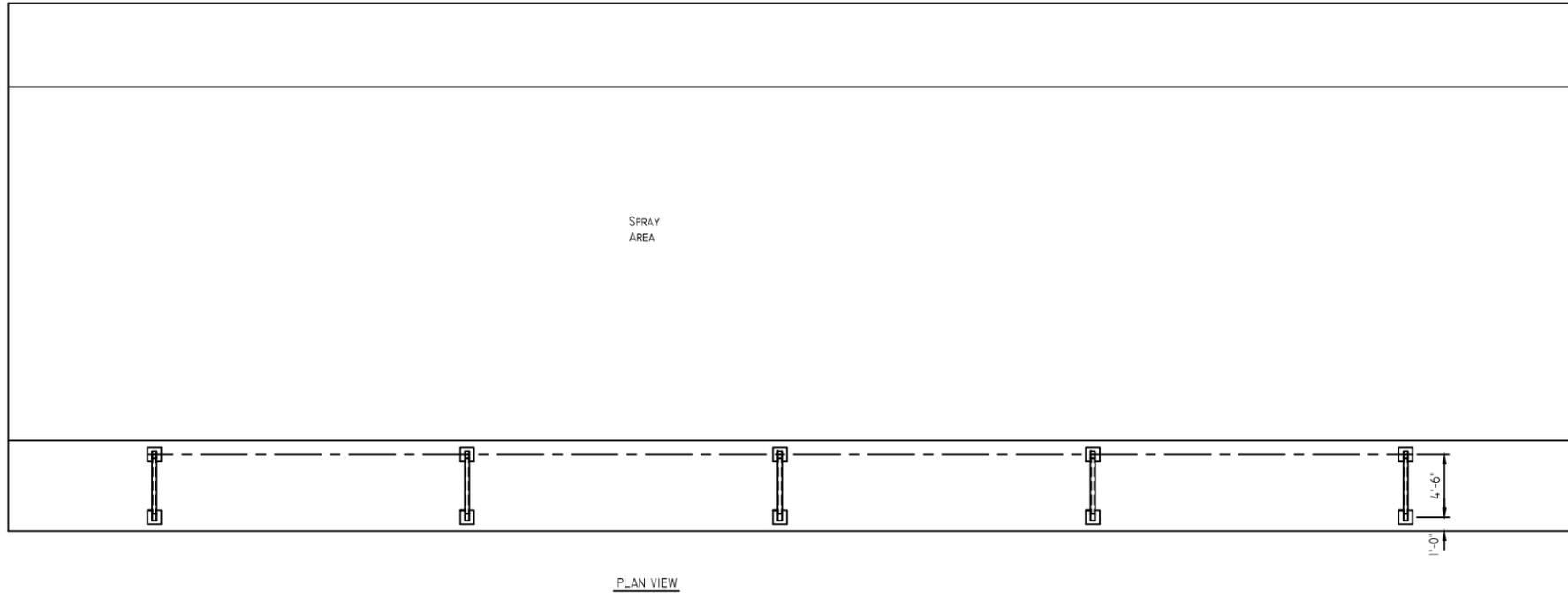
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 DEARBORN, MI 48120 (313) 843-7200

TITLE: WATERING PITS
 HAND RAILS DETAILS

DR: JRG DATE: 3-7-12 PLANT: PLANT #6
 CK: SCALE: 3/16"=1'-0"

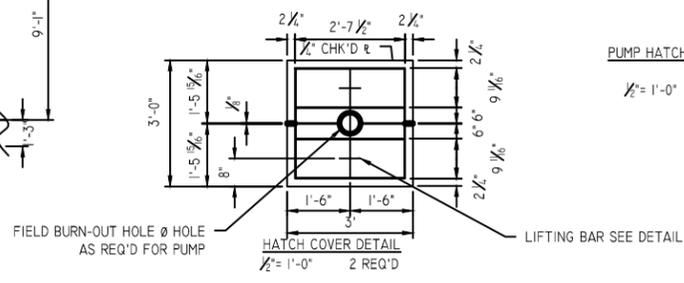
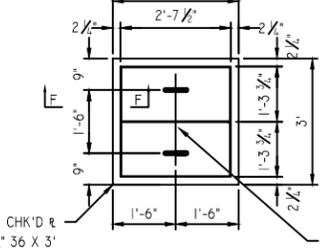
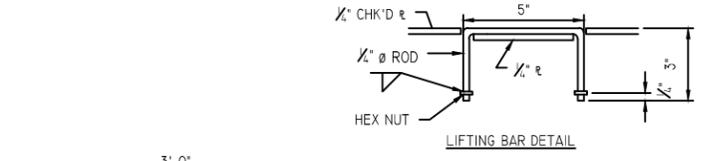
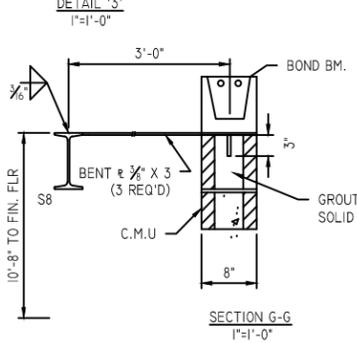
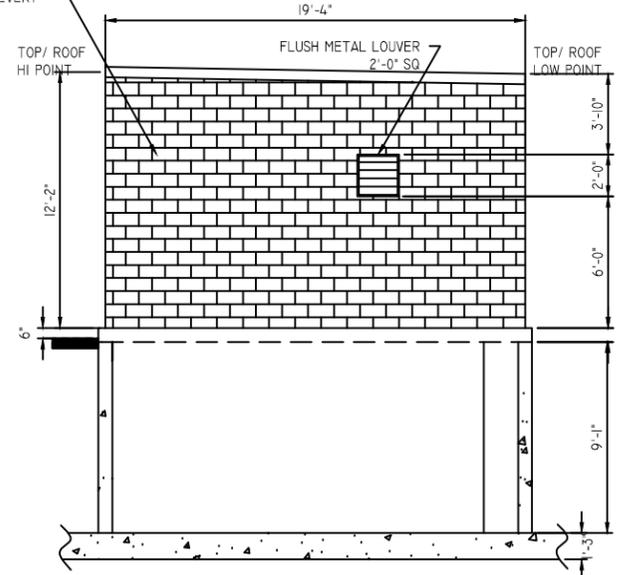
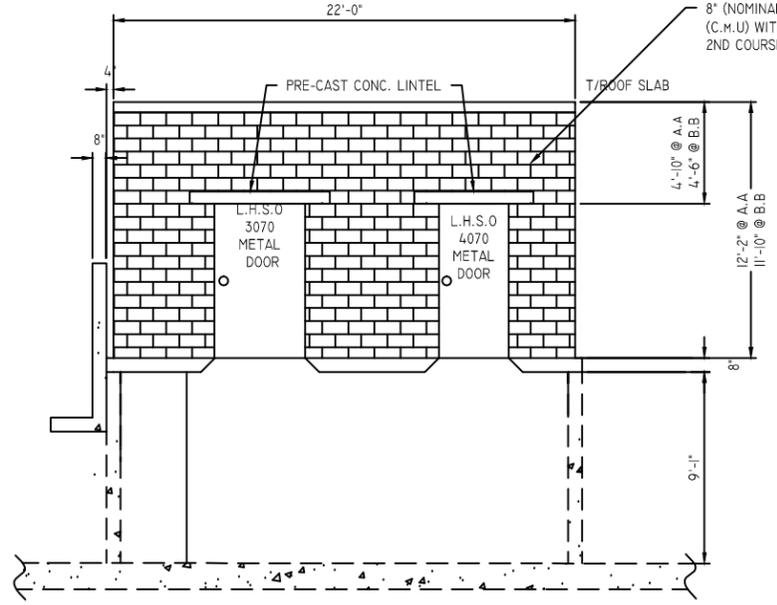
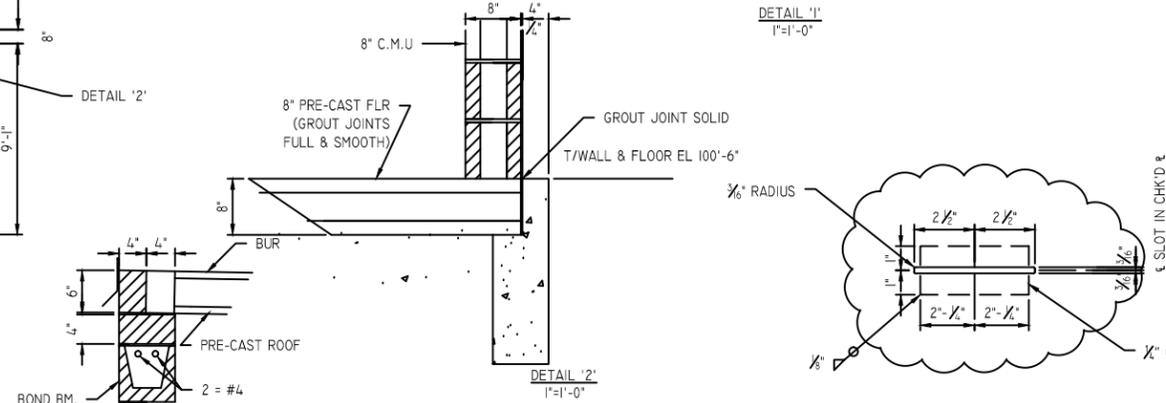
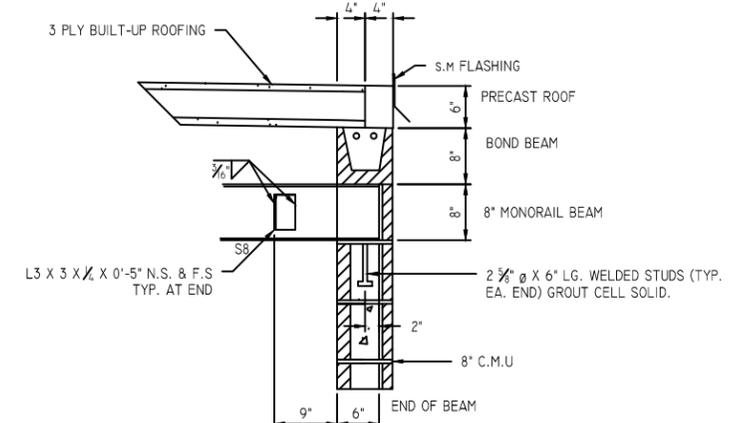
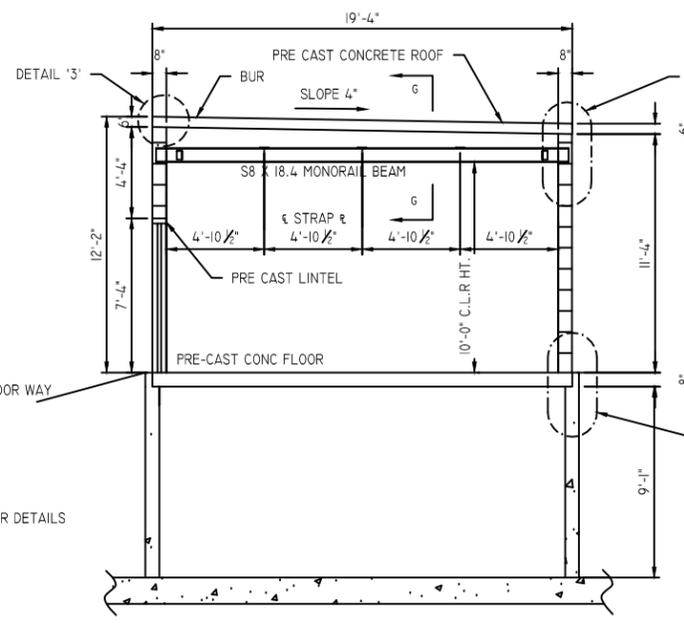
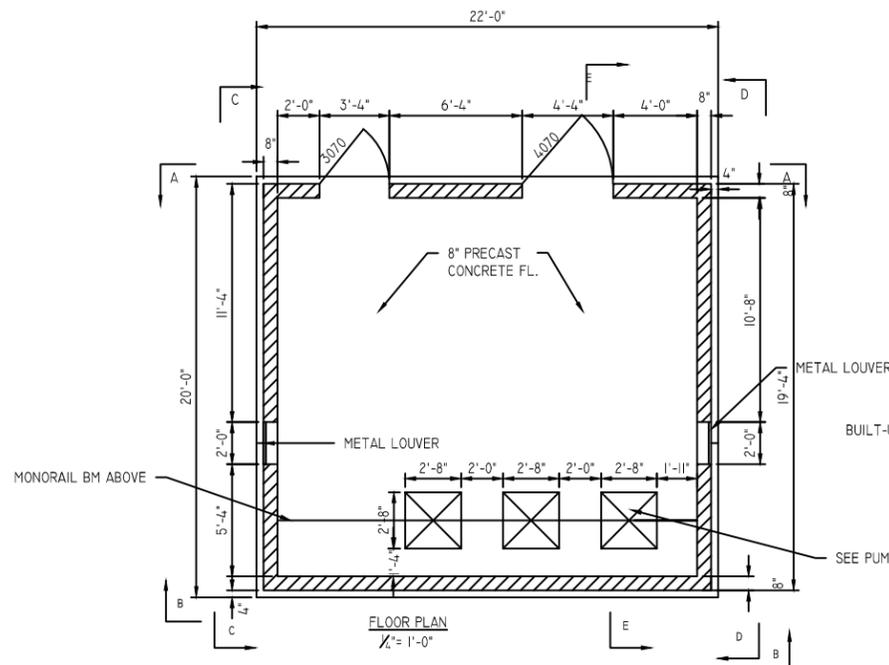
DRAWING NUMBER: PL6-069-G-001-001-06



- NOTES:
- ALL HOLES TO BE 1/8" DIA
 - FIELD BOLTS 3/4" DIA A325 X 2" LG WITH HEX NUTS AND FLAT WASHERS.
 - ALL STRUCTURAL STEEL SHALL BE CONFORM TO THE LATEST REVISIONS OF THE SPECIFICATIONS FOR THE DESIGN FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION LATEST EDITION
 - ALL STEEL SHALL BE ASTM-A36

- ALL STRUCTURAL STEEL TO RECEIVE
- I.A. 1 SHOP COAT ZINC CHROMATE PRIMER (STANDARD DETROIT PAINT CO, #I-829 OR EQUAL)
- I.B. 1 SHOP COAT (FINISH COAT) BLACK RUST-O-LEUM 634 (OR EQUAL)
- I.C. NOTE: PAINT TO BE RETOUCHE IN FEILD AS NEEDED)

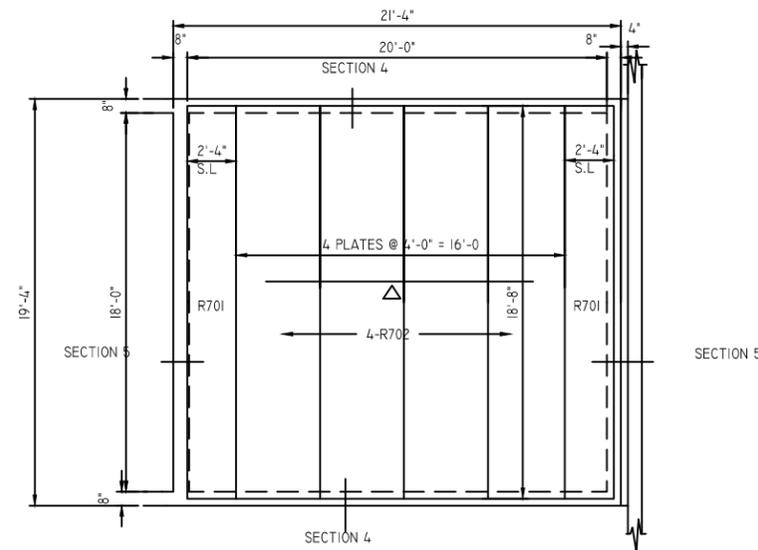
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* * * *	TOLERANCES UNLESS OTHERWISE NOTED: X. +/- 1/16" .XX +/- .010" .XXX +/- .005" ANGULAR DIMS +/- 1°		
* * * *	NOTE: 11"x17" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.	ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.	TITLE: STRUCTURAL STEEL DETAILS (SPRAY SUPPORT)
* * * *	DATE: 3-26-12	DR: H-T	DATE: 2-5-12
* * * *	NO. BY: JG	CK: KISH #6	PLANT: KISH #6
* * * *	DESCRIPTION OF REVISION: CHANGE BEAMS TO TUBING	SCALE: 3/16"=1'-0"	DRAWING NUMBER: PL6-069-G-001-001-07



PRE-CAST CONCRETE SLABS AS MANUF. BY FLEXICORE SYSTEMS OR EQUAL
FLOOR DESIGN: LL = 125 PSF
ROOF DESIGN: LL = 50 PSF

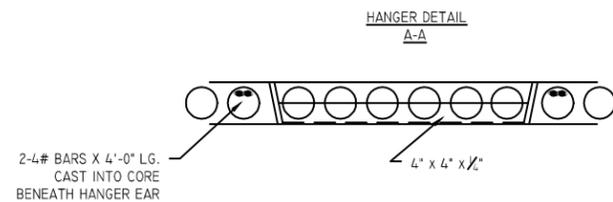
* * * *	ALL DIMENSIONS ARE IN INCHES	THIS DRAWING AND THE INFORMATION CONTAINED THEREIN ARE THE PROPERTY OF EDW. C. LEVY CO. THIS DRAWING MAY CONTAIN CONFIDENTIAL SUBJECT MATTER WHICH MAY NOT BE USED, COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF EDW. C. LEVY CO.	EDW. C. LEVY CO. 9300 DIX AVENUE DEARBORN, MI 48120 (313) 843-7200		
* * * *	TOLERANCES UNLESS OTHERWISE NOTED: X +/- 1/16" .XX +/- .010" .XXX +/- .005" ANGULAR DIMS +/- 1°				
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* * * *	ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.				
DATE	NO.			BY	DESCRIPTION OF REVISION

DR. H.A. DATE: 3-26-12 PLANT:
CK. SCALE: GIVEN PLANT #6 KISH
DRAWING NUMBER
PL6-069-G-001-001-08

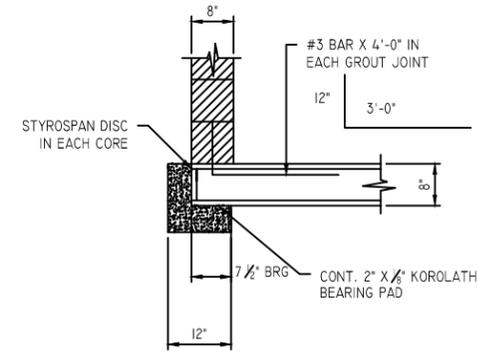


ROOF SLAB LAYOUT
SCALE 1/4" = 1'-0"
6" SLAB

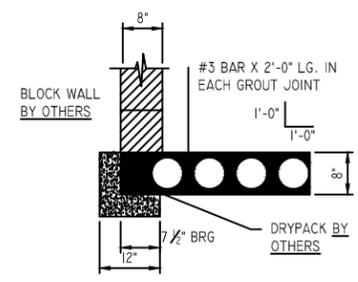
NORTH



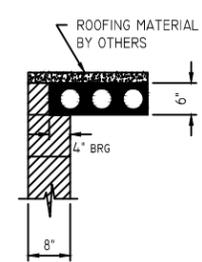
HANGER DETAIL
A-A



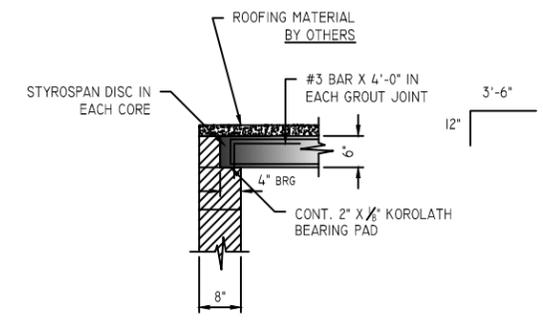
SECTION 1
DETAIL SECTIONS
SCALE 1/4" = 1'-0"



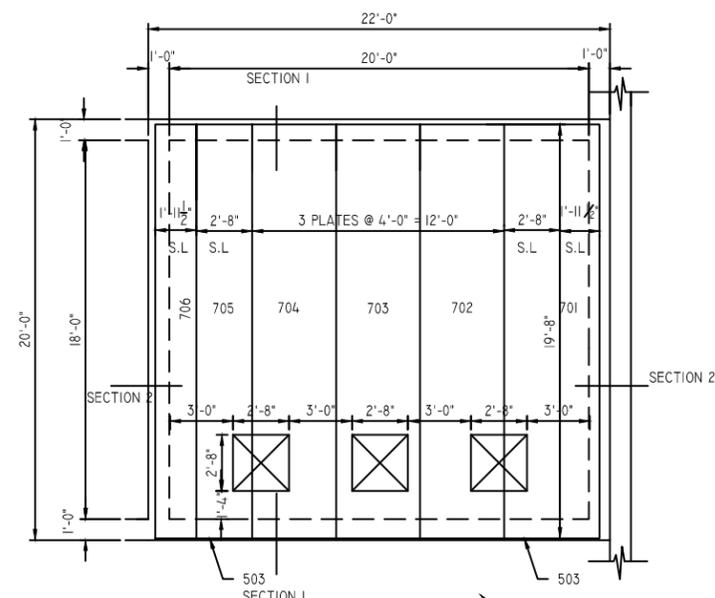
SECTION 2



SECTION 5

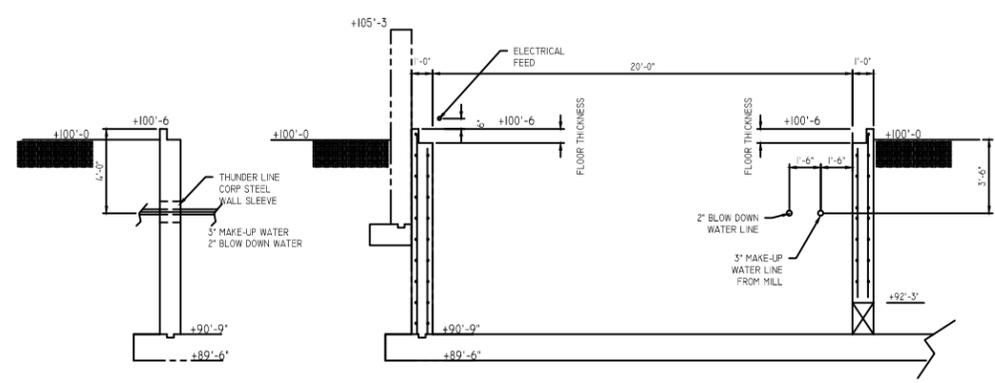


SECTION 4



FIRST FLOOR SLAB LAYOUT
SCALE 1/4" = 1'-0"
8" SLAB

NORTH



DATE	NO.	BY	DESCRIPTION OF REVISION

ALL DIMENSIONS ARE IN INCHES
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.XX +/- .010"
.XXX +/- .005"
ANGULAR DIMS +/- 1°
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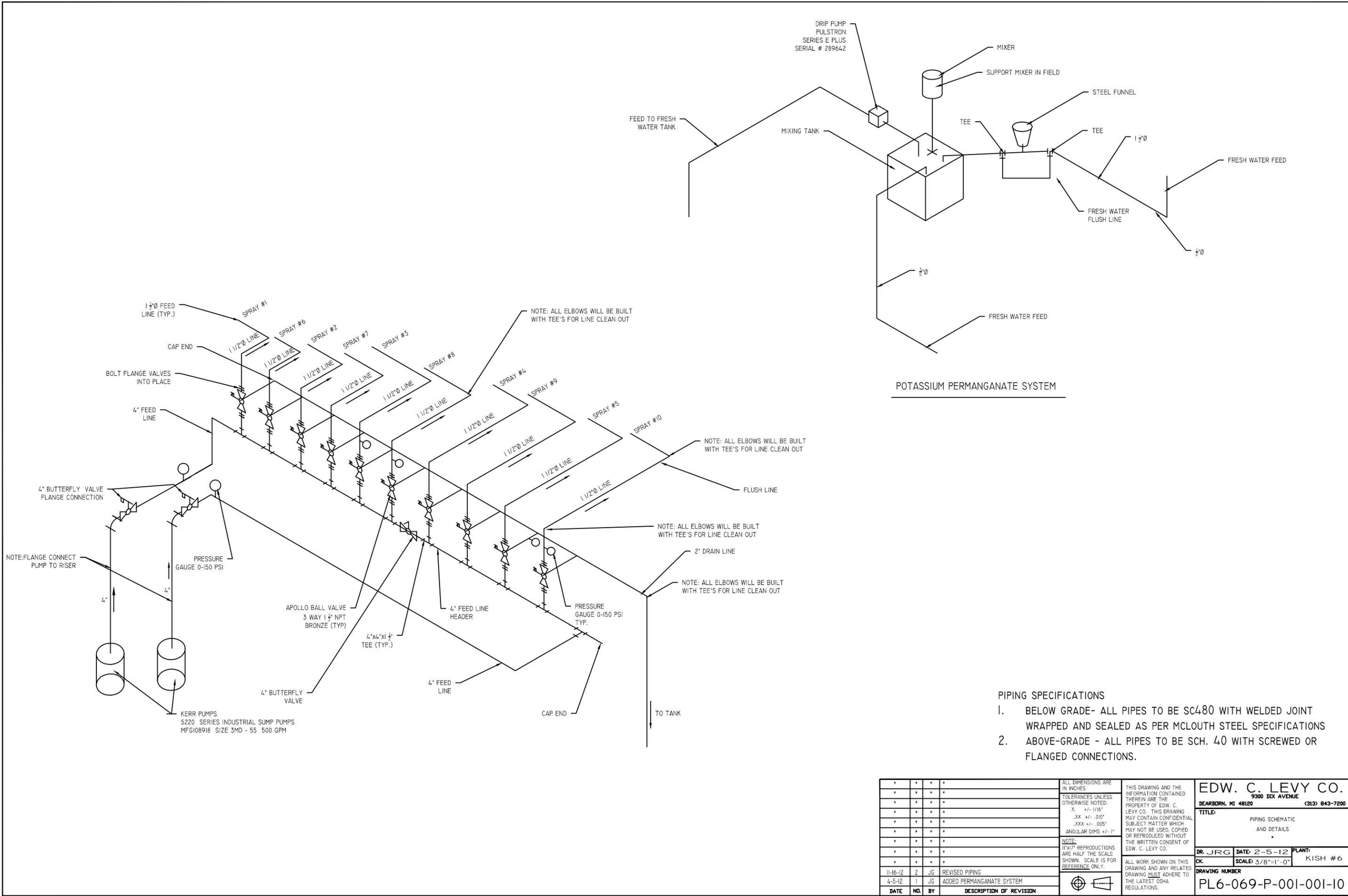
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9300 DIX AVENUE
DEARBORN, MI 48120 (313) 843-7200

TITLE: BLOCK BUILDING DETAILS

DR. I-I-A DATE: 3-27-12 PLANT: PLANT #6 KISH
CK. SCALE: 1/4" = 1'-0" DRAWING NUMBER: PL6-069-G-001-001-09

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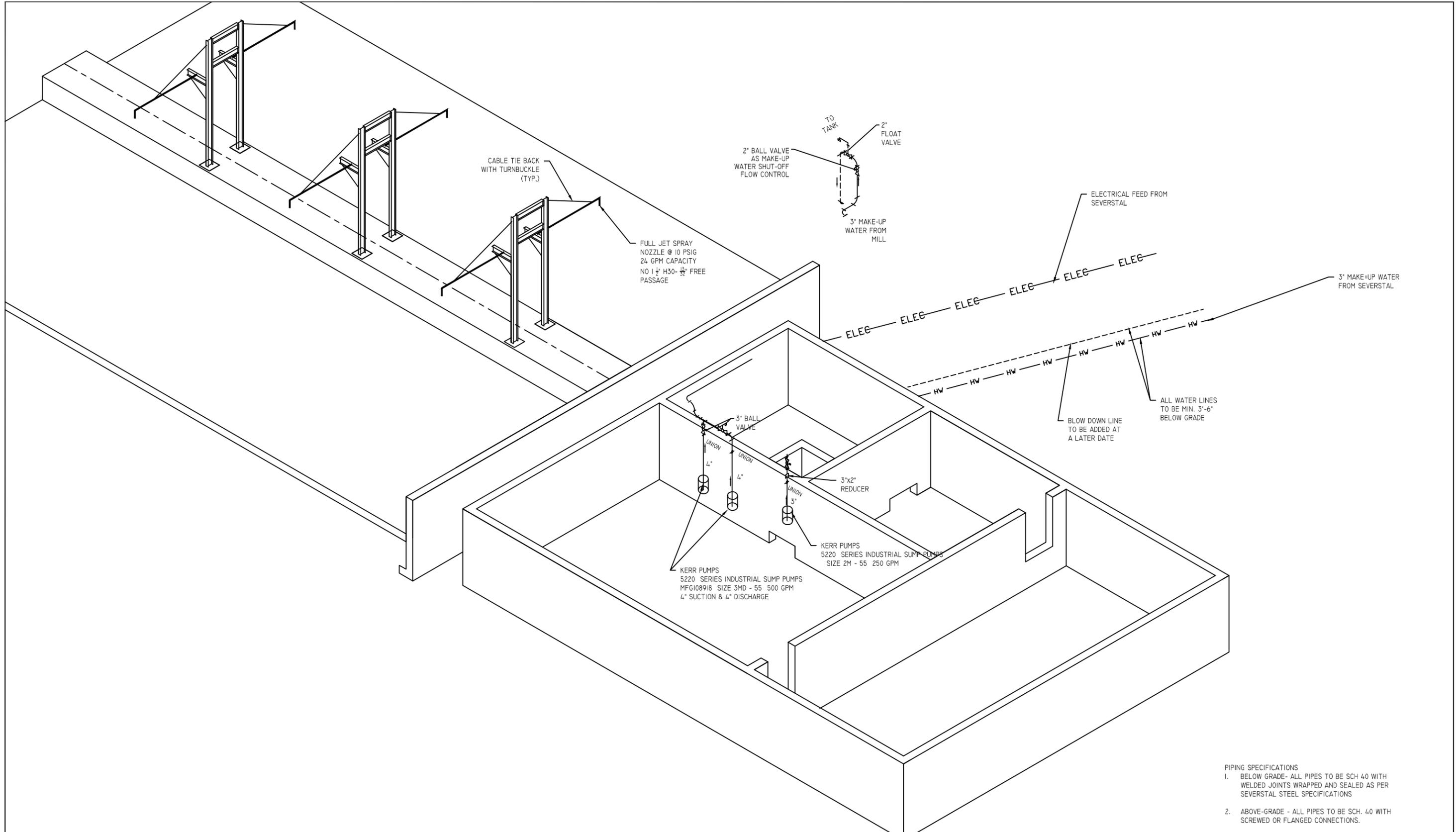
ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.



POTASSIUM PERMANGANATE SYSTEM

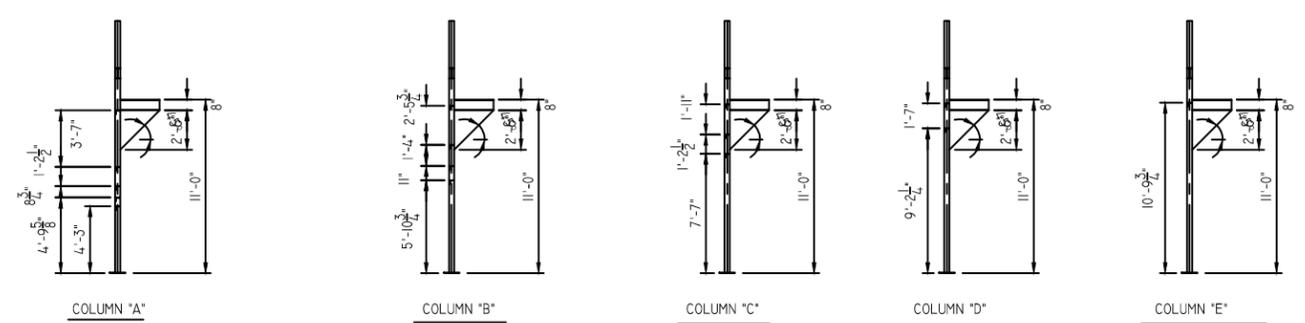
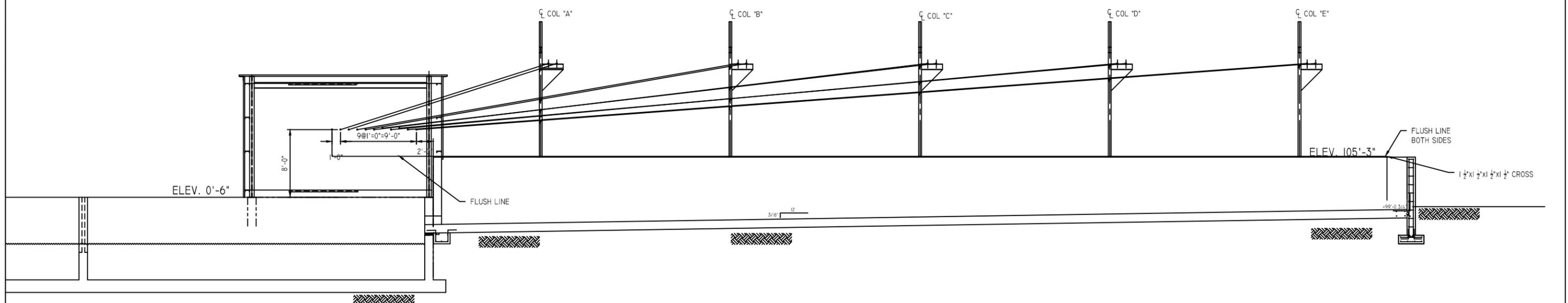
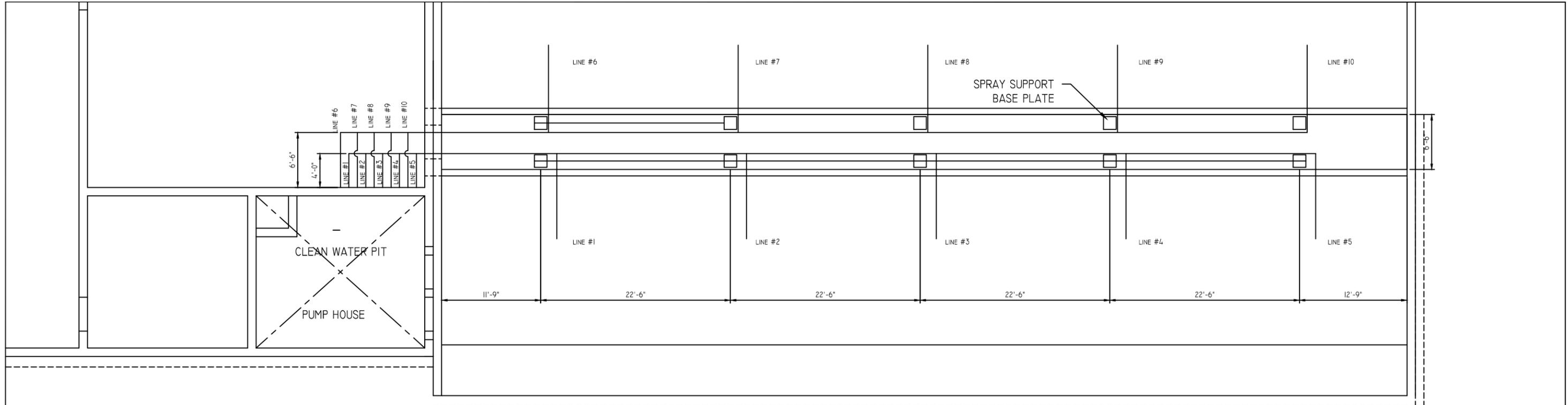
- PIPING SPECIFICATIONS
- BELOW GRADE- ALL PIPES TO BE SC480 WITH WELDED JOINT WRAPPED AND SEALED AS PER MCLOUTH STEEL SPECIFICATIONS
 - ABOVE-GRADE - ALL PIPES TO BE SCH. 40 WITH SCREWED OR FLANGED CONNECTIONS.

* * * *	ALL DIMENSIONS ARE IN INCHES	THIS DRAWING AND THE INFORMATION CONTAINED THEREIN ARE THE PROPERTY OF EDW. C. LEVY CO. THIS DRAWING MAY CONTAIN CONFIDENTIAL SUBJECT MATTER WHICH MAY NOT BE USED, COPIED OR REPRODUCED WITHOUT THE WRITTEN CONSENT OF EDW. C. LEVY CO.	EDW. C. LEVY CO. 9300 DIX AVENUE DEARBORN, MI 48120 (313) 843-7200				
* * * *	TOLERANCES UNLESS OTHERWISE NOTED: X. +/- .1/16" .XX +/- .010" .XXX +/- .005" ANGULAR DIMS +/- 1°						
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* * * *							
11-16-12	2	JG	REVISED PIPING	DR. JRG	DATE: 2-5-12	PLANT#	KISH #6
4-5-12	1	JG	ADDED PERMANGANATE SYSTEM	CK	SCALE: 3/8"=1'-0"	DRAWING NUMBER	
DATE	NL	BY	DESCRIPTION OF REVISION	PL6-069-P-001-001-10			



- PIPING SPECIFICATIONS
1. BELOW GRADE - ALL PIPES TO BE SCH 40 WITH WELDED JOINTS WRAPPED AND SEALED AS PER SEVERSTAL STEEL SPECIFICATIONS
 2. ABOVE-GRADE - ALL PIPES TO BE SCH. 40 WITH SCREWED OR FLANGED CONNECTIONS.

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* * * *	TOLERANCES UNLESS OTHERWISE NOTED:		
* * * *	X. +/- 1/16"		
* * * *	.XX +/- .010"		
* * * *	.XXX +/- .005"		
* * * *	ANGULAR DIMS +/- 1°		
* * * *	NOTE:		
* * * *	11"x17" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.		
* * * *	DATE		
4-5-12	1 JG REVISED PUMPS		
DATE	NO.	BY	DESCRIPTION OF REVISION



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* * * *	TOLERANCES UNLESS OTHERWISE NOTED: X. +/- 1/16" .XX +/- .010" .XXX +/- .005" ANGULAR DIMS +/- 1°		
* * * *	NOTE: 11"X17" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.	ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.	TITLE: WATER SPRAY PIPING LAYOUT
* * * *	DR. JRG DATE: 3-22-12	PLANT: PLANT #6	DRAWING NUMBER: PL6-069-P-001-001-12
4-11-12	1 JRG	ADDED FLUSH LINE	
DATE	NO.	BY	DESCRIPTION OF REVISION



TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

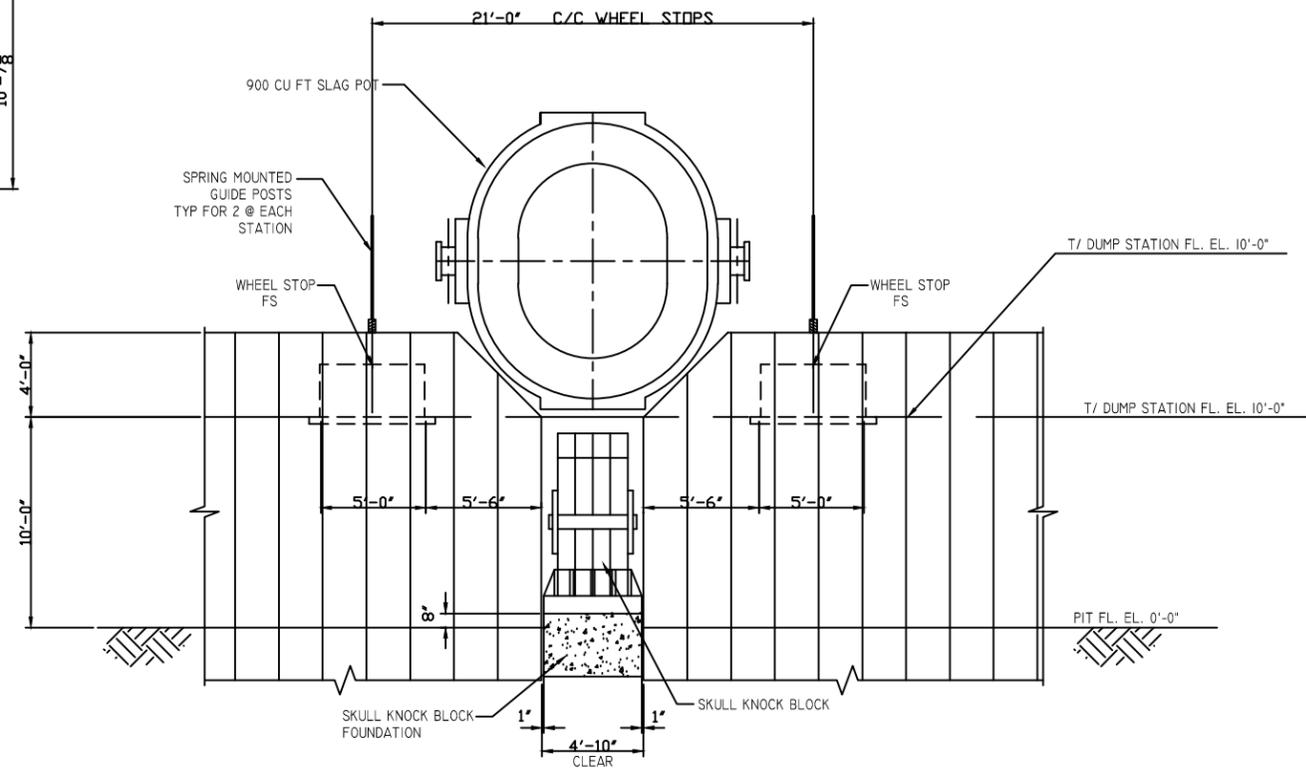
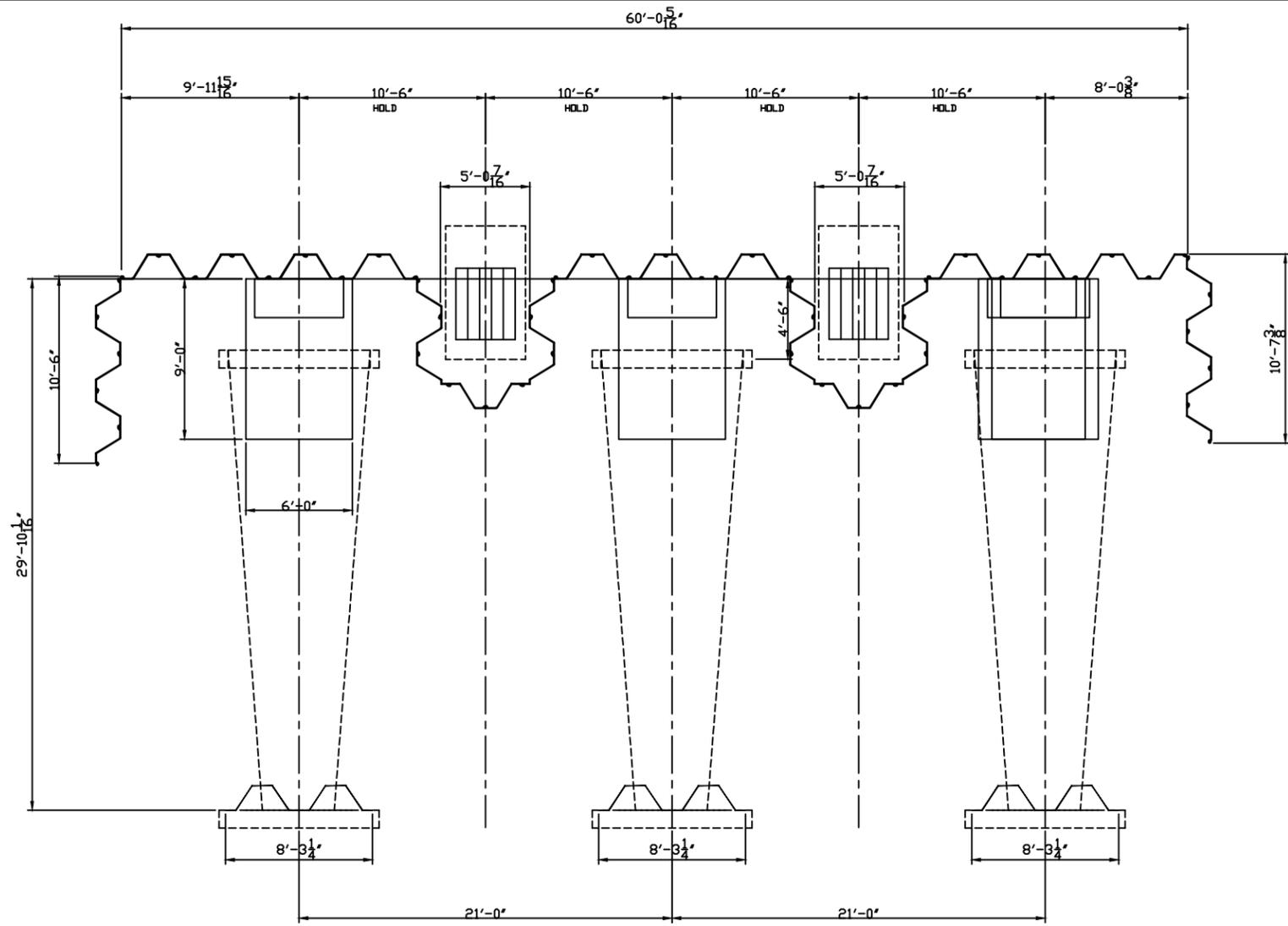
APPENDIX B

Desulf Slag Pot Dump Station –Drawings

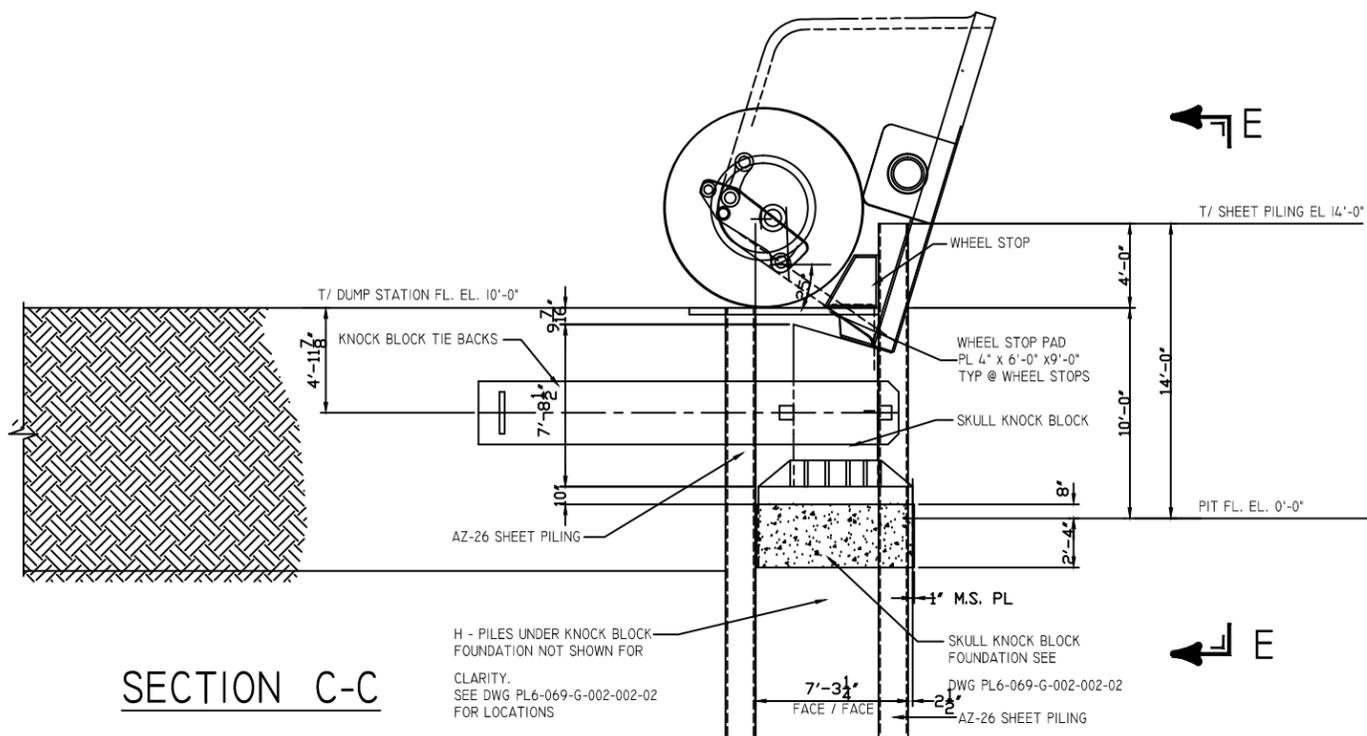
If printed, it is the user's responsibility to check that this document reflects the latest revision level.

**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5



VIEW E-E



SECTION C-C

H - PILES UNDER KNOCK BLOCK FOUNDATION NOT SHOWN FOR CLARITY. SEE DWG PL6-069-G-002-002-02 FOR LOCATIONS

TYP SECTIONS THRU SKULL STATIONS

		EDW. C. LEVY CO.	
		9300 DIX AVENUE	
		DEARBORN, MICH. 48120 (313) 843-7200	
		TITLE:	
		DESULF SKULL STATION	
DR. JRG	DATE: 4-10-12	PLANT:	
CK	SCALE: 1/4"=1'-0"	KISH DUMP STATION	
DRAWING NUMBER		SHEET NO.	
PL6-069-G-002-002		01	
DATE	NO.	BY	DESCRIPTION OF REVISION



TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

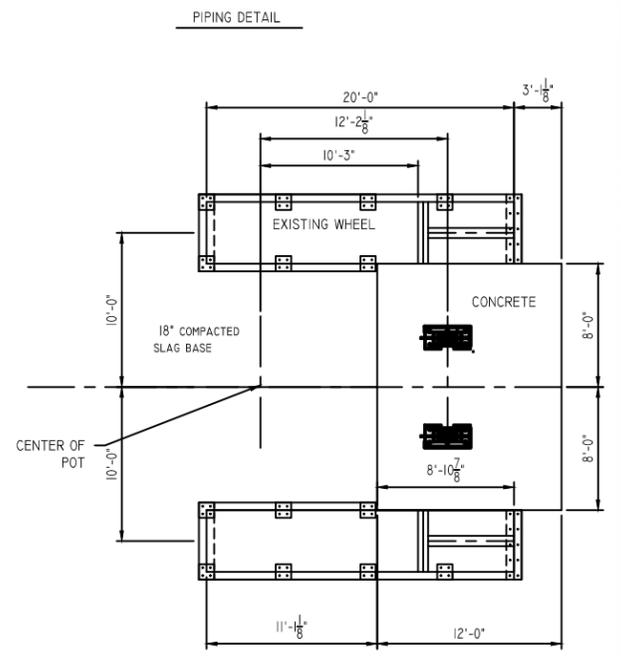
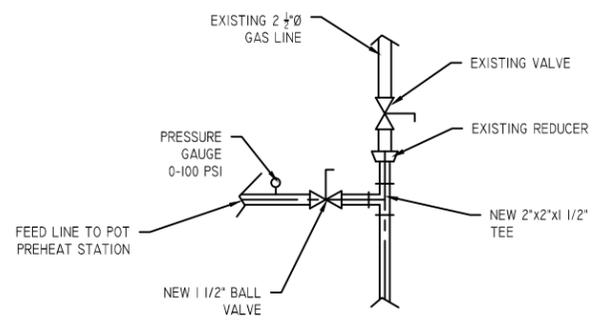
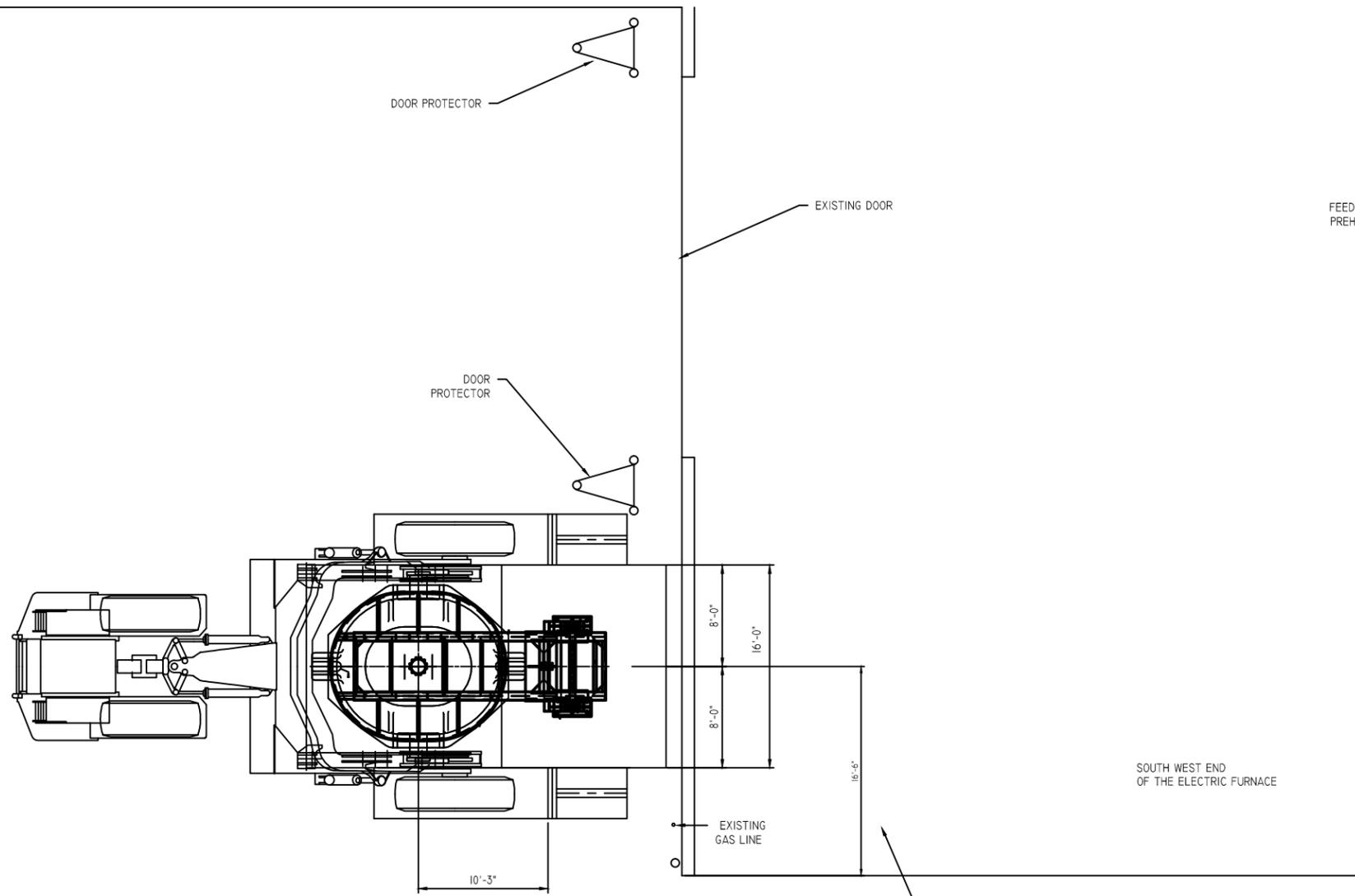
APPENDIX C

Desulf Slag Pot Reheat Station – Drawings

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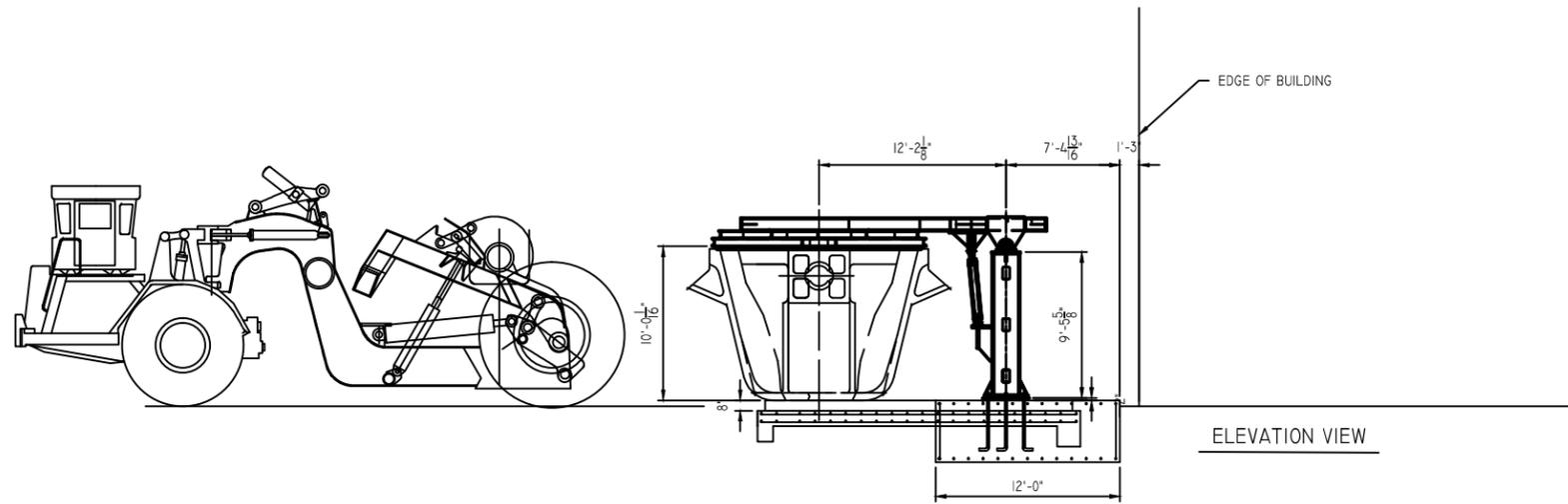
**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5



PLAN VIEW

PLAN VIEW OF CONCRETE CONFIGURATION



ELEVATION VIEW

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* * *	TOLERANCES UNLESS OTHERWISE NOTED:		
* * *	.XX +/- .010"		
* * *	.XXX +/- .005"		
* * *	ANGULAR DIMS +/- 1°	NOTE: 11"x17" REPRODUCTIONS ARE HALF THE SCALE SHOWN. SCALE IS FOR REFERENCE ONLY.	
* * *			
* * *		ALL WORK SHOWN ON THIS DRAWING AND ANY RELATED DRAWING MUST ADHERE TO THE LATEST OSHA REGULATIONS.	
8-18-14	1	JG	REVISED CONCRETE SUPPORT
DATE	NO.	BY	DESCRIPTION OF REVISION

EDW. C. LEVY CO.
9300 DIX AVENUE
DEARBORN, MI 48120 (313) 843-7200

TITLE: GENERAL LAYOUT OF THE POT PREHEAT STATION LOCATED SOUTHWEST END OF THE OLD ELECTRIC FURNACE

DR. JRG DATE: 2-11-16 PLANT: DESULF STATIONS

CK. SCALE: 3/16"=1'-0"

DRAWING NUMBER: PL6-069-G-004-001-1A



TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

APPENDIX D

Desulf Slag Pot Watering Process – Replacement Parts Inventory

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**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5



TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

Desulf Slag Pot Watering Station – Required Replacement Parts Inventory

SLAG POT WATERING STATION				
Item	Supplier (Suggested)	Inventory Requirement	On-site	Lead Time for Orders
Potassium Permanganate	Cairox	5 Five Gallon Cans	100%	3-5 Days
Water Recirculating Pump	Kerr-Pump and Supply	1	100%	N/A
Potassium Permanganate Pump	Grainger	1	100%	N/A
Water Meter	Dwyer-Instruments	1	100%	3 weeks
SLAG POT REHEAT STATION				
Item	Supplier	Inventory Requirement On-site		Lead Time for Orders
Refractory Brick	2000 °F (Suggested)	Per manufacturer this is a custom made item		6 weeks

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FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station O&M Plan_08282020		REV. 5
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TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

APPENDIX E

Procedures

If printed, it is the user's responsibility to check that this document reflects the latest revision level.

**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
1. Pre-Trip Inspection	Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher	<p>NOTE: You must wear a hard hat and safety glasses when outside of equipment or outside of plant offices.</p> <p>*Hard hat must be worn at all times inside the equipment.</p> <ol style="list-style-type: none"> Before beginning any work, set Mill Radio to BOF Channel and the levy company radio to channel 3. Mount and dismount all equipment maintaining 3 points of contact, using all handrails/steps, and facing the vehicle throughout. Perform pre-trip inspection as indicated on timecard: <ol style="list-style-type: none"> Complete Daily Equipment Inspection report and report all damage Clean all windows, mirrors, lights, and reflectors to ensure full visibility. Check tires for damage or wear (cracks, lack of tread) Buckle safety belt; must be worn at all times while inside vehicle. 	<p>Falling objects, eye injury</p> <ol style="list-style-type: none"> Miscommunication Slips, trips, and falls Slips, trips, and falls <p>Impaired visibility</p>
2. Fueling	Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher	<ol style="list-style-type: none"> Pot Hauler fuels at the fuel pump located south of the BOF. Shut down engine before beginning fueling. <p>NOTE: THERE IS ABSOLUTELY NO SMOKING ALLOWED WHILE FUELING</p> <ol style="list-style-type: none"> You are not permitted to leave the area while fueling. Report all spills so that the contaminated ground can be properly cleaned up. Note fuel consumption on timecard. 	<ol style="list-style-type: none"> Fire/Burns Spills

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
<p>3. General Vehicle Operation</p>	<p>Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher</p>	<ol style="list-style-type: none"> 1. Smooth Operation of the Pot Carrier is imperative. Jerky movements or bumping the pots can cause desulf material to spill. This can cause a fire and put the operator and equipment at risk. 2. NEVER travel with the struts down. 3. Obey all rules and regulations of workplace roadways such as stop signs, speed limits, and rail road crossings. <ol style="list-style-type: none"> a. The mill-wide speed limit for all vehicles is 10 miles per hour. b. The speed limit with a full pot is 10 miles per hour. 4. Allow 100 feet of distance when following any other piece of equipment. 5. Never stop on a roadway and begin to back up unless there is a safety person to direct the path of travel or communication has been made with another co-worker to make sure the roadway is free of traffic. 	<ol style="list-style-type: none"> 1. Explosions, fire and burns. 2. Equipment Damage 3. Collisions with other equipment, vehicles or pedestrians. 4. Collisions with other equipment, vehicles or pedestrians. 5. Collisions with other equipment, vehicles or pedestrians.

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
		<ol style="list-style-type: none"> 6. ALWAYS turn your chair to face the direction of travel and do not move the slag pot carrier until the seat is locked in place. 7. When backing up pot carrier, thoroughly check in all directions to ensure no personnel or equipment is in the area before traveling. 8. Whenever communicating on the radio, always wait for confirmation that it is safe to proceed before proceeding into an overhead crane area. 9. If your route of travel is obstructed in any way, clean it before proceeding. If you are unable to do so safely on your own, call supervision. 10. Be aware of your surroundings on all sides of the equipment and anticipate the actions of other operators. 11. Always mount and dismount equipment maintaining 3 points of contact, using all handrails/steps, and facing the vehicle throughout. 12. Always fully raise the struts while carrying pots to prevent them from scraping along the ground. 13. Set the parking brake before exiting the pot carrier. 14. If you will ever be more than 25 feet away from equipment or equipment will be out of sight, shut it down and set the parking brake before dismounting. 	<ol style="list-style-type: none"> 6. Collisions with equipment, vehicles or pedestrians. 7. Collisions with equipment, vehicles or pedestrians. 8. Miscommunication 9. Collisions with equipment, vehicles or pedestrians. 10. Collisions with equipment, vehicles or pedestrians. 11. Slips, trips, and falls 12. Material could spill out of the pot while driving on uneven roads. Equipment damage.

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
<p>4. Pre-Heating a Desulf Pot</p>	<p>Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher</p>	<ol style="list-style-type: none"> 1. After receiving a notice from the mill to change desulf pots, drive to the Preheat Station. 2. Open the Pre-Heater Lid using the remote control within the pot carrier cabin. <ol style="list-style-type: none"> a. Note: make sure Pre-Heater flame is out by visually confirming that flame is out and blinking red light is off. 3. Turn your chair to face direction of travel. 4. Align pot carrier tires with wheel stops in the Pre-Heater Assembly. 5. Lower the struts and carefully back in taking care to not damage the equipment or tip the pot. 6. Back in as straight as possible to the pot. 7. Once in position, lift the struts and engage the locks. Visually inspect the locks to verify that they have engaged. 8. After remove pot from preheat station proceed to pot slagger and put one cycle of slag into pot. 9. Raise pot to required travel elevation and travel to Mill. 10. If the Pre-Heater is down the pot will have to be heated with Hot Field Slag. 11. Communicate with a Levy Loader Operator to request a loader to slag the pot. 12. Position pot so the loader can easily dump hot slag into pot. Unhook from the pot and wait until the pot has been slagged to proceed. 13. Once the pot has been slagged, lower the struts and back in as straight as possible to the pot. 14. Once in position, lift the struts and engage the locks. Visually inspect the locks to verify that they have engaged. 15. Raise pot to required travel elevation and travel to Mill. 	<ol style="list-style-type: none"> 1. Collisions with other heavy equipment or vehicles. 2. Fire, burns, equipment damage, flame may be invisible; look for distortion. 3. Falling pot, equipment damage 4. Falling pot 5. Collisions with other heavy equipment or vehicles. <p>11-16. Collisions with other heavy equipment or vehicles.</p>

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
5. Desulf Slag Pot Pickup at BOF	Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher	<ol style="list-style-type: none"> 1. Travel to the South End of the Charge Aisle. 2. Before entering the mill, make radio contact with crane operator and ask for permission to enter. Once confirmation has been granted proceed. 3. Take the empty pot to the designated drop-off location. 4. Align the pot so trunions are aligned north to south to enable overhead crane pickup and turn your chair to face the direction of travel. 5. Check that drop location is clear of standing water and hot slag. If obstructed, contact the Levy BOF Operator for cleaning. Also, ensure drop location is on level ground. 6. Check for pedestrians or other equipment obstructing your path of travel. 7. Back in and lower struts, carefully lowering pot to ground. 8. Once pot is down, disengage locks, turn chair to direction of travel, and pull off the pot as straight as possible. 9. Position pot carrier to pick up the full pot. 10. Check to make sure that area around pot is free of hot slag or other obstructions that could cause equipment damage. If obstructed, contact Levy BOF Operator for cleanup. 11. Align the tires with the sides of the pot and turn chair in direction of travel. 12. Fully lower struts and verify that they are lowered completely before proceeding. 13. Ensure path of travel is free of pedestrians. 14. Back in slowly and carefully, staying as straight as possible on the pot. 15. Once on the pot, fully raise the struts and engage the locks. Visually inspect to verify that locks are engaged. 16. Turn chair to face direction of travel and proceed out of the mill to the Water Station. 	<p>Note: Crane is in operation in this area. Be alert and watch for moving and falling equipment.</p> <ol style="list-style-type: none"> 4. Poor visibility leading to collisions 5. Equipment Damage 6. Running over pedestrians 7. Pot falling 8. Running over pedestrians, pot falling 11. Tipping pot over 12. Equipment damage 13. Running over pedestrians 14. Pot falling 15. Pot falling 16. Collisions with other heavy equipment or vehicles.

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
		17. Once you leave the mill, notify the Desulf Operator that you are heading to the Desulf Processing Area. This will give the Operator time to finish whatever work he is doing and get to a safe area.	17. Miscommunication
6. Desulf Slag Pot Placement & Removal at Pot Watering Station	Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher	<ol style="list-style-type: none"> 1. Use the mill road to reach Water Station. 2. When steam limits visibility, use caution and maintain constant vigilance to prevent accidents. Keep cabin windows, mirrors, and lights as clean as possible to increase visibility. 3. Upon arriving at Water Station, check to see which side (North or South) has the lowest numbered open station. 4. During winter months, ice can create slippery conditions. If station is unpassable, contact supervision for loader support. 5. Align center of pot directly beneath spray head. 6. Check that drop location is free of obstructions. Contact Levy BOF Operator or supervision for cleanup if needed. 7. Carefully back in until pot is in position. Lower struts to lower the pot. Once standing, disengage the locks and back out keeping as straight as possible on the pot. 8. Record pot movement on Desulf Slag Pot Movement Form (Shift) and Pot Watering Log (Continuous). 9. Identify coolest pot. It should be located at the next water station. (For example, if you dropped a pot at station 5, the coolest pot should be at station 6). Management will notify operators of exceptions to this rule. VIP: Minimum of 48 hours of watering time 10. If pot is on the opposite side of the Water Station from your current location, use the mill road to drive around. DO NOT under any circumstance drive through the area to the west of the water station where the excavator is located. 	<ol style="list-style-type: none"> 1. Traffic Collisions 2. Limited Visibility 4. Icy Roads 7. Pot Falling 10. Rail Traffic

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
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	<p>Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher</p>	<p>11. Check temperature of pot to be removed from the watering station. Move the temperature sensor to a direct line of sight (not through glass) and check the temperature reading of the pot to be picked up. Take the temperature in the center of the pot. If temperature is: <i>a. over 100° F: call supervisor before proceeding</i> <i>b. under 100° F: proceed.</i></p> <p>12. Record pot movement on Desulf Slag Pot Movement Form (Shift).</p> <p>13. Align struts with outer walls of the pot to be picked up.</p> <p>14. Turn chair in direction of travel.</p> <p>15. Ensure path of travel is free of pedestrians and obstructions.</p> <p>16. Check to make sure that area around Pot is free from obstructions and/or hot slag. Contact supervision for clean up if needed.</p> <p>17. Back in slowly and carefully, staying as straight as possible on the pot.</p> <p>18. Once on the pot, fully raise the struts and engage the locks. Visually inspect the locks to verify that they are locked.</p> <p>19. Raise pot to traveling height and take it to the Desulf Slag Dump Station. If coming from North side of water station, use the mill road to drive to the skull pit. DO NOT under any circumstance drive through the area to the west of the water station where the excavator is located.</p>	<p>11. Falling from Equipment</p> <p>15. Running over pedestrians</p> <p>16. Equipment damage</p> <p>17. Pot Tipping</p> <p>18. Pot falling off</p> <p>19. Collisions with other equipment</p>
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JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
7. Desulf Slag Pot Dumping at Desulf Slag Dump Station	Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher	<ol style="list-style-type: none"> 1. Make sure all movements are kept as smooth as possible. 2. Align pot carrier wheels with the wheel stops at the desulf slag dump station. Turn chair in direction of travel, check for pedestrians, and drive equipment carefully up the hill. 3. Take extreme caution, especially during the winter months. 4. Sound your horn to warn others that you will be dumping a pot. 5. Once in position, raise the struts to pour the pot out into the pit. 6. Observe particulate emissions generated during the dumping process. Record whether these emissions were normal or abnormal on the Desulf Slag Pot Movement Form. Notify Supervision immediately of any abnormal observations. 7. If all material does not fall out, tap the pot to empty it, contact supervision if material will not release from pot. 8. Lower struts to level the pot and raise to safe travel height. Turn chair to direction of travel and drive to Pre-Heat Station using the mill road. 	<ol style="list-style-type: none"> 1. Equipment damage 2. Equipment damage, running over pedestrians 3. Equipment damage 4. Equipment damage 5. Injury to personnel if not warned of dumping. 6. Environmental release

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
<p>8. Desulf Slag Pot Placement at Reheat Stand</p>	<p>Hard Hat (worn at all times in the equipment), Foam Lined Safety Glasses, Safety Boots (metatarsals) Two way Radio, Gloves Reflective FR Uniform, Carbon X Undergarments Fire Extinguisher</p>	<ol style="list-style-type: none"> 1. Prior to placing pot into pre-heater, visually inspect pot for damage/cracks. Document inspection on pot inspection form. Turn pot inspection form in daily with time card. 2. Check to make sure that the lid is open and that the flame is out. 3. If lid is closed, attempt to open it using the remote control. If this does not work, contact supervision. 4. Align tires with wheel stops. 5. Check to make sure that Pre-Heat area is free of pedestrians and obstructions. 6. Back equipment up until the pot is in position. Ease onto the wheel stops to avoid damage. 7. Reverse six inches off the wheel stops to place the pot centered underneath the preheater. 8. Carefully lower the struts until the pot comes to rest. 9. Disengage the locks off of the trunions. Visually inspect to verify that the locks are disengaged and the pot is centered below the preheater's lid. 10. Turn chair to direction of travel, check for pedestrians and slowly back out keeping as straight as possible on the pot. 11. Use remote control to lower the Preheater Lid and return to operations. 	<ol style="list-style-type: none"> 4. Collisions, running over pedestrians 5. Equipment damage 6. Pot falling over 9. Running over pedestrians

JBSA Name: Desulf Pot Handling



JOB BREAKDOWN SAFETY ANALYSIS

Site: Plant 6

Document # DET6-BOFPH-003

Issue Date: 5/28/2014

Revised Date: 4/9/2019

Reviewed By: Tim Lazarz

Principal Step	Safety Equipment	Procedure and Precautions	Hazards or Threats
REVISION Record		11/20/2016 <ul style="list-style-type: none"> Added detail to PPE requirements Adjusted mill speed limit to 10 MPH 2/21/2019 <ul style="list-style-type: none"> Added to Principal Step 4, "Pre-Heating a Desulf Pot", step 8, inspect pot prior to placing into service. 4/9/2019 <ul style="list-style-type: none"> Added step 8, add slag to pot, to Principal Step 4 Modified pot inspection step 1 to Principal Step 8 48 hours watering minimum highlighted 	Jeni Miller Greg Fallu Greg Fallu



TITLE:

Desulf Slag Pot Watering Station O&M Plan

PROCEDURE NO.:

ENV-005-P004

APPENDIX F

Forms

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**FILENAME: 5 (Text Only) ENV-005-P004 Desulf Slag Pot Watering Station
O&M Plan_08282020**

REV. 5



TITLE:
Daily Equip Insp Log – Desulf Watering Station

PROCEDURE NO.:
ENV-005-F004

Date: _____ **Inspector Name:** _____

Manager or Designee Printed Name: _____

Manager or Designee Signature: _____

Date: _____

Pump #	Reading Time	Meter Reading	10 Desulf Water Sprays Operational?		Potassium Permanganate System Operational?								Corrective Action Required? (Y or N)
					Pump Operational?		Agitator Operational?		Tank in good condition?		Permanganate Stock Adequate? (2 cans minimum)		
			Y	N	Y	N	Y	N	Y	N	Y	N	
#1		Hrs:	Description of equipment failure(s), excessive sulfur odor, cause of failure(s), corrective action(s) and other observations:										
		Hrs. X 27,000*											
#2		Hrs:											
		Hrs. X 27,000*											

*Pump capacity is 450 gal/minute, which is 27,000 gal/hour. Inspector will multiply hours by 27,000 gal/hour for entry into LEAP.

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TITLE:
Desulf Slag Pot Movement Form

PROCEDURE NO.:
ENV-005-F005

Operator Name: _____ Date: _____ Shift: _____

Operator Last Name	Pot Number	Watering Station # Pot Placed Under	Date Watering Started	Time Watering Started	Water Station Flow (normal/abnormal)	Odor (N/A)	Operator Last Name	Watering Station # Pot Removed From	Date Watering Ended	Time Watering Ended	Pot Temperature At Removal	Pot Dump Visible Emission* (Abnormal/Normal)

Description of equipment failure(s), cause of failure(s), corrective action(s) and other observations:

*If abnormal conditions are found:
 Document who was notified, whether or not the unit was shut down, what corrective measures were taken or are to be taken and when the condition was corrected or expected to be corrected. For processes operated continuously, "normal" means visible emissions were not significant and did not leave the immediate area of the pot knocking station. Emissions observations are made at the point of operation that would normally be expected to cause the greatest emissions.

If printed, it is the user's responsibility to check that this document reflects the latest revision level.

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION**

EFFECTIVE DATE: April 22, 2016

REVISION DATE: January 19, 2017

ISSUED TO

AK STEEL DEARBORN WORKS

State Registration Number (SRN): A8640

LOCATED AT

4001 Miller Road, Dearborn, Michigan 48120

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-A8640-2016a

Expiration Date: April 22, 2021

Administratively Complete ROP Renewal Application
Due Between October 22, 2019 and October 22, 2020

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-A8640-2016a

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

Wilhemina McLemore, Detroit District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a source-wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, or is state only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP.

Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

This permit does not relieve the permittee from any responsibilities or obligations imposed on the permittee, at this source, under Consent Decree (Civil Action No. 15-cv-11804) entered into on August 21, 2015; Consent Order SIP No. 30-1993 issued on November 2, 1994; Consent Order SIP No. 18-1993 issued on September 9, 1994 to Edw. C. Levy Co.; Consent Order Number 6-2006 issued on March 21, 2006; and Consent Order 9-2010 issued on April 23, 2010.

AK Steel Dearborn Works, A8640; and Edw. C. Levy Co., Plant 6, B4243 are considered to meet the criteria under Rule 336.1119(r) as single stationary source for purposes of the ROP program only, but were issued a separate ROP for the main slag processing plant as a result of negotiations.

SECTION 1 – AK STEEL DEARBORN WORKS

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state-only enforceable Source-Wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R 336.1214a(5))**
- Those conditions that are hereby incorporated in a federally enforceable Source-Wide PTI pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as “state-only” are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee’s own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2).² **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Unless otherwise specified in this ROP, the permittee shall comply with Rule 301, which states, in part, “Except as provided in subrules 2, 3, and 4 of this rule, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of the following:”² **(R 336.1301(1))**
 - a. A 6-minute average of 20% opacity, except for one 6-minute average per hour of not more than 27% opacity.
 - b. A limit specified by an applicable federal new source performance standard.

The grading of visible emissions shall be determined in accordance with Rule 303.

12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property.¹ **(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property.¹ **(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner’s or operator’s expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1).² **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(5))**