AI # 3518

Northern Iron & Machine

DQ # 7645

867 Forest St N
Saint Paul, MN 55106

northernim.com

September 10, 2024

VIA-HAND DELIVERY

Minnesota Pollution Control Agency
Fiscal Services – 6th Floor
520 Lafayette Road North
St. Paul, MN 55155-4194

Re: Northern Iron LLC
867 Forest St. N., St Paul, MN 55106
Air Permit Amendment Application Submittal

Dear Sir or Madam:

Enclosed is Northern Iron LLC's application to amend its existing permit. This submission includes:

1. A completed SCP-01 form with my original signature,
2. The required $7,125.00 application fee,
3. The complete application and Microsoft Excel version of the supporting calculations which are included on the enclosed flash drive, and
4. A complete notice with supporting forms for one dust collection system referenced as TREA48 is also included in the enclosed application forms. The dust collection system will be ready for installation following seven business days' notice to the agency pursuant to Minn. R. 7007.1150, Subpart C. Northern Iron LLC will coordinate installation on or after September 20, 2024.

Please do not hesitate to contact me at (608) 295-9770 or tgrutza@lawtonstandard.com if you have any questions regarding this submittal.

Sincerely,

Tierney Grutza

Enclosures
SCP-01, USB Storage Drive with Modeling Data, Air Permit Modification Application, G1-07/Supporting Calcs

aq5-39

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North
St. Paul, MN 55155-4194

SEP 10 2024

RECEIVED
SEP 10 2024
BY:

Check from: Lawton Standard Co
Check # 5510 3598
Amt of Check 7,125
Date of Check
Date of Dep.

SCP-01: Submittal cover page

Permit application/notification/ determination request fee submittal

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 5.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Submittal is (choose from the following options and then complete the remainder of item 3 as directed):

- ☐ The final certified (or recertified) version of a previously-submitted permit application. **Complete Section 3A.**
- ☐ Additional or supplemental information requested by permit staff during the permit-writing process. **Complete Section 3A.**
- ☐ A request that the Minnesota Pollution Control Agency (MPCA) make an applicability determination. **Complete Section 3A.**
- ☐ An application for a new Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for reissuance of an Individual Part 70 or State Permit. **Complete Section 3B.**

Note: Applications for reissuance must be submitted using the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Applications outside of the e-services website will only be accepted if there is a request for confidentiality.

- ☒ An application for an amendment to an existing Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for a Registration Permit, Capped Permit, or General Permit. **Complete Section 3C.**
- ☐ An application for an administrative change to an existing Registration, Capped, or General Permit. **Complete Section 3C.**

Note: Once the e-Service is available, registration, Capped, and General permit holders can electronically apply for an administrative change to their permit through MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. At some point, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied. Check the MPCA website for the current status.

- ☒ A notification required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; Minn. R. 7007.1350; Minn. R. 7007.0800, subp. 10, item B. **Complete Section 3D.**
- ☐ A notification from a hot mix asphalt plant holding a Registration Permit of the intent to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt. **Complete Section 3D.**

Section 3A – Request for applicability determination, recertification of a previously-submitted permit application, or supplement to a previously-submitted permit application

Use this section only if your submittal is one of the following:

- The final version of a previously submitted permit application, incorporating changes negotiated through the permitting process, or
- Submittal of additional or supplemental information requested by permit staff during the permit-writing process, or
- A request for the MPCA to make an applicability determination.

For final versions and supplemental information, enter the "tracking number" which can be obtained from the MPCA permit staff working on the permit.

Check one of the boxes below. Do not complete Sections 3B, 3C, or 3D. Continue with item 4 of the form.

Choose one of the following:		Quantity	Points	Total points
☐ Recertification of a previously-submitted permit application – tracking number:		NA	NA	NA
☐ Supplement to a previously-submitted permit application – tracking number:		NA	NA	NA
☐ An Applicability Determination Request			x 10 =	

Section 3B – Application for an Individual Part 70 or State Permit, reissuance of an Individual Part 70 or State Permit, or amendment of an Individual Part 70 or State Permit

Choose one of the following:

☒ This is the original application or replacement for a denied or withdrawn application. Complete the table below.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	**Quantity**	**Points**	**Total points**
☐ Application for an Individual Part 70 Permit		x 75 =	
☐ Application for an Individual State Permit		x 50 =	
☐ Application for reissuance of an expiring Individual Part 70 or State Permit (does not include modifications to a permit that require an amendment) **Note:** Applications outside of the e-services website will only be accepted if there is a request for confidentiality.			
Expiration date: _____ *(mm/dd/yyyy)* Application due date (180 days prior to expiration): _____ *(mm/dd/yyyy)*	NA	NA	NA
☒ Application for a major amendment to an Individual State or Part 70 Permit ☐ Includes reconstruction or modification of a New Source Performance Standards (NSPS) Affected Facility not subject to New Source Review	1	x 25 =	25
☐ Application for a moderate amendment to an Individual State or Part 70 Permit		x 15 =	
☐ Application for a minor amendment to an Individual State or Part 70 Permit		x 4 =	
☐ Application for an administrative amendment to an Individual State or Part 70 Permit. For administrative amendments to individual permits, use the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Administrative amendment applications outside of the e-services website will only be accepted if there is a request for confidentiality.		x 1 =	

Additional information (check all that apply):

☒ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review). The tracking number associated with the preapplication work is: 447591

Date preapplication work was submitted: 5/29/2024

☐ Permit will replace an existing permit of a different type (e.g., replacing a Capped Permit with an Individual State Permit, or replacing a Part 70 General Permit with an Individual Part 70 Permit).

☐ Permit is for construction of a new facility.

☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.

☐ Project is subject to Prevention of Significant Deterioration (PSD) (40 CFR § 52.21). Send a complete copy of the application to U.S. Environmental Protection Agency (EPA) Region V (see instructions).

☐ Permit is required because of installation or modification of a Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all permit thresholds (Minn. R. 7007.0500, subp. 2.C.(1)).

Section 3C – Application for a Registration, Capped, or General Permit

Choose one of the following:

☐ This is the original application or replacement for a denied or withdrawn application. Complete the table below.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	Quantity	Points	Total points
☐ Application for a Registration Permit ☐ Option A ☐ Option B ☐ Option C ☐ Option D		x 2 =	
☐ Application for a Capped Permit ☐ Option 1 ☐ Option 2		x 4 =	
☐ Application for a Part 70 General Permit ☐ Manufacturing General Permit		x 4 =	
☐ Application for a State General Permit ☐ Nonmetallic Mineral Processing General Permit		x 3 =	
☐ Application for an administrative change to an existing Registration, Capped, or General Permit (e.g., change of facility ownership)		x 1 =	

Additional information (check all that apply):

- ☐ Permit will replace an existing permit of a different type (e.g., replacing a Registration Permit with a Capped Permit; replacing an Option B Registration Permit with an Option D Registration Permit; etc.)
- ☐ Permit is required for construction of a new facility.
- ☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- ☐ Permit is required because of a modification or change making the facility ineligible for its existing Air Emission Permit.
- ☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review or the facility was notified of a petition for Environmental Review). The tracking number associated with the preapplication work is:

Section 3D – Notifications

If your submittal also includes a permit application, then also complete Section 3A, 3B, or 3C as applicable. Check all applicable boxes below, then continue with item 4 of the form.

- ☐ A notification of accumulated insignificant activities (Minn. R .7007.1250, subp. 4)
- ☒ A notification of installation of pollution control equipment (Minn. R. 7007.1150, item C)
- ☐ A notification of replacement of a unit (Minn. R. 7007.1150, item C)
- ☐ A notification of replacement of controls with listed controls (Minn. R. 7007.1150, item C)
- ☐ A notification of changes that contravene a permit term (Minn. R .7007.1350)
- ☐ A notification from a hot mix asphalt plant including a request to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt (applies to Registration Permits) Minn. R. 7011.0913, subp. 3)

4) Total points ("total points" from Section 3A, 3B, or 3C)

25

5) Total application fee

25 (total points from item 4) x $285 = $ 7,125 (fee amount)

The application fee amount is $285 per point, payable to the MPCA. Send your payment ("fee amount") with your submittal. The fee is not refundable, per Minn. R. 7002.0016, subp. 1. There may be additional fees assessed during processing of your request, as required by Minn. R. ch. 7002.

Note: If an application is resubmitted for a different type of amendment or permit, the original fee is not refundable nor transferable. The resubmitted application fee must be paid in full.

6a) Confidentiality statement

- ☒ This application does not contain material claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Skip item 6b, go to item 7.
- ☐ This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Complete Item 6b. Your submittal must include both Confidential and Public versions of your application.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box above ("This application does not contain…..").

☐ Confidential copy of application attached ☐ Public copy of application attached

6b) Confidentiality certification

To certify data for the confidential use of the MPCA, a responsible official must read the following, certify to its truth by filling in the signature block on the following page, and provide the stated attachments.

☐ I certify that the enclosed permit application(s) and all attachments have been reviewed by me and do contain confidential material. I understand that only specific data can be considered confidential and not the entire application or permit. I certify that I have enclosed the following to comply with the proper procedure for confidential material:

- ☐ I have enclosed a statement identifying which data contained in my application I consider confidential, and I have explained why I believe the information qualifies for confidential (or non-public) treatment under Minnesota Statutes.
- ☐ I have explained why the data for which I am seeking confidential treatment should not be considered "emissions data" which the MPCA is required to make available to the public under federal law.
- ☐ I have enclosed an application containing all pertinent information to allow for completion and issuance of my permit. This document has been clearly marked "confidential".
- ☐ I have enclosed a second copy of my application with the confidential data redacted (blacked out, not omitted or deleted entirely). It is evident from this copy that information was there, but that it is not for public review. This document has been clearly marked "public copy".

Owner responsible official:

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable):

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

7) Submittal certification

I certify under penalty of law that the enclosed documents 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 also certify, in accordance with Minn. R. 7007.0500, subp. 2 (K)(2) and subp. 2 (K)(3), that I have reviewed the procedures implemented by my facility to maintain compliance and that those procedures are, to the best of my knowledge and belief, reasonable to maintain compliance with all applicable requirements, including those that will become applicable during the term of the permit.

I also certify, in accordance with Minn. R. 7007.1450, subp. 4(D), that if this application requests the use of the minor or moderate permit amendment procedures, the proposed change is not part of a larger project which, taken as a whole, would not qualify for treatment as a minor or moderate permit amendment.

Choose one of the following:

☐ I certify that no construction is associated with the permit action sought by this permit application.

☐ I certify that my project includes construction, but construction has not yet been started except as allowed under Minn. R. 7007.1110, subp. 10 or Minn. R. 7007.1250, subp. 4, and will not begin until the permit is issued except as allowed under Minn. R. 7007.1110, subp. 12; Minn. R. 7007.1142, subp. 2; Minn. R. 7007.1150, item C; or Minn. R. 7007.1450, subp. 7.

☒ My project includes construction, and construction other than what is allowed under Minnesota Rules has been started.

Choose one of the following:

☒ I certify that my Facility is or will be located **outside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection).

☐ I certify that my Facility is or will be located **inside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection). I understand that the CL&E process applies before a permit can be issued.

Owner responsible official

Print name: Tierney Grutza

Title: CAO

Signature: [signature]

Date (mm/dd/yyyy): 9/10/2024

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

8) Package submittal

Applications, notifications, and/or requests that are submitted without authorized signature(s) (under submittal certification for all applications and under confidentiality certification if you are seeking confidential treatment of any information in the application); without required forms, and/or without the required application fee, will be returned. You must submit at least one SCP-01 that bears the original signature(s) (i.e., is not a photocopy of the signed signature page). Please make your check out to the Minnesota Pollution Control Agency. Send the complete application package and check to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

You may choose to submit your application as a "pdf" file on an electronic media, such as a compact disc (CD) or USB drive. If you choose this option, you must still include a paper copy of any form that requires a signature.

Instructions for submittal cover page

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you have never had an air quality permit or don't know this number, leave this line blank.

2) Facility name -- Enter your facility name.

3) This submittal is for -- Check the appropriate box describing what you are submitting. Then proceed to the section indicated (Section 3A, 3B, 3C, or 3D) and follow the applicable instructions.

State Operating Permit Modification Application

Air Emission Permit No. 123-00088-003

Northern Iron LLC

Saint Paul, Minnesota

September 10, 2024

PREPARED FOR:

Northern Iron LLC

Saint Paul, Minnesota

MPCA INTEREST ID NUMBER: 3518

MPCA TRACKING NUMBER: 447591

SPIRIT PROJECT: 24268.00A

FOR SPIRIT ENVIRONMENTAL:

Robert Osborn

Roberto Gasparini, Ph.D.

OFFICE: 281-664-2490
FAX: 281-664-2491

20465 State Highway 249, Suite 300
Houston, TX 77070

spiritenv.com

Table of Contents

List of Tables

1.0 Executive Summary

Northern Iron LLC (Northern Iron) located in Saint Paul, Minnesota submits this application to the Minnesota Pollution Control Agency (MPCA) to modify Air Emission Permit No. 123-00088-003 to: (1) include equipment installed prior to current permit issuance but not listed in the permit, (2) include equipment installed after current permit issuance, (3) remove equipment removed since the current permit issuance, (4) request increases to material throughput limits, and (5) notify the agency of the planned installation of emission control equipment including one (1) new dust collector and replacement of the filters in two (2) existing baghouses with higher efficiency filters. Northern Iron provided notice to the agency of the planned installation of two additional dust collectors on August 20, 2024.

2.0 Introduction

Northern Iron LLC (Northern Iron) operates an iron foundry producing both gray and ductile iron castings up to 250 pounds. Castings are made to the standards required under American Society for Testing and Materials (ASTM) A536, Society of Automotive Engineers (SAE) J434, ASTM A48, and SAE J431. The details of this specific application are included in Section 3.0. A detailed process description is included in Section 4.0. A review of regulatory applicability is included in Section 5.0. The forms associated with this project are included in Appendix A. Design details for the three (3) new baghouses and upgrade high efficiency filters for the two (2) existing baghouses are included in Appendix B. The emission calculations supporting the changes in this application are detailed in Appendix C.

3.0 Project/Modification Description

Northern Iron LLC submits this application to modify Air Emission Permit No. 123-00088-003 to: (1) include equipment installed prior to current permit issuance but not listed in the permit, (2) include equipment installed after current permit issuance, (3) remove equipment removed since the current permit issuance, (4) request increases to material throughput limits, and (5) notify the agency of the planned installation of emission control equipment including one (1) new dust collector and replacement of the filters in two (2) existing baghouses with higher efficiency filters. Northern Iron provided notice to the agency of the planned installation of two additional dust collectors on August 20, 2024.

Northern Iron is sealing off the eight (8) “Doghouse” or High Bay vents which were fugitive points of emissions. By closing off these fugitive points, all emissions that are released indoors including emissions from control devices that exhaust indoors, will be controlled by one of the three (3) new dust collectors (Control Equip ID Numbers: TREA46, TREA47, and TREA48).

As described in more detail in this application and accompanying forms, Northern Iron has purchased two (2) UAS/Dust Hog SBD 160-4 dust collection systems. Each of these systems is rated at 110,000 cubic feet per minute (cfm) with 49,600 square feet (ft^2) of total filter media area for an Air-To-Media Ratio of 2.21:1. These collectors will use Donaldson Ultra-Web Filter Media which has an emissions guarantee of no more than 0.002 grains per dry standard cubic foot (gr/dscf). The collectors will be installed on the southwest side of the main building and designated as Control Equip ID Numbers TREA46 and TREA47 and Stack ID Numbers STRU46 and STRU47, respectively. Northern Iron provided notice to the agency of the planned installation of two additional dust collectors (TREA46 and TREA47) on August 20, 2024.

A Donaldson Torit Powercore CPV-3 will be added as emissions control on Stack ID Number STRU35. This collector will use Donaldson Ultra-Web Filter Media which has an emissions guarantee of no more than 0.002 gr/dscf.

Higher efficiency filters will replace the filters for the Sand Handling baghouses (Control Equip ID Numbers: TREA 2 and TREA 23 and Stack ID Numbers STRU12 and STRU13, respectively). These collectors will use Donaldson Ultra-Web Filter Media which has an emissions guarantee of no more than 0.002 gr/dscf.

The Donaldson Torit Powercore CPV-3 is anticipated to be installed on or after September 20, 2024 which follows the seven (7) business day notice requirements under Minn. R. 7007.1150, Subpart C.

No new emission units are proposed to be installed as part of this permitting action. Northern Iron notes that while certain emissions units included in this application were installed by a prior owner and were not included in the Site's current air permit, Northern Iron has or will notify the agency of the installation of new emission control devices in accordance with Minnesota law and will not be installing any new emission units beyond those that currently exist at the Site.

Northern Iron also proposes to modify some of the emission unit descriptions to be consistent with the current naming system used at the facility and avoid confusion for both MPCA and the facility. As a result, in this application and accompanying forms: (1) Emission unit descriptions using "Pallet Line" or "Pallet" have been changed to "DISA Line" or "DISA" and "DISA" added to equipment for this line, and (2) emission unit descriptions using "Flask Line" or "Flask" have been changed to "30^2 Line" or "30^2" and "30^2" added to equipment for this line. Northern Iron requests that the naming and descriptions as detailed in this application and the accompanying forms be used for permitting purposes.

The following tables depict the control equipment and emission unit associations to supplement the application forms, and provide a clearer depiction of the emission units, the equipment, and the facility.

Table 3-1 below lists emission units included in the current permit that have been decommissioned and/or removed:

Table 3-1 Decommissioned/Removed Equipment

EQUI	EU	Description
EQUI6	EU006	Electric Induction Furnace A
EQUI7	EU007	Electric Induction Furnace B
EQUI8	EU011	Old Core Oil Oven
EQUI10	EU013	Core Baking (4 Machines)
EQUI14	EU019	Shot Blast Booth 1
EQUI15	EU020	Shot Blast Booth 2
EQUI19	EU031	Center Cutoff Saw
EQUI21	EU033	Double Disc Grinder
EQUI22	EU034	Surface Grinder
EQUI25	EU037	#1 Bench Grinder
EQUI26	EU038	#2 Bench Grinder
EQUI27	EU039	#3 Bench Grinder
EQUI40	EU043	Snag Grinder 1
EQUI99	EU009	30^2 Mold Handler
EQUI101	EU008	DISA Mold Handler

Table 3-2 below lists active equipment that was installed after current permit issuance and is requested to be included in the amended permit:

Table 3-2 Equipment Installed After Current Permit Issuance

EQUI	Description
EQUI41	Snag Grinder 2
EQUI42	Snag Grinder 3
EQUI46	East MUA
EQUI47	West MUA
EQUI48	North MUA
EQUI49	South MUA
EQUI50	Finishing MUA
EQUI51	Tumblemill
EQUI52	Disco Core Machine
EQUI75	DISA Feed Belt
EQUI76	DISA Spill Belt
EQUI77	DISA Spill Pan
EQUI95	DISA Prepared Sand Tank
EQUI97	DISA Mold Machine
EQUI100	SW Chipping Bench
EQUI102	DISA Aerator
EQUI112	Disco Sand Tank
EQUI114	Furnace Basement MUA
EQUI120	Machine Shop MUA

As MPCA requested, in this application, currently permitted emission units are broken down into their respective components. The tables below list the currently permitted emission units by Emission Unit (EU) number and the components of each unit. The status of “Existing” indicates that the component was active at the issuance of the current permit. The status of “New” indicates that the component was installed after the issuance of the current permit.

Table 3-3 Currently Permitted Emission Units

EU	Description	Component EQUI	Component Description	Status
EU008	DISA Line Sand Handling	EQUI72	DISA Line Muller	Existing
		EQUI73	DISA Muller Discharge Belt	Existing
		EQUI74	DISA Muller Distribution Belt	Existing
		EQUI75	DISA Feed Belt	New
		EQUI76	DISA Spill Belt	New
		EQUI77	DISA Spill Pan	New
		EQUI78	DISA Spill Belt	Existing
		EQUI79	DISA Cross Spill	Existing
		EQUI85	DISA Mag Belt	Existing
		EQUI86	DISA Return Sand Elevator	Existing
		EQUI87	DISA 125 Ton Sand Bin	Existing
		EQUI88	DISA 125 Ton Belt	Existing
		EQUI89	DISA New/Old Belt	Existing
		EQUI90	DISA New/Old Elevator	Existing
		EQUI91	DISA Muller Storage Tank	Existing
		EQUI95	DISA Prepared Sand Tank	New
		EQUI96	DISA Bond Day Tank	Existing
		EQUI97	DISA Mold Machine	New
		EQUI102	DISA Aerator	New
		EQUI105	DISA Bond Transport	Existing
		EQUI110	DISA Outdoor Bond Tank	Existing
		EQUI115	DISA Hopper	Existing

Table 3-3 Currently Permitted Emission Units

EU	Description	Component EQUI	Component Description	Status
EU009	30^2 Line Sand Handling	EQUI60	30^2 Machine Belt Sand	Existing
		EQUI61	30^2 Sprue Belt	Existing
		EQUI62	30^2 Machine Incline	Existing
		EQUI64	30^2 Mag Belt	Existing
		EQUI67	30^2 Return Sand Elevator	Existing
		EQUI68	30^2 Aerator	Existing
		EQUI69	30^2 Incline to Blower	Existing
		EQUI70	30^2 Blower	Existing
		EQUI71	30^2 Sand Cooler	Existing
		EQUI92	30^2 Discharge Conveyor	Existing
		EQUI93	30^2 Cross Belt Conveyor	Existing
		EQUI94	30^2 Distribution belt conveyor	Existing
		EQUI98	30^2 Mold Making	Existing
		EQUI103	30^2 Return Sand Tank	Existing
		EQUI104	30^2 Muller	Existing
		EQUI106	30^2 Sand Tank	Existing
		EQUI107	30^2 Bond Tank	Existing
		EQUI108	30^2 Sand Day Tank	Existing
		EQUI109	30^2 Prepared Sand Tank	Existing
		EQUI116	30^2 Bond Day Tank	Existing
EU010	Core Sand Handling	EQUI111	ABC6 Sand Tank	Existing
		EQUI112	Disco Sand Tank	New
		EQUI113	Sand Loading (CR16 and CR22)	Existing
EU017	DISA Line Mold Shakeout	EQUI80	DISA #1 Oscillator	Existing
		EQUI81	DISA #2 Oscillator	Existing
		EQUI82	DISA #3 Oscillator	Existing
		EQUI83	DISA Didion	Existing
		EQUI84	DISA #5 Oscillator	Existing
EU018	30^2 Line Mold Shakeout	EQUI63	30^2 Unit 10	Existing
		EQUI65	30^2 Unit 11	Existing
		EQUI66	30^2 Unit 12	Existing

Table 3-4 below detail which EQUIs are controlled by each control device. TREAs 46, 47, and 48 control indoor fugitives and controlled emissions exhausted indoors; therefore, several EQUIs are duplicated. Control Equipment IDs listed as TREA#/# indicate control in parallel with no additional capture (dust collector with HEPA filter).

Table 3-4 Summary of Control Equipment Relationships

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
TREA2	DISA Line Sand Handling Baghouse	EU017	EQUI81	DISA #2 Oscillator
			EQUI82	DISA #3 Oscillator
			EQUI83	DISA Didion
		EU013	EQUI54	West CR16
			EQUI55	EAST CR16
			EQUI56	CR-22
		EU008	EQUI72	DISA Line Muller
			EQUI85	DISA Mag Belt
			EQUI86	DISA Return Sand Elevator
			EQUI87	DISA 125 Ton Sand Bin
			EQUI88	DISA 125 Ton Belt
			EQUI89	DISA New/Old Belt
			EQUI90	DISA New/Old Elevator
			EQUI105	DISA Bond Transport
			EQUI115	DISA Hopper
TREA23	30^2 Line Sand Handling Baghouse	EU018	EQUI63	30^2 Unit 10
		EU009	EQUI64	30^2 Mag Belt
			EQUI67	30^2 Return Sand Elevator
			EQUI71	30^2 Sand Cooler
			EQUI106	30^2 Sand Tank
			EQUI107	30^2 Bond Tank
			EQUI108	30^2 Sand Day Tank
			EQUI116	30^2 Bond Day Tank
			EQUI103	30^2 Return Sand Tank
			EQUI104	30^2 Muller
TREA18	Core Making Dust Collector	EU013	EQUI54	West CR16
			EQUI55	East CR16
			EQUI56	CR-22
TREA13/30	Metal Finishing Dust Collector 1 w/ HEPA	EU035	EQUI23	Double Belt Sander
			EQUI117	NE Finishing Grinder
TREA22/35	Metal Finishing Dust Collector 2 w/ HEPA	NA	EQUI41	Snag Grinder 2
		NA	EQUI42	Snag Grinder 3
TREA29/19	Metal Finishing Dust Collector 3 w/ HEPA	EU021	EQUI16	Tableblast
		NA	EQUI51	Tumblemill
		EU030	EQUI18	East Cutoff Saw
		EU032	EQUI20	West Cutoff Saw

Table 3-4 Summary of Control Equipment Relationships

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
TREA37/21	Metal Finishing Dust Collector 4 w/ HEPA	EU020	EQUI58	BCT Drumblast Machine
TREA40/39	Metal Finishing Dust Collector 5 w/ HEPA	EU029	EQUI17	South Swing Grinder
TREA41/42	Metal Finishing Dust Collector 6 w/ HEPA	EU042	EQUI30	North Swing Grinder
TREA43/38	Metal Finishing Dust Collector 7 w/ HEPA	EU036	EQUI24	SW Bench Grinder
		EU040	EQUI28	NE Bench Grinder
		EU041	EQUI29	SE Bench Grinder
		NA	EQUI100	SW Chipping Bench
TREA44	Machine Shop Shot Blast Dust Collector	NA	EQUI119	Machine Shop Blast Machine
TREA45	Machine Shop Sander Dust Collector	NA	EQUI118	Machine Shop Double Disc Sander
TREA46	Dust Hog 1	EU016	EQUI13	30^2 Line Pouring & Cooling
		NA	EQUI47	West MUA
		NA	EQUI48	North MUA
		NA	EQUI49	South MUA
		EU009	EQUI60	30^2 Machine Belt Sand
			EQUI61	30^2 Spruce Belt
		EU018	EQUI63	30^2 Unit 10
			EQUI65	30^2 Unit 11
			EQUI66	30^2 Unit 12
		EU009	EQUI92	30^2 Discharge Conveyor
			EQUI93	30^2 Cross Belt Conveyor
			EQUI94	30^2 Distribution Belt Conveyor
			EQUI98	30^2 Mold Making

Table 3-4 Summary of Control Equipment Relationships

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
TREA47	Dust Hog 2	001	1	Scrap Preheat Oven 1
		002	2	Scrap Preheat Oven 2
		003	3	Electric Induction Furnace 1
		004	4	Electric Induction Furnace 2
		005	5	Electric Induction Furnace 3
		012	9	Core Tunnel Oven
		015	12	DISA Line Pouring & Cooling
		021	16	Tableblast
		029	17	South Swing Grinder
		030	18	East Cutoff Saw
		032	20	West Cutoff Saw
		042	30	North Swing Grinder
		NA	41	Snag Grinder 2
		NA	42	Snag Grinder 3
		NA	46	East MUA
		NA	51	Tumblemill
		010	52	Disco Core Machine
		010	53	ABC6 Core Machine
		020	58	BCT Drumblast Machine
		009	62	30^2 Machine Incline
			64	30^2 Mag Belt
			67	30^2 Return Sand Elevator
			68	30^2 Aerator
			69	30^2 Incline to Blower
			70	30^2 Blower
		008	73	DISA Muller Discharge Belt
			74	DISA Muller Distribution Belt
			75	DISA Feed Belt
			76	DISA Spill Belt
			77	DISA Spill Pan
			78	DISA Spill Belt
			79	DISA Cross Spill
		017	80	DISA #1 Oscillator
			81	DISA #2 Oscillator
			82	DISA #3 Oscillator
			83	DISA Didion
			84	DISA #5 Oscillator

Table 3-4 Summary of Control Equipment Relationships

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
TREA47	Dust Hog 2	008	85	DISA Mag Belt
			86	DISA Return Sand Elevator
			87	DISA 125 Ton Sand Bin
			88	DISA 125 Ton Belt
			89	DISA New/Old Belt
			90	DISA New/Old Elevator
			91	DISA Muller Storage Tank
			95	DISa Prepared Sand Tank
			96	DISA Bond Day Tank
			97	DISA Mold Machine
		NA	102	DISA Aerator
		009	109	30^2 Prepared Sand Tank
		010	111	ABC6 Sand Tank
			112	Disco Sand Tank
			113	Sand Loading (CR16 and CR22)
		NA	114	Furnace Basement MUA
		008	115	DISA Hopper
		009	116	30^2 Bond Day Tank
TREA48	Dondaldson PowerCore CPV-3	025	36	Large Heat Treat Oven
		026	37	Small Heat Treat Oven
		035	23	Double Belt Sander
		036	24	SW Bench Grinder
		040	28	NE Bench Grinder
		041	29	SE Bench Grinder
		NA	50	Finishing MUA
		NA	100	SW Chipping Bench
		035	117	NE Finishing Grinder
		NA	118	Machine Shop Double Disc Sander
		NA	120	Machine Shop MUA

This application proposes annual melt limits of 32,400 tons/year metal melt and 324,000 tons/year sand throughput. Due to this increase from currently permitted annual metal melt and sand limits, the included forms indicate increased production; however, the net potential to emit change (equipment installed since last permit issuance minus permitted equipment that has been removed) depicts a decrease in particulate matter (PM), particulate matter with a diameter of

10 microns or less (PM_{10}), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), and Lead potential to emit (PTE). Furthermore, PM, PM10, PM2.5, and Lead limited emissions decrease due to the planned installation of TREA46, TREA47, and TREA48, and the installation of higher efficiency filters in TREA2 and TREA23. There have been increases in nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOCs) from the addition of sources since the last current permit issuance.

Form CH-12 Written Notification Form is included in this application for the installation of one (1) new dust collector. Answers to form questions are specific to the installation and not otherwise required for this application. This form is included to meet the MPCA requirement to provide written notice seven (7) days before making the change. The installation of the control device does not cause any emissions increase, and this action would not require a permit amendment. The dust collector (TREA48) is referenced within this application. As previously noted, Northern Iron provided notice to the agency of the planned installation of two additional dust collectors (TREA46 and TREA47) on August 20, 2024. Those dust collectors are also referenced throughout the application.

4.0 Process Description

Northern Iron operates a gray and ductile iron foundry. The facility receives iron ingot and scrap metal. These materials are preheated in two (2) Scrap Preheat Ovens and then transferred to one of the three (3) electric induction furnaces. For casting of ductile iron, the melted iron scrap has supplementary alloys added (Inoculation). Molten metal is then transferred and poured into prepared sand mold in one of the two (2) pouring and cooling lines. The molds are conveyed through a cooling section before heading to the line's respective shakeout process. Sand removed during the shakeout process is collected, processed, and reintroduced into the system.

In the core making process, both Nobake and Shell Cores are used. Nobake cores are made by combining sand, resin, and a catalyst to bind the sand into the desired shape. During this process, VOCs and hazardous air pollutants (HAPs) contained in the resin and/or catalyst are emitted. Shell Cores use premixed sand and do not emit VOC or HAPs. Completed cores then go through the Core Wash. VOC is emitted from the Core Wash.

After removal of the sand/mold, castings may be additionally processed through metal finishing operations including abrasive blasting, cutting, and grinding. Finished products are inspected and prepared for shipping.

5.0 Regulatory Applicability

The facility is subject to state and federal regulations including, but not limited to, the below:

5.1 State Rules

7011.0715 – Standards of Performance for Post-1969 Industrial Process Equipment: Applicable process equipment at the facility is subject to the Industrial Process Emissions Reduction (IPER) limits as detailed in this rule. IPER limits have been determined based on the process weight rate (PWR) for the equipment.

5.2 NESHAP

Subpart ZZZZZ – National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources: The proposed metal melt limit of 32,400 tons/yr would qualify the facility as a large foundry; however, actual melt totals have not exceeded 20,000 tons/yr; therefore, the facility is subject the small foundry requirements of this rule.

6.0 Application Forms

The application forms are provided on the following pages.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

SCP-01: Submittal cover page

Permit application/notification/ determination request fee submittal

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 5.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Submittal is (choose from the following options and then complete the remainder of item 3 as directed):

- ☐ The final certified (or recertified) version of a previously-submitted permit application. **Complete Section 3A.**
- ☐ Additional or supplemental information requested by permit staff during the permit-writing process. **Complete Section 3A.**
- ☐ A request that the Minnesota Pollution Control Agency (MPCA) make an applicability determination. **Complete Section 3A.**
- ☐ An application for a new Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for reissuance of an Individual Part 70 or State Permit. **Complete Section 3B.**

Note: Applications for reissuance must be submitted using the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Applications outside of the e-services website will only be accepted if there is a request for confidentiality.

- ☒ An application for an amendment to an existing Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for a Registration Permit, Capped Permit, or General Permit. **Complete Section 3C.**
- ☐ An application for an administrative change to an existing Registration, Capped, or General Permit. **Complete Section 3C.**

Note: Once the e-Service is available, registration, Capped, and General permit holders can electronically apply for an administrative change to their permit through MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. At some point, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied. Check the MPCA website for the current status.

- ☒ A notification required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; Minn. R. 7007.1350; Minn. R. 7007.0800, subp. 10, item B. **Complete Section 3D.**
- ☐ A notification from a hot mix asphalt plant holding a Registration Permit of the intent to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt. **Complete Section 3D.**

Section 3A – Request for applicability determination, recertification of a previously-submitted permit application, or supplement to a previously-submitted permit application

Use this section only if your submittal is one of the following:

- The final version of a previously submitted permit application, incorporating changes negotiated through the permitting process, or
- Submittal of additional or supplemental information requested by permit staff during the permit-writing process, or
- A request for the MPCA to make an applicability determination.

For final versions and supplemental information, enter the "tracking number" which can be obtained from the MPCA permit staff working on the permit.

Check one of the boxes below. Do not complete Sections 3B, 3C, or 3D. Continue with item 4 of the form.

Choose one of the following:		Quantity	Points	Total points
☐ Recertification of a previously-submitted permit application – tracking number:		NA	NA	NA
☐ Supplement to a previously-submitted permit application – tracking number:		NA	NA	NA
☐ An Applicability Determination Request			x 10 =	

Section 3B – Application for an Individual Part 70 or State Permit, reissuance of an Individual Part 70 or State Permit, or amendment of an Individual Part 70 or State Permit

Choose one of the following:

☒ This is the original application or replacement for a denied or withdrawn application**.** Complete the table below.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	**Quantity**	**Points**	**Total points**
☐ Application for an Individual Part 70 Permit		x 75 =	
☐ Application for an Individual State Permit		x 50 =	
☐ Application for reissuance of an expiring Individual Part 70 or State Permit (does not include modifications to a permit that require an amendment) **Note:** Applications outside of the e-services website will only be accepted if there is a request for confidentiality.			
Expiration date: _____ *(mm/dd/yyyy)* Application due date (180 days prior to expiration): _____ *(mm/dd/yyyy)*	NA	NA	NA
☒ Application for a major amendment to an Individual State or Part 70 Permit ☐ Includes reconstruction or modification of a New Source Performance Standards (NSPS) Affected Facility not subject to New Source Review	1	x 25 =	25
☐ Application for a moderate amendment to an Individual State or Part 70 Permit		x 15 =	
☐ Application for a minor amendment to an Individual State or Part 70 Permit		x 4 =	
☐ Application for an administrative amendment to an Individual State or Part 70 Permit. For administrative amendments to individual permits, use the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Administrative amendment applications outside of the e-services website will only be accepted if there is a request for confidentiality.		x 1 =	

Additional information (check all that apply):

☒ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review). The tracking number associated with the preapplication work is: 447591

Date preapplication work was submitted: 5/29/2024

☐ Permit will replace an existing permit of a different type (e.g., replacing a Capped Permit with an Individual State Permit, or replacing a Part 70 General Permit with an Individual Part 70 Permit).

☐ Permit is for construction of a new facility.

☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.

☐ Project is subject to Prevention of Significant Deterioration (PSD) (40 CFR § 52.21). Send a complete copy of the application to U.S. Environmental Protection Agency (EPA) Region V (see instructions).

☐ Permit is required because of installation or modification of a Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all permit thresholds (Minn. R. 7007.0500, subp. 2.C.(1)).

Section 3C – Application for a Registration, Capped, or General Permit

Choose one of the following:

☐ This is the original application or replacement for a denied or withdrawn application**.** Complete the table below.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.

☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application**.** Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	Quantity	Points	Total points
☐ Application for a Registration Permit ☐ Option A ☐ Option B ☐ Option C ☐ Option D		x 2 =	
☐ Application for a Capped Permit ☐ Option 1 ☐ Option 2		x 4 =	
☐ Application for a Part 70 General Permit ☐ Manufacturing General Permit		x 4 =	
☐ Application for a State General Permit ☐ Nonmetallic Mineral Processing General Permit		x 3 =	
☐ Application for an administrative change to an existing Registration, Capped, or General Permit (e.g., change of facility ownership)		x 1 =	

Additional information (check all that apply):

☐ Permit will replace an existing permit of a different type (e.g., replacing a Registration Permit with a Capped Permit; replacing an Option B Registration Permit with an Option D Registration Permit; etc.)

☐ Permit is required for construction of a new facility.

☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.

☐ Permit is required because of a modification or change making the facility ineligible for its existing Air Emission Permit.

☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review or the facility was notified of a petition for Environmental Review). The tracking number associated with the preapplication work is:

Section 3D – Notifications

If your submittal also includes a permit application, then also complete Section 3A, 3B, or 3C as applicable. Check all applicable boxes below, then continue with item 4 of the form.

☐ A notification of accumulated insignificant activities (Minn. R .7007.1250, subp. 4)

☒ A notification of installation of pollution control equipment (Minn. R. 7007.1150, item C)

☐ A notification of replacement of a unit (Minn. R. 7007.1150, item C)

☐ A notification of replacement of controls with listed controls (Minn. R. 7007.1150, item C)

☐ A notification of changes that contravene a permit term (Minn. R .7007.1350)

☐ A notification from a hot mix asphalt plant including a request to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt (applies to Registration Permits) Minn. R. 7011.0913, subp. 3)

4) Total points ("total points" from Section 3A, 3B, or 3C)

25

5) Total application fee

25 (total points from item 4) x $285 = $ 7,125 (fee amount)

The application fee amount is $285 per point, payable to the MPCA. Send your payment ("fee amount") with your submittal. The fee is not refundable, per Minn. R. 7002.0016, subp. 1. There may be additional fees assessed during processing of your request, as required by Minn. R. ch. 7002.

Note: If an application is resubmitted for a different type of amendment or permit, the original fee is not refundable nor transferable. The resubmitted application fee must be paid in full.

6a) Confidentiality statement

☒ This application does not contain material claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Skip item 6b, go to item 7.

☐ This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Complete Item 6b. Your submittal must include both Confidential and Public versions of your application.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box above ("This application does not contain…..").

☐ Confidential copy of application attached ☐ Public copy of application attached

6b) Confidentiality certification

To certify data for the confidential use of the MPCA, a responsible official must read the following, certify to its truth by filling in the signature block on the following page, and provide the stated attachments.

☐ I certify that the enclosed permit application(s) and all attachments have been reviewed by me and do contain confidential material. I understand that only specific data can be considered confidential and not the entire application or permit. I certify that I have enclosed the following to comply with the proper procedure for confidential material:

- ☐ I have enclosed a statement identifying which data contained in my application I consider confidential, and I have explained why I believe the information qualifies for confidential (or non-public) treatment under Minnesota Statutes.
- ☐ I have explained why the data for which I am seeking confidential treatment should not be considered "emissions data" which the MPCA is required to make available to the public under federal law.
- ☐ I have enclosed an application containing all pertinent information to allow for completion and issuance of my permit. This document has been clearly marked "confidential".
- ☐ I have enclosed a second copy of my application with the confidential data redacted (blacked out, not omitted or deleted entirely). It is evident from this copy that information was there, but that it is not for public review. This document has been clearly marked "public copy".

Owner responsible official:

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable):

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

7) Submittal certification

I certify under penalty of law that the enclosed documents 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 also certify, in accordance with Minn. R. 7007.0500, subp. 2 (K)(2) and subp. 2 (K)(3), that I have reviewed the procedures implemented by my facility to maintain compliance and that those procedures are, to the best of my knowledge and belief, reasonable to maintain compliance with all applicable requirements, including those that will become applicable during the term of the permit.

I also certify, in accordance with Minn. R. 7007.1450, subp. 4(D), that if this application requests the use of the minor or moderate permit amendment procedures, the proposed change is not part of a larger project which, taken as a whole, would not qualify for treatment as a minor or moderate permit amendment.

Choose one of the following:

☐ I certify that no construction is associated with the permit action sought by this permit application.

☐ I certify that my project includes construction, but construction has not yet been started except as allowed under Minn. R. 7007.1110, subp. 10 or Minn. R. 7007.1250, subp. 4, and will not begin until the permit is issued except as allowed under Minn. R. 7007.1110, subp. 12; Minn. R. 7007.1142, subp. 2; Minn. R. 7007.1150, item C; or Minn. R. 7007.1450, subp. 7.

☒ My project includes construction, and construction other than what is allowed under Minnesota Rules has been started.

Choose one of the following:

☒ I certify that my Facility is or will be located **outside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection).

☐ I certify that my Facility is or will be located **inside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection). I understand that the CL&E process applies before a permit can be issued.

Owner responsible official

Print name: Tierney Grutza

Title: CAO

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

8) Package submittal

Applications, notifications, and/or requests that are submitted without authorized signature(s) (under submittal certification for all applications and under confidentiality certification if you are seeking confidential treatment of any information in the application); without required forms, and/or without the required application fee, will be returned. You must submit at least one SCP-01 that bears the original signature(s) (i.e., is not a photocopy of the signed signature page). Please make your check out to the Minnesota Pollution Control Agency. Send the complete application package and check to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

You may choose to submit your application as a "pdf" file on an electronic media, such as a compact disc (CD) or USB drive. If you choose this option, you must still include a paper copy of any form that requires a signature.

Instructions for submittal cover page

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you have never had an air quality permit or don't know this number, leave this line blank.

2) Facility name -- Enter your facility name.

3) This submittal is for -- Check the appropriate box describing what you are submitting. Then proceed to the section indicated (Section 3A, 3B, 3C, or 3D) and follow the applicable instructions.

Section 3A

Complete this section if your submittal is a supplement to a previously-submitted permit application, a recertification of a previously-submitted permit application, or a request for the MPCA to make an applicability determination.

Don't use this section if you are resubmitting a new application, either for the first time or as a replacement for an incomplete or denied permit application.

- Check the "Recertification of a previously-submitted permit application" box only if your submittal is a final version of a previously submitted permit application, incorporating changes negotiated through the permitting process. Enter the "tracking number" obtained from the MPCA permit staff working on the permit.

- Check the “Supplement to a previously-submitted permit application” box only if your original submittal was deemed complete but you were asked to submit some additional information during the permitting process. Enter the “tracking number” obtained from the MPCA permit staff working on the permit.
- Check the “Applicability Request” box if you are submitting a request for MPCA to make a formal determination on rule applicability, the need for a permit, type of permit needed, etc. If you are submitting a single request for a determination, enter “1” in the “Quantity” column. If you are requesting two or more separate determinations in a single submittal, enter the appropriate quantity in the “Quantity” column.

Section 3B

Complete this section if you are submitting an application for a new Individual Part 70 Permit, a new Individual State Permit, or a new amendment to an Individual Part 70 or State Permit. This section also includes applications submitted in replacement for a permit application that was denied, or for a permit application that was returned as incomplete.

Check the appropriate box based on whether the application is an original or a replacement; include a tracking number when applicable.

Check the box for the appropriate type of permit application, then check all applicable boxes under “additional information.” For each box checked, enter the number of that type of application included in this application package. In most cases, this will be “1.” However, it may be possible to include multiple applications under a single *Submittal cover page*. For example, if you are submitting applications for administrative amendments for five Individual facilities in a single package, you would enter the number “5” under the column heading “Quantity” in the line where the Administrative Amendment box is checked.

Multiply the number entered in the “Quantity” column by the number prefilled in the “Points” column to obtain the “Total Points” for your submittal.

- Check the “Application for an Individual Part 70 Permit” box if you are applying for an Individual Part 70 Permit (permitted emissions will be greater than or equal to 100 tons per year for any air pollutant regulated under the Part 70 program, or greater than or equal to 10 tons per year for any single hazardous air pollutant (HAP), or greater than or equal to 25 tons per year for any combination of two or more HAPs.)
- Check the “Application for an Individual State Permit” box if you are applying for a State Permit (permitted emissions will be less than 100 tons per year for any air pollutant regulated under the Part 70 program, and less than 10 tons per year for any single HAP, and less than 25 tons per year for any combination of two or more HAPs.)
- Check the “Application for reissuance of an Individual Part 70 or State Permit” box if you have an Individual Part 70 Permit or an expiring Individual State Permit and are applying for reissuance of that permit. Include the expiration date of the existing permit, and the reissuance application due date (180 days prior to the expiration date for a Part 70 Permit). Reissuance applications do not include modifications to the permit that require an amendment. If you wish to modify your permit, you must apply for an amendment, with all applicable forms, and pay the required fee.

  Note: Beginning July 1, 2020, paper reissuance applications will only be accepted if there is a request for confidentiality. Otherwise for reissuances, use the MPCA’s e-Services website at https://www.pca.state.mn.us/data/e-services.
- Check the “Application for a Major Amendment” box if you are applying for a major amendment under Minn. R. 7007.1500. Indicate if the major amendment includes the reconstruction or modification of a New Source Performance Standards (NSPS)-affected facility that is not subject to New Source Review (Minn. R. 7007.1500, subp. 3(a)).
- Check the “Application for a Moderate Amendment” box if you are applying for a moderate amendment under Minn. R. 7007.1450.
- Check the “Application for a Minor Amendment” box if you are applying for a minor amendment under Minn. R. 7007.1450.
- Check the “Application for an Administrative Amendment” box if you are applying for an administrative amendment under Minn. R. 7007.1400. Applications will be denied if you were not instructed to use the physical forms application process. For an administrative amendment, use the MPCA’s e-Services website at https://www.pca.state.mn.us/data/e-services.

  If the only thing you are changing is the general contact information for your facility (e.g., contact or billing name, phone number, email, etc.), this does not require a permit action but you do need to notify the MPCA so that we have current information for your facility. Submit a letter to the MPCA’s Air Quality Permit Document Coordinator, IND/AQP, explaining the changed information; do not include this form.
- Check the “Submittal was preceded by pre-application work…” box if, prior to submittal of the application, you worked with the MPCA on the project to which the application applies. Examples of such preapplication work might be environmental review (either an Environmental Assessment Worksheet or and Environmental Impact Statement), an Air Emission Risk Analysis (AERA), dispersion modeling, or assistance in defining the project or developing the application. A Tracking number would have been issued for such work. Contact the MPCA staff with whom you worked to find out what the tracking number was. Include the date that the preapplication work was submitted.
- Check the “Permit will replace an existing permit…” box if the facility is already permitted, and is applying for a different type of permit for any reason. Do not check this box if the facility holds an Individual Part 70 Permit and you are applying for reissuance of that permit.

- Check the “Permit is for construction of a new facility…” box if you are applying for a permit for construction of a new facility. You must include forms *CH-00* and *CH-01* with your application. Do not check this box if you are modifying an existing facility to require a permit for the first time.
- Check the “Permit is required because of a modification…” box if you are applying for a permit because of a facility change that results in the facility needing a permit for the first time. You must include forms *CH-00* and *CH-01* with your application.
- Check the “Project is subject to Prevention of Significant Deterioration…” box if the permit application requires and includes a Prevention of Significant Deterioration (PSD) analysis, with or without a Best Available Technology (BACT) analysis. Do not check this box if the permit will include limits to avoid PSD, or if the permit will only include provisions set through a previous PSD analysis (without modification of those provisions). Check this box only if a new PSD analysis will be a part of the permit for which you are applying.

  If your permit application includes a modification subject to New Source Review (NSR), or modification of existing NSR conditions, you must also send a copy of the permit application to U. S. Environmental Protection Agency (EPA) Region V:

  Genevieve Damico
  Air Permit Section (AR-18J)
  U.S. Environmental Protection Agency
  77 West Jackson Boulevard
  Chicago, IL 60604

  If your proposed project affects a Class I area, also send a copy(ies) of the application to the appropriate contacts as listed in the instructions to item 3d of form CH-04e.
- Check the “Permit is required because of installation or modification of a Part 61…” box if the potential emissions of the stationary source are below all permitting thresholds and the only reason this facility is subject to permitting is because you are installing a modifying an affected facility under 40 CFR pt. 60 or 61, as required under Minn. R. 7007.0500, subp. 2.C.(1).

Section 3C

Complete this section if you are submitting an application for a new Registration Permit, a new Capped Permit, a new General Permit (State or Part 70), or a new administrative change to an existing Registration, Capped, or General Permit. This section also includes applications submitted in replacement for a permit application that was denied, or for a permit application that was returned as incomplete.

Note: Registration, Capped, and General permit holders can electronically apply for an administrative change to their permit. To use this service, go to the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. In 2024, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied.

Check the appropriate box based on whether the application is an original or a replacement; include a tracking number when applicable.

Check the box for the appropriate type of permit application, then check all applicable boxes under “additional information.” For each box checked, enter the number of that type of application included in this application package. In most cases, this will be “1.”

However, it may be possible to include multiple applications under a single *Submittal cover page*. For example, if you are submitting applications for administrative changes for five individual facilities, each holding a Registration Permit, in a single package, you would enter the number “5” under the column heading “Quantity” in the line where the Administrative Change box is checked.

Multiply the number entered in the “Quantity” column by the number prefilled in the “Points” column to obtain the “Total Points” for your submittal.

- Check the “Application for a Registration Permit” box if this application is for a Registration Permit under the provisions of Minn. R. 7007.1110-1130. Indicate whether the application is for Registration Permit Option A, B, C, or D. This includes applications for switching from one Registration Permit option to another.
- Check the “Application for a Capped Permit” box if this application is for a Capped Permit under the provisions of Minn. R. 7007.1140-1147. Indicate whether the application is for Capped Permit Option 1 or Option 2. This includes applications for switching from one Capped Permit option to another.
- Check the “Application for a Part 70 General Permit” box if you are applying for the Part 70 Manufacturing General Permit.
- Check the “Application for a State General Permit” box if you are applying for the State General Permit for Non-metallic Mineral Processing.
- Check the “Application for an Administrative Change…” box if you are applying for a change as defined in Minn. R. 7007.1100, subp. 8; Minn. R. 7007.1110, subp. 15; or Minn. R. 7007.1142, subp. 5 (using form *RP-05*, *CAP-AD*M, or *GP-01* if you hold a Registration Permit, Capped Permit, or General Permit, respectively).

  If the only thing you are changing is the general contact information for your facility (e.g., contact or billing name, phone number, email, etc.), this does not require a permit action but you do need to notify the MPCA so that we have current information for your facility. Submit a letter to the MPCA’s Air Quality Permit Document Coordinator, IND/AQP, explaining the changed information; do not include this form.

- Check the “This permit will replace an existing permit…” box if the facility is already permitted, and is applying for a different type of permit for any reason. This includes but is not limited to changing from one Registration Permit option to another when required because of a change or modification.
- Check the “Permit is required for construction of a new facility” box if you are applying for a permit for construction of a new facility. Do not check this box if you are modifying an existing facility to require a permit for the first time.
- Check the “Permit is required because of a modification…” box if you are applying for a permit because of a facility change that results in the facility needing a permit for the first time.
- Check the “permit is required because of a modification or change…” box if you are applying for a permit because of a modification or change at a permitted facility that renders the facility ineligible for the existing permit.
- Check the “Submittal was preceded by pre-application work…” box if you have completed any of the listed preapplication work. Include all tracking numbers associated with any preapplication work.

Section 3D

Complete this section if you are submitting one or more notifications required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; or Minn. R. 7007.1350.

- Check the “Notification of Accumulated Insignificant Activities” box if your submittal includes such a notification, as required under Minn. R. 7007.1250, subp. 4.
- Check the “Notification of Installation of Pollution Control Equipment” box only if your submittal consists only of a notification that you are installing controls as allowed under Minn. R. 7007.1150(C).
- Check the “Notification of Replacement of a Unit” box only if your submittal consists only of a notification that you are replacing an emissions unit as allowed under Minn. R. 7007.1150(C).
- Check the “Notification of Replacement of Controls with Listed Controls” box only if your submittal consists only of a notification that you are replacing existing control devices with control devices listed in Minn. R. 7011.0070, as allowed under Minn. R. 7007.1150(C).
- Check the “Notification of Changes that Contravene a Permit Term” box only if your submittal includes of a notification of a change that contravenes a permit term as allowed under Minn. R. 7007.1350.
- Check the “Notification from a hot mix asphalt plant….” box only if your submittal consists of form *RP-08* requesting authorization to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt.

4) Total points -- Enter the “Total Points” from Sections 3A, 3B, or 3C here.

5) Total application fee -- Transfer the Total Points from Item 4 and multiply that number times the dollar value per point ($285). This is the application fee required for this submittal. Additional points/fees may be assessed during processing of a permit. Include a check for the Total fee, payable to the Minnesota Pollution Control Agency, with your submittal. The fee is not refundable (Minn. R. 7002.0016, subp. 1).

6a) Confidentiality statement -- If you are not claiming any information in the application as confidential, check the first box and skip to Item 7.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box (“This application does not contain…..”).

If you are not applying for a Registration Permit or a change to a Registration Permit, and would like any of the information in your permit application to be kept confidential, check the second box and complete Item 6b, following all instructions and including all of the requested information in your submittal. Note that none of the information in an application for a Registration Permit qualifies for confidential treatment.

If you are claiming any portion of your application as confidential, you will need to attach an explanation of why the information qualifies for confidential treatment as described at Confidentiality justification and notice of public availability of data submitted to the MPCA. Additionally, you will need to submit a public version of your application, as described in Instructions for Creating a Redacted Public Version of Your Application.

6b) Confidentiality certification -- If you are claiming information in the application as confidential, you will need to attach an explanation of why the information qualifies for confidential treatment. Follow the instructions at Confidentiality justification and notice of public availability of data submitted to the MPCA (state.mn.us).

For instructions about creating a public copy of your application, see Instructions for Creating a Redacted Public Version of Your Application (p-gen1-27e) (state.mn.us).

The confidentiality certification must be signed by a legally responsible official for each owner and operator. If there are more than four owners and/or operators, attach multiple copies of section 6b.

7) Submittal certification -- This certification is required under Minn. R. 7007.0500, subp. 3. The certification must be signed by a responsible official for each owner and operator. The "responsible official" (defined in Minn. R. 7007.0100, subp. 21), is the person who performs policy or decision making functions for the organization. (A delegate may be allowed in some cases. Please refer to the rule section listed above.) An owner or operator is a corporation, partnership, sole proprietorship, municipality, state, federal or other public agency that owns, leases, operates, controls, or supervises, to any degree, an emissions unit, emission facility, or stationary source. If there are more than four owners and/or operators, attach multiple copies of section 7.

Do not modify or add to this form, except to add additional pages for legally responsible official signatures needed at items 6b and 7 as described above.

The submitted form must include the original signature (in ink, not a photocopied). If submitting multiple copies of the application or form, only one needs to include the original signature. Submittals not including an original signature will not be accepted.

For information on the Cumulative Levels and Effects statute and process, visit https://www.pca.state.mn.us/air-permitting-south-minneapolis

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-GI-01

Facility information for permit changes

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 3.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3a) Facility location

Street address: 867 Forest Street North

City: Saint Paul County: Ramsey Zip code: 55106

3b) Is your facility located in an area of environmental justice concern or within one mile of one?

Check your location here: https://arcg.is/vqaGa.

☐ No ☒ Yes

Note: If the facility is or will be located within the city limits of Minneapolis, attach a map showing the exact location. See instructions for additional information on projects within areas of environmental justice concern.

3c) Mailing address: 867 Forest Street North

City: Saint Paul State: MN Zip code: 55106

4) Corporate/Company Owner

Name: Northern Iron LLC

Mailing address: 867 Forest Street North

City: St Paul State: MN Zip code: 55106

Owner Classification: ☒ Private ☐ Local Govt. ☐ State Govt. ☐ Federal Govt. ☐ Utility

Legally responsible official:

Name: Tierney Grutza Phone: 608-295-9770

Title: CAO-Specialty Metals Holdco d/b/a The Lawton Standard Fax:

Mailing Address (if different than above): 1950 Enterprise Dr.

City: De Pere State: WI Zip code: 54115

Email address: tgrutza@lawtonstandard.com

Indicate ownership interest in percent: N/A

5) Corporate/Company Operator (if different than owner)

Name: Same as Number 4 above

Mailing address:

City: State: Zip code:

Legally responsible official:

Name: Phone:

Title: Fax:

Mailing address:

City: State: Zip code:

Email address: _____

6) Additional Corporate/Company owners and operators (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Name: _____

Mailing address: _____

_____

City: _____ State: _____ Zip code: _____

Legally responsible official:

Name: _____ Phone: _____

Title: _____ Fax: _____

Mailing address: _____

_____

City: _____ State: _____ Zip code: _____

Email address: _____

If owner, indicate ownership interest in percent: _____

7) Does the facility have more Corporate/Company owners and/or operators? ☐ Yes ☒ No

If yes, attach additional sheets with the information indicated in item 6 for each owner and/or operator not listed above.

8) Facility contact person for this permit

Name: Tierney Grutza Phone: 608-295-9770

Title: CAO Fax:

Organization name: Northern Iron LLC

Mailing address: 1950 Enterprise Dr.

_____

City: De Pere State: WI Zip code: 54115

Email address: tgrutza@lawtonstandard.com

9) All billings for annual fees should be addressed to:

Name: Tierney Grutza Phone: 608-295-9770

Title: CAO Fax:

At (check one): ☒ Owner address ☐ Operator address ☐ Emission facility address

Organization name: Northern Iron LLC

Mailing address: 1950 Enterprise Dr.

_____

City: De Pere State: WI Zip code: 54115

Email address: tgrutza@lawtonstandard.com

10) Standard Industrial Classification (SIC) Code and description**, and North American Industry Classification System (NAICS) code and description** for the facility:

Primary: 3321 / Gray and Ductile Iron Foundries

Secondary (if applicable): _____ / _____

Tertiary (if applicable): _____ / _____

Primary NAICS code: 331511 / Iron Foundries

11) Primary product produced (or activity performed) at the facility is:

Gray and Ductile Iron Castings

12) Facility is: ☒ Stationary ☐ Portable

13) (reserved for future use)

14) Is environmental review required (either an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS)) for this facility?

☒ No ☐ Yes -- You may also be required to perform a state air toxics review for your facility. Please call 800-657-3864 or locally 651-296-6300.

15) Are you (or will you be, if this is a new facility) required to submit a Toxics Release Inventory (Form R) under SARA Title 313 for this facility? Contact the Minnesota Emergency Planning and Community Right-to-Know Act (EPCRA) Program for more information, at 651-201-7400.

☒ Yes – Answer Question 15a. ☐ No – Go on to Question 16.

15a) Are you required to submit a Pollution Prevention Plan Progress Report in accordance with Minn. Stat. § 115D.08?

☐ No ☒ Yes, and the most recently required progress report has been submitted.

☐ Yes, but a progress report has not been submitted because (fill in reason below):

16) Is this facility within 50 miles of another state or the Canadian border?:

☒ Yes (specify which ones): WI ☐ No

17) Are you proposing any alternative operating or emissions trading scenarios in this application? (See Minn. R. 7007.0800, subp. 10 and 11)

☒ No ☐ Yes - Attach a description of your proposal, including a statement on how the proposal will meet all applicable requirements (specifically, please address any applicable New Source Review requirements - see Form CH-04).

18) Person preparing this permit application:

Name: Robert Osborn

Title: Principal

Organization: Spirit Environmental LLC

Mailing address 20465 State Highway 249t

Suite 300

City: Houston State: TX Zip code: 77070

Phone: 281-664-2815 Fax:

Email address: rosborn@spiritenv.com Date (mm/dd/yyyy): 9/10/2024

Instructions for form CH-GI-01

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the Title V operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name as it will appear on your permit.

3a) **Facility location --** Fill in the facility's street address and the city and county where the facility is located. You may not use a P.O. Box number for the street address. If the facility is or will be located within the limits of the City of Minneapolis, include a map showing the exact location of the facility.

3b) **Areas of environmental justice concern --** To determine if your facility is in or within one mile of an area of environmental justice concern, use the MPCA's environmental justice screening tool, available here https://arcg.is/vqaGa.

To proactively consider actions for environmental improvement and community engagement, refer to this resource document https://www.pca.state.mn.us/sites/default/files/aq1-69.pdf.

The MPCA's screening tool will be used to determine if the facility's location is within or near an area of environmental justice (EJ) concern. For facilities within or near areas of environmental justice concern, the assigned permit engineer will set up a meeting to discuss environmental justice, if the facility is already incorporating actions to address environmental justice, and voluntary actions the facility could further take. The EPA's EJScreen tool is available here for additional information on environmental justice indices https://www.epa.gov/ejscreen.

If the facility is or will be located within the limits of the City of Minneapolis, include a map showing the exact location of the facility.

3c) **Facility mailing address --** Fill in the facility's mailing address. You may use a P.O. Box number for the mailing address, but not for the street address.

Note: All owners and operators must be listed on the permit application and are included on the permit. An owner or operator is a corporation, partnership, sole proprietorship, municipality, state, federal or other public agency who owns, leases,

operates, controls, or supervises, to any degree, an emissions unit, emission facility or stationary source. For example, if the facility is owned by a partnership, then the second owner's name and information are included at item 6 of this form. Another example is two facilities, owned separately, where one facility exists to support the other; both facilities are subject to one permit, the two owners are listed on the permit, and need to be included on this form, one at item 4 and one at item 6. A legally responsible official needs to be listed for each owner and operator. The legally responsible official must be a person meeting the criteria for signing the application (defined in Minn. R. 7007.0100, subp. 21), which is the person who performs policy or decision-making functions for the company. (A delegate may be allowed in some cases. Please refer to the rule section listed above.)

4) **Corporate/Company Owner --** Fill in the owner name, mailing address, and the legally responsible official name, title, phone number, fax number (if applicable), and mailing address. Check the one "owner classification box" that most closely describes your facility. Indicate the ownership interest in percent. The owner is the "Permittee". All other owners and operators need to be listed in items 5-7 and are “Co-permittees”.

5) **Corporate/Company Operator (if different from owner) --** The operator runs the facility on a day-to-day basis. If a separate management company operates the facility, its name goes here. The operator is also a “Permittee”. If applicable, fill in name, mailing address, and legally responsible official name, title, phone number, fax number (if applicable), and mailing address. If not applicable, fill in "N/A".

6) **Additional Corporate/Company Owner or Operator (if applicable) --** If the facility has more than one owner or one operator, fill in the additional owner or operator name, mailing address, and legally responsible official name, title, phone number, fax number (if applicable), and mailing address. For an owner, indicate the ownership interest in percent; for an operator, fill in "N/A".

7) **Do you have more corporate/company owners and/or operators?** If you have additional owners or operators attach additional sheets with the information indicated in item 6 for each additional corporate/company owner and/or operator.

8) **Facility contact person for this permit --** Fill in the name, title, organization, mailing address, phone number, fax number (if applicable), and email address of the individual at the facility to whom the permit and other permitting correspondence should be sent. The facility contact person may be the facility site manager or other employee of the facility. The facility contact person is not a consultant.

9) **All billings and annual fees should be addressed to --** Fill in the name, title, organization, mailing address, phone number, fax number (if applicable), and email address of the individual to whom the annual emissions inventory and emissions fee billing should be sent.

10) **Standard Industrial Classification (SIC) Code and description, and North American Industry Classification System (NAICS) Code and description for the facility --** Fill in the primary (and secondary and tertiary if applicable) 4-digit SIC code(s) for the facility. A single stationary source may have more than one SIC code. For example, if a facility makes cardboard boxes, the facility would have a primary SIC code of 2653. If the facility also prints on some of its boxes, it would have a secondary SIC code of 2752.

Additional SIC information may be obtained from libraries, accounting firms or from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161 (order number PB 87-1000012).

Fill in the primary six digit NAICS Code and description for the facility. Additional information may be obtained at http://www.naics.com/ or https://www.census.gov/naics/.

11) **Primary product produced (or activity performed) at the facility is --** Indicate the primary product or activity of your business.

12) **Facility is (stationary or portable) --** Indicate whether the facility is a stationary or a portable source. A portable facility is one that operates and moves from site to site. Examples of portable facilities are some asphalt plants and sand and gravel plants.

13) **(Reserved for future use)**

14) **Is an environmental review required [either an Environmental Assessment Worksheet (EAW) or an Environmental Impact Statement (EIS)] as a result of the proposed changes ? -- You must complete all the other applicable forms in this package before you can answer this question.** Environmental review is sometimes required prior to construction or modification of a facility. Check the MPCA’s Environmental Review Web page at http://www.pca.state.mn.us/programs/envr_p.html, or call the Minnesota Environmental Quality Board at 651-201-2476 for more information. Put a check in the appropriate box of the application form.

Note: If you answered "yes" to this question and if you emit any hazardous air pollutants, you may also be required to perform an Air Emissions Risk Assessment (AERA). Go to http://www.pca.state.mn.us/air/aera.html or call 800-657-3864 or 651-296-6300 for more information.

15) **Are you required to submit a Toxics Release Inventory (Form R) under SARA Title 313 as a result of the proposed changes ? -- You must complete all the other applicable forms in this package before you can answer this question.** Place a check in the appropriate box. With some exceptions, most facilities required to submit a TRI are also required to prepare a pollution prevention plan and submit periodic progress reports. Call the Minnesota Emergency Planning and Community Right-to-Know Act (EPCRA) Program of the Department of Public Safety at 651-201-7400, or go to their website at https://dps.mn.gov/divisions/hsem/epcra/Pages/default.aspx if you have questions about this. The

MPCA is required under to Minn. R. 7007.0850, subp. 2(A)(2), to report in the public notice whether or not a facility has filed a pollution prevention progress report as required by Minnesota Statutes, section 115D.08.

16) **Are you within 50 miles of another state or the Canadian border? --** Indicate if any states (other than Minnesota), or the country of Canada, are within 50 miles of the facility.

17) **Are you proposing any alternative operating or emissions trading scenarios in this application? --** Place a check in either the "yes" or "no" box. (Note: you may need to complete the rest of the application before you will know the answer to this question.) If yes, attach a description of your proposal, including a statement on how the proposal will meet all applicable requirements. Describe any alternative operating scenario or emission trading proposal. Be sure to mention all parts of the application (e.g., PTE calculations, emission unit forms, etc.) that are affected by the alternative scenario. For further information, refer to Minn. R. 7007.0800, subp. 10 and 11.

18) **Person preparing this permit application --** Fill in the name, title, organization name, phone number and fax number (if applicable), and email address of the individual filling out this permit application. Include the date of application.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

1a) AQ Facility ID number: 12300088 8 digit number 1b) Agency Interest ID number: 3518 10 digit number

2) Facility name: Northern Iron LLC

Section I

I.1 Does your facility have source specific State Implementation Plan (SIP) conditions contained in a Part 70 permit or a federally enforceable state operating permit **or** has your facility been issued an Administrative Order (Order) to ensure compliance with a national ambient air quality standard (NAAQS)? (This would include permit conditions labeled "Title I condition: SIP for [pollutant] NAAQS"). If your facility is listed in Table 1 below, you have source specific SIP conditions.

☒ Yes. Check all applicable pollutants and continue with Section II.

- ☐ Sulfur Dioxide (SO_2)
- ☒ Particulate matter less than 10 microns (PM_{10})
- ☒ Lead

☐ No. **Stop here**, and submit this form with your application for a permit amendment or operating permit reissuance.

Section II

II.1 Where are the SIP conditions that apply to your facility?

- ☐ In the current operating permit
- ☒ In the Order
- ☐ In both the current operating permit and the Order

II.2 This permit application is for

- ☐ Reissuance of the operating permit
- ☒ An amendment to the current operating permit

Whether you are proposing changes through an application for a facility modification, or if you are submitting a reissuance application and there have been changes at your facility that are not included in the current operating permit or the Order, complete the rest of this form considering those changes as the 'proposed change.' If your facility is subject to the Order, Minnesota Pollution Control Agency (MPCA) will initiate a SIP revision to transfer the Title I conditions from the Order to the Permit.

II.3 Does the proposed change involve equipment or operating parameters that are subject to a Title I SIP condition in your permit or a requirement from your Order?

- ☒ Yes
- ☐ No

II.4 Does the proposed change add an emission unit(s) or stack/vent that will emit the criteria pollutant(s) identified in Section I?

- ☒ Yes
- ☐ No

II.5 Does the proposed change increase the emission rate of the criteria pollutant(s) at any of the existing emission points (emission unit, control equipment or stack/vent)?

- ☐ Yes
- ☒ No

II.6 Does the proposed change increase the overall emission rate of that criteria pollutant at the facility?

- ☐ Yes
- ☒ No

Section III

Review the SIP modeling parameters for your facility. These are usually found in an appendix to your permit or in your Order. For the proposed change at your facility, check all that apply:

☒ Addition of new emission point(s) for the criteria pollutant

☒ Removal of existing emission point(s) for the criteria pollutant

☒ Change in one or more modeled stack/vent heights or diameter

- ☒ Increase in stack height
- ☐ Decrease in stack height
- ☐ Increase in stack diameter
- ☒ Decrease in stack diameter

☐ Change in modeled air flow rate(s)

- ☐ Increase in air flow rate(s)
- ☐ Decrease in air flow rate(s)

☐ Change in one or more modeled emission rates

- ☐ Increase in emission rate(s)
- ☐ Decrease in emission rate(s)

☐ Change in location of one or more emission points

☐ Change in exit point temperature

- ☐ Increase in temperature
- ☐ Decrease in temperature

☐ Change in building locations or dimensions

☐ Other _____

☐ No change to current modeling parameters.

If there are any changes to the modeling parameters, you will need to demonstrate that the plume dispersion characteristics of the criteria pollutant will be equivalent to or better than the dispersion characteristics modeled using the parameters included as noted in the appendix of your permit or in your Order. In many cases you will need to remodel to show attainment with the NAAQS. However, in some cases you may be able to provide a written justification for improved dispersion characteristics.

If you will need to do modeling, it is recommended that you check the MPCA website or contact MPCA staff for guidance on current SIP modeling. SIP modeling requirements may be different than modeling for other programs and may have changed since previous modeling was done for your facility. See the MPCA's on-line SIP and modeling information at http://www.pca.state.mn.us/veiz4a6 and http://www.pca.state.mn.us/nwqh421 for current contact information.

Section IV

Will the proposed change require a SIP revision?

In general, a SIP revision is not required if you are making a change to the facility that does not increase, from any emission point, the emission rate of the criteria pollutant or alter equipment or parameters used as the basis for modeling of the criteria pollutant.

If you answered "Yes" to any of the questions in Section II or have identified changes to the modeling parameters for your facility in Section III, you will likely need a SIP revision for your project. If a SIP revision is required for a modification amendment, you must submit a **major** amendment application. If the proposed change includes an increase in emissions of the criteria pollutant or if it is new construction, the current Title I SIP conditions in your permit or the conditions in your Order for your facility must be followed until the SIP revision is approved by U.S. Environmental Protection Agency (EPA). If the proposed change will reduce emissions or will provide better modeled dispersion characteristics that change may proceed with MPCA and EPA approval.

When a SIP revision is part of your permit reissuance or amendment, approval of the reissuance or modification application will include more steps and take more time than the general process for a permit issuance. The SIP revision includes review and approval of the permit application by MPCA, including public notice of the permit. The SIP revision requires a public notice (which may occur concurrently with the permit notice of the draft/proposed permit); EPA generally does a preliminary review of the SIP revision at this time. There is an opportunity for interested parties to request a public meeting during the public notice period. After MPCA's public notice period ends for the draft/proposed permit, MPCA submits the SIP revision to EPA for a formal review and approval. Final approval of the SIP revision occurs when EPA publishes the revision as a final rule in the federal register.

Table 1 Facilities with source specific SIP conditions

Area	Pollutant	Facility
Eagan	Lead	Gopher Resources Corporation
Rochester	PM_{10}	Rochester Public Utilities ▪ Silver Lake
	SO_2	Rochester Public Utilities ▪ Silver Lake
Twin Cities 7-County Area	SO_2	Federal Cartridge Company-Anoka Hoffman Enclosures Inc. Xcel Energy ▪ Inver Hills Generating Plant ▪ Riverside Generating Plant GAF Materials Corporation NRG - Minneapolis Energy Center Minneapolis LLC
Rosemount/Pine Bend	SO_2	Flint Hills Resources Pine Bend Refinery
St. Paul Park/Ashland	SO_2	St. Paul Park Refining Co. LLC
St. Paul (Childs Road and Red Rock Road)	PM_{10}	Aggregate Industries, Yard A Cenex Harvest States Coop- Elevator 2 Commercial Asphalt, Inc. Plant 905 Gerdau Ameristeel US Inc. – St. Paul Mill Great Western Dock and Terminal Lafarge North America (Red Rock and Childs Road Terminals) Met Council Wastewater Treatment Plant St. Paul Terminals

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-00

Project Screening
Air Quality Permit Program
Doc Type: Permit Application

AQ Facility ID number: 12300088 Agency Interest ID number: 3518

Facility name: Northern Iron LLC

Instructions: Fill out this form last, after you've determined the type of permit you need.
Check **all** applicable boxes on this form that describe your proposed project and your facility.

Applicable analyses:

☐ My project requires Environmental Review (Use the Environmental Review Pre-Screening Form, available at https://www.pca.state.mn.us/quick-links/environmental-review, to determine this)

☐ Environmental Assessment Worksheet ☐ Environmental Impact Statement

Submitted to (who?): _____ on (date mm/dd/yyyy): _____

☐ My project requires a Prevention of Significant Deterioration (PSD) permit, utilizes the Plant-wide Applicability Limit requirements of 40 CFR § 52.21, and/or involves a Best Available Control Technology (BACT) Analysis (either a new analysis or revisions to previous permit conditions).

☐ My project involves a case-by-case Maximum Achievable Control Technology (MACT) determination under section 112(g)(2)(B) of the Clean Air Act Amendments of 1990 as described on form CH-07.

☐ My project involves a site-specific alternative monitoring request under 40 CFR § 60.13(i) or 40 CFR § 63.8(f).

☐ My project involves changes to limits or requirements that are identified as State Implementation Plan (SIP) requirements in my permit or Administrative Order. (Use Form CH-15 to determine this.)

☒ My project involves ambient air dispersion modeling for criteria pollutants.

Modeling protocol was approved on (date mm/dd/yyyy): 8/5/2024

Modeling results submitted to (who?): MPCA on (date mm/dd/yyyy): 9/10/2024

☐ Modeling follows protocol exactly ☒ Modeling mostly follows protocol but with minor changes

☐ My project involves an Air Emissions Risk Analysis (AERA).

Submitted to (who?): _____ on (date mm/dd/yyyy): _____

☐ My project requires at least one other media permit in addition to an air permit (list permits: e.g., National Pollutant Discharge Elimination System [NPDES] permit).

_____

Application submitted to (who?): _____ on (date mm/dd/yyyy): _____

☐ None of the above

Industry sector:

☐ Petroleum refining
☐ Pulp and/or paper mill
☐ Composite wood products (e.g., OSB)
☐ Metallic mining
☐ Non-beverage ethanol production
☐ Waste combustor
☐ Electric utility
☒ None of the above

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-01

Change description

Air Quality Permit Program

Doc Type: Permit Application

Instructions: Provide below a description of each physical and operational change, or proposed change to existing permit conditions, included in this application. This includes addition of new units, removal or replacement of existing units, or changes which may result in debottlenecking of emission units. Use form CH-02 to determine if a permit amendment is required for your proposed change or modification.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Does your project involve any of the following? Check all that apply.

- ☒ Construction or physical change.
- ☒ Increase in production.
- ☐ Other operational change.
- ☐ Fuel change.
- ☐ None of the above. Go to question 5.

4) Does your project involve the addition or modification of a non-emergency generator?

- ☒ No.
- ☐ Yes. You must conduct screening modeling for the generator or group of generators. See instructions.

5) Do you need your permit issued by a certain date?

- ☒ No.
- ☐ Yes. Date (mm/dd/yyyy): _____

  Reason:

6) Complete and attach form CD-01 to specify which applicable requirements need to be added to or deleted from your permit unless the application is for a change in ownership, a change in facility name, or an extension of a deadline by no more than 120 days. The deadline must be one which Minnesota Pollution Control Agency (MPCA) has authority to extend. If the application is only for a change in ownership, a change in facility name, or an extension of a deadline by no more than 120 days, form CD-01 does not need to be included. Instead, include this information in the description below.

7) Description of proposed project, including details of all changes indicated in question 3:

Northern Iron is sumbitting this application to modify Air Emission Permit No. 123-0008-003 to:

1) include equipment installed prior to current permit issuance, but not listed in the permit,

2) include equipment installed after current permit issuance,

3) remove equipment removed after current permit issuance,

4) request increases to material throughput limits, and

5) notify the agency of the planned installation of emission control equipment including one (1) new dust collectors (Control Equip ID Number TREA48) and replacement of the filters in two (2) existing baghouses (Control Equip ID Numbers TREA2 and TREA23) with higher efficiency filters. MPCA was notified of the construction of two additional new baghouses (Equip ID Numbers TREA46 and TREA47) in a NOI that was submitted in August 2024.

Additional details are provided in the application text provided with these forms.

Form CH-01 instructions

1a) AQ Facility ID number – Fill in your Air Quality Facility ID number. This is the first eight digits of the permit number for all permits issued under the operating permit program.

1b) Agency Interest ID number – Fill in your agency interest identification (ID) number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name – Enter your facility name.

3) Does your project involve any of the following?

Physical changes: Physical changes include but are not limited to the following types of activities:

- Installation or replacement of emission units (for example, adding or replacing a boiler). Remember that when adding new equipment, even if it is a replacement for an existing emission unit, it should be numbered consecutively starting with the next number following the last one used – do not renumber existing units, or reuse numbers from removed equipment.
- Installation or replacement of control equipment (for example, removing a cyclone and installing a baghouse in its place, or adding a control device where none existed before). Remember that when adding new control equipment, even if it is a replacement for an existing unit, it should be numbered consecutively starting with the next number following the last one used – do not renumber existing units, or reuse numbers from removed equipment.
- Removal of existing emission units or control equipment.
- Changes to existing emission units (for example, replacing a burner on a boiler with one of higher capacity or which can burn different fuels).
- Changes which may not always be apparent from a visual inspection (for example, changing the catalyst in a chemical reactor).
- Changes which may result in applicable requirements no longer applying (for example, disconnecting fuel oil supply pipes from a boiler so that the boiler can only operate on natural gas).

Increases in production: An increase in production is a type of change that may increase emissions but is not a physical change. It is generally a change in operation that increases utilization of existing equipment beyond what is authorized by the permit.

Examples of increases in production include, but are not limited to, the following:

- increasing a production rate
- increasing the throughput of materials
- increasing fuel usage
- increasing hours of operation

Examples of changes which are not increases in production:

- increasing production when there is not an existing permit condition limiting production, throughput, fuel usage, or hours of operation

Other operational changes: Operational changes are any type of change a source can make which might increase emissions and which is not a physical change or an increase in production as described above.

Examples of operational changes include but are not limited to:

- changing to solvents with higher PM, VOC, or HAP contents than those used in previous permit applications
- using a different chemical in the production of a product for which the equipment is already in place
- increasing hours of operation or production rate when there is a permit condition which limits the hours of operation or production rate

Examples of changes which are not operational changes include:

- routine maintenance, repair and replacement
- some fuel switching may be exempt from being considered a modification if the fuel switch is required by certain federal regulations

Fuel changes: Fuel changes include, but are not limited to, the following:

- adding a new fuel that is not specifically authorized by the permit
- replacement of a currently permitted fuel with a different fuel
- changing the specifications of a fuel that is authorized by the permit where the specifications are included in the permit (e.g., fuel sulfur content)

4) Does your project involve the addition or modification of a non-emergency generator? – The MPCA requires screening modeling (or refined modeling, if needed) for all non-emergency generators. Use Form EC-03, found on the MPCA Emission Calculations webpage (http://www.pca.state.mn.us/dm0rdc9). Engines being tested in test cells are not considered non-emergency generators.

5) Do you need your permit issued by a certain date? – If you need to have a permit issued by a particular date, enter that date and describe the importance of that date.

6) **Compliance demonstration (CD-01) form** – The CD-01 form will contain a listing of all applicable requirements for your modification. Refer to the total facility application instructions for more information on how to propose synthetic minor permit limits. If you previously submitted an air emission permit application, you may have completed a form CD-01 for the emission unit you are now planning to modify or remove. If the removal means some applicable requirements no longer apply, you should indicate that on form CD-01, either by copying the original form CD-01 and marking "delete" by the applicable requirement that no longer applies, or by stating this on a new form CD-01. Be sure to indicate this type of change and the applicable requirements that no longer apply.

7) **Description of proposed project** – Provide a description of each physical and operational change and/or proposed change to existing permit conditions included in this application. Include any effects from "debottlenecking" emission units.

Debottlenecking - If the installation of a new emission unit or changes to an existing unit have the effect of allowing other emission units at the facility to operate at a higher capacity than utilized, this is called debottlenecking. Describe how the capacity of these other units will increase.

Other changes – Even if you aren't making a physical or operational change, you may still need a permit amendment in order to implement your proposed project. For example, if you wish to revise or delete existing permit conditions, you must apply for the appropriate permit amendment. Describe these changes here.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-02

Action type determination

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Answer the questions on this form, referring to and completing the additional forms as directed, to determine if a permit or amendment is required (and if so what type), or if a notification is required.

3. Does the change consist only of a change in facility ownership or operational control, facility ownership name, or facility name?

☒ No. Go to question 4.

☐ Yes. Use the Minnesota Pollution Control Agency (MPCA) e-Services for an administrative amendment (found on the MPCA website at https://www.pca.state.mn.us/data/e-services). Physical applications received for an administrative amendment will be denied.

4. Does the change consist only of the extension of a deadline by no more than 120 days? The deadline must be one which MPCA has authority to extend, or the answer to this question must be "no."

☒ No. Go to question 5.

☐ Yes. Use MPCA's e-Services for an administrative amendment (found on the MPCA website at https://www.pca.state.mn.us/data/e-services). Physical applications received for an administrative amendment will be denied.

5. Does the proposed change or modification require a major amendment? To answer this question, use form CH-03 and all forms referenced therein. Include these forms in your submittal, unless otherwise noted on form CH-12 or CH-09, if applicable.

☐ Yes. The proposed change consists only of amending existing permit requirements related to **monitoring, reporting, or recordkeeping** as shown by item 2 on form CH-03. Go to question 12.

☒ Yes. The proposed change is a major amendment as indicated by one or more questions for items 3 through 9 on form CH-03. Go to question 10.

☐ No. Go to question 6.

6. Does the entire proposed change or modification consist **only** of insignificant activities described in Minn. R. 7007.1300, subparts 2 and/or 3, and/or conditionally insignificant activities in compliance with Minn. R. 7008,4000 to 7008.4110?

☐ Yes. The proposed change qualifies as an insignificant modification under Minn. R. 7007.1250, subp. 1.A. If the modification triggers new monitoring, record keeping, or reporting requirements under applicable requirements or Minn. R. 7007.0100 to 7007.1850, then you must initiate an administrative amendment under Minn. R. 7007.1400 to include the new requirements no more than 30 days after making the modification. Use MPCA's e-Services for an administrative amendment (found on the MPCA website at https://www.pca.state.mn.us/data/e-services). Physical applications received for an administrative amendment will be denied unless specifically instructed within the MPCA e-Service.

If the proposed change also meets the conditions of Minn. R. 7007.1250, subp. 4, then you must notify the MPCA using form CH-12. Go to question 7.

☐ No. Part of the project is not one of the listed insignificant activities listed in Minn. R. 7007.1300, subp. 2 and/or 3 or the conditionally insignificant activities listed in Minn. R. 7008.4000 to 7008.4110. Go to question 7.

7. Can the change be done through an administrative amendment? You **may** apply for an administrative amendment for several other reasons not listed above. These reasons are listed in Minn. R. 7007.1400, subp. 1.

☐ Yes. Use MPCA's e-Services for an administrative amendment (found on the MPCA website at https://www.pca.state.mn.us/data/e-services). Physical applications received for an administrative amendment will be denied.

☐ No. Go to question 8.

8. Can the change be made through the "contravening permit terms" provision? Use form CH-09 to determine Yes or No.

☐ Yes. Include form CH-09 in your submittal. Proceed to question 12.

☐ No. Go to question 9.

9. Is a minor or moderate amendment needed? Complete form CH-10 to determine Yes or No.

☐ Yes. Include form CH-10 in your submittal. Go to question 10.

☐ No. Complete form CH-12 to determine what notification or recordkeeping requirements apply. Proceed to question 12.

10. Complete form CH-11 to determine your status with regard to crossing permit thresholds, and indicate that status below.

☒ This change can be made through the permit amendment provisions of Minn. R. 7007.1450 or 7007.1500. Include form CH-11 in your submittal. Proceed to question 11.

☐ This change requires issuance of a Title V or State operating permit. Submit a completed *Total facility application*. You are done with this form.

11. Complete form CH-13 to determine what state rules apply to the equipment you are adding or the changes you are proposing, and include form CH-13 in your submittal. Then proceed to question 12.

12. In addition to this form and any forms you were instructed herein to include in your submittal, complete and submit form CH-14 and any other forms or information as directed on form CH-14.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-14

Permit notification and amendment application requirements

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 4.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Minn. R. 7007.0600 describes what a permit application must include. The items in the following list constitute an administratively complete application, but do not necessarily mean that the application is technically complete for the purpose of taking final permit action. Please complete the following to verify that you have included all the indicated forms and information.

Included	Not included	Form/Requirement	When required
☒		SCP-01 Submittal cover page with original signature	Always
☒		CH-GI-01 Facility information	Always
☒		CH-15 SIP Changes and permits	Always
☒		CH-00 Project screening	Always
☒		CH-01 Change description	Always
☒		CH-02 Action Type determination	Always
☒		CH-14 Permit notification and amendment application requirements	Always
☒	☐	CH-03 Major permit amendment determination	When indicated on CH-02, CH-12, or CH-09
☒	☐	CH-04 Determination of New Source Review (NSR) status	As directed on CH-03
☐	☒	CH-04a Determination of increases at major sources	As directed on form CH-04
☐	☒	Supporting editable CH-04a emission calculations	As directed on form CH-04a
☒	☐	CH-04b Determination of increases at minor sources	As directed on form CH-04
☒	☐	Supporting editable CH-04b emission calculations	As directed on form CH-04b
☐	☒	CH-04d Calculating the Net Emissions Increase Under NSR	As directed on form CH-04a
☐	☒	Supporting editable CH-04d emission calculations	As directed on form CH-04a
☐	☒	CH-04e Required elements for Prevention of Significant Deterioration (PSD) permit application	As directed on form CH-04b or CH-04d
☐	☒	Best available control technology analysis	When the proposed change or modification is major under NSR
☒	☐	CH-05 Applicability of New Source Performance Standards (NSPS)	As directed on CH-03

Included	Not included	Form/Requirement	When required
☐	☒	Highlighted copy of applicable subpart(s) of 40 CFR pt. 60, including subpart A	When so indicated on CH-05
☒	☐	CH-06 Applicability of Part 61 National Emission Standards for Hazardous Air Pollutant Sources (NESHAP)	As directed on CH-03
☐	☒	Highlighted copy of applicable subpart(s) of 40 CFR pt. 61, including subpart A	When so indicated on CH-06
☒	☐	CH-07 Applicability of Part 63 NESHAP	As directed on CH-03
☒	☐	Highlighted copy of applicable subpart(s) of 40 CFR pt. 63, including subpart A	When so indicated on CH-07 or CH-08
☒	☐	CH-11 Crossing permit thresholds	When indicated on CH-02. Make sure your proposed change qualifies for amendment of your existing permit, or as an I/O permit under Minn. R. 7007.0750, subp. 5.
☒	☐	CH-13 Applicability of State Rules	When indicated on CH-02
☒	☐	CD-01 Compliance plan	For all applications for a major, moderate, or minor amendment, or when directed to on CH-01 for administrative amendments, or when indicated on CH-12.
☒	☐	GI-07 Spreadsheet - facility emissions summary	For all amendment applications, except when there are no emission changes
☒	☐	Editable electronic spreadsheet containing all emissions calculations and GI-07 information	Whenever GI-07 is required. If submitting the application electronically ("pdf" on a CD or USB drive), you must include the editable spreadsheet(s) on the CD or USB drive. If submitting the application on paper, you must also include a CD or USB drive of the editable electronic spreadsheet(s) with the application. The editable spreadsheet must contain all GI-07 information.
☒	☐	Emission calculation printouts (if submitting application electronically as a "pdf" document then the emission calculations must be a part of the pdf document; if submitting a paper copy of the application, then the emission calculations must be printed on paper as part of the application. Example calculations must also be included.)	Whenever GI-07 is required
☐	☒	HG-01 Mercury releases to ambient air	If the permit will authorize an increase in mercury emissions (construction of a new facility that will emit mercury, or modification of an existing facility resulting in additional mercury emissions), AND the potential mercury emissions from the entire facility already are or will be (after the proposed change) three (3) or more pounds per year.
☐	☒	GI-09H Requirements: Compliance Assurance Monitoring (CAM)	When adding or changing control equipment or controlled emission units at a Part 70 source
☐	☒	CAM Plan	When indicated on GI-09H

Included	Not included	Form/Requirement	When required
☐	☒	GI-09K Requirement: Cross-State Air Pollution Rule	If the permit will authorize construction or modification of a stationary fossil-fuel-fired boiler or combustion turbine at your stationary source serving at any time, on or after January 1, 2005, a generator with a nameplate capacity of more than 25 megawatt electric producing electricity for sale.
☐	☒	CH-10 Applicability of minor or moderate amendment process	When applying for a moderate or minor amendment
☐	☒	CH-08 Administrative amendment determination	When applying for an administrative amendment other than for a change in facility name, ownership, or ownership name. Physical applications received for an administrative amendment will be denied unless specifically instructed within the Minnesota Pollution Control Agency (MPCA) administrative other e-Service to use physical/paper forms.
☐	☒	CH-09 Contravening permit terms	When proposing contravening permit terms
☒	☐	CH-12 Written notification form	When proposing changes that do not require a permit amendment, other than those covered by contravening permit terms
☒	☐	IA-01 Insignificant activities list	When the proposed change or modification includes changes to insignificant activities
☒	☐	GI-02 Process flow diagram	When the proposed change or modification includes changes to the process flow, including removing or adding new emission units, control devices, stacks/vents, tanks, or fugitive sources
☒	☐	Separate sheet showing revised process flow	When the process flow diagram is not drawn directly on form GI-02
☒	☐	GI-03 Facility and stack/vent diagram	When proposed change or modification includes changes to the stack/vent diagram, including removing or relocating existing stack/vents, or adding new stack/vents
☒	☐	Separate sheet showing revised stack/vent diagram	When the stack/vent diagram is not drawn directly on form GI-03
☒	☐	GI-04 Stack/Vent information	When adding or changing stack/vents
☒	☐	GI-05A Pollution control equipment information	When adding or changing control equipment
☒	☐	CD-05 Compliance plan for control equipment (or marked-up permit page(s) for a specific control device when only making changes to operating parameter values of existing control equipment)	When adding or changing control equipment
☐	☒	CR-02 Hood certification	When adding or changing emission units venting to control equipment through an existing hood (not required for total enclosures)
☒	☐	GI-05B Emission unit information	When adding, replacing, or changing emission units, or adding or replacing a control device controlling an emission unit
☐	☒	GI-05C Tank information	When adding, replacing, or changing storage tanks, or adding or replacing a control device controlling a tank
☐	☒	GI-05D Fugitive emission source information	When adding, replacing, or changing fugitive sources, or adding or replacing a control device controlling a fugitive source

Included	Not included	Form/Requirement	When required
☒	☐	GI-05E Group information	When adding, replacing, or removing subject items in a permit group, including emission units, control equipment, monitors, stacks, etc., or when adding or deleting groups within a permit
☒	☐	GI-05F Emission source associations	When adding, replacing, or changing emission units, tanks, fugitive sources, or control equipment
☐	☒	ME-01 Continuous monitoring system information	To describe new, removed, or changed continuous monitoring systems
☐	☒	ME-02 Monitor associations	When adding, replacing, or changing continuous monitoring systems
☐	☒	PAL-01 PAL cover page	When requesting a new Plantwide Applicability Limit (PAL) under NSR
☐	☒	PAL-02 Determination of plantwide applicability limit for major NSR sources	When requesting a new PAL under NSR
☐	☒	MI-01 Building and Structure Information	When adding or changing buildings/structures
☐	☒	MI-02c Modeling for plantwide applicability limitations	When requesting a new PAL under NSR
☐	☒	EC-03 IC Engine screen modeling	When adding or changing a non-emergency generator
☐	☒	Application for reissuance of Title V or expiring state operating permit submitted ☐ required ☒ not required	If the expiration date of the operating permit has passed or will have passed by the time the requested permit amendment has been issued, Under Minn. R. 7007.0400, subp. 2, an application for reissuance of the operating permit is required 180 days prior to the expiration date of the permit.
☐	☒	Environmental Assessment worksheet (EAW) submitted ☐ required ☒ not required	Use the *Environmental review pre-screening* form, available on the MPCA website at https://www.pca.state.mn.us/business-with-us/environmental-review under the "Does your project need environmental review?" to determine this.
☐	☒	Air Emission Risk Analysis submitted (AERA) submitted ☐ required ☒ not required	An AERA will likely be needed if there is an increase of any criteria pollutant by 250 tons per year or more. An AERA may also be required on a case-by-case basis. See the MPCA website at https://www.pca.state.mn.us/business-with-us/air-emissions-risk-analysis-aera.
☒	☐	Dispersion modeling submitted ☒ required for: ☐ EAW ☐ AERA ☐ PSD ☒ Case-by-case/Other, specify: NAAQS_____ ☐ not required	• If an AERA is needed, or • If the project is subject to PSD (unless the only pollutant involved is a Volatile Organic Compound), or • As required on a case-by-case basis. See the MPCA website at https://www.pca.state.mn.us/business-with-us/air-quality-modeling.

Instructions for form CH-14

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under Minn. R. ch. 7007.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name.

3) Complete each line of the table by checking the appropriate box, indicating that the specified form or attachment is included or not included in the application.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-03

Major permit amendment determination

Air Quality Permit Program

Doc Type: Permit Application

Instructions start on page 2

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

1c) Facility name: Northern Iron LLC

To answer the questions posed in this form, you will have to complete the additional forms referenced in the individual items.

This form refers to proposed **changes** and **modifications**. A "modification" as defined in Minn. R. 7007.0100, subp. 14, includes:

A. any change that constitutes a title I modification …; or

B. any physical change or change in the method of operation of an emissions unit, emission facility, or stationary source that results in an increase in the emission of a regulated air pollutant.

A "change" is a change to permit terms or conditions, in the absence of a modification as described above.

2) Is the proposed change an amendment to existing permit requirements related to **monitoring, reporting, or recordkeeping other than (1)** adding new requirements, **(2)** eliminating the requirements if they are rendered meaningless because they apply to emissions that will no longer occur, **(3)** eliminating requirements that are technically incorrect where the elimination does not affect the accuracy of the data generated, or **(4)** eliminating requirements for a piece of equipment that no longer exists (Minn. R. 7007.1500, subp. 1[A])?

☐ Yes. If you answer yes to this question, a major amendment is required. Use and submit form *CD-01* and/or *CD-05* to document the changes to such requirements. If the permit application will include a proposed modification as defined in Minn. R. 7007.0100, subp. 14 or another type of proposed change, go to question 3a; otherwise, you are done with this form.

☒ No. Go to question 3a.

3) Is the proposed change or modification a title I modification? It is if the answer to any of the following is "**yes**":

3a) Is the proposed change or modification subject to New Source Review? Use and submit form *CH-04*, either *CH-04a* or *CH-04b*, as applicable, and all other forms referenced therein. Submit all forms used regardless of the outcome.

☐ Yes
☒ No

3b) Is the proposed change or modification a modification or reconstruction as defined for New Source Performance Standards? Use and submit form *CH-05*. Submit form *CH-05* regardless of the outcome.

☐ Yes
☒ No

3c) Is the proposed change or modification a hazardous air pollutant modification under Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAPs)? Use form *CH-06* to make this determination and submit form *CH-06* regardless of the outcome.

☐ Yes
☒ No

3d) Is the proposed change or modification defined as construction or reconstruction of a major source under Part 63 NESHAPs? Use and submit form *CH-07*.

☐ Yes
☒ No

4) Reserved for future use.

5) Does this change or modification establish or amend any **source-specific permit condition** that is or will be based on a case-by-case determination of an emissions limit or standard, an ambient impacts analysis, visibility, or increment analysis (e.g., a modeling-based limit, the requirement to operate a specific control device for a specific emission unit, specific operating parameters for a control device, a specific control efficiency, Best Available Control Technology (BACT), Maximum Achievable Control Technology (MACT), adding a new fuel to a list of allowable fuels, etc.) (Minn. R. 7007.1500, subp. 1[B])?

☒ Yes. Use and submit form *CD-01* and/or *CD-05* to document such conditions. If you are amending existing New Source Review requirements established through a previously issued New Source Review permit (requirements from a BACT analysis, or ambient impacts, class I impacts, or additional impacts analysis), submit form *CH-04e* and appropriate supporting documentation (revised BACT, ambient impacts, class I impacts, or additional impacts analyses). If you are amending existing requirements based on a case-by-case MACT determination, please contact the MPCA for more information.

☐ No

6) Does this change or modification establish or amend any permit terms or conditions for which there is no underlying applicable requirement and that you have assumed to avoid an applicable requirement to which you would otherwise be subject? Such limits are usually synthetic minor limitations such as a limit on hours of operation. Please note that if you would like to add equipment under an existing emissions cap or limit, and the permit does not explicitly pre-authorize such additions, that is considered amending the limit or emissions cap. (Minn. R. 7007.1500, subp. 1[C]).

☒ Yes. Use and submit form *CD-01* and/or *CD-05* to document such conditions.

☐ No

7) Does this change or modification establish, amend, renew, or distribute a **Plantwide Applicability Limit** (PAL) under 40 CFR § 52.21(aa)? (This is only available to existing major sources under New Source Review.)

☐ Yes. Use and submit form *PAL-01* (and the forms referenced within *PAL-01*) and *CD-01* to document conditions. (As of the date of this form, the PAL cover page (*PAL-01*) and the form for determination of a PAL (*PAL-02*) have been completed. The remaining forms for renewal, expiration allocation, and increasing a PAL, are not yet available.)

☒ No

8) Is this change or modification subject to classification as a **major permit amendment under any *other* agency rule**?

☐ Yes If yes, please describe below.

☒ No

9) Does this change or modification seek to establish or amend a federally enforceable emission cap (such as a synthetic minor limit which limits hours of operation) which avoids classification as a part 70 source?

☒ Yes. Use and submit form *CD-01* and/or *CD-05* to document conditions.

☐ No

If you answered "Yes" to one or more of the above questions, a major permit amendment is required.

Instructions for form CH-03 – Major permit amendment checklist

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) number. This is the first eight digits of the permit number for all new permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

1c) **Facility name** -- Enter the facility name.

2) Is the request to amend permit requirements related to monitoring, reporting, or recordkeeping? – **Answer yes if you are requesting to make a significant change to any existing monitoring, recordkeeping, or reporting in your permit other than (1)** adding new requirements, **(2)** eliminating the requirements if they are rendered meaningless because they apply to emissions that will no longer occur, **(3)** eliminating requirements that are technically incorrect where the elimination does not affect the accuracy of the data generated, or **(4)** eliminating requirements for a piece of equipment that no longer exists (Minn. R. 7007.1500, subp. 1(A)).

3) **Is the proposed change or modification a title I modification? –** Title I modifications are defined at Minn. R. 7007.0100, subp. 26. A change is a title I modification if the answer to any of questions 3a) – 3d) is "yes."

3a) **Is the proposed change or modification subject to New Source Review?** – Use form *CH-04* to determine if your existing source is major under New Source Review (NSR), and if your proposed change is exempt from NSR under any specific NSR provisions (if making changes under a PreCap permit limit, form CH-04 does not need to be submitted). If your existing facility is a major source under NSR, use form *CH-04a* to determine if the modification or change is subject to NSR. If your existing source is not a major source under NSR, use form *CH-04b* to determine if the change or modification is subject to NSR. Use form *CH-04d* if so directed in form *CH-04a*, to determine the net emissions increase, Use form *CH-04e* if so directed in form *CH-04d*, to complete the New Source Review requirements.

3b) **Is the proposed change or modification a modification as defined for New Source Performance Standards? –** A change that constitutes a modification as defined at 40 CFR § 60.14 or reconstruction as defined at 40 CFR § 60.15 is a title I modification. Use form *CH-05* to determine if this is the case.

3c) **Is the proposed change or modification a hazardous air pollutant modification under Part 61 NESHAPs? –** A change that constitutes a modification as define at 40 CFR § 61.15 is a title I modification. Use form *CH-06* to determine if this is the case.

3d) **Is the proposed change or modification defined as construction or reconstruction of a major source under Part 63 NESHAPs? –** If your proposed change or modification includes construction or reconstruction of a major source of hazardous air pollutants, then it is a title I modification. Use form *CH-07* to determine if this is the case, and the further steps to take if it is.

4) Reserved for future use.

5) **Is the request to establish or amend a source-specific permit condition? –** If the answer is yes, in most cases you will have already determined that you must use the major amendment process through the forms mentioned at the start of the instructions. In addition, establishing or amending permit limits that were determined as part of an ambient impacts analysis also requires a major amendment (e.g., modeling for National Ambient Air Quality Standard [NAAQS] or Minnesota Ambient Air Quality Standard [MAAQS]). Use form *CD-01* to document the proposed permit conditions and compliance methods.

6) **Is this a request to establish or amend a limit taken to avoid an applicable requirement? –** The most common type of limit under this scenario is a federally enforceable emissions cap. This is not the same as a "Plantwide Applicability Limitation" – see item 9). "Federally-enforceable emissions cap" most commonly refers to a limit on hours of operation; on the type or quantity of materials combusted, stored or processed; or conditions that require air pollution control equipment be operated and maintained at a specified frequency to limit the annual amount of emissions. This type of cap is usually proposed so that a stationary source or modification may avoid federal NSR for which applicability is determined based on tons per year. Such caps might also be proposed to avoid a new source or modification being subject to a MACT standard in 40 CFR pt. 63 for which applicability is also determined in tons per year of Total Hazardous Air Pollutants (HAPs) emitted. A cap might also be proposed to limit hourly emissions for a modification to avoid being classified as a modification under NSPS or Part 61 NESHAPs for which applicability is determined in pounds per hour. Adding equipment or processes under the cap when the permit does not specifically preauthorize such additions is amending the cap. Use form *CD-01* to document the proposed permit conditions and compliance methods.

7) **Does this modification establish, amend, or renew a Plantwide Applicability Limit under 40 CFR § 52.21(aa)? –** Plantwide Applicability Limits, or PALs, must be established or revised through issuance of Part 70 permit or the major amendment process. Use form *PAL-01* to determine the appropriate information to include in the application, and form *CD-01* to document the proposed permit conditions and compliance methods.

8) **Is the change classified as a major amendment under any MPCA rule? –** The MPCA may by rulemaking classify changes that would not otherwise require the major amendment process as being subject to that process.

9) **Does the change seek to establish or amend an emission cap to avoid Part 70? --** Similar to the first type of cap discussed in 5) above, a source may establish limits to limit annual emissions of regulated pollutants to below Part 70 thresholds. Use form *CD-01* to document the proposed permit conditions and compliance methods.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-04

Determination of New Source Review Status

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Is your facility defined as one or more of the following types of facilities? Please check any of the types of facilities that apply.

Some standard industrial classification (SIC) code(s) applying to specific categories are given in parentheses to assist you in classifying your facility. The SIC codes provided are not meant to be an exhaustive nor definitive list of facilities included in the category.

- ☐ Coal cleaning plants-with thermal dryers
- ☐ Portland cement plants (3241)
- ☐ Iron and steel mills (3312)
- ☐ Primary copper smelters (3331)
- ☐ Hydrofluoric acid plants (2819, 2899)
- ☐ Nitric acid plants (2873)
- ☐ Lime plants (3274)
- ☐ Coke oven batteries (3312)
- ☐ Carbon black plants (furnace process, 2895)
- ☐ Fuel conversion plants
- ☐ Secondary metal production plants (334x, 332x)
- ☐ Fossil-fuel boilers (or combination thereof) totaling more than 250 MMBtu/hr heat input
- ☐ Taconite ore processing plants (1011)
- ☐ Charcoal production plants (2819, 2861)
- ☐ Kraft pulp mills (2611, 2621)
- ☐ Primary zinc smelters (3339)
- ☐ Primary aluminum ore reduction plants (3334)
- ☐ Municipal incinerators capable of charging more than 250 tons of refuse per day
- ☐ Sulfuric acid plants (2819)
- ☐ Petroleum refineries (2911)
- ☐ Phosphate rock processing plants (1475)
- ☐ Sulfur recovery plants (2819)
- ☐ Primary lead smelters (3339)
- ☐ Sintering plants*
- ☐ Chemical process plants (28xx)**
- ☐ Petroleum storage & transfer units, total storage capacity over 300,000 barrels
- ☐ Glass fiber processing plants
- ☐ Fossil fuel-fired steam electric plants of more than 250 MMBtu/hr heat input

* Processing of fine grain materials into coarser lumps, performed primarily on ores

** Does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140.

☐ Yes. My facility is classified as one or more of the 28 sources listed above. A listed air emission source having a potential to emit (PTE) 100 tons per year (TPY) or more of any single regulated New Source Review (NSR) pollutant (except carbon dioxide equivalents (CO_2e)) is considered a major stationary source. For sources classified as one of the 28 listed, fugitive emissions must be included in the PTE. **For item 6 of this form, and for form CH-04b if applicable, a 100-TPY emissions threshold must be used for all regulated NSR pollutants except CO_2e.**

☒ No. My facility is not classified as one of the 28 sources listed above. An air emission source not classified as one of the 28 sources listed above and having the PTE 250 TPY or more of any single regulated NSR pollutant (except CO_2e) is considered a major stationary source. **For item 6 of this form, and for form CH-04b if applicable, a 250-TPY emissions threshold must be used for all regulated NSR pollutants except CO_2e.**

4) [Reserved]

5) [Reserved]

6) Is the current federally enforceable PTE (excluding greenhouse gas) of your facility greater than or equal to the thresholds identified in question 3, making your facility a major stationary source?

☐ Yes. Go to question 7.

☒ No. Go to question 9.

7) Is your facility currently covered by a permit that contains a Plantwide Applicability Limit ("actuals PAL") as defined at 40 CFR § 52.21(aa)(2)(i) and (v)?

☐ Yes. Go to question 8.

☐ No. Go to question 9.

8) Are you able to continue to meet the emissions limits set by the Plantwide Applicability Limit after the project?

☐ Yes. NSR is not applicable to the proposed change/modification. You need not complete the remainder of this form. You must determine if an amendment is needed under Minn. R. 7007.1150 – 7007.1500.

☐ No. You must complete a Best Available Control Technology (BACT) analysis for all major and significant emissions units at your source. If installation of BACT still does not allow you to install the emission unit and maintain compliance with your PAL, you may apply for an increase in your PAL. Please see the Minnesota Pollution Control Agency (MPCA) forms on PALs at https://www.pca.state.mn.us/business-with-us/air-permit-application-forms or PAL information available here https://www.pca.state.mn.us/business-with-us/new-source-review, for guidance on increasing a PAL. Do not complete the remainder of this form.

9) Synthetic Minor Source: Are you proposing new or revised federally enforceable limits such that the entire facility (including the proposed modification) will become or remain a minor source?

☒ Yes. Submit an application for a major amendment. Refer to the MPCA website at https://www.pca.state.mn.us/business-with-us/synthetic-minor-permit-limits for guidance on setting limits. Put proposed limits and proposed compliance demonstration on form CD-01. Do not complete form CH-04a. If you are revising an existing federally enforceable limit, complete form CH-04b to document emission changes.

☐ No. If you answered "Yes" to question 6, go to form CH-04a.
If you answered "No" to question 6, go to form CH-04b.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-04b

Determination of increases at minor sources

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 4.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Use this form to calculate emissions increases at existing sources, which are minor New Source Review (NSR) sources. If the facility is an existing major source under NSR, use form *CH-04a*.

3) [Reserved]

4) Use Table 1 to document the potential emissions of the individual units, tanks, or fugitive sources affected by the proposed modification. See instructions for calculating emissions increases. Make additional copies of Table 1 if more than four units are affected. Transfer the total increases (total potential emissions) for each pollutant from the "Total" column in Table 1 to column B in Table 2. Refer to the Minnesota Pollution Control Agency (MPCA) Greenhouse Gas (GHG) Emissions website at https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations for guidance in calculating carbon dioxide equivalents (CO_2e) emissions. Attach your calculations in both an editable spreadsheet format and a hardcopy printout.

Table 1 (acronyms described on page 5)

SI IDs:					
Pollutant	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Total (tpy)**
PM	*See attached supplemental Table 1				
PM_{10} (including condensables)					
$PM_{2.5}$ (including condensables)					
NO_x					
SO_2					
CO					
VOCs					
Lead					
Fluorides					
Sulfuric acid mist					
H_2S					
Total reduced sulfur including H_2S					
Total reduced sulfur compounds including H_2S					
MWC organics					
MWC acid gas					
MSW landfill gas					
CO_2e					

Table 2 – Summary (acronyms described on page 5)

Column A	Column B	Column C	Column D	Column E
	Emissions from all units affected by the modification (from Table 1)	Thresholds for minor sources ("No" to CH-04 question 5 or 6 or "No" to GI-09C question C4 or C5) (tpy)		Thresholds for major sources
Pollutant	(tpy)	Answered "Yes" to CH-04 question 3 or GI-09C Section A	Answered "No" to CH-04 question 3 or GI-09C Section A	Significant emission rates for major sources (tpy)
PM	-291.11	100	250	25 [7]
PM_{10} (including condensables)	-232.16	100	250	15
$PM_{2.5}$ (including condensables)	-133.97	100	250	10
NO_x	12.94	100	250	40
SO_2	0.05	100	250	40
CO	7.54	100	250	100
VOCs [1]	0.53	100	250	40
Lead	-43.09	100	250	0.6
Fluorides		100	250	3
Sulfuric acid mist		100	250	7
H_2S		100	250	10
Total reduced sulfur including H_2S		100	250	10
Total reduced sulfur compounds including H_2S		100	250	10
MWC organics [2]		100	250	10
MWC acid gas [3]		100	250	0.0000035
MWC metals [4]		100	250	40
MSW landfill gas [5]		100	250	15
CO_2e [6]		NA	NA	75,000 [8]

Note 1: VOC emissions are an ozone precursor. When VOC emissions exceed the Prevention of Significant Deterioration Program (PSD) major source threshold, ozone is subject to PSD permitting. (Direct ozone emissions are not included in the determination of PSD applicability.) Also, when another pollutant listed here (except for CO_2e) exceeds the minor source threshold and VOC emissions exceed the significant emission rate for major sources, ozone is subject to PSD permitting.

Note 2: MWC organics means Municipal waste combustor organics. These are defined as total tetra-thro-octa-chlorinated dibenzo-para-dioxins and dibenzofurans.

Note 3: MWC acid gases are measured as the sum of sulfur dioxide and hydrochloric acid.

Note 4: MWC Metals are measured as particulate matter.

Note 5: MSW landfill gas is measured as nonmethane organic compounds.

Note 6: CO_2e is calculated as a weighted aggregate of carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, using the gases' global warming potentials. (Refer to the MPCA website at https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations for instructions on calculating greenhouse gas emissions.)

Note 7: On July 31, 1987, the National Ambient Air Quality Standard for TSP (PM) was repealed and replaced with a standard for particulate matter less than 10 µm in size (PM_{10}). The significant levels in this table are as they appear in the Code of Federal Regulations, March 1994. A source may not be required to comply with Nonattainment NSR for TSP increases above 25 tons per year (tpy), but may be for PM_{10} above 15 tpy.

Note 8: On June 23, 2014, the U.S. Supreme Court decided (in Utility Air Regulatory Group (UARG) v. U.S. Environmental Protection Agency) that a project is not subject to regulation by virtue of GHG emissions alone. However, projects subject to regulation for other NSR-regulated pollutants are still subject to regulation for GHG.

5) Referring to Table 2, do the total emissions from new, modified, debottlenecked, and replacement units exceed the appropriate threshold for minor sources (Column C or D, depending on response on *CH-04* or *GI-09c*), for any pollutant?

☒ No. Done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "No" to the question of whether the proposed change or modification is subject to NSR.

☐ Yes. Go to question 6.

6) In Table 3, list each pollutant for which the minor source threshold is exceeded in Table 2. Then go to question 7.

Table 3 – Pollutant status vs. minor source thresholds

Pollutants exceeding the minor source threshold in Table 2:	

7) Will you propose and accept a limit on every pollutant, in Table 3 such that no minor source thresholds are exceeded? (Refer to the MPCA website at https://www.pca.state.mn.us/air/synthetic-minor-permit-limits for information on how to determine and propose limits.) See instructions for situations when CO_2e emissions are above the applicable threshold.

☐ Yes. Go to question 8.

☐ No. The emissions of at least one pollutant exceed the threshold for minor sources. Go to question 10.

8) Briefly describe the limit(s) you are proposing to keep the emissions of all pollutants listed in Table 3 below its associated minor source threshold. Also include the limit(s) on form *CD-01*, with your proposed method of demonstrating compliance. Then go to question 9.

9) You are done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "No" to the question of whether the proposed change or modification is subject to NSR.

10) The project is major for at least one pollutant.

Review Table 2. In Table 4, list each pollutant, including CO_2e, for which the total emissions from new, modified, debottlenecked, and replacement units exceed the associated major source significant emission rate threshold for major sources. Then go to question 11.

Table 4 – Pollutant status vs. major modification thresholds

Pollutants exceeding the major source significant emission rate in Table 2	

11) Will you propose and accept a limit on any pollutant in Table 4 such that it does not exceed its major source significant emission rate? If you propose limits to restrict the emissions of all pollutants listed in Table 4 except for CO_2e such that only emissions of CO_2e are above the applicable threshold, then the proposed change or modification is not subject to NSR. If this is the case, answer "yes" to this question. (Refer to the MPCA website at https://www.pca.state.mn.us/air/synthetic-minor-permit-limits for information on determining and proposing limits.)

☐ Yes. Go to question 12.

☐ No. The project is major for each pollutant listed in Table 4. Go to question 13.

12) Briefly describe the limit(s) you are proposing to keep the emissions of any pollutant listed in Table 4 below their significant emission rates. Also include the limit(s) on form *CD-01* with your proposed method of demonstrating compliance. Go to question 13.

13) In Table 5, list all pollutants that you have determined to be subject to Prevention of Significant Deterioration Program (PSD). This will include each pollutant in Table 3 and in Table 4 for which you did not limit emissions below the major source threshold in Table 2 (the significant emission rate).

Table 5 – Pollutants subject to PSD

14) You have now completed this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "Yes" to the question of whether the proposed change or modification is subject to NSR. Also complete *CH-04e* to identify the information needed for a PSD permit application.

Instructions for form CH-04b

Complete *CH-04b* only if directed on form *CH-04* or *GI-09C*.

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) number. This is the first eight digits of the permit number for all new permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3) [Reserved]

4) At the top of each column in Table 1, enter or select "EQUI" (for emission units and tanks), or "FUGI" (for fugitive sources) and enter the number as it exists in your current Air Quality Permit. If your Air Quality Permit has not been issued in Tempo, enter or select "EU" (emissions unit), "TK" (tank), "FS" (fugitive source) instead. In calculating the emissions increase from a proposed change or modification at an existing minor stationary source, you must calculate the potential emissions of the new, modified, or debottlenecked unit(s) (this might be an emission unit, a tank, or a fugitive source). If the potential emissions of the new or modified units are greater than or equal to the applicable threshold, the proposed modification is potentially subject to NSR. Potential to emit (PTE) is the capability at maximum design capacity to emit a pollutant, except as constrained by federally-enforceable conditions (which include the effect of installed air pollution control equipment and restrictions on the hours of operation, or the type or amount of material combusted, stored or processed). Do not take air pollution control equipment into account except as allowed by Minn. R. 7007.1200, subp. 2. You may not take credit for proposed or non federally-enforceable pollution control equipment. You may not take credit from emissions reductions made at existing emission unit, tanks or fugitive sources. Note that potential emissions are used for an emissions increase because this is for a minor NSR source (40 CFR 52.21(a)(2)(iv)(d), 40 CFR 52.21(b)(1)(i)(c), 40 CFR 52.21(b)(48)(iii)).

   In the last column of Table 1, enter the total emissions, in tpy, of each pollutant. (This will be used again in Table 2.)

   Transfer the total potential emissions for each pollutant to Table 2. Compare the total emissions from the new, modified, debottlenecked, and replacement units for each pollutant to the appropriate threshold for minor sources (for all regulated pollutants except CO_2e, 100 tpy if you answered "Yes" to question 3 of form *CH-04* or Section A of *GI-09C*, or 250 tpy if you answered "No" to question 3 of form *CH-04* or Section A of form *GI-09C*; there is no minor source threshold for CO_2e emissions. In addition, if either nitrogen oxides (NO_X) or sulfur dioxide (SO_2) emissions are above the thresholds, then the proposed project may also considered to be major for Particulate Matter less than 2.5 micrometers ($PM_{2.5}$), since NO_X and SO_2 are assumed precursors to $PM_{2.5}$.

5) If the total emissions from the proposed change or modification do not exceed the thresholds in Table 2, you are done with this form and the NSR analysis. If you are applying for an amendment to an existing permit, return to forms *CH-02* and *CH-03* to

continue the process of determining the type of permit amendment needed. If you are applying for a first-time individual permit, return to form *GI-09C* and answer "No" to the question of whether the proposed change or modification is subject to NSR.

If the total emissions of one or more pollutant exceed the associated minor source threshold, go on to question 6.

6) Enter on Table 3 the name of each pollutant in Table 2 for which the associated minor source threshold is exceeded.

7) Considering each pollutant listed in Table 3, determine if you are able and willing to accept permit conditions to keep the emissions of each of the Table 3 pollutants below its associated minor source threshold. (These permit conditions may limit hours of operation or amount of raw materials used, or require the operation of air pollution control equipment to restrict the emissions so that they are not significant under NSR. Such limitations are sometimes called "synthetic minor limits." For guidance on how to propose limits to avoid NSR, refer to the MPCA website at https://www.pca.state.mn.us/air/synthetic-minor-permit-limits. If you are able and willing to accept such permit conditions, go on to question 8. Describe your limits there an on form *CD-01*.

   If you are not able or willing to accept synthetic minor limits for every pollutant that exceeds the associated minor source threshold in Table 3 so that the emissions are not significant under NSR, the project is subject to NSR for at least one pollutant. Go on to question 10.

8) You decided to accept permit conditions to limit the emissions of all pollutants in Table 3, keeping each pollutant's emissions below the minor source threshold. Describe your proposed permit conditions here and on form *CD-01*.

9) The MPCA will review your proposed conditions and the calculations that support your determination that the project does not trigger NSR. If you came to form *CH-04b* from form *GI-09C*, indicate that your project is not major for PSD there.

10) Your project must undergo NSR for at least one pollutant. To determine if there are other pollutants that trigger NSR, their emission levels must be compared to the major modification thresholds.

    Return to Table 2. This time, compare the emissions of each pollutant to the major modification threshold. In Table 4, list every pollutant that exceeds its associated threshold for major modifications. This should include each pollutant already listed in Table 3.

11) Although you have triggered NSR for at least one pollutant, you may accept permit conditions that restrict the emissions of one or more pollutant below its major modification threshold. By doing so, some NSR permitting requirements may not apply to your project.

    If you propose limits to restrict the emissions of all pollutants listed in Table 4 except for CO_2e such that only emissions of CO_2e are above the applicable threshold, then the proposed change or modification is not subject to NSR and the answer to this question is "yes".

    If you are able and willing to propose and accept limitations on at least one pollutant, go to question 12. Otherwise, go to question 13.

12) You decided to accept permit conditions to limit emissions of at least one pollutant listed in Table 4 to keep that pollutant's emissions below its associated major source modification threshold. Describe your proposed permit conditions here and on form *CD-01*.

    Since these pollutants (for which you propose and are willing to accept limits) are not subject to NSR, do not include them in Table 5 when you complete question 13.

13) Enter all pollutants subject to NSR in Table 5. This will include each pollutant in Table 3 and in Table 4 for which you did not propose conditions to limit emissions below the associated major source modification threshold (listed in Table 2, column E).

    Complete form *CH-04e* to determine the needed components of a NSR review. Table 5 will be referenced by form *CH-04e*.

Acronyms listed in Table 1 - 2

Particulate matter (PM)
Particulate matter less than 10 µm in size (PM_{10})
Particulate matter less than 2.5 micrometers ($PM_{2.5}$)
Nitrogen oxides (NO_x)
Sulfur dioxide (SO_2)
Carbon monoxide (CO)
Volatile organic compounds (VOCs)
Lead (Pb)
Hydrogen sulfide (H_2S)
Municipal Waste Combustor (MWC)
Municipal Solid Waste (MSW)
Carbon dioxide equivalent (CO_2e)

CH-04B Supplement
AQ Facility ID Number: 12300088
Facility Name: Northern Iron LLC

Units Installed since last permit issuance

SI ID:	EQUI41	EQUI42	EQUI46	EQUI47	EQUI48	EQUI49	EQUI50	EQUI51	EQUI52	EQUI75	EQUI76	EQUI77	EQUI95	EQUI97	EQUI100	EQUI102	EQUI112	EQUI114	EQUI120	
Pollutant	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Total (tpy)**
PM	0.16	0.16	0.20	0.20	0.11	0.11	0.07	3.50	1.39	0.84	0.84	0.84	0.84	0.84	0.16	0.84	0.01	0.01	0.04	**11.17**
PM10	0.70	0.70	0.20	0.20	0.11	0.11	0.07	2.98	1.18	0.71	0.71	0.71	0.71	0.71	0.53	0.71	0.01	0.01	0.04	**11.13**
PM2.5	0.16	0.16	0.20	0.20	0.11	0.11	0.07	1.49	0.42	0.25	0.25	0.25	0.25	0.25	0.09	0.25	0.00	0.01	0.04	**4.58**
Nox			3.74	3.74	2.04	2.04	1.39											0.22	0.68	**13.87**
Sox			0.02	0.02	0.01	0.01	0.01											0.00	0.00	**0.06**
CO			2.18	2.18	1.19	1.19	0.81											0.13	0.40	**8.08**
VOC			0.29	0.29	0.16	0.16	0.11											0.02	0.05	**1.07**
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02									0.00	0.00	**0.03**

Units Removed since last permit issuance

SI ID:	EQUI6	EQUI7	EQUI10	EQUI14	EQUI15	EQUI19	EQUI21	EQUI22	EQUI25	EQUI26	EQUI27	EQUI40	EQUI99	EQUI101	
Pollutant	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Total (tpy)**
PM	15.77	15.77	0.05	122.64	122.64	3.50	3.50	3.50	3.50	3.50	3.50	3.50	0.48	0.40	**302.28**
PM10	15.77	15.77	0.05	104.24	104.24	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.41	0.34	**243.28**
PM2.5	15.77	15.77	0.05	52.12	52.12	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.15	0.12	**138.55**
Nox			0.93												**0.93**
Sox			0.00												**0.00**
CO			0.54												**0.54**
VOC			0.54												**0.54**
Lead	0.10	0.10	0.00	21.46	21.46	0.00	0.00	0.00	0.000657	0.000657	0.000657	0.000657			**43.12**

Net Potential Emissions Change

Pollutant	**Total (tpy)**
PM	**-291.11**
PM10	**-232.16**
PM2.5	**-133.97**
Nox	**12.94**
Sox	**0.05**
CO	**7.54**
VOC	**0.53**
Lead	**-43.09**

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-05

Applicability of NSPS
Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3.

Complete this form to determine if the proposed change or modification results in new applicability of a New Source Performance Standard listed in Table 1.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Is there a New Source Performance Standards (NSPS) for a source category which includes the unit(s) you are installing, modifying, or reconstructing?

☐ Yes. Go to question 4

☒ No. Done with this Form. Answer "No" to question 3b) on Form CH-03.

4) Complete Question 4a) – 4c) for each new, modified, or reconstructed unit which may be subject to an NSPS following the proposed project. (Copy as necessary.)

4a) Unit	**4b)** NSPS Subpart(s) that may apply after project	**4c)** Do all of the NSPS listed in column 4b) for the unit listed in column 4a) currently apply (prior to the proposed project)? If this is a new unit, the answer is "no."	
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No

5) Did you check "no" in column 4c) for **all** units in the table in question 4)?

☐ No. This indicates that NSPS currently applies to all units and there will be no newly applicable NSPS as a result of the proposed project. Answer "no" to question 3b on Form CH-03. Go on to question 11 of this form.

☐ Yes. Complete the remainder of this form for each unit for which you checked "no" in the last column of the table in question 4.

6) Installing a new unit to which the NSPS will apply?

☐ No. Go to Question 7).

☐ Yes Complete Questions 6a) – 6e) for each new unit. (Copy as necessary.)

6a) Emission Unit Number: _____

6b) Emission Unit/Equipment Description: _____

6c) Stack/Vent Number: _____

6d) Date of Equipment Manufacture or Installation: _____ (mm/dd/yyyy)

6e) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

7) Reconstructing an existing unit to which an NSPS will apply?

☐ No. Go to Question 8).

☐ Yes Complete Questions 7a) – 7e) (next page) for each reconstructed unit. (Copy as necessary.)

7a) Emission Unit Number: _____

7b) Emission Unit/Equipment Description: _____

7c) Stack/Vent Number: _____

7d) Date of Reconstruction (expected): _____ (mm/dd/yyyy)

7e) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

8) Physical change or modification to an existing unit to which the NSPS might apply?

☐ No Go to Question 10).

☐ Yes – Complete Question 8a) for each modified unit. (Copy as necessary.)

8a) Emission Unit ID No.: _____

Pollutant(s) regulated by the NSPS	Emission Rate after change (lb/hr)	Emission Rate before change (lb/hr)	Change in Emission Rate (lb/hr)
☐ PM			
☐ PM_{10}			
☐ $PM_{2.5}$			
☐ NO_X			
☐ SO_2			
☐ CO			
☐ VOC			
☐ Lead			

9) Is there an increase in the hourly emission rate of any of the pollutants regulated by the NSPS?

☐ No. Go to Question 10).

☐ Yes – Complete Questions 9a) – 9d) for each modified unit. (Copy as necessary.)

9b) Emission Unit/Equipment Description _____

9b) Stack/Vent Number _____

9c) Date of Modification (expected) _____ (mm/dd/yyyy)

9d) Attach a copy of the applicable 40 CFR pt. 60 subpart, and subpart A, with the applicable sections highlighted. Use Form CD-01 to document the proposed methods of compliance.

10) Check all that apply

☐ If you answered either "yes" or "no" to question 6) **and** "no" to question 7) **and** "no" to question 8) or question 9), a major amendment is not needed under Minn. R. 7007.1500, subp. 3a. Answer "no" to Question 3b) on Form CH-03. Another type of permit amendment may still be required.

☐ If you answered "yes" or "no" to question 6), **and either** "yes" to question 7) **or** "yes" to questions 8) and 9), this change or modification requires a major amendment under Minn. R. 7007.1500, subp. 3a. Answer "yes" to Question 3b) on Form CH-03.

☐ If you answered "yes" to question 6), 7), or 9), **but the total facility potential-to-emit remains below all permit thresholds**, review Minn. R. 7007.0250 – 7007.0300 to determine if a permit is needed.

11) Have any incorporated NSPSs been amended since your permit was last issued? This applies even if the units affected by this permit action are not subject to the updated NSPS.

☐ No. Done with this form.

☐ Yes. Attach a copy of each applicable subpart of the NSPS, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Clearly indicate to which unit(s) the highlighted subparts apply; if the same subpart applies differently to different units, provide separate highlighted copies for those units.

Instructions for Form CH-05

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) Number (No.). This is the first eight digits of the permit number for all new permits issued under the operating permit program.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3) **Is there a New Source Performance Standard for a source category which includes the unit(s) you are installing, modifying, or reconstructing? --** If you know or suspect one of the standards listed in Table 1 may apply after your proposed change or modification, you should refer to the applicability section of the 40 CFR pt. 60 subpart and read the requirements to make a final determination. If the answer is "no," then the answer to question 3b) on Form CH-03 is "no."

4) **Which NSPS?** -- For each unit where a New Source Performance Standards (NSPS) may apply after the proposed project, indicate which NSPS will apply, and whether it currently applies (it may currently apply to modified or reconstructed units, it will not currently apply to new units).

5) **Did you check "no" in column 4c) for any unit listed?** -- If you didn't check "no" (you checked "yes" in 4c) for every new, modified, or reconstructed unit), this indicates that all of the NSPS that may apply after the project already apply now, prior to the project. If that is the case, then the answer to question 3b) on Form CH-03 is no. If this is not the case, go on with this form for any unit for which "no" was checked in 4c).

6) **Installing a new unit to which a New Source Performance Standard (NSPS) will apply?** -- If you determine that new equipment will be subject to an NSPS, complete items 6a) – 6e). For 6d), fill in the date of manufacture or the date of installation, whichever date is the trigger event for applicability as specified in the applicable standard. Use Form GI-05B to provide details about the emissions unit (EU), and Form GI-04 to provide details about the stack (SV). Number both the EU and SV consecutively following the last number used for your Title V permit or application for the Title V permit.

7) **Reconstructing an existing unit to which an NSPS will apply?** -- If you are reconstructing an existing unit, and after the reconstruction it will be subject to an NSPS listed in Table 1 (whether or not it is subject to the NSPS before reconstruction is irrelevant), complete items 7a) – 7e). "Reconstruction" is defined at 40 CFR § 60.15:

> § 60.15 Reconstruction
>
> (b) "Reconstruction" means the replacement of components of an existing facility to such an extent that:
>
> (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and
>
> (2) It is technologically and economically feasible to meet the applicable standards set forth in this part.

8) **Making a physical modification or change in the method of operation of an existing unit to which an NSPS may apply?** -- If the proposed change or modification involves physically modifying or changing the method of operation of an existing unit which may be subject to the NSPS(s) identified in Question 4), go on to 8a).

8a) For each existing emission unit that is being physically changed (not reconstructed), or for which the method of operation will be changed, determine if there will be an increase in hourly emissions. Whether or not there is an increase under NSPS is determined by comparing the maximum hourly emission after the change to the maximum hourly emission before the change. When doing the calculations, **do not take air pollution control equipment into account except as required by the NSPS or as allowed by Minn. R 7007.1200.** The MPCA has some calculation methods that may be useful; they are available from the MPCA website (https://www.pca.state.mn.us/business-with-us/calculating-emissions).

9) **Is there an increase in the hourly emission rate of any of the pollutants regulated by the NSPS?** -- A "modification" under NSPS generally defined as "any physical or operations change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies… " (40 CFR § 60.14). The emission rate of interest is the hourly rate. If you determine that the change is a "modification" under 40 CFR § 60.14, complete items 9a) – 9d).

10) Check the appropriate box showing what permitting requirements the above questions have established.

If you answered "no" to questions 7) and either 8) or 9), which would indicate that the change does not involve reconstruction or physically modifying or changing the method of operation of an existing unit, with an emission increase of pollutants regulated by the standard indicated in question 4), then the change does not require a major amendment under Minn. R. 7007.1500, subp. 3a, and you can answer "no" to question 3b) on Form CH-03. The change may still require a major amendment or another type of amendment, just not under Minn. R. 7007.1500, subp. 3a.

If you answered "yes" to question 7) or to questions 8) and 9), indicating that you are reconstructing or modifying an existing unit as defined at 40 CFR § 60.14 or 60.15, this means a major amendment is needed under Minn. R. 7007.1500, subp. 3a, and you should answer "yes" to question 3b) on Form CH-03.

If you have previously determined that the potential to emit from this facility is below permitting thresholds, and will remain below permitting thresholds following this change, you need only provide information about the unit that becomes subject to the NSPS, and you may qualify for Registration Permit Option A. A rule change effective in early June 2004 allows that if the only reason a permit is needed is because a unit or units are subject to an NSPS, but the only applicable parts of the NSPS are recordkeeping requirements, then the source may not require a permit. Review Minn. R. 7007.0250 and 7007.0300.

Table 1
Standards of Performance for New Stationary Sources

Performance standards promulgated as of December 2012

Source categories subject to federal performance standards	40 CFR 60 Subpart	Effective date constructed, modified or reconstructed
Fossil-Fuel Fired Steam Generators >250 MMBtu	D	After: 08/17/71
Electric Utility Steam Generators >250 MMBtu	Da	After: 09/18/78
Industrial-Commercial-Institutional Steam Generators >100 MMBtu	Db	After: 06/19/84
Small Industrial-Commercial-Institutional Steam Generators >10 MMBtu but <100 MMBtu	Dc*	After: 06/09/89
Coal-Fired Electric Steam Generating Units (Hg Budget units)	HHHH	varies (applies to any unit serving a generator ≥ 25 MWe on or after 11/15/1990)
Solid Waste Incinerators	E, CCCC, DDDD, EEEE, FFFF	varies
Hospital/Medical/Infectious Waste Incinerators	Ec, Ce	Initial Construction
Municipal Waste Combustors	Cb, Ea, Eb, AAAA, BBBB	varies
Portland Cement Plants	F	After: 08/17/71
Nitric Acid Plants	G, Ga	After: 08/17/71
Sulfuric Acid Plants	H, Cd	Initial Construction
Asphalt Concrete Plants	I	After: 06/11/73
Petroleum Refineries	J, Ja	After: 06/11/73
Storage Vessels for Petroleum Liquids	K, Ka	After: 06/11/73
Volatile Organic Liquid Storage Vessels (Including Petroleum Liquids)	Kb*	After: 07/23/84
Secondary Lead Smelters	L	After: 06/11/73
Secondary Brass and Bronze Production Plants	M	After: 06/11/73
Oxygen Process Furnaces	N	After: 06/11/73
Oxygen Process Steelmaking Facilities	NA	After: 01/20/83
Sewage Treatment Plants	O	After: 06/11/73
Primary Copper Smelters	P	After: 10/16/74
Primary Zinc Smelters	Q	After: 10/16/74
Primary Lead Smelters	R	After: 10/16/74
Primary Aluminum Reduction Plants	S	After: 10/23/74
Phosphate Fertilizer Industry	T,U,V,W,X	After: 10/22/74
Coal Preparation Plants	Y	After: 10/24/74
Ferroalloy Production Facilities	Z	After: 10/24/74
Steel Plants	AA, AAA	After: 10/21/74
Kraft Pulp Mills	BB	After: 09/24/76
Glass Manufacturing Plants	CC	After: 06/15/79
Grain Elevators	DD	After: 08/03/78
Surface Coating of Metal Furniture	EE	After: 11/28/80
Stationary Gas Turbines	GG, KKKK	After: 10/03/77
Lime Manufacturing Plants	HH	After: 05/03/77
Lead-Acid Battery Manufacturing Plants	KK	After: 01/14/80
Metallic Mineral Processing Plants	LL	After: 08/24/82
Automobile and Light-Duty Truck Surface Coating Operations	MM	After: 10/05/79

Performance standards promulgated as of December 2012

Source categories subject to federal performance standards	40 CFR 60 Subpart	Effective date constructed, modified or reconstructed
Phosphate Rock Plants	NN	After: 09/21/79
Ammonium Sulfate Manufacture	PP	After: 02/04/80
Graphic Arts Industry: Publication Rotogravure Printing	QQ	After: 08/28/80
Pressure Sensitive Tape and Label Surface Coating Operations	RR	After: 12/30/80
Industrial Surface Coating: Large Appliances	SS	After: 12/24/80
Metal Coil Surface Coating	TT	After: 01/05/81
Asphalt Processing and Asphalt Roofing Manufacture	UU	After: 11/18/80
Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry	VV, VVa	After: 01/05/81
Beverage Can Surface Coating Industry	WW	After: 11/26/80
Bulk Gasoline Terminals	XX	After: 12/17/80
New Residential Wood Heaters *	AAA	After: 07/01/88
Rubber Tire Manufacturing Industry	BBB	After: 01/20/83
VOC Emissions from the Polymer Manufacturing Industry	DDD	After: 09/30/87
Flexible Vinyl and Urethane Coating and Printing	FFF	After: 01/18/83
Equipment Leaks of VOC in Petroleum Refineries	GGG, GGGa	After: 01/04/83
Synthetic Fiber Production Facilities	HHH	After: 11/23/82
VOC Emissions from the Synthetic Organic Chemical Manufacturing Industry Air Oxidation Unit Processes	III	After: 10/21/83
Petroleum Dry Cleaners	JJJ*	After: 12/14/82
Onshore Natural Gas Processing: VOC Equipment Leaks and SO_2 Emissions	KKK, LLL	After: 01/20/84
VOC Emissions from Synthetic Organic Chemical Manufacturing Industry Distillation Operations	NNN	After: 12/30/83
Nonmetallic Mineral Processing Plants (Including Sand and Gravel Processing)	OOO	After: 08/31/83
Wool Fiberglass Insulation Manufacturing Plants	PPP	After: 02/07/84
VOC Emissions from Petroleum Refinery Wastewater Systems	QQQ	After: 05/04/87
VOC Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Reactor Processes	RRR	After: 06/29/90
Magnetic Tape Coating Facilities	SSS	After: 01/22/86
Industrial Surface Coating: Surface Coating of Plastic Parts for Business Machines	TTT	After: 01/08/86
Calciners and Dryers in Mineral Industries	UUU	After: 04/23/86
Polymeric Coating of Supporting Substrates Facilities	VVV	After: 04/30/87
Municipal Solid Waste Landfills	WWW, Cc	Initial Construction
Stationary Compression Ignition Internal Combustion Engines	IIII*	After: 07/11/05
Stationary Spark Ignition Internal Combustion Engines	JJJJ*	After: 01/01/07
Crude Oil and Natural Gas Production, Transmission, and Distribution	OOOO	After: 08/23/11

* According to Minn. R. 7007.0300, subp. 1(B), "notwithstanding parts 7007.0200 and 7007.0250, any stationary source that would be covered by a permit solely because it is subject to one or more of the following new source performance standards" are not required to obtain a permit under parts 7007.0100 to 7007.1850.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-06

Applicability of Part 61 NESHAP

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3

Complete this form to determine if the proposed change or modification results in new applicability of a Part 61 NESHAP listed in Table 1.

1a) AQ Facility ID No.: 12300088 **1b)** AQ File No.: 3518

2) Facility Name: Northern Iron LLC

3) Is there a Part 61 NESHAP for a source category which includes the unit(s) you are installing, modifying, or reconstructing?

☐ Yes Go to question 4

☒ No Done with this Form. Answer "No" to question 3c) on Form CH-03.

4) Complete Questions 4a) – 4c) for each new, modified, or reconstructed unit which may be subject to a Part 61 NESHAP following the proposed project (Copy as necessary).

4a) Unit	**4b)** Part 61 Subpart(s) that may apply after project	**4c)** Do all of the NESHAPs listed in column 4b) for the unit listed in column 4a) currently apply (prior to the proposed project)? If this is a new unit, the answer is "no."	
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No
		☐ Yes – done with this unit	☐ No

5) Did you check "no" in column 4c) for **any** unit in the table in question 4)?

☐ No This indicates that NESHAP currently applies to all units and there will be no newly applicable NESHAPs as a result of the proposed project. Done with this form. Answer "no" to question 3c on Form CH-03.

☐ Yes Complete the remainder of this form for each unit for which you checked "no" in the last column of the table in question 4.

6) Installing new equipment which will cause a Part 61 NESHAP to apply?

☐ No Go to question 7).

☐ Yes Complete 6a) – 6c) for each new unit (Copy as necessary). Use Form CD-01 to document the proposed methods of compliance. Include a highlighted photocopy of the standard.

6a) Emission Unit Number _____

6b) Emission Unit/Equipment Description _____

6c) Stack/Vent Number _____

7) Physical or operational change to an existing unit such that a Part 61 NESHAP will apply?

☐ No Go to question 9).

☐ Yes Complete 7a) for each modified unit (Copy as necessary). Then go to question 8).

7a) Emission Unit ID No.: _____

Pollutant	**Emission Rate after change (lb/hr)**	**Emission Rate before change (lb/hr)**	**Change in Emission Rate (lb/hr)**

8) Is there an increase in the emission rate of any of the pollutants regulated by the Part 61 NESHAP?

☐ No Go to question 9).

☐ Yes Complete questions 8a) – 8c) for each modified unit (Copy as necessary). Use Form CD-01 to document the proposed methods of compliance. Include a highlighted photocopy of the standard.

8a) Emission Unit/Equipment Description: _____

8b) Stack/Vent Number: _____

8c) Date of Modification (expected): _____ (mm/dd/yyyy)

9) Check all that apply

☐ If you answered "yes" or "no" to question 6) and "no" to question 7) or 8), a major amendment is not needed under Minn. R. 7007.1500, subp. 1.D. Answer "no" to Question 3c) on Form CH-03. Another type of permit amendment may be required.

☐ If you answered "yes" or "no" to question 6) and "yes" to question 8), this change or modification requires a major amendment under Minn. R. 7007.1500, subp. 1.D. Answer "yes" to Question 3c) on Form CH-03.

☐ If you answered "yes" to question 6) or 8), **but the total facility potential-to-emit remains below all permit thresholds**, you are required to obtain a permit only for the emission unit(s) subject to the Part 61 NESHAP.

Instructions for Form CH-06

1a) **AQ Facility ID No. --** Fill in your Air Quality Facility ID Number. This is the first eight digits of the permit number for all permits issued under the operating permit program.

1b) **AQ File No. --** Fill in your AQ File Number. This number can be found in the "cc" section of correspondence from the Minnesota Pollution Control Agency (MPCA).

2) **Facility Name --** Enter your facility name.

3) **Is there a Part 61 NESHAP for a source category which includes the unit(s) you are installing, modifying, or reconstructing? --** If you know or suspect one of the standards listed in Table 1 may apply after your proposed change or modification, you should refer to the applicability section of the 40 CFR pt. 61 subpart and read the requirements to make a final determination. If the answer is "no," then the answer to question 3c) on Form CH-03 is "no."

4) **Which NESHAP? --** For each unit where a Part 61 NESHAP may apply after the proposed project, indicate which NESHAP will apply, and whether it currently applies (it may currently apply to modified or reconstructed units, it will not currently apply to new units).

5) **Did you check "no" in column 4c) for any unit listed? --** If you didn't check "no" (you checked "yes" in 4c) for every new, modified, or reconstructed unit), this indicates that all of the Part 61 NESHAPs that may apply after the project already apply now, prior to the project. If that is the case, then the answer to question 3c) on Form CH-03 is no. If this is not the case, go on with this form for any unit for which "no" was checked in 4c).

6) **Installing new equipment which will cause a Part 61 National Emission Standard for Hazardous Air Pollutants (NESHAP) to apply? --** If you determine that a Part 61 NESHAP will apply, complete items 6a) – 6c). Use Form GI-05B to provide details about the emissions unit (EU), and Form GI-04 to provide details about the stack (SV). Number both the EU and SV consecutively following the last number used for your total facility permit.

7) **Modifying an existing unit such that a Part 61 NESHAP will apply? --** If the proposed change or modification involves physically modifying or changing the method of operation of an existing unit which may be subject to the NESHAP(s) identified in Question 4), go on to 7a).

7a) For each existing emission unit that is being changed, or for which the method of operation will be changed, determine if there will be an increase in hourly emissions. When doing the calculations, **do not take air pollution control equipment into account except as allowed by the standard or Minn. R 7007.1200.**

8) **Is there an increase in the emission rate of any of the pollutants regulated by the Part 61 NESHAP? --** A modification for Part 61 NESHAP purposes is a physical change or change in method of operation which results in an increase in emission of one or more pollutants regulated by the individual NESHAP. If you determine that there is an increase in an emission rate of a pollutant regulated under the Part 61 NESHAP, the change is a "modification" under 40 CFR pt. 61, and you should complete items 8a) – 8c).

9) Check the appropriate box showing what permitting requirements the above questions have established.

If you answered "no" to question 7) or 8), indicating that you are not making any changes to existing units that result in increase in hourly emission rates, this means that the change is not a Title I modification under Minn. R. 7007.0100, subp. 26(D), and you can answer "no" to question 3c) on Form CH-03. *The change may still require a major amendment or another type of amendment.*

If you answered "yes" to question 8), indicating that you are modifying an existing unit as defined at 40 CFR § 61.15, this means the change is a Title I modification under Minn. R. 7007.0100, subp. 26(D) and a major amendment is needed under Minn. R. 7007.1500, subp. 1(D), and you should answer "yes" to question 3c) on Form CH-03.

If you have previously determined that the potential to emit from this facility is below permitting thresholds, and will remain below permitting thresholds following this change, you need only provide information about the unit that becomes subject to the Part 61 NESHAP.

Table 1
National Emission Standards for Hazardous Air Pollutants

Pollutant	Facility or Emission Unit Type	Minn. Rules	40 CFR 61 Subpart
Radon	Underground Uranium Mines; Department of Energy Facilities; Phosphorus Fertilizer Plants; and Facilities Processing or Disposing of Uranium Ore and Tailings	7011.9960	B, Q, R, T, W
Beryllium	Beryllium Extraction Plants; Ceramic Plants, Foundries, Incinerators, Propellant Plants, and Machine Shops that Process Beryllium Containing Material; and Rocket Motor Firing Test Sites	7011.9940 - 7011.9945	C, D
Mercury	Mercury Ore Processing; Manufacturing Processes Using Mercury Chloralkali Cells; and Sludge Incinerators	7011.9950 - 7011.9955	E
Vinyl Chloride	Ethylene Dichloride Manufacturing Via Oxygen, HCl and Ethylene; Vinyl Chloride Manufacturing; and Polyvinyl Chloride Manufacturing	7011.9980	F
Radionuclides	Department of Energy; Nuclear Regulatory Commission Licensed Facilities; Other Federal Facilities; and Elemental Phosphorus Plants	7011.9970	H, I, K
Benzene	Fugitive Process, Storage, and Transfer Equipment Leaks; Coke By-Product Recovery Plants; Benzene Storage Vessels; Benzene Transfer Operations; and Benzene Waste Operations	7011.9930	J, L, Y, BB, FF
Asbestos	Asbestos Mills; Roadway Surfacing with Asbestos Tailings; Manufacture of Products Containing Asbestos; Demolition; Renovation; and Spraying and Disposal of Asbestos Waste	7011.9920 - 7011.9927	M
Inorganic arsenic	Glass Manufacturer; Primary Copper Smelter; Arsenic Trioxide and Metallic Arsenic Production Facilities	7011.9910	N, O, P
Volatile Hazardous Air Pollutants (VHAP)	Pumps, Compressors, Pressure Relief Devices, Connections, Valves, Lines, Flanges, Product Accumulator Vessels, etc. in VHAP Service (As of 11/30/94 only vinyl chloride and benzene are regulated by 40 CFR 61, subp. V)	7011.9990	V

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-07

Applicability of Part 63 NESHAP for amendments

Air Quality Permit Program

Doc Type: Permit Application

AQ Facility ID number: 12300088 Agency Interest ID number: 3518

Facility name: Northern Iron LLC

1) Are there or will there be Hazardous Air Pollutants (HAPs) emissions (listed on Table A) from any source affected by the proposed project?

☐ No. Done with this form. Answer "No" to question 3d on form *CH-03*.

☒ Yes. Go on to question 2 of this form.

2) Are you proposing to install new HAP-emitting sources, or reconstruct existing equipment that will emit HAPs following the reconstruction? (This specifically means "reconstruction" as defined at 40 CFR § 63.2 – if you are modifying existing equipment without meeting the definition of "reconstruction," you are not reconstructing existing equipment.)

☐ No. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

☒ Yes. Go on to question 3 of this form.

3) Is the currently-permitted facility a major HAP source (considering potential emissions and all existing federally enforceable permit conditions)?

☒ No. Go on to question 4.

☐ Yes. Go to question 7.

4) Will the new or reconstructed unit(s) have the potential to emit 10 or more tons per year of any individual HAP, or 25 or more tons per year of total HAPs, before considering any limits the source may be subject to or limits you may propose later in this form?

☒ No. Go on to question 5.

☐ Yes. Go to question 6.

5) Will the facility as modified be a major source of HAP emissions after your proposed change, before considering any limiting conditions you may propose later in this form?

☒ No. Go to question 10.

☐ Yes. Go on to question 6.

6) It is possible to avoid becoming a major HAP source by proposing federally enforceable permit conditions to limit your potential HAP emissions from the entire facility (as modified) to less than 10 tons per year for each HAP and/or 25 tons per year for all HAPs combined. Do you want to accept permit limitations on HAPs to avoid becoming a major HAP source?

☐ No. Go on to question 7.

☐ Yes. **Briefly describe below the limitations** you would be willing to accept so that your facility-wide HAP emissions will be less than 10 tons per year for each HAP and less than 25 tons per year for all HAPs combined (use a separate sheet if needed). Description must include each hazardous air pollutant. Include your proposed limit, monitoring, recordkeeping, and reporting on form *CD-01*. You must answer "Yes" to question 6 on form *CH-03*. Then go to question 10 of this form.

7) Will any of the new or reconstructed items be subject to any of the standards for major source categories listed in Table B? If yes, list them below. Will any existing, non-modified parts of the facility, or the facility as a whole, become subject to one or more of the standards listed in Table B? If so, and the standard is not already included in your existing permit, list them below. Complete the table for each source listed.

☐ No. Go on to question 8 and answer "Yes."

☐ Yes. List the source categories applicable to each new, reconstructed, or existing HAP-emitting equipment.

Source	(N)ew, (R)econstructed, or (E)xisting? (Check one)	Applicable source category (subpart or title)	Compliance date (mm/dd/yyyy)
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		
	☐ N ☐ R ☐ E		

For each standard listed above, attach a copy of the standard with the applicable parts highlighted. Also attach a copy of Subpart A with the applicable portions highlighted. If the applicable standard offers more than one compliance option, make it clear which one you are choosing.
Go on to question 8.

8) Will any of the new or reconstructed items **not** be subject to any of the standards for major source categories listed in Table B?

☐ No. All of the new or reconstructed items are subject to a major source category and listed in Question 7. Go on to question 11.

☐ Yes. Some of the new or reconstructed items are not listed in Question 7. List them here. Go to Question 9.

HAP-emitting units with no applicable source category in Table B.

9) Will any new equipment or processes listed in Question 8 meet any of the following descriptions of constructing or reconstructing a major source?

Construct a major source means

(1) To fabricate, erect, or install at any greenfield site a stationary source or group of stationary sources which is located within a contiguous area and under common control and which emits or has the potential to emit 10 tons per year of any HAP's or 25 tons per year of any combination of HAP, or

(2) To fabricate, erect, or install at any developed site a new process or production unit which in and of itself emits or has the potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, unless the process or production unit satisfies criteria in paragraphs (2) (i) through (vi) of the definition of "construct a major source" in 40 CFR § 63.41

Reconstruct a major source means the replacement of components at an existing process or production unit that in and of itself emits or has that potential to emit 10 tons per year of any HAP or 25 tons per year of any combination of HAP, whenever (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable process or production unit; and (2) It is technically and economically feasible for the reconstructed major source to meet the applicable maximum achievable control technology emission limitation for new sources established under subpart B of 40 CFR part 63.

☐ No. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

☐ Yes. For those units, you must propose a case-by-case Maximum Achievable Control Technology (MACT) determination meeting the requirements of 40 CFR § 63.43. Contact MPCA for information about proposing a case-by-case MACT determination for approval. Answer "Yes" to question 3d on form *CH-03*. Go on to question 11 of this form.

10) Some non-major HAP sources will be subject to requirements of area source NESHAPs. Will the proposed new or reconstructed units belong to any of the area source categories listed below?

☐ No. Answer "No" to question 3d on Form CH-03. Go to question 11 of this form.

☒ Yes. Place a check in the box next to that category, and read the specified NESHAP for source categories to determine all applicable requirements for area sources. Attach a copy of each applicable subpart of the NESHAP for area source categories, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Answer "No" to question 3d on form *CH-03*. Go on to question 11 of this form.

- ☐ Acrylic and Modacrylic Fibers Production, 40 CFR § 63 subp. LLLLLL
- ☐ Asphalt Processing and Asphalt Roofing Manufacturing, 40 CFR § 63 subp. AAAAAAA
- ☐ Carbon Black Production, 40 CFR § 63 subp. MMMMMM
- ☐ Chemical Manufacturing Area Sources, 40 CFR § 63 subp. VVVVVV
- ☐ Chemical Manufacturing: Chromium Compounds, 40 CFR § 63 subp. NNNNNN
- ☐ Chemical Preparations Industry, 40 CFR § 63 subp. BBBBBBB
- ☐ Chromic acid anodizing (Chromium Electroplating), 40 CFR § 63 subp. N
- ☐ Clay Ceramics Manufacturing, 40 CFR § 63 subp. RRRRRR
- ☐ Commercial dry cleaning (Perc) transfer machines, 40 CFR § 63 subp. M
- ☐ Commercial sterilization facilities, 40 CFR § 63 subp. O
- ☐ Decorative chromium electroplating **(Chromium Electroplating)**, 40 CFR § 63 subp. N
- ☐ Electric Arc Furnace Steelmaking Facilities, 40 CFR § 63 subp. YYYYY
- ☐ Ferroalloys Production Facilities, 40 CFR § 63 subp. YYYYYY
- ☐ Flexible Polyurethane Foam Production and Fabrication, 40 CFR § 63 subp. OOOOOO
- ☐ Gasoline Dispensing Facilities, 40 CFR § 63 subp. CCCCCC
- ☐ Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities, 40 CFR § 63 subp. BBBBBB
- ☐ Glass Manufacturing, 40 CFR § 63 subp. SSSSSS
- ☐ Gold Mine Ore Processing and Production, 40 CFR § 63 subp. EEEEEEE
- ☐ Halogenated solvent cleaners (Degreasing Organic Cleaners), 40 CFR § 63 subp. T
- ☐ Hard chromium electroplating (Chromium Electroplating), 40 CFR § 63 subp. N
- ☐ Hospital Sterilizers using Ethylene Oxides, 40 CFR § 63 subp. WWWWW
- ☐ Industrial, Commercial, and Institutional Boilers and Process Heaters – Area Sources. 40 CFR § 63 subp. JJJJJJ
- ☒ Iron and Steel Foundries Area Sources, 40 CFR § 63 subp. ZZZZZ
- ☐ Lead Acid Battery Manufacturing, 40 CFR § 63 subp. PPPPPP
- ☐ Metal Fabrication and Finishing Sources, 40 CFR § 63 subp. XXXXXX
- ☐ Nonferrous Foundries: Aluminum, Copper, and Other, 40 CFR § 63 subp. ZZZZZZ
- ☐ Oil and natural gas production, 40 CFR § 63 subp. HH
- ☐ Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 CFR § 63 subp. HHHHHH
- ☐ Paints and Allied Products Manufacturing, 40 CFR § 63 subp. CCCCCCC
- ☐ Plating and Polishing Operations, 40 CFR § 63 subp. WWWWWW
- ☐ Polyvinyl Chloride and Copolymers Production, 40 CFR § 63 subp. DDDDDD
- ☐ Prepared Feeds Manufacturing, 40 CFR § 63 subp. DDDDDDD
- ☐ Primary Copper Smelting, 40 CFR § 63 subp. EEEEEE
- ☐ Primary Nonferrous Metals: Zinc, Cadmium, and Beryllium, 40 CFR § 63 subp. GGGGGG
- ☐ Reciprocating Internal Combustion Engines, 40 CFR § 63 subp. ZZZZ
- ☐ Secondary aluminum processing, 40 CFR § 63 subp. RRR
- ☐ Secondary Copper Smelting, 40 CFR § 63 subp. FFFFFF
- ☐ Secondary Nonferrous Metals Processing (Brass, Bronze, Magnesium, Zinc), 40 CFR § 63 subp. TTTTTT
- ☐ Wood Preserving, 40 CFR § 63 subp. QQQQQQ

11) Have any incorporated NESHAPs been amended since your permit was last issued? This applies even if the units affected by this permit action are not subject to the updated NESHAP.

☐ No. Done with this form.

☒ Yes. Attach a copy of each applicable subpart of the NESHAP, and highlight the applicable requirements in each applicable subpart. Also attach a copy of Subpart A with the applicable portions highlighted. Clearly indicate to which unit(s) the highlighted subparts apply; if the same subpart applies differently to different units, provide separate highlighted copies for those units.

Table A. Hazardous air pollutants

75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis (2-ethylhexyl) phthalate (DEHP)
542881	Bis (chloromethyl) ether
75252	Bromoform
106945	1-Bromopropane (n-propyl bromide)
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
778505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	0-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3'-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)either)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl aniline (N,N- Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1 Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl Sulfate
534521	4,6-Dintro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1.4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydin (1-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2- Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptacholor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen flouride (hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methozychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Choromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis (2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methlene diphenyl diisocyanate (MDI)
101779	4,4'-methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitosomorpholine

Table A. Hazardous air pollutants

56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene Oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroene
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene (TCE) [5]
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixtures)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony compounds
0	Arsenic compounds (inorganic including arsine)
0	Beryllium compounds
0	Cadmium compounds
0	Chromium compounds
0	Cobalt compounds
0	Coke oven emissions
0	Cyanide compounds
0	Glycol ethers [1]
0	Lead compounds
0	Manganese compounds
0	Mercury compounds
0	Mineral fibers [2]
0	Nickel compounds
0	Polycyclic organic matter [3]
0	Radionuclides [4]
0	Selenium compounds

Note: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

[1] Glycol ethers include mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-$(OCH_2CH_2)_n$-OR' where

n = 1, 2, or 3

R = alkyl C7 or less; or

R = phenyl or alkyl substituted phenyl;

R' = H or alkyl C7 or less; or

OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

Glycol ethers do no include ethylene glycol monobutyl ether (EGBE, 2-Butoxyethanol, CAS Number 111-76-2).

[2] Includes mineral fiber emissions from facilities manufacturing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micron or less.

[3] Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C.

[4] A type of atom which spontaneously undergoes radioactive decay.

[5] Trichloroethylene (TCE) use on or after June 1, 2022, is banned in Minnesota, under Minnesota Statutes, section 116.385.

Table B. Source categories

(current as of date of form – see U.S. Environmental Protection Agency's website at https://www.epa.gov/technical-air-pollution-resources for most current status)

Categories of major sources	**Subpart**	**Rule promulgation date or scheduled promulgation date**	**Compliance date for existing sources** (if applicable)
Acetyl resins production (Generic MACT)	YY	6/29/99	6/29/02
Acrylic fibers/modacrylic fibers production (Generic MACT)	YY	6/29/99	6/29/02
Acrylonitrile-butadiene-styrene production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97
Aerospace Industry	GG	9/1/95	9/1/98
Alkyd resins production (Misc. Organic Chemical Production and Processes (MON))	FFFF	11/10/03	11/10/06
Amino resins production(Polymers and Resins III)	OOO	1/20/00	1/20/03
Ammonium sulfate production (MON)	FFFF	11/10/03	11/10/06
Asphalt/coal tar application - metal pipes	MMMM	01/02/04	01/02/07
Asphalt Roofing and Processing	LLLLL	4/29/03	5/1/06
Auto and Light Duty Truck Surface Coating	IIII	4/26/04	4/26/07
Benzyltrimethylammonium chloride production (MON)	FFFF	11/10/03	11/10/06
Boat manufacturing	VVVV	8/22/01	8/22/04
Brick and Structural Clay Products Manufacturing	JJJJJ	5/16/03	5/16/06
Butadiene-furfural cotrimer (R-11) production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Butyl rubber production (Polymers and Resins I)	U	9/5/96	3/5/97
Captafol production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Captan production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Carbon Black Production (Generic MACT)	YY	7/12/02	7/12/05
Carboxymethylcellulose production (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Carbonyl sulfide production (MON)	FFFF	11/10/03	11/10/06
Cellophane production (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Cellulose ethers production (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Cellulose food casing manufacturing (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Clay Ceramics Manufacturing	KKKKK	5/16/03	5/16/06
Chelating agents production (MON)	FFFF	11/10/03	11/10/06
Chlorinated paraffins production (MON)	FFFF	11/10/03	11/10/06
4-chloro-2-methyl acid production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Chloroneb production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Chlorothalonil production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Chromic acid anodizing (Chromium Electroplating)	N	1/25/95	1/25/97
Coke Ovens: Charging, Top Side, and Door Leaks	L	10/27/93	Varies
Coke Ovens: Pushing, Quenching and Battery Stacks	CCCCC	4/14/03	4/14/06
Combustion (Gas) Turbines	YYYY	3/5/04	3/5/07
Commercial dry cleaning (Perc) transfer machines	M	9/22/93	9/23/96
Commercial sterilization facilities	O	12/6/94	12/6/98
Cyanide Chemicals Manufacturing (Generic MACT)	YY	7/12/02	7/12/05
Dacthal ™ production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Decorative chromium electroplating (Chromium Electroplating)	N	1/25/95	1/25/96
4,6,-dinitro-o-cresol production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03

Table B. Source categories

Categories of major sources	Subpart	Rule promulgation date or scheduled promulgation date	Compliance date for existing sources (if applicable)
Engine Test Cells/Stands	PPPPP	5/27/03	5/27/03
Epichlorohydrin elastomers production(Polymers and Resins I)	U	9/5/96	3/5/97
Epoxy resins production (Polymers and Resins II)	W	3/8/95	3/3/98
Ethylene-propylene rubber production (Polymers and Resins I)	U	9/5/96	3/5/97
Ethylidene norbomene production (MON)	FFFF	11/10/03	11/10/06
Explosives production (MON)	FFFF	11/10/03	11/10/06
Ethylene Processes (Generic MACT)	YY	7/12/02	7/12/05
Fabric Printing, Coating, & Dyeing	OOOO	5/29/03	5/29/06
Ferroalloys Production	XXX	5/20/99	5/20/01
Fiberglass Mat Production (wet formed)	HHHH	4/11/02	4/11/05
Flexible Polyurethane Foam Fabrication Operations	MMMMM	4/14/03	4/14/04
Flexible Polyurethane Foam Production	III	10/7/98	10/8/01
Friction Products Manufacturing	QQQQQ	10/18/02	10/18/05
Fume Silica Production (Hydrochloric Acid Production)	NNNNN	4/17/03	4/17/06
Gasoline distribution (Stage 1)	R	12/14/94	12/15/97
Halogenated solvent cleaners (Degreasing Organic Cleaners)	T	12/2/94	12/2/97
Hard chromium electroplating (Chromium Electroplating)	N	1/25/95	1/25/97
Hazardous Waste Combustion	EEE	9/30/99	9/30/03
	F,G	4/22/94	5/14/01
Hazardous Organic NESHAP	H	4/22/94	5/12/99
(Synthetic Organic Chemical Manufacturing Industry)	I	4/22/94	5/12/98
Hydrazine production (MON)	FFFF	11/10/03	11/10/06
Hydrochloric acid production	NNNNN	4/17/03	4/17/06
Hydrogen Fluoride Production (Generic MACT)	YY	6/29/99	6/29/02
Hypalon ™ production (Polymers and Resins I)	U	9/5/96	3/5/97
Industrial, Commercial, and Institutional Boilers and Process Heaters – Major Sources	DDDDD	5/20/11	3/21/14
Industrial Dry Cleaning (Dry Cleaning)	M	9/22/93	12/20/93
Industrial Cooling Towers	Q	9/8/94	3/8/95
Integrated Iron and Steel Manufacturing	FFFFF	5/20/03	5/20/06
Iron & Steel Foundries	EEEEE	4/22/04	4/22/07
Large Appliance Surface Coating	NNNN	7/23/02	7/23/05
Leather Finishing Operation	TTTT	2/27/02	2/27/05
Lime Manufacturing	AAAAA	01/05/04	01/05/07
Magnetic Tape Surface Coating	EE	12/15/94	12/15/96
Maleic anhydride copolymers production (MON)	FFFF	11/10/03	11/10/06
Manufacture of paints, coating and adhesives (MON)	FFFF	11/10/03	11/10/06
Marine Vessel Loading Operations	Y	9/19/95	9/19/99
Mercury cell Chlor-Alkali plants	IIIII	12/19/03	12/19/06
Metal Can Surface Coating	KKKK	11/13/03	11/13/06
Metal Coil Surface Coating	SSSS	6/10/02	6/10/05
Metal Furniture Surface Coating	RRRR	5/23/03	5/23/06
Methylcellulose production (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Methyl methacrylate-acrylonitrile-butadiene-styrene production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97

Table B. Source categories

Categories of major sources	Subpart	Rule promulgation date or scheduled promulgation date	Compliance date for existing sources (if applicable)
Methyl methacrylate-butadiene-styrene terpolymers production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97
Mineral Wool Production	DDD	6/1/99	6/1/02
Miscellaneous Coating Manufacturing	HHHHH	12/11/03	12/11/06
Miscellaneous Metal Parts and Products Surface Coating	MMMM	01/02/04	01/02/07
Municipal Solid Waste Landfills	AAAA	1/16/03	1/16/04
Natural gas transmission and storage	HHH	6/17/99	6/17/02
Neoprene production (Polymers and Resins I)	U	9/5/96	3/5/97
Nitrile butadiene rubber prod. (Polymers and Resins I)	U	9/5/96	3/5/97
Non-nylon polyamides production (Polymers and Resins I)	W	3/8/95	3/3/98
Nutritional Yeast Manufacture	CCCC	5/21/01	5/21/04
Off-site Waste Recovery Operations	DD	7/1/96	2/1/00
Oil and natural gas production	HH	6/17/99	6/17/02
Organic liquids distribution (non-gasoline)	EEEE	02/03/04	02/03/07
Oxybisphenoxarsine (OBPA)/1,3-diisocyanate production (MON)	FFFF	11/10/03	11/10/06
Paper and other webs surface coating	JJJJ	12/4/02	12/4/05
Petroleum refineries - catalytic cracking (fluid and other) units, catalytic reforming units, and sulfur plant units	UUU	4/11/02	4/11/05
Petroleum refineries - Other sources not distinctly listed	CC	8/18/95	8/18/98
Pharmaceuticals production	GGG	9/21/98	9/21/01
Phenolic resins production (Polymers and Resins III)	OOO	1/20/00	1/20/03
Phosphate fertilizers production	BB	6/10/99	6/10/02
Phosphoric acid manufacturing	AA	6/10/99	6/10/02
Photographic chemicals production (MON)	FFFF	11/10/03	11/10/06
Phthalate plasticizers production (MON)	FFFF	11/10/03	11/10/06
Plastic parts and products surface coating	PPPP	4/19/04	4/19/07
Plywood & composite wood products	DDDD	7/30/04	9/28/07
Polyether polyols production	PPP	6/1/99	6/1/02
Polybutadiene rubber production (Polymers and Resins I)	U	9/5/96	3/5/97
Polycarbonates production (Generic MACT)	YY	6/29/99	6/29/02
Polyester resins production (MON)	FFFF	11/10/03	11/10/06
Polyethylene terephthalate production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97
Polymerized vinylidene chloride production (MON)	FFFF	11/10/03	11/10/06
Polymethyl methacrylate resins production (MON)	FFFF	11/10/03	11/10/06
Polystyrene production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97
Polysulfide rubber production (Polymers and Resins I)	U	9/5/96	3/5/97
Polyvinyl acetate emulsions production (MON)	FFFF	11/10/03	11/10/06
Polyvinyl alcohol production (MON)	FFFF	11/10/03	11/10/06
Polyvinyl butyral production (MON)	FFFF	11/10/03	11/10/06
Polyvinyl chloride and copolymers production	J	7/10/02	7/10/05
Portland cement manufacturing	LLL	6/14/99	6/10/02
Primary aluminum production	LL	10/7/97	10/7/99
Primary copper smelting	QQQ	6/12/02	6/12/05
Primary lead smelting	TTT	6/4/99	5/4/01
Primary magnesium refining	TTTTT	10/10/03	10/11/04

Table B. Source categories

Categories of major sources	Subpart	Rule promulgation date or scheduled promulgation date	Compliance date for existing sources (if applicable)
Printing/publishing	KK	5/30/96	5/30/99
Publicly owned treatment works	VVV	10/26/99	10/26/02
Pulp and paper production (non-combust) MACT I	S	4/15/98	4/15/01
Pulp and paper production (combust) (Kraft, soda, sulfite) MACT II	MM	1/12/01	1/12/04
Pulp and paper production (non-chemical) MACT III	S	3/8/96	4/16/01
Quaternary ammonium compounds production (MON)	FFFF	11/10/03	11/10/06
Rayon production (Cellulose Production Manufacturing)	UUUU	6/11/02	6/11/05
Reciprocating Internal Combustion Engines	ZZZZ	6/15/04	6/15/07
Refractory Products Manufacturing	SSSSS	4/16/03	4/17/06
Reinforced plastic composites production	WWWW	4/21/03	4/21/06
Rubber chemicals manufacturing (MON)	FFFF	11/10/03	11/10/06
2,4- salts and esters production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Secondary aluminum prod.	RRR	3/23/00	3/24/03
Secondary lead smelting	X	6/23/95	6/23/97
Semiconductor manufacturing	BBBBB	5/22/03	5/22/06
Shipbuilding and ship repair (surface coating)	II	12/15/95	12/16/96
Site remediation	GGGGG	10/08/03	10/09/06
Sodium pentachlorophenate production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Spandex production (Generic MACT)	YY	7/12/02	7/12/05
Stationary combustion turbines	YYYY	3/5/04	3/5/07
Steel pickling	CCC	6/22/99	6/22/01
Styrene-acrylonitrile production (Polymers and Resins IV)	JJJ	9/12/96	7/31/97
Styrene-butadiene rubber and latex prod. (Polymers and Resins I)	U	9/5/96	3/5/97
Symmetrical tetrachloropyridine production (MON)	FFFF	11/10/03	11/10/06
Taconite iron ore processing	RRRRR	10/30/03	10/30/06
Tetrahydrobenzaldehyde manufacture	F	5/12/98	5/12/01
Tire manufacturing	XXXX	7/9/02	7/11/05
Tordon™ acid production (Pesticide Active Ingredient Production)	MMM	6/23/99	12/23/03
Utility NESHAP	UUUUU	2/16/12	4/16/15
Vegetable oil production – solvent extraction	GGGG	4/12/01	4/12/04
Wood building products (surface coating)	QQQQ	5/28/03	5/28/06
Wood furniture	JJ	12/7/95	11/21/97
Wool fiberglass manufacturing	NNN	6/14/99	6/14/02

Title 40 —Protection of Environment
Chapter I —Environmental Protection Agency
Subchapter C —Air Programs
Part 63 —National Emission Standards for Hazardous Air Pollutants for Source Categories

Authority: 42 U.S.C. 7401 *et seq.*
Source: 57 FR 61992, Dec. 29, 1992, unless otherwise noted.

Subpart ZZZZZ—National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources

Source: 73 FR 252, Jan. 2, 2008, unless otherwise noted.

APPLICABILITY AND COMPLIANCE DATES

§ 63.10880 Am I subject to this subpart?

(a) You are subject to this subpart if you own or operate an iron and steel foundry that is an area source of hazardous air pollutant (HAP) emissions.

(b) This subpart applies to each new or existing affected source. The affected source is each iron and steel foundry.

(1) An affected source is existing if you commenced construction or reconstruction of the affected source before September 17, 2007.

(2) An affected source is new if you commenced construction or reconstruction of the affected source on or after September 17, 2007. If an affected source is not new pursuant to the preceding sentence, it is not new as a result of a change in its compliance obligations pursuant to § 63.10881(d).

(c) On and after January 2, 2008, if your iron and steel foundry becomes a major source as defined in § 63.2, you must meet the requirements of 40 CFR part 63, subpart EEEEE.

(d) This subpart does not apply to research and development facilities, as defined in section 112(c)(7) of the Clean Air Act.

(e) You are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not otherwise required by law to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a). Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart.

(f) If you own or operate an existing affected source, you must determine the initial applicability of the requirements of this subpart to a small foundry or a large foundry based on your facility's metal melt production for calendar year 2008. If the metal melt production for calendar year 2008 is 20,000 tons or less, your area source is a small foundry. If your metal melt production for calendar year 2008 is greater than 20,000 tons, your area source is a large foundry. You must submit a written notification to the Administrator that identifies your area source as a small foundry or a large foundry no later than January 2, 2009.

(g) If you own or operate a new affected source, you must determine the initial applicability of the requirements of this subpart to a small foundry or a large foundry based on your facility's annual metal melting capacity at startup. If the annual metal melting capacity is 10,000 tons or less, your area source is

a small foundry. If the annual metal melting capacity is greater than 10,000 tons, your area source is a large foundry. You must submit a written notification to the Administrator that identifies your area source as a small foundry or a large foundry no later than 120 days after startup.

§ 63.10881 What are my compliance dates?

(a) If you own or operate an existing affected source, you must achieve compliance with the applicable provisions of this subpart by the dates in paragraphs (a)(1) through (3) of this section.

(1) Not later than January 2, 2009 for the pollution prevention management practices for metallic scrap in § 63.10885(a) and binder formulations in § 63.10886.

(2) Not later than January 4, 2010 for the pollution prevention management practices for mercury in § 63.10885(b).

(3) Except as provided in paragraph (d) of this section, not later than 2 years after the date of your large foundry's notification of the initial determination required in § 63.10880(f) for the standards and management practices in § 63.10895.

(b) If you have a new affected source for which the initial startup date is on or before January 2, 2008, you must achieve compliance with the provisions of this subpart not later than January 2, 2008.

(c) If you own or operate a new affected source for which the initial startup date is after January 2, 2008, you must achieve compliance with the provisions of this subpart upon startup of your affected source.

(d) Following the initial determination for an existing affected source required in § 63.10880(f),

(1) Beginning January 1, 2010, if the annual metal melt production of your small foundry exceeds 20,000 tons during the preceding calendar year, you must submit a notification of foundry reclassification to the Administrator within 30 days and comply with the requirements in paragraphs (d)(1)(i) or (ii) of this section, as applicable.

(i) If your small foundry has never been classified as a large foundry, you must comply with the requirements for a large foundry no later than 2 years after the date of your foundry's notification that the annual metal melt production exceeded 20,000 tons.

(ii) If your small foundry had previously been classified as a large foundry, you must comply with the requirements for a large foundry no later than the date of your foundry's most recent notification that the annual metal melt production exceeded 20,000 tons.

(2) If your facility is initially classified as a large foundry (or your small foundry subsequently becomes a large foundry), you must comply with the requirements for a large foundry for at least 3 years before reclassifying your facility as a small foundry, even if your annual metal melt production falls below 20,000 tons. After 3 years, you may reclassify your facility as a small foundry provided your annual metal melt production for the preceding calendar year was 20,000 tons or less. If you reclassify your large foundry as a small foundry, you must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a small foundry no later than the date you notify the Administrator of the reclassification. If the annual metal melt production exceeds 20,000 tons during a subsequent year, you must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a large foundry no later than the date you notify the Administrator of the reclassification.

(e) Following the initial determination for a new affected source required in § 63.10880(g),

(1) If you increase the annual metal melt capacity of your small foundry to exceed 10,000 tons, you must submit a notification of reclassification to the Administrator within 30 days and comply with the requirements for a large foundry no later than the startup date for the new equipment, if applicable, or the date of issuance for your revised State or Federal operating permit.

(2) If your facility is initially classified as a large foundry (or your small foundry subsequently becomes a large foundry), you must comply with the requirements for a large foundry for at least 3 years before reclassifying your facility as a small foundry. After 3 years, you may reclassify your facility as a small foundry provided your most recent annual metal melt capacity is 10,000 tons or less. If you reclassify your large foundry as a small foundry, you must notify the Administrator within 30 days and comply with the requirements for a small foundry no later than the date your melting equipment was removed or taken out of service, if applicable, or the date of issuance for your revised State or Federal operating permit.

POLLUTION PREVENTION MANAGEMENT PRACTICES FOR NEW AND EXISTING AFFECTED SOURCES

§ 63.10885 What are my management practices for metallic scrap and mercury switches?

(a) ***Metallic scrap management program.*** For each segregated metallic scrap storage area, bin or pile, you must comply with the materials acquisition requirements in paragraph (a)(1) or (2) of this section. You must keep a copy of the material specifications onsite and readily available to all personnel with material acquisition duties, and provide a copy to each of your scrap providers. You may have certain scrap subject to paragraph (a)(1) of this section and other scrap subject to paragraph (a)(2) of this section at your facility provided the metallic scrap remains segregated until charge make-up.

(1) ***Restricted metallic scrap.*** You must prepare and operate at all times according to written material specifications for the purchase and use of only metal ingots, pig iron, slitter, or other materials that do not include post-consumer automotive body scrap, post-consumer engine blocks, post-consumer oil filters, oily turnings, lead components, chlorinated plastics, or free liquids. For the purpose of this subpart, “free liquids” is defined as material that fails the paint filter test by EPA Method 9095B, “Paint Filter Liquids Test” (revision 2), November 2004 (incorporated by reference—see § 63.14). The requirements for no free liquids do not apply if the owner or operator can demonstrate that the free liquid is water that resulted from scrap exposure to rain. Any post-consumer engine blocks, post-consumer oil filters, or oily turnings that are processed and/or cleaned to the extent practicable such that the materials do not include lead components, mercury switches, chlorinated plastics, or free organic liquids can be included in this certification.

(2) ***General iron and steel scrap.*** You must prepare and operate at all times according to written material specifications for the purchase and use of only iron and steel scrap that has been depleted (to the extent practicable) of organics and HAP metals in the charge materials used by the iron and steel foundry. The materials specifications must include at minimum the information specified in paragraph (a)(2)(i) or (ii) of this section.

(i) Except as provided in paragraph (a)(2)(ii) of this section, specifications for metallic scrap materials charged to a scrap preheater or metal melting furnace to be depleted (to the extent practicable) of the presence of used oil filters, chlorinated plastic parts, accessible lead-containing components (such as batteries and wheel weights), and a program to ensure the scrap materials are drained of free liquids.

(ii) For scrap charged to a cupola metal melting furnace that is equipped with an afterburner, specifications for metallic scrap materials to be depleted (to the extent practicable) of the presence of chlorinated plastics, accessible lead-containing components (such as batteries and wheel weights), and a program to ensure the scrap materials are drained of free liquids.

(b) ***Mercury requirements.*** For scrap containing motor vehicle scrap, you must procure the scrap pursuant to one of the compliance options in paragraphs (b)(1), (2), or (3) of this section for each scrap provider, contract, or shipment. For scrap that does not contain motor vehicle scrap, you must procure the scrap pursuant to the requirements in paragraph (b)(4) of this section for each scrap provider, contract, or shipment. You may have one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision.

(1) ***Site-specific plan for mercury switches.*** You must comply with the requirements in paragraphs (b)(1)(i) through (v) of this section.

(i) You must include a requirement in your scrap specifications for removal of mercury switches from vehicle bodies used to make the scrap.

(ii) You must prepare and operate according to a plan demonstrating how your facility will implement the scrap specification in paragraph (b)(1)(i) of this section for removal of mercury switches. You must submit the plan to the Administrator for approval. You must operate according to the plan as submitted during the review and approval process, operate according to the approved plan at all times after approval, and address any deficiency identified by the Administrator or delegated authority within 60 days following disapproval of a plan. You may request approval to revise the plan and may operate according to the revised plan unless and until the revision is disapproved by the Administrator or delegated authority. The Administrator or delegated authority may change the approval status of the plan upon 90-days written notice based upon the semiannual report or other information. The plan must include:

(A) A means of communicating to scrap purchasers and scrap providers the need to obtain or provide motor vehicle scrap from which mercury switches have been removed and the need to ensure the proper management of the mercury switches removed from the scrap as required under the rules implementing subtitle C of the Resource Conservation and Recovery Act (RCRA) (40 CFR parts 261 through 265 and 268). The plan must include documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal of mercury switches from end-of-life vehicles. Upon the request of the Administrator or delegated authority, you must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols;

(B) Provisions for obtaining assurance from scrap providers motor vehicle scrap provided to the facility meet the scrap specification;

(C) Provisions for periodic inspections or other means of corroboration to ensure that scrap providers and dismantlers are implementing appropriate steps to minimize the presence of mercury switches in motor vehicle scrap and that the mercury switches removed are being properly managed, including the minimum frequency such means of corroboration will be implemented; and

(D) Provisions for taking corrective actions (i.e., actions resulting in scrap providers removing a higher percentage of mercury switches or other mercury-containing components) if needed, based on the results of procedures implemented in paragraph (b)(1)(ii)(C) of this section).

(iii) You must require each motor vehicle scrap provider to provide an estimate of the number of mercury switches removed from motor vehicle scrap sent to the facility during the previous year and the basis for the estimate. The Administrator may request documentation or additional information at any time.

(iv) You must establish a goal for each scrap supplier to remove at least 80 percent of the mercury switches. Although a site-specific plan approved under paragraph (b)(1) of this section may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal.

(v) For each scrap provider, you must submit semiannual progress reports to the Administrator that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches removed, and certification that the removed mercury switches were recycled at RCRA-permitted facilities or otherwise properly managed pursuant to RCRA subtitle C regulations referenced in paragraph (b)(1)(ii)(A) of this section. This information can be submitted in aggregate form and does not have to be submitted for each shipment. The Administrator may change the approval status of a site-specific plan following 90-days notice based on the progress reports or other information.

(2) ***Option for approved mercury programs.*** You must certify in your notification of compliance status that you participate in and purchase motor vehicle scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (b)(2)(i) through (iii) of this section. If you purchase motor vehicle scrap from a broker, you must certify that all scrap received from that broker was obtained from other scrap providers who participate in a program for the removal of mercury switches that has been approved by the Administrator based on the criteria in paragraphs (b)(2)(i) through (iii) of this section. The National Mercury Switch Recovery Program and the State of Maine Mercury Switch Removal Program are EPA-approved programs under paragraph (b)(2) of this section unless and until the Administrator disapproves the program (in part or in whole) under paragraph (b)(2)(iii) of this section.

(i) The program includes outreach that informs the dismantlers of the need for removal of mercury switches and provides training and guidance for removing mercury switches;

(ii) The program has a goal to remove at least 80 percent of mercury switches from motor vehicle scrap the scrap provider processes. Although a program approved under paragraph (b)(2) of this section may require only the removal of convenience light switch mechanisms, the Administrator will credit all documented and verifiable mercury-containing components removed from motor vehicle scrap (such as sensors in anti-locking brake systems, security systems, active ride control, and other applications) when evaluating progress towards the 80 percent goal; and

(iii) The program sponsor agrees to submit progress reports to the Administrator no less frequently than once every year that provide the number of mercury switches removed or the weight of mercury recovered from the switches, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered, and certification that the recovered mercury switches were recycled at facilities with permits as required under the rules implementing subtitle C of RCRA (40 CFR parts 261 through 265 and 268). The progress reports must be based on a database that includes data for each program participant; however, data may be aggregated at the State level for progress reports that will be publicly available. The Administrator may change the approval status of a program or portion of a program (e.g., at the State level) following 90-days notice based on the progress reports or on other information.

(iv) You must develop and maintain onsite a plan demonstrating the manner through which your facility is participating in the EPA-approved program.

(A) The plan must include facility-specific implementation elements, corporate-wide policies, and/or efforts coordinated by a trade association as appropriate for each facility.

(B) You must provide in the plan documentation of direction to appropriate staff to communicate to suppliers throughout the scrap supply chain the need to promote the removal or mercury switches from end-of-life vehicles. Upon the request of the Administrator or delegated authority, you must provide examples of materials that are used for outreach to suppliers, such as letters, contract language, policies for purchasing agents, and scrap inspection protocols.

(C) You must conduct periodic inspections or other means of corroboration to ensure that scrap providers are aware of the need for and are implementing appropriate steps to minimize the presence of mercury in scrap from end-of-life vehicles.

(3) ***Option for specialty metal scrap.*** You must certify in your notification of compliance status and maintain records of documentation that the only materials from motor vehicles in the scrap are materials recovered for their specialty alloy (including, but not limited to, chromium, nickel, molybdenum, or other alloys) content (such as certain exhaust systems) and, based on the nature of the scrap and purchase specifications, that the type of scrap is not reasonably expected to contain mercury switches.

(4) ***Scrap that does not contain motor vehicle scrap.*** For scrap not subject to the requirements in paragraphs (b)(1) through (3) of this section, you must certify in your notification of compliance status and maintain records of documentation that this scrap does not contain motor vehicle scrap.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56101, Sept. 10, 2020]

§ 63.10886 What are my management practices for binder formulations?

For each furfuryl alcohol warm box mold or core making line at a new or existing iron and steel foundry, you must use a binder chemical formulation that does not use methanol as a specific ingredient of the catalyst formulation. This requirement does not apply to the resin portion of the binder system.

REQUIREMENTS FOR NEW AND EXISTING AFFECTED SOURCES CLASSIFIED AS SMALL FOUNDRIES

§ 63.10890 What are my management practices and compliance requirements?

(a) You must comply with the pollution prevention management practices for metallic scrap and mercury switches in § 63.10885 and binder formulations in § 63.10886.

(b) You must submit an initial notification of applicability according to § 63.9(b)(2).

(c) You must submit a notification of compliance status according to § 63.9(h)(2)(i). You must send the notification of compliance status before the close of business on the 30th day after the applicable compliance date specified in § 63.10881. The notification must include the following compliance certifications, as applicable:

(1) "This facility has prepared, and will operate by, written material specifications for metallic scrap according to § 63.10885(a)(1)" and/or "This facility has prepared, and will operate by, written material specifications for general iron and steel scrap according to § 63.10885(a)(2)."

(2) "This facility has prepared, and will operate by, written material specifications for the removal of mercury switches and a site-specific plan implementing the material specifications according to § 63.10885(b)(1) and/or "This facility participates in and purchases motor vehicle scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the Administrator according to § 63.10885(b)(2) and has prepared a plan for participation in the EPA-approved program according to § 63.10885(b)(2)(iv)" and/or "The only materials from motor vehicles in the scrap charged to a metal melting furnace at this facility are materials recovered for their specialty alloy content in accordance with § 63.10885(b)(3) which are not reasonably expected to contain mercury switches" and/or "This facility complies with the requirements for scrap that does not contain motor vehicle scrap in accordance with § 63.10885(b)(4)."

(3) "This facility complies with the no methanol requirement for the catalyst portion of each binder chemical formulation for a furfuryl alcohol warm box mold or core making line according to § 63.10886."

(d) As required by § 63.10(b)(1), you must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche. Any records required to be maintained by this part that are submitted electronically via the EPA's Compliance and Emissions Data Reporting Interface (CEDRI) may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(e) You must maintain records of the information specified in paragraphs (e)(1) through (7) of this section according to the requirements in § 63.10(b)(1).

(1) Records supporting your initial notification of applicability and your notification of compliance status according to § 63.10(b)(2)(xiv).

(2) Records of your written materials specifications according to § 63.10885(a) and records that demonstrate compliance with the requirements for restricted metallic scrap in § 63.10885(a)(1) and/or for the use of general scrap in § 63.10885(a)(2) and for mercury in § 63.10885(b)(1) through (3), as applicable. You must keep records documenting compliance with § 63.10885(b)(4) for scrap that does not contain motor vehicle scrap.

(3) If you are subject to the requirements for a site-specific plan for mercury switch removal under § 63.10885(b)(1), you must maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered.

(4) If you are subject to the option for approved mercury programs under § 63.10885(b)(2), you must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If you purchase motor vehicle scrap from a broker, you must maintain records identifying each broker and documentation that all scrap provided by the broker was obtained from other scrap providers who participate in an approved mercury switch removal program.

(5) Records to document use of binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation for each furfuryl alcohol warm box mold or core making line as required by § 63.10886. These records must be the Material Safety Data Sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet.

(6) Records of the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores. These records must be copies of purchasing records, Material Safety Data Sheets, or other documentation that provides information on the binder or coating materials used.

(7) Records of metal melt production for each calendar year.

(f) You must submit semiannual compliance reports to the Administrator according to the requirements in § 63.10899(c), (f), and (g), except that § 63.10899(c)(5) and (7) do not apply.

(g) You must submit a written notification to the Administrator of the initial classification of your facility as a small foundry as required in § 63.10880(f) and (g), as applicable, and for any subsequent reclassification as required in § 63.10881(d)(1) or (e), as applicable.

(h) Following the initial determination for an existing affected source as a small foundry, if the annual metal melt production exceeds 20,000 tons during the preceding year, you must comply with the requirements for large foundries by the applicable dates in § 63.10881(d)(1)(i) or (d)(1)(ii). Following the initial determination for a new affected source as a small foundry, if you increase the annual metal melt capacity to exceed 10,000 tons, you must comply with the requirements for a large foundry by the applicable dates in § 63.10881(e)(1).

(i) At all times, you must operate and maintain any affected 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.

(j) You must comply with the following requirements of the general provisions in subpart A of this part: §§ 63.1 through 63.5; § 63.6(a), (b), and (c); § 63.9; § 63.10(a), (b)(1), (b)(2)(xiv), (b)(3), (d)(1) and (4), and (f); and §§ 63.13 through 63.16. Requirements of the general provisions not cited in the preceding sentence do not apply to the owner or operator of a new or existing affected source that is classified as a small foundry.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56101, Sept. 10, 2020]

Requirements for New and Existing Affected Sources Classified as Large Iron and Steel Foundries

§ 63.10895 What are my standards and management practices?

(a) If you own or operate an affected source that is a large foundry as defined in § 63.10906, you must comply with the pollution prevention management practices in §§ 63.10885 and 63.10886, the requirements in paragraphs (b) through (e) of this section, and the requirements in §§ 63.10896 through 63.10900.

(b) You must operate a capture and collection system for each metal melting furnace at a new or existing iron and steel foundry unless that furnace is specifically uncontrolled as part of an emissions averaging group. Each capture and collection system must meet accepted engineering standards, such as those published by the American Conference of Governmental Industrial Hygienists.

(c) You must not discharge to the atmosphere emissions from any metal melting furnace or group of all metal melting furnaces that exceed the applicable limit in paragraph (c)(1) or (2) of this section. When an alternative emissions limit is provided for a given emissions source, you are not restricted in the selection of which applicable alternative emissions limit is used to demonstrate compliance.

(1) For an existing iron and steel foundry, 0.8 pounds of particulate matter (PM) per ton of metal charged or 0.06 pounds of total metal HAP per ton of metal charged.

(2) For a new iron and steel foundry, 0.1 pounds of PM per ton of metal charged or 0.008 pounds of total metal HAP per ton of metal charged.

(d) If you own or operate a new affected source, you must comply with each control device parameter operating limit in paragraphs (d)(1) and (2) of this section that applies to you.

(1) For each wet scrubber applied to emissions from a metal melting furnace, you must maintain the 3-hour average pressure drop and scrubber water flow rate at or above the minimum levels established during the initial or subsequent performance test.

(2) For each electrostatic precipitator applied to emissions from a metal melting furnace, you must maintain the voltage and secondary current (or total power input) to the control device at or above the level established during the initial or subsequent performance test.

(e) If you own or operate a new or existing iron and steel foundry, you must not discharge to the atmosphere fugitive emissions from foundry operations that exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 30 percent.

§ 63.10896 What are my operation and maintenance requirements?

(a) You must prepare and operate at all times according to a written operation and maintenance (O&M) plan for each control device for an emissions source subject to a PM, metal HAP, or opacity emissions limit in § 63.10895. You must maintain a copy of the O&M plan at the facility and make it available for review upon request. At a minimum, each plan must contain the following information:

(1) General facility and contact information;

(2) Positions responsible for inspecting, maintaining, and repairing emissions control devices which are used to comply with this subpart;

(3) Description of items, equipment, and conditions that will be inspected, including an inspection schedule for the items, equipment, and conditions. For baghouses that are equipped with bag leak detection systems, the O&M plan must include the site-specific monitoring plan required in § 63.10897(d)(2).

(4) Identity and estimated quantity of the replacement parts that will be maintained in inventory; and

(5) For a new affected source, procedures for operating and maintaining a CPMS in accordance with manufacturer's specifications.

(b) You may use any other O&M, preventative maintenance, or similar plan which addresses the requirements in paragraph (a)(1) through (5) of this section to demonstrate compliance with the requirements for an O&M plan.

(c) At all times, you must operate and maintain any affected 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.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56101, Sept. 10, 2020]

§ 63.10897 What are my monitoring requirements?

(a) You must conduct an initial inspection of each PM control device for a metal melting furnace at an existing affected source. You must conduct each initial inspection no later than 60 days after your applicable compliance date for each installed control device which has been operated within 60 days of the compliance date. For an installed control device which has not operated within 60 days of the compliance date, you must conduct an initial inspection prior to startup of the control device. Following the initial inspections, you must perform periodic inspections and maintenance of each PM control device for a metal melting furnace at an existing affected source. You must perform the initial and periodic inspections according to the requirements in paragraphs (a)(1) through (4) of this section. You must record the results of each initial and periodic inspection and any maintenance action in the logbook required in § 63.10899(b)(13).

(1) For the initial inspection of each baghouse, you must visually inspect the system ductwork and baghouse units for leaks. You must also inspect the inside of each baghouse for structural integrity and fabric filter condition. Following the initial inspections, you must inspect and maintain each baghouse according to the requirements in paragraphs (a)(1)(i) and (ii) of this section.

(i) You must conduct monthly visual inspections of the system ductwork for leaks.

(ii) You must conduct inspections of the interior of the baghouse for structural integrity and to determine the condition of the fabric filter every 6 months.

(2) For the initial inspection of each dry electrostatic precipitator, you must verify the proper functioning of the electronic controls for corona power and rapper operation, that the corona wires are energized, and that adequate air pressure is present on the rapper manifold. You must also visually inspect the system ductwork and electrostatic housing unit and hopper for leaks and inspect the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, hopper, and air diffuser plates. Following the initial inspection, you must inspect and maintain each dry electrostatic precipitator according to the requirements in paragraphs (a)(2)(i) through (iii) of this section.

(i) You must conduct a daily inspection to verify the proper functioning of the electronic controls for corona power and rapper operation, that the corona wires are energized, and that adequate air pressure is present on the rapper manifold.

(ii) You must conduct monthly visual inspections of the system ductwork, housing unit, and hopper for leaks.

(iii) You must conduct inspections of the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate rappers, hopper, and air diffuser plates every 24 months.

(3) For the initial inspection of each wet electrostatic precipitator, you must verify the proper functioning of the electronic controls for corona power, that the corona wires are energized, and that water flow is present. You must also visually inspect the system ductwork and electrostatic precipitator housing unit and hopper for leaks and inspect the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate wash spray heads, hopper, and air diffuser plates. Following the initial inspection, you must inspect and maintain each wet electrostatic precipitator according to the requirements in paragraphs (a)(3)(i) through (iii) of this section.

(i) You must conduct a daily inspection to verify the proper functioning of the electronic controls for corona power, that the corona wires are energized, and that water flow is present.

(ii) You must conduct monthly visual inspections of the system ductwork, electrostatic precipitator housing unit, and hopper for leaks.

(iii) You must conduct inspections of the interior of the electrostatic precipitator to determine the condition and integrity of corona wires, collection plates, plate wash spray heads, hopper, and air diffuser plates every 24 months.

(4) For the initial inspection of each wet scrubber, you must verify the presence of water flow to the scrubber. You must also visually inspect the system ductwork and scrubber unit for leaks and inspect the interior of the scrubber for structural integrity and the condition of the demister and spray nozzle. Following the initial inspection, you must inspect and maintain each wet scrubber according to the requirements in paragraphs (a)(4)(i) through (iii) of this section.

(i) You must conduct a daily inspection to verify the presence of water flow to the scrubber.

(ii) You must conduct monthly visual inspections of the system ductwork and scrubber unit for leaks.

(iii) You must conduct inspections of the interior of the scrubber to determine the structural integrity and condition of the demister and spray nozzle every 12 months.

(b) For each wet scrubber applied to emissions from a metal melting furnace at a new affected source, you must use a continuous parameter monitoring system (CPMS) to measure and record the 3-hour average pressure drop and scrubber water flow rate.

(c) For each electrostatic precipitator applied to emissions from a metal melting furnace at a new affected source, you must measure and record the hourly average voltage and secondary current (or total power input) using a CPMS.

(d) If you own or operate an existing affected source, you may install, operate, and maintain a bag leak detection system for each negative pressure baghouse or positive pressure baghouse as an alternative to the baghouse inspection requirements in paragraph (a)(1) of this section. If you own or operate a new affected source, you must install, operate, and maintain a bag leak detection system for each negative pressure baghouse or positive pressure baghouse. You must install, operate, and maintain each bag leak detection system according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) Each bag leak detection system must meet the requirements in paragraphs (d)(1)(i) through (vii) of this section.

(i) The system must be certified by the manufacturer to be capable of detecting emissions of particulate matter at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(ii) The bag leak detection system sensor must provide output of relative particulate matter loadings and the owner or operator shall continuously record the output from the bag leak detection system using a strip chart recorder, data logger, or other means.

(iii) The system must be equipped with an alarm that will sound when an increase in relative particulate loadings is detected over the alarm set point established in the operation and maintenance plan, and the alarm must be located such that it can be heard by the appropriate plant personnel.

(iv) The initial adjustment of the system must, at minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points. If the system is equipped with an alarm delay time feature, you also must adjust the alarm delay time.

(v) Following the initial adjustment, do not adjust the sensitivity or range, averaging period, alarm set point, or alarm delay time. Except, once per quarter, you may adjust the sensitivity of the bag leak detection system to account for seasonable effects including temperature and humidity according to the procedures in the monitoring plan required by paragraph (d)(2) of this section.

(vi) For negative pressure baghouses, induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector sensor must be installed downstream of the baghouse and upstream of any wet scrubber.

(vii) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(2) You must prepare a site-specific monitoring plan for each bag leak detection system to be incorporated in your O&M plan. You must operate and maintain each bag leak detection system according to the plan at all times. Each plan must address all of the items identified in paragraphs (d)(2)(i) through (vi) of this section.

(i) Installation of the bag leak detection system.

(ii) Initial and periodic adjustment of the bag leak detection system including how the alarm set-point will be established.

(iii) Operation of the bag leak detection system including quality assurance procedures.

(iv) Maintenance of the bag leak detection system including a routine maintenance schedule and spare parts inventory list.

(v) How the bag leak detection system output will be recorded and stored.

(vi) Procedures for determining what corrective actions are necessary in the event of a bag leak detection alarm as required in paragraph (d)(3) of this section.

(3) In the event that a bag leak detection system alarm is triggered, you must initiate corrective action to determine the cause of the alarm within 1 hour of the alarm, initiate corrective action to correct the cause of the problem within 24 hours of the alarm, and complete corrective action as soon as practicable, but no later than 10 calendar days from the date of the alarm. You must record the date and time of each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed. Corrective actions may include, but are not limited to:

(i) Inspecting the bag house for air leaks, torn or broken bags or filter media, or any other condition that may cause an increase in emissions.

(ii) Sealing off defective bags or filter media.

(iii) Replacing defective bags or filter media or otherwise repairing the control device.

(iv) Sealing off a defective baghouse department.

(v) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system.

(vi) Shutting down the process producing the particulate emissions.

(e) You must make monthly inspections of the equipment that is important to the performance of the total capture system (i.e., pressure sensors, dampers, and damper switches). This inspection must include observations of the physical appearance of the equipment (e.g., presence of holes in the ductwork or hoods, flow constrictions caused by dents or accumulated dust in the ductwork, and fan erosion). You must repair any defect or deficiency in the capture system as soon as practicable, but no later than 90 days. You must record the date and results of each inspection and the date of repair of any defect or deficiency.

(f) You must install, operate, and maintain each CPMS or other measurement device according to your O&M plan. You must record all information needed to document conformance with these requirements.

(g) In the event of an exceedance of an established emissions limitation (including an operating limit), you must restore operation of the emissions source (including the control device and associated capture system) to its normal or usual manner or operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the exceedance. You must record the date and time corrective action was initiated, the corrective action taken, and the date corrective action was completed.

(h) If you choose to comply with an emissions limit in § 63.10895(c) using emissions averaging, you must calculate and record for each calendar month the pounds of PM or total metal HAP per ton of metal melted from the group of all metal melting furnaces at your foundry. You must calculate and record the weighted average pounds per ton emissions rate for the group of all metal melting furnaces at the foundry determined from the performance test procedures in § 63.10898(d) and (e).

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56102, Sept. 10, 2020]

§ 63.10898 What are my performance test requirements?

(a) You must conduct a performance test to demonstrate initial compliance with the applicable emissions limits for each metal melting furnace or group of all metal melting furnaces that is subject to an emissions limit in § 63.10895(c) and for each building or structure housing foundry operations that is subject to the opacity limit for fugitive emissions in § 63.10895(e). You must conduct the test within 180 days of your compliance date and report the results in your notification of compliance status.

(1) If you own or operate an existing iron and steel foundry, you may choose to submit the results of a prior performance test for PM or total metal HAP that demonstrates compliance with the applicable emissions limit for a metal melting furnace or group of all metal melting furnaces provided the test was conducted within the last 5 years using the methods and procedures specified in this subpart and either no process changes have been made since the test, or you can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance with the applicable emissions limit despite such process changes.

(2) If you own or operate an existing iron and steel foundry and you choose to submit the results of a prior performance test according to paragraph (a)(1) of this section, you must submit a written notification to the Administrator of your intent to use the previous test data no later than 60 days after your compliance date. The notification must contain a full copy of the performance test and contain information to demonstrate, if applicable, that either no process changes have been made since the test, or that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite such process changes.

(3) If you have an electric induction furnace equipped with an emissions control device at an existing foundry, you may use the test results from another electric induction furnace to demonstrate compliance with the applicable PM or total metal HAP emissions limit in § 63.10895(c) provided the furnaces are similar with respect to the type of emission control device that is used, the composition of the scrap charged, furnace size, and furnace melting temperature.

(4) If you have an uncontrolled electric induction furnace at an existing foundry, you may use the test results from another electric induction furnace to demonstrate compliance with the applicable PM or total metal HAP emissions limit in § 63.10895(c) provided the test results are prior to any control device and the electric induction furnaces are similar with respect to the composition of the scrap charged, furnace size, and furnace melting temperature.

(5) For electric induction furnaces that do not have emission capture systems, you may install a temporary enclosure for the purpose of representative sampling of emissions. A permanent enclosure and capture system is not required for the purpose of the performance test.

(b) You must conduct subsequent performance tests to demonstrate compliance with all applicable PM or total metal HAP emissions limits in § 63.10895(c) for a metal melting furnace or group of all metal melting furnaces no less frequently than every 5 years and each time you elect to change an operating limit or make a process change likely to increase HAP emissions.

(c) You must conduct each performance test under conditions representative of normal operations according to the requirements in Table 1 to this subpart and paragraphs (d) through (g) of this section. Normal operating conditions exclude periods of startup and shutdown. You may not conduct performance tests during periods of malfunction. You must record the process information that is necessary to document operating conditions during the test and include in such record an explanation to support that such conditions represent normal operation. Upon request, you shall make available to the Administrator such records as may be necessary to determine the conditions of performance tests.

(d) To determine compliance with the applicable PM or total metal HAP emissions limit in § 63.10895(c) for a metal melting furnace in a lb/ton of metal charged format, compute the process-weighted mass emissions (E^p) for each test run using Equation 1 of this section:

$$E_p = \frac{C \times Q \times T}{P \times K} \qquad (Eq.\ 1)$$

Where:

E_p = Process-weighted mass emissions rate of PM or total metal HAP, pounds of PM or total metal HAP per ton (lb/ton) of metal charged;

C = Concentration of PM or total metal HAP measured during performance test run, grains per dry standard cubic foot (gr/dscf);

Q = Volumetric flow rate of exhaust gas, dry standard cubic feet per hour (dscf/hr);

T = Total time during a test run that a sample is withdrawn from the stack during melt production cycle, hr;

P = Total amount of metal charged during the test run, tons; and

K = Conversion factor, 7,000 grains per pound.

(e) To determine compliance with the applicable emissions limit in § 63.10895(c) for a group of all metal melting furnaces using emissions averaging,

(1) Determine and record the monthly average charge rate for each metal melting furnace at your iron and steel foundry for the previous calendar month; and

(2) Compute the mass-weighted PM or total metal HAP using Equation 2 of this section.

$$E_c = \frac{\sum_{i=1}^{n}\left(E_{pi} \times T_{ti}\right)}{\sum_{i=1}^{n} T_{ti}} \qquad \text{(Eq. 2)}$$

Where:

E_C = The mass-weighted PM or total metal HAP emissions for the group of all metal melting furnaces at the foundry, pounds of PM or total metal HAP per ton of metal charged;

E_{pi} = Process-weighted mass emissions of PM or total metal HAP for individual emission unit i as determined from the performance test and calculated using Equation 1 of this section, pounds of PM or total metal HAP per ton of metal charged;

T_{ti} = Total tons of metal charged for individual emission unit i for the calendar month prior to the performance test, tons; and

n = The total number of metal melting furnaces at the iron and steel foundry.

(3) For an uncontrolled electric induction furnace that is not equipped with a capture system and has not been previously tested for PM or total metal HAP, you may assume an emissions factor of 2 pounds per ton of PM or 0.13 pounds of total metal HAP per ton of metal melted in Equation 2 of this section instead of a measured test value. If the uncontrolled electric induction furnace is equipped with a capture system, you must use a measured test value.

(f) To determine compliance with the applicable PM or total metal HAP emissions limit for a metal melting furnace in § 63.10895(c) when emissions from one or more regulated furnaces are combined with other non-regulated emissions sources, you may demonstrate compliance using the procedures in paragraphs (f)(1) through (3) of this section.

(1) Determine the PM or total metal HAP process-weighted mass emissions for each of the regulated streams prior to the combination with other exhaust streams or control device.

(2) Measure the flow rate and PM or total metal HAP concentration of the combined exhaust stream both before and after the control device and calculate the mass removal efficiency of the control device using Equation 3 of this section.

$$\%\ \text{reduction} = \frac{E_i - E_o}{E_i} \times 100\% \qquad \text{(Eq. 3)}$$

Where:

E_i = Mass emissions rate of PM or total metal HAP at the control device inlet, lb/hr;

E_o = Mass emissions rate of PM or total metal HAP at the control device outlet, lb/hr.

(3) Meet the applicable emissions limit based on the calculated PM or total metal HAP process-weighted mass emissions for the regulated emissions source using Equation 4 of this section:

$$E_{pl_{released}} E_{pl_i} \times \left(1 - \frac{\%\ reduction}{100}\right) \qquad (Eq.\ 4)$$

Where:

$E_{p1released}$ = Calculated process-weighted mass emissions of PM (or total metal HAP) predicted to be released to the atmosphere from the regulated emissions source, pounds of PM or total metal HAP per ton of metal charged; and

E_{p1i} = Process-weighted mass emissions of PM (or total metal HAP) in the uncontrolled regulated exhaust stream, pounds of PM or total metal HAP per ton of metal charged.

(g) To determine compliance with an emissions limit for situations when multiple sources are controlled by a single control device, but only one source operates at a time or other situations that are not expressly considered in paragraphs (d) through (f) of this section, you must submit a site-specific test plan to the Administrator for approval according to the requirements in § 63.7(c)(2) and (3).

(h) You must conduct each opacity test for fugitive emissions according to the requirements in § 63.6(h)(5) and Table 1 to this subpart.

(i) You must conduct subsequent performance tests to demonstrate compliance with the opacity limit in § 63.10895(e) no less frequently than every 6 months and each time you make a process change likely to increase fugitive emissions.

(j) In your performance test report, you must certify that the capture system operated normally during the performance test.

(k) You must establish operating limits for a new affected source during the initial performance test according to the requirements in Table 2 of this subpart.

(l) You may change the operating limits for a wet scrubber, electrostatic precipitator, or baghouse if you meet the requirements in paragraphs (l)(1) through (3) of this section.

(1) Submit a written notification to the Administrator of your plan to conduct a new performance test to revise the operating limit.

(2) Conduct a performance test to demonstrate compliance with the applicable emissions limitation in § 63.10895(c).

(3) Establish revised operating limits according to the applicable procedures in Table 2 to this subpart.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56102, Sept. 10, 2020]

§ 63.10899 What are my recordkeeping and reporting requirements?

(a) As required by § 63.10(b)(1), you must maintain files of all information (including all reports and notifications) for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks or flash drives, on magnetic tape disks, or on microfiche. Any records required to be maintained by this part that are submitted electronically via the EPA's CEDRI may be maintained in electronic format. This ability to maintain electronic copies does not affect the requirement for facilities to make records, data, and reports available upon request to a delegated air agency or the EPA as part of an on-site compliance evaluation.

(b) In addition to the records required by § 63.10(b)(2)(iii) and (vi) through (xiv) and (b)(3), you must keep records of the information specified in paragraphs (b)(1) through (15) of this section.

(1) You must keep records of your written materials specifications according to § 63.10885(a) and records that demonstrate compliance with the requirements for restricted metallic scrap in § 63.10885(a)(1) and/or for the use of general scrap in § 63.10885(a)(2) and for mercury in § 63.10885(b)(1) through (3), as applicable. You must keep records documenting compliance with § 63.10885(b)(4) for scrap that does not contain motor vehicle scrap.

(2) If you are subject to the requirements for a site-specific plan for mercury under § 63.10885(b)(1), you must maintain records of the number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, and an estimate of the percent of mercury switches recovered.

(3) If you are subject to the option for approved mercury programs under § 63.10885(b)(2), you must maintain records identifying each scrap provider and documenting the scrap provider's participation in an approved mercury switch removal program. If your scrap provider is a broker, you must maintain records identifying each of the broker's scrap suppliers and documenting the scrap supplier's participation in an approved mercury switch removal program.

(4) You must keep records to document use of any binder chemical formulation that does not contain methanol as a specific ingredient of the catalyst formulation for each furfuryl alcohol warm box mold or core making line as required by § 63.10886. These records must be the Material Safety Data Sheet (provided that it contains appropriate information), a certified product data sheet, or a manufacturer's hazardous air pollutant data sheet.

(5) You must keep records of the annual quantity and composition of each HAP-containing chemical binder or coating material used to make molds and cores. These records must be copies of purchasing records, Material Safety Data Sheets, or other documentation that provide information on the binder or coating materials used.

(6) You must keep records of monthly metal melt production for each calendar year.

(7) You must keep a copy of the operation and maintenance plan as required by § 63.10896(a) and records that demonstrate compliance with plan requirements.

(8) If you use emissions averaging, you must keep records of the monthly metal melting rate for each furnace at your iron and steel foundry, and records of the calculated pounds of PM or total metal HAP per ton of metal melted for the group of all metal melting furnaces required by § 63.10897(h).

(9) If applicable, you must keep records for bag leak detection systems as follows:

(i) Records of the bag leak detection system output;

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings; and

(iii) The date and time of all bag leak detection system alarms, and for each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed.

(10) You must keep records of capture system inspections and repairs as required by § 63.10897(e).

(11) You must keep records demonstrating conformance with your specifications for the operation of CPMS as required by § 63.10897(f).

(12) You must keep records of corrective action(s) for exceedances and excursions as required by § 63.10897(g).

(13) You must record the results of each inspection and maintenance required by § 63.10897(a) for PM control devices in a logbook (written or electronic format). You must keep the logbook onsite and make the logbook available to the Administrator upon request. You must keep records of the information specified in paragraphs (b)(13)(i) through (iii) of this section.

(i) The date and time of each recorded action for a fabric filter, the results of each inspection, and the results of any maintenance performed on the bag filters.

(ii) The date and time of each recorded action for a wet or dry electrostatic precipitator (including ductwork), the results of each inspection, and the results of any maintenance performed for the electrostatic precipitator.

(iii) The date and time of each recorded action for a wet scrubber (including ductwork), the results of each inspection, and the results of any maintenance performed on the wet scrubber.

(14) You must keep records of the site-specific performance evaluation test plan required under § 63.8(d)(2) 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, you 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. The program of corrective action should be included in the plan as required under § 63.8(d)(2)(vi).

(15) You must keep the following records for each failure to meet an emissions limitation (including operating limit), work practice standard, or operation and maintenance requirement in this subpart.

(i) Date, start time, and duration of each failure.

(ii) List of the affected sources or equipment for each failure, an estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) Actions taken to minimize emissions in accordance with § 63.10896(c), and any corrective actions taken to return the affected unit to its normal or usual manner of operation.

(c) Prior to March 9, 2021, you must submit semiannual compliance reports to the Administrator according to the requirements in § 63.13. Beginning on March 9, 2021, you must submit all subsequent semiannual compliance reports to the EPA via the CEDRI, which can be accessed through the EPA's Central Data Exchange (CDX) (*https://cdx.epa.gov/*). The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as confidential business information (CBI). Anything submitted using CEDRI cannot later be claimed to be CBI. You must use the appropriate electronic report template on the CEDRI website (*https://www.epa.gov/electronic-reporting-air-emissions/cedri*) for this subpart. The date report templates become available will be listed on the CEDRI website. The report must be submitted by the deadline specified in this subpart, regardless of the method in which the report is submitted. Although we do not expect persons to assert a claim of CBI, if persons wish to assert a CBI if you claim some of the information required to be submitted via CEDRI is CBI, submit a complete report, including information claimed to be CBI, to the EPA. The report must be generated using the appropriate form on the CEDRI website or an alternate electronic file consistent with the extensible markup language (XML) schema listed on the CEDRI website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph (c). All CBI claims must be asserted at the time of submission. Furthermore, under CAA section 114(c) emissions data is not entitled to confidential treatment and requires EPA to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available. The reports must include the information specified in paragraphs (c)(1) through (3) of this section and, as applicable, paragraphs (c)(4) through (9) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the truth, accuracy, and completeness of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If there were no deviations from any emissions limitations (including operating limits, pollution prevention management practices, or operation and maintenance requirements), a statement that there were no deviations from the emissions limitations, pollution prevention management practices, or operation and maintenance requirements during the reporting period.

(5) If there were no periods during which a continuous monitoring system (including a CPMS or continuous emissions monitoring system (CEMS) was inoperable or out-of-control as specified by § 63.8(c)(7), a statement that there were no periods during which the CPMS was inoperable or out-of-control during the reporting period.

(6) For each affected source or equipment for which there was a deviation from an emissions limitation (including an operating limit, pollution prevention management practice, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, the compliance report must contain the information specified in paragraphs (c)(6)(i) through (iii) of this section. The requirement in this paragraph (c)(6) includes periods of startup, shutdown, and malfunction.

(i) A list of the affected source or equipment and the total operating time of each emissions source during the reporting period.

(ii) For each deviation from an emissions limitation (including an operating limit, pollution prevention management practice, or operation and maintenance requirement) that occurs at an iron and steel foundry during the reporting period, report:

(A) The date, start time, duration (in hours), and cause of each deviation (characterized as either startup, shutdown, control equipment problem, process problem, other known cause, or unknown cause, as applicable) and the corrective action taken; and

(B) An estimate of the quantity of each regulated pollutant emitted over any emission limit and a description of the method used to estimate the emissions.

(iii) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(7) For each continuous monitoring system (including a CPMS or CEMS) used to comply with the emissions limitation or work practice standard in this subpart that was inoperable or out-of-control during any portion of the reporting period, you must include the information specified in paragraphs (c)(7)(i) through (vi) of this section. The requirement in this paragraph (c)(7) includes periods of startup, shutdown, and malfunction.

(i) A brief description of the continuous monitoring system, including manufacturer and model number.

(ii) The date of the latest continuous monitoring system certification or audit.

(iii) A brief description and the total operating time of the affected source or equipment that is monitored by the continuous monitoring system during the reporting period.

(iv) A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.

(v) For each period for which the continuous monitoring system was inoperable or out-of-control during the reporting period, report:

(A) The date, start time, and duration (in hours) of the deviation;

(B) The type of deviation (inoperable or out-of-control); and

(C) The cause of deviation (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes, as applicable) and the corrective action taken.

(vi) A summary of the total duration (in hours) of the deviations that occurred during the reporting period by cause (characterized as monitoring system malfunctions, non-monitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and unknown causes) and the cumulative duration of deviations during the reporting period across all causes both in hours and as a percent of the total source operating time during the reporting period.

(8) Identification of which option in § 63.10885(b) applies to you. If you comply with the mercury requirements in § 63.10885(b) by using one scrap provider, contract, or shipment subject to one compliance provision and others subject to another compliance provision different, provide an identification of which option in § 63.10885(b) applies to each scrap provider, contract, or shipment.

(9) If you are subject to the requirements for a site-specific plan for mercury under § 63.10885(b)(1), include:

(i) The number of mercury switches removed or the weight of mercury recovered from the switches and properly managed, the estimated number of vehicles processed, an estimate of the percent of mercury switches recovered;

(ii) A certification that the recovered mercury switches were recycled at RCRA-permitted facilities; and

(iii) A certification that you have conducted periodic inspections or taken other means of corroboration as required under § 63.10885(b)(1)(ii)(C).

(d) You must submit written notification to the Administrator of the initial classification of your new or existing affected source as a large iron and steel facility as required in § 63.10880(f) and (g), as applicable, and for any subsequent reclassification as required in § 63.10881(d) or (e), as applicable.

(e) Within 60 days after the date of completing each performance test required by this subpart, you must submit the results of the performance test following the procedures specified in paragraphs (e)(1) through (3) of this section.

(1) ***Data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT website (https://www.epa.gov/electronic-reporting-air-emissions/electronic-reporting-tool-ert) at the time of the test.*** Submit the results of the performance test to the EPA via the CEDRI, which can be accessed through the EPA's CDX (*https://cdx.epa.gov/*). The data must be submitted in a file format generated through the use of the EPA's ERT. Alternatively, you may submit an electronic file consistent with the XML schema listed on the EPA's ERT website.

(2) ***Data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT website at the time of the test.*** The results of the performance test must be included as an attachment in the ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the ERT generated package or alternative file to the EPA via CEDRI.

(3) ***Confidential business information.*** The EPA will make all the information submitted through CEDRI available to the public without further notice to you. Do not use CEDRI to submit information you claim as CBI. Anything submitted using CEDRI cannot later be claimed to be CBI. Although we do not expect persons to assert a claim of CBI if you claim some of the information submitted under paragraph (e)(1) or (2) of this section is CBI, you must submit a complete file, including information claimed to be CBI, to the EPA. The file must be generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT website. Submit the file on a compact disc, flash drive, or other commonly used electronic storage medium and clearly mark the medium as CBI. Mail the electronic medium to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described in paragraph (e)(1) of this section. All CBI claims must be asserted at the time of

submission. Furthermore, under CAA section 114(c) emissions data is not entitled to confidential treatment and requires EPA to make emissions data available to the public. Thus, emissions data will not be protected as CBI and will be made publicly available.

(f) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of EPA system outage for failure to timely comply with the reporting requirement. To assert a claim of EPA system outage, you must meet the requirements outlined in paragraphs (f)(1) through (7) of this section.

(1) You must have been or will be precluded from accessing CEDRI and submitting a required report within the time prescribed due to an outage of either the EPA's CEDRI or CDX systems.

(2) The outage must have occurred within the period of time beginning 5 business days prior to the date that the submission is due.

(3) The outage may be planned or unplanned.

(4) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(5) You must provide to the Administrator a written description identifying:

(i) The date(s) and time(s) when CDX or CEDRI was accessed and the system was unavailable;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to EPA system outage;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

(6) The decision to accept the claim of EPA system outage and allow an extension to the reporting deadline is solely within the discretion of the Administrator.

(7) In any circumstance, the report must be submitted electronically as soon as possible after the outage is resolved.

(g) If you are required to electronically submit a report through CEDRI in the EPA's CDX, you may assert a claim of force majeure for failure to timely comply with the reporting requirement. To assert a claim of force majeure, you must meet the requirements outlined in paragraphs (g)(1) through (5) of this section.

(1) You may submit a claim if a force majeure event is about to occur, occurs, or has occurred or there are lingering effects from such an event within the period of time beginning five business days prior to the date the submission is due. For the purposes of this section, a force majeure event is defined as an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents you from complying with the requirement to submit a report electronically within the time period prescribed. Examples of such events are acts of nature (*e.g.,* hurricanes, earthquakes, or floods), acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility (*e.g.,* large scale power outage).

(2) You must submit notification to the Administrator in writing as soon as possible following the date you first knew, or through due diligence should have known, that the event may cause or has caused a delay in reporting.

(3) You must provide to the Administrator:

(i) A written description of the force majeure event;

(ii) A rationale for attributing the delay in reporting beyond the regulatory deadline to the force majeure event;

(iii) Measures taken or to be taken to minimize the delay in reporting; and

(iv) The date by which you propose to report, or if you have already met the reporting requirement at the time of the notification, the date you reported.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56102, Sept. 10, 2020]

§ 63.10900 What parts of the General Provisions apply to my large foundry?

(a) If you own or operate a new or existing affected source that is classified as a large foundry, you must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) according to Table 3 of this subpart.

(b) If you own or operator a new or existing affected source that is classified as a large foundry, your notification of compliance status required by § 63.9(h) must include each applicable certification of compliance, signed by a responsible official, in Table 4 of this subpart.

Other Requirements and Information

§ 63.10905 Who implements and enforces this subpart?

(a) This subpart can be implemented and enforced by EPA or a delegated authority such as your State, local, or tribal agency. If the EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the EPA Administrator and are not transferred to the State, local, or tribal agency.

(c) The authorities that cannot be delegated to state, local, or tribal agencies are specified in paragraphs (c)(1) through (7) of this section.

(1) Approval of an alternative non-opacity emissions standard under 40 CFR 63.6(g).

(2) Approval of an alternative opacity emissions standard under § 63.6(h)(9).

(3) Approval of a major change to test methods under § 63.7(e)(2)(ii) and (f). A “major change to test method” is defined in § 63.90.

(4) Approval of a major change to monitoring under § 63.8(f). A “major change to monitoring” under is defined in § 63.90.

(5) Approval of a major change to recordkeeping and reporting under § 63.10(f). A "major change to recordkeeping/reporting" is defined in § 63.90.

(6) Approval of a local, State, or national mercury switch removal program under § 63.10885(b)(2).

(7) Approval of an alternative to any electronic reporting to the EPA required by this subpart.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56104, Sept. 10, 2020]

§ 63.10906 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in § 63.2, and in this section.

Annual metal melt capacity means the lower of the total metal melting furnace equipment melt rate capacity assuming 8,760 operating hours per year summed for all metal melting furnaces at the foundry or, if applicable, the maximum permitted metal melt production rate for the iron and steel foundry calculated on an annual basis. Unless otherwise specified in the permit, permitted metal melt production rates that are not specified on an annual basis must be annualized assuming 24 hours per day, 365 days per year of operation. If the permit limits the operating hours of the furnace(s) or foundry, then the permitted operating hours are used to annualize the maximum permitted metal melt production rate.

Annual metal melt production means the quantity of metal melted in a metal melting furnace or group of all metal melting furnaces at the iron and steel foundry in a given calendar year. For the purposes of this subpart, metal melt production is determined on the basis on the quantity of metal charged to each metal melting furnace; the sum of the metal melt production for each furnace in a given calendar year is the annual metal melt production of the foundry.

Bag leak detection system means a system that is capable of continuously monitoring relative particulate matter (dust) loadings in the exhaust of a baghouse to detect bag leaks and other upset conditions. A bag leak detection system includes, but is not limited to, an instrument that operates on triboelectric, electrodynamic, light scattering, light transmittance, or other effect to continuously monitor relative particulate matter loadings.

Binder chemical means a component of a system of chemicals used to bind sand together into molds, mold sections, and cores through chemical reaction as opposed to pressure.

Capture system means the collection of components used to capture gases and fumes released from one or more emissions points and then convey the captured gas stream to a control device or to the atmosphere. A capture system may include, but is not limited to, the following components as applicable to a given capture system design: Duct intake devices, hoods, enclosures, ductwork, dampers, manifolds, plenums, and fans.

Chlorinated plastics means solid polymeric materials that contain chlorine in the polymer chain, such as polyvinyl chloride (PVC) and PVC copolymers.

Control device means the air pollution control equipment used to remove particulate matter from the effluent gas stream generated by a metal melting furnace.

Cupola means a vertical cylindrical shaft furnace that uses coke and forms of iron and steel such as scrap and foundry returns as the primary charge components and melts the iron and steel through combustion of the coke by a forced upward flow of heated air.

Deviation means any instance in which an affected source or an owner or operator of such an affected source:

(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emissions limitation (including operating limits), management practice, or operation and maintenance requirement; or

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any iron and steel foundry required to obtain such a permit.

Electric arc furnace means a vessel in which forms of iron and steel such as scrap and foundry returns are melted through resistance heating by an electric current flowing through the arcs formed between the electrodes and the surface of the metal and also flowing through the metal between the arc paths.

Electric induction furnace means a vessel in which forms of iron and steel such as scrap and foundry returns are melted though resistance heating by an electric current that is induced in the metal by passing an alternating current through a coil surrounding the metal charge or surrounding a pool of molten metal at the bottom of the vessel.

Exhaust stream means gases emitted from a process through a conveyance as defined in this subpart.

Foundry operations mean all process equipment and practices used to produce metal castings for shipment. *Foundry operations* include: Mold or core making and coating; scrap handling and preheating; metal melting and inoculation; pouring, cooling, and shakeout; shotblasting, grinding, and other metal finishing operations; and sand handling.

Free liquids means material that fails the paint filter liquids test by EPA Method 9095B, Revision 2, November 1994 (incorporated by reference—see § 63.14). That is, if any portion of the material passes through and drops from the filter within the 5-minute test period, the material contains *free liquids*.

Fugitive emissions means any pollutant released to the atmosphere that is not discharged through a system of equipment that is specifically designed to capture pollutants at the source, convey them through ductwork, and exhaust them using forced ventilation. *Fugitive emissions* include pollutants released to the atmosphere through windows, doors, vents, or other building openings. *Fugitive emissions* also include pollutants released to the atmosphere through other general building ventilation or exhaust systems not specifically designed to capture pollutants at the source.

Furfuryl alcohol warm box mold or core making line means a mold or core making line in which the binder chemical system used is that system commonly designated as a furfuryl alcohol warm box system by the foundry industry.

Iron and steel foundry means a facility or portion of a facility that melts scrap, ingot, and/or other forms of iron and/or steel and pours the resulting molten metal into molds to produce final or near final shape products for introduction into commerce. Research and development facilities, operations that only produce non-commercial castings, and operations associated with nonferrous metal production are not included in this definition.

Large foundry means, for an existing affected source, an iron and steel foundry with an annual metal melt production greater than 20,000 tons. For a new affected source, *large foundry* means an iron and steel foundry with an annual metal melt capacity greater than 10,000 tons.

Mercury switch means each mercury-containing capsule or switch assembly that is part of a convenience light switch mechanism installed in a vehicle.

Metal charged means the quantity of scrap metal, pig iron, metal returns, alloy materials, and other solid forms of iron and steel placed into a metal melting furnace. Metal charged does not include the quantity of fluxing agents or, in the case of a cupola, the quantity of coke that is placed into the metal melting furnace.

Metal melting furnace means a cupola, electric arc furnace, electric induction furnace, or similar device that converts scrap, foundry returns, and/or other solid forms of iron and/or steel to a liquid state. This definition does not include a holding furnace, an argon oxygen decarburization vessel, or ladle that receives molten metal from a metal melting furnace, to which metal ingots or other material may be added to adjust the metal chemistry.

Mold or core making line means the collection of equipment that is used to mix an aggregate of sand and binder chemicals, form the aggregate into final shape, and harden the formed aggregate. This definition does not include a line for making greensand molds or cores.

Motor vehicle means an automotive vehicle not operated on rails and usually is operated with rubber tires for use on highways.

Motor vehicle scrap means vehicle or automobile bodies, including automobile body hulks, that have been processed through a shredder. *Motor vehicle scrap* does not include automobile manufacturing bundles, or miscellaneous vehicle parts, such as wheels, bumpers, or other components that do not contain mercury switches.

Nonferrous metal means any pure metal other than iron or any metal alloy for which an element other than iron is its major constituent in percent by weight.

On blast means those periods of cupola operation when combustion (blast) air is introduced to the cupola furnace and the furnace is capable of producing molten metal. On blast conditions are characterized by both blast air introduction and molten metal production.

Responsible official means responsible official as defined in § 63.2.

Scrap preheater means a vessel or other piece of equipment in which metal scrap that is to be used as melting furnace feed is heated to a temperature high enough to eliminate volatile impurities or other tramp materials by direct flame heating or similar means of heating. Scrap dryers, which solely remove moisture from metal scrap, are not considered to be scrap preheaters for purposes of this subpart.

Scrap provider means the person (including a broker) who contracts directly with an iron and steel foundry to provide motor vehicle scrap. Scrap processors such as shredder operators or vehicle dismantlers that do not sell scrap directly to a foundry are not *scrap providers.*

Scrubber blowdown means liquor or slurry discharged from a wet scrubber that is either removed as a waste stream or processed to remove impurities or adjust its composition or pH.

Small foundry means, for an existing affected source, an iron and steel foundry that has an annual metal melt production of 20,000 tons or less. For a new affected source, *small foundry* means an iron and steel foundry that has an annual metal melt capacity of 10,000 tons or less.

Total metal HAP means, for the purposes of this subpart, the sum of the concentrations of compounds of antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, mercury, nickel, and selenium as measured by EPA Method 29 (40 CFR part 60, appendix A-8). Only the measured concentration of the listed analytes that are present at concentrations exceeding one-half the quantitation limit of the

analytical method are to be used in the sum. If any of the analytes are not detected or are detected at concentrations less than one-half the quantitation limit of the analytical method, the concentration of those analytes will be assumed to be zero for the purposes of calculating the total metal HAP for this subpart.

[73 FR 252, Jan. 2, 2008, as amended at 85 FR 56104, Sept. 10, 2020]

Table 1 to Subpart ZZZZZ of Part 63—Performance Test Requirements for New and Existing Affected Sources Classified as Large Foundries

As required in § 63.10898(c) and (h), you must conduct performance tests according to the test methods and procedures in the following table:

For. . .	You must. . .	According to the following requirements. . .
1. Each metal melting furnace subject to a PM or total metal HAP limit in § 63.10895(c)	a. Select sampling port locations and the number of traverse points in each stack or duct using EPA Method 1 or 1A (40 CFR part 60, appendix A) b. Determine volumetric flow rate of the stack gas using Method 2, 2A, 2C, 2D, 2F, or 2G (40 CFR part 60, appendix A) c. Determine dry molecular weight of the stack gas using EPA Method 3, 3A, or 3B (40 CFR part 60, appendix A).[1] d. Measure moisture content of the stack gas using EPA Method 4 (40 CFR part 60, A) e. Determine PM concentration using EPA Method 5, 5B, 5D, 5F, or 5I, as applicable or total metal HAP concentration using EPA Method 29 (40 CFR part 60, appendix A)	Sampling sites must be located at the outlet of the control device (or at the outlet of the emissions source if no control device is present) prior to any releases to the atmosphere. i. Collect a minimum sample volume of 60 dscf of gas during each PM sampling run. The PM concentration is determined using only the front-half (probe rinse and filter) of the PM catch. ii. For Method 29, only the measured concentration of the listed metal HAP analytes that are present at concentrations exceeding one-half the quantification limit of the analytical method are to be used in the sum. If any of the analytes are not detected or are detected at concentrations less than one-half the quantification limit of the analytical method, the concentration of those analytes is assumed to be zero for the purposes of calculating the total metal HAP.
		iii. A minimum of three valid test runs are needed to comprise a PM or total metal HAP performance test.
		iv. For cupola metal melting furnaces, sample PM or total metal HAP only during times when the cupola is on blast.
		v. For electric arc and electric induction metal melting furnaces, sample PM or total metal HAP only during normal melt production conditions, which may include, but are not limited to the following operations: Charging, melting, alloying,

For. . .	You must. . .	According to the following requirements. . .
		refining, slagging, and tapping.
		vi. Determine and record the total combined weight of tons of metal charged during the duration of each test run. You must compute the process-weighted mass emissions of PM according to Equation 1 of § 63.10898(d) for an individual furnace or Equation 2 of § 63.10898(e) for the group of all metal melting furnaces at the foundry.
2. Fugitive emissions from buildings or structures housing any iron and steel foundry emissions sources subject to opacity limit in § 63.10895(e)	a. Using a certified observer, conduct each opacity test according to EPA Method 9 (40 CFR part 60, appendix A-4) and 40 CFR 63.6(h)(5)	i. The certified observer may identify a limited number of openings or vents that appear to have the highest opacities and perform opacity observations on the identified openings or vents in lieu of performing observations for each opening or vent from the building or structure. Alternatively, a single opacity observation for the entire building or structure may be performed, if the fugitive release points afford such an observation.
		ii. During testing intervals when PM or total metal HAP performance tests, if applicable, are being conducted, conduct the opacity test such that the opacity observations are recorded during the PM or total metal HAP performance tests.
	b. As alternative to Method 9 performance test, conduct visible emissions test by Method 22 (40 CFR part 60, appendix A-7). The test is successful if no visible emissions are observed for 90 percent of the readings over 1 hour. If VE is observed greater than 10 percent of the time over 1 hour, then the facility must conduct another performance test as soon as possible, but no later than 15 calendar days after the Method 22 test, using Method 9 (40 CFR part 60, appendix A-4)	i. The observer may identify a limited number of openings or vents that appear to have the highest visible emissions and perform observations on the identified openings or vents in lieu of performing observations for each opening or vent from the building or structure. Alternatively, a single observation for the entire building or structure may be performed, if the fugitive release points afford such an observation. ii. During testing intervals when PM or total metal HAP performance tests, if applicable, are being conducted, conduct the visible emissions test such that the observations are recorded during the PM or total metal HAP performance tests.

[1] You may also use as an alternative to EPA Method 3B (40 CFR part 60, appendix A), the manual method for measuring the oxygen, carbon dioxide, and carbon monoxide content of exhaust gas, ANSI/ASME PTC 19.10-1981, "Flue and Exhaust Gas Analyses" (incorporated by reference—see § 63.14).

Table 2 to Subpart ZZZZZ of Part 63—Procedures for Establishing Operating Limits for New Affected Sources Classified as Large Foundries

As required in § 63.10898(k), you must establish operating limits using the procedures in the following table:

For . . .	You must . . .
1. Each wet scrubber subject to the operating limits in § 63.10895(d)(1) for pressure drop and scrubber water flow rate.	Using the CPMS required in § 63.10897(b), measure and record the pressure drop and scrubber water flow rate in intervals of no more than 15 minutes during each PM or total metal HAP test run. Compute and record the average pressure drop and average scrubber water flow rate for all the valid sampling runs in which the applicable emissions limit is met.
2. Each electrostatic precipitator subject to operating limits in § 63.10895(d)(2) for voltage and secondary current (or total power input).	Using the CPMS required in § 63.10897(c), measure and record voltage and secondary current (or total power input) in intervals of no more than 15 minutes during each PM or total metal HAP test run. Compute and record the minimum hourly average voltage and secondary current (or total power input) from all the readings for each valid sampling run in which the applicable emissions limit is met.

Table 3 to Subpart ZZZZZ of Part 63—Applicability of General Provisions to New and Existing Affected Sources Classified as Large Foundries

As required in § 63.10900(a), you must meet each requirement in the following table that applies to you:

Citation	Subject	Applies to large foundry?	Explanation
63.1	Applicability	Yes	
63.2	Definitions	Yes	
63.3	Units and abbreviations	Yes	
63.4	Prohibited activities	Yes	
63.5	Construction/reconstruction	Yes	
63.6(a) through (d)	Compliance applicability and dates	Yes	
63.6(e)	Operating and maintenance requirements	No	This subpart specifies operating and maintenance requirements.
63.6(f)(1)	Applicability of non-opacity emission standards	No	This subpart specifies applicability of non-opacity emission standards.
63.6(f)(2) through (3)	Methods and finding of compliance with non-opacity emission standards	Yes	

Citation	Subject	Applies to large foundry?	Explanation
63.6(g)	Use of an alternative nonopacity emission standard	Yes	
63.6(h)(1)	Applicability of opacity and visible emissions standards	No	This subpart specifies applicability of opacity and visible emission standards.
63.6(h)(2) through (9)	Methods and other requirements for opacity and visible emissions standards	Yes	
63.6(i) through (j)	Compliance extension and Presidential compliance exemption	Yes	
63.7(a)(1) through (2)	Applicability and performance test dates	No	This subpart specifies applicability and performance test dates.
63.7(a)(3) through (4)	Administrators rights to require a performance test and force majeure provisions	Yes	
63.7(b) through (d)	Notification of performance test, quality assurance program, and testing facilities	Yes	
63.7(e)(1)	Performance test conditions	No	This subpart specifies performance test conditions.
63.7(e)(2) through (4), (f) through (h)	Other performance testing requirements	Yes	
63.8(a)(1) through (3), (b), (c)(1)(ii), (c)(2) through (3), (c)(6) through (8), (d)(1) through (2)	Monitoring requirements	Yes	
63.8(a)(4)	Additional monitoring requirements for control devices in § 63.11	No	
63.8(c)(1)(i), (c)(1)(iii)	Operation and maintenance of continuous monitoring systems	No	Not necessary in light of other requirements of § 63.8 that apply.
63.8(c)(4)	Continuous monitoring system (CMS) requirements	No	
63.8(c)(5)	Continuous opacity monitoring system (COMS) minimum procedures	No	
63.8(d)(3)	Quality control program	No	This subpart specifies records that must be kept associated with site-specific performance evaluation test plan.
63.8(e), (f)(1) through	Performance evaluations and	Yes	

Citation	Subject	Applies to large foundry?	Explanation
(6), (g)(1) through (4)	alternative monitoring		
63.8(g)(5)	Data reduction	No	
63.9	Notification requirements	Yes.	Except for opacity performance tests.
63.10(a), (b)(1), (b)(2)(xii) through (xiv), (b)(3), (d)(1) through (4), (e)(1) through (2), (f)	Recordkeeping and reporting requirements	Yes	
63.10(b)(2)(i) through (xi)	Malfunction and CMS records	No	
63.10(c)	Additional records for CMS	No	This subpart specifies records requirements.
63.10(d)(5)	Periodic startup, shutdown, and malfunction reports	No	
63.10(e)(3)	Excess emissions reports	No	This subpart specifies reporting requirements.
63.10(e)(4)	Reporting COMS data	No	
63.11	Control device requirements	No	
63.12	State authority and delegations	Yes	
63.13(a)	Reporting to EPA regional offices	Yes	Except: reports and notifications required to be submitted to CEDRI meet this obligation through electronic reporting.
63.13(b) through 63.16	Addresses of state air pollution control agencies. Incorporation by reference. Availability of information and confidentiality. Performance track provisions	Yes	

[85 FR 56105, Sept. 10, 2020]

Table 4 to Subpart ZZZZZ of Part 63—Compliance Certifications for New and Existing Affected Sources Classified as Large Iron and Steel Foundries

As required by § 63.10900(b), your notification of compliance status must include certifications of compliance according to the following table:

For. . .	Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official:
Each new or existing	"This facility has prepared, and will operate by, written material specifications for metallic scrap according to § 63.10885(a)(1)" and/or "This facility has prepared, and will operate

For. . .	Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official:
affected source classified as a large foundry and subject to scrap management requirements in § 63.10885(a)(1) and/or (2)	by, written material specifications for general iron and steel scrap according to § 63.10885(a)(2)."
Each new or existing affected source classified as a large foundry and subject to mercury switch removal requirements in § 63.10885(b)	"This facility has prepared, and will operate by, written material specifications for the removal of mercury switches and a site-specific plan implementing the material specifications according to § 63.10885(b)(1)" and/or "This facility participates in and purchases motor vehicles scrap only from scrap providers who participate in a program for removal of mercury switches that has been approved by the EPA Administrator according to § 63.10885(b)(2) and have prepared a plan for participation in the EPA approved program according to § 63.10885(b)(2)(iv)" and/or "The only materials from motor vehicles in the scrap charged to a metal melting furnace at this facility are materials recovered for their specialty alloy content in accordance with § 63.10885(b)(3) which are not reasonably expected to contain mercury switches" and/or "This facility complies with the requirements for scrap that does not contain motor vehicle scrap in accordance with § 63.10885(b)(4)."
Each new or existing affected source classified as a large foundry and subject to § 63.10886	"This facility complies with the no methanol requirement for the catalyst portion of each binder chemical formulation for a furfuryl alcohol warm box mold or core making line according to § 63.10886."
Each new or existing affected source classified as a large foundry and subject to § 63.10895(b)	"This facility operates a capture and collection system for each emissions source subject to this subpart according to § 63.10895(b)."
Each existing affected source classified as a large foundry and subject to	"This facility complies with the PM or total metal HAP emissions limit in § 63.10895(c) for each metal melting furnace or group of all metal melting furnaces based on a previous performance test in accordance with § 63.10898(a)(1)."

For. . .	Your notification of compliance status required by § 63.9(h) must include this certification of compliance, signed by a responsible official:
§ 63.10895(c)(1)	
Each new or existing affected source classified as a large foundry and subject to § 63.10896(a)	"This facility has prepared and will operate by an operation and maintenance plan according to § 63.10896(a)."
Each new or existing (if applicable) affected source classified as a large foundry and subject to § 63.10897(d)	"This facility has prepared and will operate by a site-specific monitoring plan for each bag leak detection system and submitted the plan to the Administrator for approval according to § 63.10897(d)(2)."

ELECTRONIC CODE OF FEDERAL REGULATIONS

e-CFR data is current as of February 13, 2020

Title 40: Protection of Environment
PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

Subpart A—General Provisions

Contents

SOURCE: 59 FR 12430, Mar. 16, 1994, unless otherwise noted.

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§63.1 Applicability.

(a) *General.* (1) Terms used throughout this part are defined in §63.2 or in the Clean Air Act (Act) as amended in 1990, except that individual subparts of this part may include specific definitions in addition to or that supersede definitions in §63.2.

(2) This part contains national emission standards for hazardous air pollutants (NESHAP) established pursuant to section 112 of the Act as amended November 15, 1990. These standards regulate specific categories of stationary sources that emit (or have the potential to emit) one or more hazardous air pollutants listed in this part pursuant to section 112(b) of the Act. This section explains the applicability of such standards to sources affected by them. The standards in this part are independent of NESHAP contained in 40 CFR part 61. The NESHAP in part 61 promulgated by signature of the Administrator before November 15, 1990 (i.e., the date of enactment of the Clean Air Act Amendments of 1990) remain in effect until they are amended, if appropriate, and added to this part.

(3) No emission standard or other requirement established under this part shall be interpreted, construed, or applied to diminish or replace the requirements of a more stringent emission limitation or other applicable requirement established by the Administrator pursuant to other authority of the Act (section 111, part C or D or any other authority of this Act), or a standard issued under State authority. The Administrator may specify in a specific standard under this part that facilities subject to other provisions under the Act need only comply with the provisions of that standard.

(4)(i) Each relevant standard in this part 63 must identify explicitly whether each provision in this subpart A is or is not included in such relevant standard.

(ii) If a relevant part 63 standard incorporates the requirements of 40 CFR part 60, part 61 or other part 63 standards, the relevant part 63 standard must identify explicitly the applicability of each corresponding part 60, part 61, or other part 63 subpart A (General) provision.

(iii) The General Provisions in this subpart A do not apply to regulations developed pursuant to section 112(r) of the amended Act, unless otherwise specified in those regulations.

(5) [Reserved]

(6) To obtain the most current list of categories of sources to be regulated under section 112 of the Act, or to obtain the most recent regulation promulgation schedule established pursuant to section 112(e) of the Act, contact the Office of the Director, Emission Standards Division, Office of Air Quality Planning and Standards, U.S. EPA (MD-13), Research Triangle Park, North Carolina 27711.

(7)-(9) [Reserved]

(10) For the purposes of this part, time periods specified in days shall be measured in calendar days, even if the word "calendar" is absent, unless otherwise specified in an applicable requirement.

(11) For the purposes of this part, if an explicit postmark deadline is not specified in an applicable requirement for the submittal of a notification, application, test plan, report, or other written communication to the Administrator, the owner or operator shall postmark the submittal on or before the number of days specified in the applicable requirement. For example, if a notification must be submitted 15 days before a particular event is scheduled to take place, the notification shall be postmarked on or before 15 days preceding the event; likewise, if a notification must be submitted 15 days after a particular event takes place, the notification shall be postmarked on or before 15 days following the end of the event. The use of reliable non-Government mail carriers that provide indications of verifiable delivery of information required to be submitted to the Administrator, similar to the postmark provided by the U.S. Postal Service, or alternative means of delivery agreed to by the permitting authority, is acceptable.

(12) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *Initial applicability determination for this part.* (1) The provisions of this part apply to the owner or operator of any stationary source that—

(i) Emits or has the potential to emit any hazardous air pollutant listed in or pursuant to section 112(b) of the Act; and

(ii) Is subject to any standard, limitation, prohibition, or other federally enforceable requirement established pursuant to this part.

(2) [Reserved]

(3) An owner or operator of a stationary source who is in the relevant source category and who determines that the source is not subject to a relevant standard or other requirement established under this part must keep a record as specified in §63.10(b)(3).

(c) *Applicability of this part after a relevant standard has been set under this part.* (1) If a relevant standard has been established under this part, the owner or operator of an affected source must comply with the provisions of that standard and of this subpart as provided in paragraph (a)(4) of this section.

(2) Except as provided in §63.10(b)(3), if a relevant standard has been established under this part, the owner or operator of an affected source may be required to obtain a title V permit from a permitting authority in the State in which the source is located. Emission standards promulgated in this part for area sources pursuant to section 112(c)(3) of the Act will specify whether—

(i) States will have the option to exclude area sources affected by that standard from the requirement to obtain a title V permit (i.e., the standard will exempt the category of area sources altogether from the permitting requirement);

(ii) States will have the option to defer permitting of area sources in that category until the Administrator takes rulemaking action to determine applicability of the permitting requirements; or

(iii) If a standard fails to specify what the permitting requirements will be for area sources affected by such a standard, then area sources that are subject to the standard will be subject to the requirement to obtain a title V permit without any deferral.

(3)-(4) [Reserved]

(5) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source also shall be subject to the notification requirements of this subpart.

(d) [Reserved]

(e) If the Administrator promulgates an emission standard under section 112(d) or (h) of the Act that is applicable to a source subject to an emission limitation by permit established under section 112(j) of the Act, and the requirements under the section 112(j) emission limitation are substantially as effective as the promulgated emission standard, the owner or operator may request the permitting authority to revise the source's title V permit to reflect that the emission limitation in the permit satisfies the requirements of the promulgated emission standard. The process by which the permitting authority determines whether the section 112(j) emission limitation is substantially as effective as the promulgated emission standard must include, consistent with part 70 or 71 of this chapter, the opportunity for full public, EPA, and affected State review (including the opportunity for EPA's objection) prior to the permit revision being finalized. A negative determination by the permitting authority constitutes final action for purposes of review and appeal under the applicable title V operating permit program.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16595, Apr. 5, 2002]

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§63.2 Definitions.

The terms used in this part are defined in the Act or in this section as follows:

Act means the Clean Air Act (42 U.S.C. 7401 *et seq.,* as amended by Pub. L. 101-549, 104 Stat. 2399).

Actual emissions is defined in subpart D of this part for the purpose of granting a compliance extension for an early reduction of hazardous air pollutants.

Administrator means the Administrator of the United States Environmental Protection Agency or his or her authorized representative (e.g., a State that has been delegated the authority to implement the provisions of this part).

Affected source, for the purposes of this part, means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112(c) source category or subcategory for which a section 112(d) standard or other relevant standard is established pursuant to section 112 of the Act. Each relevant standard will define the “affected source,” as defined in this paragraph unless a different definition is warranted based on a published justification as to why this definition would result in significant administrative, practical, or implementation problems and why the different definition would resolve those problems. The term “affected source,” as used in this part, is separate and distinct from any other use of that term in EPA regulations such as those implementing title IV of the Act. Affected source may be defined differently for part 63 than affected facility and stationary source in parts 60 and 61, respectively. This definition of “affected source,” and the procedures for adopting an alternative definition of “affected source,” shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002.

Alternative emission limitation means conditions established pursuant to sections 112(i)(5) or 112(i)(6) of the Act by the Administrator or by a State with an approved permit program.

Alternative emission standard means an alternative means of emission limitation that, after notice and opportunity for public comment, has been demonstrated by an owner or operator to the Administrator's satisfaction to achieve a reduction in emissions of any air pollutant at least equivalent to the reduction in emissions of such pollutant achieved under a relevant design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act.

Alternative test method means any method of sampling and analyzing for an air pollutant that is not a test method in this chapter and that has been demonstrated to the Administrator's satisfaction, using Method 301 in appendix A of this part, to produce results adequate for the Administrator's determination that it may be used in place of a test method specified in this part.

Approved permit program means a State permit program approved by the Administrator as meeting the requirements of part 70 of this chapter or a Federal permit program established in this chapter pursuant to title V of the Act (42 U.S.C. 7661).

Area source means any stationary source of hazardous air pollutants that is not a major source as defined in this part.

Commenced means, with respect to construction or reconstruction of an affected source, that an owner or operator has undertaken a continuous program of construction or reconstruction or that an owner or operator has entered into a contractual

obligation to undertake and complete, within a reasonable time, a continuous program of construction or reconstruction.

Compliance date means the date by which an affected source is required to be in compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established by the Administrator (or a State with an approved permit program) pursuant to section 112 of the Act.

Compliance schedule means: (1) In the case of an affected source that is in compliance with all applicable requirements established under this part, a statement that the source will continue to comply with such requirements; or

(2) In the case of an affected source that is required to comply with applicable requirements by a future date, a statement that the source will meet such requirements on a timely basis and, if required by an applicable requirement, a detailed schedule of the dates by which each step toward compliance will be reached; or

(3) In the case of an affected source not in compliance with all applicable requirements established under this part, a schedule of remedial measures, including an enforceable sequence of actions or operations with milestones and a schedule for the submission of certified progress reports, where applicable, leading to compliance with a relevant standard, limitation, prohibition, or any federally enforceable requirement established pursuant to section 112 of the Act for which the affected source is not in compliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

Construction means the on-site fabrication, erection, or installation of an affected source. Construction does not include the removal of all equipment comprising an affected source from an existing location and reinstallation of such equipment at a new location. The owner or operator of an existing affected source that is relocated may elect not to reinstall minor ancillary equipment including, but not limited to, piping, ductwork, and valves. However, removal and reinstallation of an affected source will be construed as reconstruction if it satisfies the criteria for reconstruction as defined in this section. The costs of replacing minor ancillary equipment must be considered in determining whether the existing affected source is reconstructed.

Continuous emission monitoring system (CEMS) means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of emissions.

Continuous monitoring system (CMS) is a comprehensive term that may include, but is not limited to, continuous emission monitoring systems, continuous opacity monitoring systems, continuous parameter monitoring systems, or other manual or automatic monitoring that is used for demonstrating compliance with an applicable regulation on a continuous basis as defined by the regulation.

Continuous opacity monitoring system (COMS) means a continuous monitoring system that measures the opacity of emissions.

Continuous parameter monitoring system means the total equipment that may be required to meet the data acquisition and availability requirements of this part, used to sample, condition (if applicable), analyze, and provide a record of process or control system parameters.

Effective date means:

(1) With regard to an emission standard established under this part, the date of promulgation in the FEDERAL REGISTER of such standard; or

(2) With regard to an alternative emission limitation or equivalent emission limitation determined by the Administrator (or a State with an approved permit program), the date that the alternative emission limitation or equivalent emission limitation becomes effective according to the provisions of this part.

Emission standard means a national standard, limitation, prohibition, or other regulation promulgated in a subpart of this part pursuant to sections 112(d), 112(h), or 112(f) of the Act.

Emissions averaging is a way to comply with the emission limitations specified in a relevant standard, whereby an affected source, if allowed under a subpart of this part, may create emission credits by reducing emissions from specific points to a level below that required by the relevant standard, and those credits are used to offset emissions from points that are not controlled to the level required by the relevant standard.

EPA means the United States Environmental Protection Agency.

Equivalent emission limitation means any maximum achievable control technology emission limitation or requirements which are applicable to a major source of hazardous air pollutants and are adopted by the Administrator (or a State with an

approved permit program) on a case-by-case basis, pursuant to section 112(g) or (j) of the Act.

Excess emissions and continuous monitoring system performance report is a report that must be submitted periodically by an affected source in order to provide data on its compliance with relevant emission limits, operating parameters, and the performance of its continuous parameter monitoring systems.

Existing source means any affected source that is not a new source.

Federally enforceable means all limitations and conditions that are enforceable by the Administrator and citizens under the Act or that are enforceable under other statutes administered by the Administrator. Examples of federally enforceable limitations and conditions include, but are not limited to:

(1) Emission standards, alternative emission standards, alternative emission limitations, and equivalent emission limitations established pursuant to section 112 of the Act as amended in 1990;

(2) New source performance standards established pursuant to section 111 of the Act, and emission standards established pursuant to section 112 of the Act before it was amended in 1990;

(3) All terms and conditions in a title V permit, including any provisions that limit a source's potential to emit, unless expressly designated as not federally enforceable;

(4) Limitations and conditions that are part of an approved State Implementation Plan (SIP) or a Federal Implementation Plan (FIP);

(5) Limitations and conditions that are part of a Federal construction permit issued under 40 CFR 52.21 or any construction permit issued under regulations approved by the EPA in accordance with 40 CFR part 51;

(6) Limitations and conditions that are part of an operating permit where the permit and the permitting program pursuant to which it was issued meet all of the following criteria:

(i) The operating permit program has been submitted to and approved by EPA into a State implementation plan (SIP) under section 110 of the CAA;

(ii) The SIP imposes a legal obligation that operating permit holders adhere to the terms and limitations of such permits and provides that permits which do not conform to the operating permit program requirements and the requirements of EPA's underlying regulations may be deemed not “federally enforceable” by EPA;

(iii) The operating permit program requires that all emission limitations, controls, and other requirements imposed by such permits will be at least as stringent as any other applicable limitations and requirements contained in the SIP or enforceable under the SIP, and that the program may not issue permits that waive, or make less stringent, any limitations or requirements contained in or issued pursuant to the SIP, or that are otherwise “federally enforceable”;

(iv) The limitations, controls, and requirements in the permit in question are permanent, quantifiable, and otherwise enforceable as a practical matter; and

(v) The permit in question was issued only after adequate and timely notice and opportunity for comment for EPA and the public.

(7) Limitations and conditions in a State rule or program that has been approved by the EPA under subpart E of this part for the purposes of implementing and enforcing section 112; and

(8) Individual consent agreements that the EPA has legal authority to create.

Fixed capital cost means the capital needed to provide all the depreciable components of an existing source.

Force majeure means, for purposes of §63.7, an event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified timeframe despite the affected facility's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.

Fugitive emissions means those emissions from a stationary source that could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Under section 112 of the Act, all fugitive emissions are to be considered in determining whether a stationary source is a major source.

Hazardous air pollutant means any air pollutant listed in or pursuant to section 112(b) of the Act.

Issuance of a part 70 permit will occur, if the State is the permitting authority, in accordance with the requirements of part 70 of this chapter and the applicable, approved State permit program. When the EPA is the permitting authority, issuance of a title V permit occurs immediately after the EPA takes final action on the final permit.

Major source means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless the Administrator establishes a lesser quantity, or in the case of radionuclides, different criteria from those specified in this sentence.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Monitoring means the collection and use of measurement data or other information to control the operation of a process or pollution control device or to verify a work practice standard relative to assuring compliance with applicable requirements. Monitoring is composed of four elements:

(1) Indicator(s) of performance—the parameter or parameters you measure or observe for demonstrating proper operation of the pollution control measures or compliance with the applicable emissions limitation or standard. Indicators of performance may include direct or predicted emissions measurements (including opacity), operational parametric values that correspond to process or control device (and capture system) efficiencies or emissions rates, and recorded findings of inspection of work practice activities, materials tracking, or design characteristics. Indicators may be expressed as a single maximum or minimum value, a function of process variables (for example, within a range of pressure drops), a particular operational or work practice status (for example, a damper position, completion of a waste recovery task, materials tracking), or an interdependency between two or among more than two variables.

(2) Measurement techniques—the means by which you gather and record information of or about the indicators of performance. The components of the measurement technique include the detector type, location and installation specifications, inspection procedures, and quality assurance and quality control measures. Examples of measurement techniques include continuous emission monitoring systems, continuous opacity monitoring systems, continuous parametric monitoring systems, and manual inspections that include making records of process conditions or work practices.

(3) Monitoring frequency—the number of times you obtain and record monitoring data over a specified time interval. Examples of monitoring frequencies include at least four points equally spaced for each hour for continuous emissions or parametric monitoring systems, at least every 10 seconds for continuous opacity monitoring systems, and at least once per operating day (or week, month, etc.) for work practice or design inspections.

(4) Averaging time—the period over which you average and use data to verify proper operation of the pollution control approach or compliance with the emissions limitation or standard. Examples of averaging time include a 3-hour average in units of the emissions limitation, a 30-day rolling average emissions value, a daily average of a control device operational parametric range, and an instantaneous alarm.

New affected source means the collection of equipment, activities, or both within a single contiguous area and under common control that is included in a section 112(c) source category or subcategory that is subject to a section 112(d) or other relevant standard for new sources. This definition of “new affected source,” and the criteria to be utilized in implementing it, shall apply to each section 112(d) standard for which the initial proposed rule is signed by the Administrator after June 30, 2002. Each relevant standard will define the term “new affected source,” which will be the same as the “affected source” unless a different collection is warranted based on consideration of factors including:

(1) Emission reduction impacts of controlling individual sources versus groups of sources;

(2) Cost effectiveness of controlling individual equipment;

(3) Flexibility to accommodate common control strategies;

(4) Cost/benefits of emissions averaging;

(5) Incentives for pollution prevention;

(6) Feasibility and cost of controlling processes that share common equipment (e.g., product recovery devices);

(7) Feasibility and cost of monitoring; and

(8) Other relevant factors.

New source means any affected source the construction or reconstruction of which is commenced after the Administrator first proposes a relevant emission standard under this part establishing an emission standard applicable to such source.

One-hour period, unless otherwise defined in an applicable subpart, means any 60-minute period commencing on the hour.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background. For continuous opacity monitoring systems, opacity means the fraction of incident light that is attenuated by an optical medium.

Owner or operator means any person who owns, leases, operates, controls, or supervises a stationary source.

Performance audit means a procedure to analyze blind samples, the content of which is known by the Administrator, simultaneously with the analysis of performance test samples in order to provide a measure of test data quality.

Performance evaluation means the conduct of relative accuracy testing, calibration error testing, and other measurements used in validating the continuous monitoring system data.

Performance test means the collection of data resulting from the execution of a test method (usually three emission test runs) used to demonstrate compliance with a relevant emission standard as specified in the performance test section of the relevant standard.

Permit modification means a change to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permit program means a comprehensive State operating permit system established pursuant to title V of the Act (42 U.S.C. 7661) and regulations codified in part 70 of this chapter and applicable State regulations, or a comprehensive Federal operating permit system established pursuant to title V of the Act and regulations codified in this chapter.

Permit revision means any permit modification or administrative permit amendment to a title V permit as defined in regulations codified in this chapter to implement title V of the Act (42 U.S.C. 7661).

Permitting authority means: (1) The State air pollution control agency, local agency, other State agency, or other agency authorized by the Administrator to carry out a permit program under part 70 of this chapter; or

(2) The Administrator, in the case of EPA-implemented permit programs under title V of the Act (42 U.S.C. 7661).

Pollution Prevention means *source reduction* as defined under the Pollution Prevention Act (42 U.S.C. 13101-13109). The definition is as follows:

(1) *Source reduction* is any practice that:

(i) Reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) prior to recycling, treatment, or disposal; and

(ii) Reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants.

(2) The term *source reduction* includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control.

(3) The term *source reduction* does not include any practice that alters the physical, chemical, or biological characteristics or the volume of a hazardous substance, pollutant, or contaminant through a process or activity which itself is not integral to and necessary for the production of a product or the providing of a service.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

Reconstruction, unless otherwise defined in a relevant standard, means the replacement of components of an affected or a previously nonaffected source to such an extent that:

(1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and

(2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Regulation promulgation schedule means the schedule for the promulgation of emission standards under this part, established by the Administrator pursuant to section 112(e) of the Act and published in the FEDERAL REGISTER.

Relevant standard means:

(1) An emission standard;

(2) An alternative emission standard;

(3) An alternative emission limitation; or

(4) An equivalent emission limitation established pursuant to section 112 of the Act that applies to the collection of equipment, activities, or both regulated by such standard or limitation. A relevant standard may include or consist of a design, equipment, work practice, or operational requirement, or other measure, process, method, system, or technique (including prohibition of emissions) that the Administrator (or a State) establishes for new or existing sources to which such standard or limitation applies. Every relevant standard established pursuant to section 112 of the Act includes subpart A of this part, as provided by §63.1(a)(4), and all applicable appendices of this part or of other parts of this chapter that are referenced in that standard.

Responsible official means one of the following:

(1) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities and either:

(i) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(ii) The delegation of authority to such representative is approved in advance by the Administrator.

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

(3) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the EPA).

(4) For affected sources (as defined in this part) applying for or subject to a title V permit: “responsible official” shall have the same meaning as defined in part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever is applicable.

Run means one of a series of emission or other measurements needed to determine emissions for a representative operating period or cycle as specified in this part.

Shutdown means the cessation of operation of an affected source or portion of an affected source for any purpose.

Six-minute period means, with respect to opacity determinations, any one of the 10 equal parts of a 1-hour period.

Source at a Performance Track member facility means a major or area source located at a facility which has been accepted by EPA for membership in the Performance Track Program (as described at *www.epa.gov/PerformanceTrack*) and is still a member of the Program. The Performance Track Program is a voluntary program that encourages continuous environmental improvement through the use of environmental management systems, local community outreach, and measurable results.

Standard conditions means a temperature of 293 K (68 °F) and a pressure of 101.3 kilopascals (29.92 in. Hg).

Startup means the setting in operation of an affected source or portion of an affected source for any purpose.

State means all non-Federal authorities, including local agencies, interstate associations, and State-wide programs, that have delegated authority to implement: (1) The provisions of this part and/or (2) the permit program established under part 70 of this chapter. The term State shall have its conventional meaning where clear from the context.

Stationary source means any building, structure, facility, or installation which emits or may emit any air pollutant.

Test method means the validated procedure for sampling, preparing, and analyzing for an air pollutant specified in a relevant standard as the performance test procedure. The test method may include methods described in an appendix of this chapter, test methods incorporated by reference in this part, or methods validated for an application through procedures in Method 301 of appendix A of this part.

Title V permit means any permit issued, renewed, or revised pursuant to Federal or State regulations established to implement title V of the Act (42 U.S.C. 7661). A title V permit issued by a State permitting authority is called a part 70 permit in this part.

Visible emission means the observation of an emission of opacity or optical density above the threshold of vision.

Working day means any day on which Federal Government offices (or State government offices for a State that has obtained delegation under section 112(l)) are open for normal business. Saturdays, Sundays, and official Federal (or where delegated, State) holidays are not working days.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16596, Apr. 5, 2002; 68 FR 32600, May 30, 2003; 69 FR 21752, Apr. 22, 2004; 72 FR 27443, May 16, 2007]

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§63.3 Units and abbreviations.

Used in this part are abbreviations and symbols of units of measure. These are defined as follows:

(a) *System International (SI) units of measure:*

A = ampere

g = gram

Hz = hertz

J = joule

°K = degree Kelvin

kg = kilogram

l = liter

m = meter

m^3 = cubic meter

mg = milligram = 10^{-3} gram

ml = milliliter = 10^{-3} liter

mm = millimeter = 10^{-3} meter

Mg = megagram = 10^{6} gram = metric ton

MJ = megajoule

mol = mole

N = newton

ng = nanogram = 10^{-9} gram

nm = nanometer = 10^{-9} meter

Pa = pascal

s = second

V = volt

W = watt

Ω = ohm

µg = microgram = 10^{-6} gram

µl = microliter = 10^{-6} liter

(b) *Other units of measure:*

Btu = British thermal unit

°C = degree Celsius (centigrade)

cal = calorie

cfm = cubic feet per minute

cc = cubic centimeter

cu ft = cubic feet

d = day

dcf = dry cubic feet

dcm = dry cubic meter

dscf = dry cubic feet at standard conditions

dscm = dry cubic meter at standard conditions

eq = equivalent

°F degree Fahrenheit

ft = feet

ft^2 = square feet

ft^3 = cubic feet

gal = gallon

gr = grain

g-eq = gram equivalent

g-mole = gram mole

hr = hour

in. = inch

in. H_2O = inches of water

K = 1,000

kcal = kilocalorie

lb = pound

lpm = liter per minute

meq = milliequivalent

min = minute

MW = molecular weight

oz = ounces

ppb = parts per billion

ppbw = parts per billion by weight

ppbv = parts per billion by volume

ppm = parts per million

ppmw = parts per million by weight

ppmv = parts per million by volume

psia = pounds per square inch absolute

psig = pounds per square inch gage

°R = degree Rankine

scf = cubic feet at standard conditions

scfh = cubic feet at standard conditions per hour

scm = cubic meter at standard conditions

scmm = cubic meter at standard conditions per minute

sec = second

sq ft = square feet

std = at standard conditions

v/v = volume per volume

yd^2 = square yards

yr = year

(c) *Miscellaneous:*

act = actual

avg = average

I.D. = inside diameter

M = molar

N = normal

O.D. = outside diameter

% = percent

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§63.4 Prohibited activities and circumvention.

(a) *Prohibited activities.* (1) No owner or operator subject to the provisions of this part must operate any affected source in violation of the requirements of this part. Affected sources subject to and in compliance with either an extension of compliance or an exemption from compliance are not in violation of the requirements of this part. An extension of compliance can be granted by the Administrator under this part; by a State with an approved permit program; or by the President under section 112(i)(4) of the Act.

(2) No owner or operator subject to the provisions of this part shall fail to keep records, notify, report, or revise reports as required under this part.

(3)-(5) [Reserved]

(b) *Circumvention.* No owner or operator subject to the provisions of this part shall build, erect, install, or use any article, machine, equipment, or process to conceal an emission that would otherwise constitute noncompliance with a relevant standard. Such concealment includes, but is not limited to—

(1) The use of diluents to achieve compliance with a relevant standard based on the concentration of a pollutant in the effluent discharged to the atmosphere;

(2) The use of gaseous diluents to achieve compliance with a relevant standard for visible emissions; and

(c) *Fragmentation.* Fragmentation after November 15, 1990 which divides ownership of an operation, within the same facility among various owners where there is no real change in control, will not affect applicability. The owner and operator must not use fragmentation or phasing of reconstruction activities (i.e., intentionally dividing reconstruction into multiple parts for purposes of avoiding new source requirements) to avoid becoming subject to new source requirements.

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§63.5 Preconstruction review and notification requirements.

(a) *Applicability.* (1) This section implements the preconstruction review requirements of section 112(i)(1). After the effective date of a relevant standard, promulgated pursuant to section 112(d), (f), or (h) of the Act, under this part, the preconstruction review requirements in this section apply to the owner or operator of new affected sources and reconstructed affected sources that are major-emitting as specified in this section. New and reconstructed affected sources that commence construction or reconstruction before the effective date of a relevant standard are not subject to the preconstruction review requirements specified in paragraphs (b)(3), (d), and (e) of this section.

(2) This section includes notification requirements for new affected sources and reconstructed affected sources that are not major-emitting affected sources and that are or become subject to a relevant promulgated emission standard after the effective date of a relevant standard promulgated under this part.

(b) *Requirements for existing, newly constructed, and reconstructed sources.* (1) A new affected source for which construction commences after proposal of a relevant standard is subject to relevant standards for new affected sources, including compliance dates. An affected source for which reconstruction commences after proposal of a relevant standard is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

(2) [Reserved]

(3) After the effective date of any relevant standard promulgated by the Administrator under this part, no person may, without obtaining written approval in advance from the Administrator in accordance with the procedures specified in paragraphs (d) and (e) of this section, do any of the following:

(i) Construct a new affected source that is major-emitting and subject to such standard;

(ii) Reconstruct an affected source that is major-emitting and subject to such standard; or

(iii) Reconstruct a major source such that the source becomes an affected source that is major-emitting and subject to the standard.

(4) After the effective date of any relevant standard promulgated by the Administrator under this part, an owner or operator who constructs a new affected source that is not major-emitting or reconstructs an affected source that is not major-emitting that is subject to such standard, or reconstructs a source such that the source becomes an affected source subject to the standard, must notify the Administrator of the intended construction or reconstruction. The notification must be submitted in accordance with the procedures in §63.9(b).

(5) [Reserved]

(6) After the effective date of any relevant standard promulgated by the Administrator under this part, equipment added (or a process change) to an affected source that is within the scope of the definition of affected source under the relevant standard must be considered part of the affected source and subject to all provisions of the relevant standard established for that affected source.

(c) [Reserved]

(d) *Application for approval of construction or reconstruction.* The provisions of this paragraph implement section 112(i)(1) of the Act.

(1) *General application requirements.* (i) An owner or operator who is subject to the requirements of paragraph (b)(3) of this section must submit to the Administrator an application for approval of the construction or reconstruction. The application must be submitted as soon as practicable before actual construction or reconstruction begins. The application for approval of construction or reconstruction may be used to fulfill the initial notification requirements of §63.9(b)(5). The owner or operator may submit the application for approval well in advance of the date actual construction or reconstruction begins in order to ensure a timely review by the Administrator and that the planned date to begin will not be delayed.

(ii) A separate application shall be submitted for each construction or reconstruction. Each application for approval of construction or reconstruction shall include at a minimum:

(A) The applicant's name and address;

(B) A notification of intention to construct a new major affected source or make any physical or operational change to a major affected source that may meet or has been determined to meet the criteria for a reconstruction, as defined in §63.2 or in the relevant standard;

(C) The address (i.e., physical location) or proposed address of the source;

(D) An identification of the relevant standard that is the basis of the application;

(E) The expected date of the beginning of actual construction or reconstruction;

(F) The expected completion date of the construction or reconstruction;

(G) [Reserved]

(H) The type and quantity of hazardous air pollutants emitted by the source, reported in units and averaging times and in accordance with the test methods specified in the relevant standard, or if actual emissions data are not yet available, an estimate of the type and quantity of hazardous air pollutants expected to be emitted by the source reported in units and averaging times specified in the relevant standard. The owner or operator may submit percent reduction information if a relevant standard is established in terms of percent reduction. However, operating parameters, such as flow rate, shall be included in the submission to the extent that they demonstrate performance and compliance; and

(I) [Reserved]

(J) Other information as specified in paragraphs (d)(2) and (d)(3) of this section.

(iii) An owner or operator who submits estimates or preliminary information in place of the actual emissions data and analysis required in paragraphs (d)(1)(ii)(H) and (d)(2) of this section shall submit the actual, measured emissions data and other correct information as soon as available but no later than with the notification of compliance status required in §63.9(h) (see §63.9(h)(5)).

(2) *Application for approval of construction.* Each application for approval of construction must include, in addition to the information required in paragraph (d)(1)(ii) of this section, technical information describing the proposed nature, size, design, operating design capacity, and method of operation of the source, including an identification of each type of emission point for each type of hazardous air pollutant that is emitted (or could reasonably be anticipated to be emitted) and a description of the planned air pollution control system (equipment or method) for each emission point. The description of the equipment to be used for the control of emissions must include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions must include an estimated control efficiency (percent) for that method. Such technical information must include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations.

(3) *Application for approval of reconstruction.* Each application for approval of reconstruction shall include, in addition to the information required in paragraph (d)(1)(ii) of this section—

(i) A brief description of the affected source and the components that are to be replaced;

(ii) A description of present and proposed emission control systems (i.e., equipment or methods). The description of the equipment to be used for the control of emissions shall include each control device for each hazardous air pollutant and the estimated control efficiency (percent) for each control device. The description of the method to be used for the control of emissions shall include an estimated control efficiency (percent) for that method. Such technical information shall include calculations of emission estimates in sufficient detail to permit assessment of the validity of the calculations;

(iii) An estimate of the fixed capital cost of the replacements and of constructing a comparable entirely new source;

(iv) The estimated life of the affected source after the replacements; and

(v) A discussion of any economic or technical limitations the source may have in complying with relevant standards or other requirements after the proposed replacements. The discussion shall be sufficiently detailed to demonstrate to the Administrator's satisfaction that the technical or economic limitations affect the source's ability to comply with the relevant standard and how they do so.

(vi) If in the application for approval of reconstruction the owner or operator designates the affected source as a reconstructed source and declares that there are no economic or technical limitations to prevent the source from complying with all relevant standards or other requirements, the owner or operator need not submit the information required in paragraphs (d)(3)(iii) through (d)(3)(v) of this section.

(4) *Additional information.* The Administrator may request additional relevant information after the submittal of an application for approval of construction or reconstruction.

(e) *Approval of construction or reconstruction.* (1)(i) If the Administrator determines that, if properly constructed, or reconstructed, and operated, a new or existing source for which an application under paragraph (d) of this section was submitted will not cause emissions in violation of the relevant standard(s) and any other federally enforceable requirements, the Administrator will approve the construction or reconstruction.

(ii) In addition, in the case of reconstruction, the Administrator's determination under this paragraph will be based on:

(A) The fixed capital cost of the replacements in comparison to the fixed capital cost that would be required to construct a comparable entirely new source;

(B) The estimated life of the source after the replacements compared to the life of a comparable entirely new source;

(C) The extent to which the components being replaced cause or contribute to the emissions from the source; and

(D) Any economic or technical limitations on compliance with relevant standards that are inherent in the proposed replacements.

(2)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of construction or reconstruction within 60 calendar days after receipt of sufficient information to evaluate an application submitted under paragraph (d) of this section. The 60-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(3) Before denying any application for approval of construction or reconstruction, the Administrator will notify the applicant of the Administrator's intention to issue the denial together with—

(i) Notice of the information and findings on which the intended denial is based; and

(ii) Notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator to enable further action on the application.

(4) A final determination to deny any application for approval will be in writing and will specify the grounds on which the denial is based. The final determination will be made within 60 calendar days of presentation of additional information or arguments (if the application is complete), or within 60 calendar days after the final date specified for presentation if no presentation is made.

(5) Neither the submission of an application for approval nor the Administrator's approval of construction or reconstruction shall—

(i) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(ii) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(f) *Approval of construction or reconstruction based on prior State preconstruction review.* (1) Preconstruction review procedures that a State utilizes for other purposes may also be utilized for purposes of this section if the procedures are substantially equivalent to those specified in this section. The Administrator will approve an application for construction or reconstruction specified in paragraphs (b)(3) and (d) of this section if the owner or operator of a new affected source or reconstructed affected source, who is subject to such requirement meets the following conditions:

(i) The owner or operator of the new affected source or reconstructed affected source has undergone a preconstruction review and approval process in the State in which the source is (or would be) located and has received a federally enforceable construction permit that contains a finding that the source will meet the relevant promulgated emission standard, if the source is properly built and operated.

(ii) Provide a statement from the State or other evidence (such as State regulations) that it considered the factors specified in paragraph (e)(1) of this section.

(2) The owner or operator must submit to the Administrator the request for approval of construction or reconstruction under this paragraph (f)(2) no later than the application deadline specified in paragraph (d)(1) of this section (see also §63.9(b)(2)). The owner or operator must include in the request information sufficient for the Administrator's determination. The Administrator will evaluate the owner or operator's request in accordance with the procedures specified in paragraph (e) of this section. The Administrator may request additional relevant information after the submittal of a request for approval of construction or reconstruction under this paragraph (f)(2).

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§63.6 Compliance with standards and maintenance requirements.

(a) *Applicability.* (1) The requirements in this section apply to the owner or operator of affected sources for which any relevant standard has been established pursuant to section 112 of the Act and the applicability of such requirements is set out in accordance with §63.1(a)(4) unless—

(i) The Administrator (or a State with an approved permit program) has granted an extension of compliance consistent with paragraph (i) of this section; or

(ii) The President has granted an exemption from compliance with any relevant standard in accordance with section 112(i)(4) of the Act.

(2) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source, such source shall be subject to the relevant emission standard or other requirement.

(b) *Compliance dates for new and reconstructed sources.* (1) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source for which construction or reconstruction commences after proposal of a relevant standard that has an initial startup before the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard not later than the standard's effective date.

(2) Except as specified in paragraphs (b)(3) and (4) of this section, the owner or operator of a new or reconstructed affected source that has an initial startup after the effective date of a relevant standard established under this part pursuant to section 112(d), (f), or (h) of the Act must comply with such standard upon startup of the source.

(3) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established under this part pursuant to section 112(d), 112(f), or 112(h) of the Act but before the effective date (that is, promulgation) of such standard shall comply with the relevant emission standard not later than the date 3 years after the effective date if:

(i) The promulgated standard (that is, the relevant standard) is more stringent than the proposed standard; for purposes of this paragraph, a finding that controls or compliance methods are “more stringent” must include control technologies or performance criteria and compliance or compliance assurance methods that are different but are substantially equivalent to those required by the promulgated rule, as determined by the Administrator (or his or her authorized representative); and

(ii) The owner or operator complies with the standard as proposed during the 3-year period immediately after the effective date.

(4) The owner or operator of an affected source for which construction or reconstruction is commenced after the proposal date of a relevant standard established pursuant to section 112(d) of the Act but before the proposal date of a relevant standard established pursuant to section 112(f) shall not be required to comply with the section 112(f) emission standard until the date 10 years after the date construction or reconstruction is commenced, except that, if the section 112(f) standard is promulgated more than 10 years after construction or reconstruction is commenced, the owner or operator must comply with the standard as provided in paragraphs (b)(1) and (2) of this section.

(5) The owner or operator of a new source that is subject to the compliance requirements of paragraph (b)(3) or (4) of this section must notify the Administrator in accordance with §63.9(d)

(6) [Reserved]

(7) When an area source becomes a major source by the addition of equipment or operations that meet the definition of new affected source in the relevant standard, the portion of the existing facility that is a new affected source must comply with all requirements of that standard applicable to new sources. The source owner or operator must comply with the relevant standard upon startup.

(c) *Compliance dates for existing sources.* (1) After the effective date of a relevant standard established under this part pursuant to section 112(d) or 112(h) of the Act, the owner or operator of an existing source shall comply with such standard by the compliance date established by the Administrator in the applicable subpart(s) of this part. Except as otherwise provided for in section 112 of the Act, in no case will the compliance date established for an existing source in an applicable subpart of this part exceed 3 years after the effective date of such standard.

(2) If an existing source is subject to a standard established under this part pursuant to section 112(f) of the Act, the owner or operator must comply with the standard by the date 90 days after the standard's effective date, or by the date specified in an extension granted to the source by the Administrator under paragraph (i)(4)(ii) of this section, whichever is later.

(3)-(4) [Reserved]

(5) Except as provided in paragraph (b)(7) of this section, the owner or operator of an area source that increases its emissions of (or its potential to emit) hazardous air pollutants such that the source becomes a major source shall be subject to relevant standards for existing sources. Such sources must comply by the date specified in the standards for existing area sources that become major sources. If no such compliance date is specified in the standards, the source shall have a period of time to comply with the relevant emission standard that is equivalent to the compliance period specified in the relevant standard for existing sources in existence at the time the standard becomes effective.

(d) [Reserved]

(e) *Operation and maintenance requirements.* (1)(i) At all times, including periods of startup, shutdown, and malfunction, the owner or operator must operate and maintain any affected 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. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires that the owner or operator reduce emissions from the affected source to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable 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 (including the startup, shutdown, and malfunction plan required in paragraph (e)(3) of this section), review of operation and maintenance records, and inspection of the source.

(ii) Malfunctions must be corrected as soon as practicable after their occurrence. To the extent that an unexpected event arises during a startup, shutdown, or malfunction, an owner or operator must comply by minimizing emissions during such a startup, shutdown, and malfunction event consistent with safety and good air pollution control practices.

(iii) Operation and maintenance requirements established pursuant to section 112 of the Act are enforceable independent of emissions limitations or other requirements in relevant standards.

(2) [Reserved]

(3) *Startup, shutdown, and malfunction plan.* (i) The owner or operator of an affected source must develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the relevant standard. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to—

(A) Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(B) Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and

(C) Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

(ii) [Reserved]

(iii) When actions taken by the owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a “checklist,” or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. In addition, the owner or operator must keep records of these events as specified in paragraph 63.10(b), including records of the occurrence and duration of each startup or shutdown (if the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period

during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in §63.10(d)(5).

(iv) If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must record the actions taken for that event and must report such actions 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, in accordance with §63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator).

(v) The owner or operator must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Administrator. In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in paragraph (e)(3)(viii) of this section, the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan. If at any time after adoption of a startup, shutdown, and malfunction plan the affected source ceases operation or is otherwise no longer subject to the provisions of this part, the owner or operator must retain a copy of the most recent plan for 5 years from the date the source ceases operation or is no longer subject to this part and must make the plan available upon request for inspection and copying by the Administrator. The Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof) which is maintained at the affected source or in the possession of the owner or operator. Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. The owner or operator may elect to submit the required copy of any startup, shutdown, and malfunction plan to the Administrator in an electronic format. If the owner or operator claims that any portion of such a startup, shutdown, and malfunction plan is confidential business information entitled to protection from disclosure under section 114(c) of the Act or 40 CFR 2.301, the material which is claimed as confidential must be clearly designated in the submission.

(vi) To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, the owner or operator may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section and are made available for inspection or submitted when requested by the Administrator.

(vii) Based on the results of a determination made under paragraph (e)(1)(i) of this section, the Administrator may require that an owner or operator of an affected source make changes to the startup, shutdown, and malfunction plan for that source. The Administrator must require appropriate revisions to a startup, shutdown, and malfunction plan, if the Administrator finds that the plan:

(A) Does not address a startup, shutdown, or malfunction event that has occurred;

(B) Fails to provide for the operation of the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;

(C) Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or

(D) Includes an event that does not meet the definition of startup, shutdown, or malfunction listed in §63.2.

(viii) The owner or operator may periodically revise the startup, shutdown, and malfunction plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. Unless the permitting authority provides otherwise, the owner or operator may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction plan must be reported in the semiannual report required by §63.10(d)(5). If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the owner or operator developed the plan, the owner or operator must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment. In the event that the owner or operator makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice requirement, or other requirement in a standard established under this part, the revised plan shall not take effect until after the owner or operator has provided a written notice describing the revision to the permitting authority.

(ix) The title V permit for an affected source must require that the owner or operator develop a startup, shutdown, and malfunction plan which conforms to the provisions of this part, but may do so by citing to the relevant subpart or subparagraphs of paragraph (e) of this section. However, any revisions made to the startup, shutdown, and malfunction plan in accordance with the procedures established by this part shall not be deemed to constitute permit revisions under part 70 or part 71 of this chapter and the elements of the startup, shutdown, and malfunction plan shall not be considered an applicable requirement as defined in §70.2 and §71.2 of this chapter. Moreover, none of the procedures specified by the startup, shutdown, and malfunction plan for an affected source shall be deemed to fall within the permit shield provision in section 504(f) of the Act.

(f) *Compliance with nonopacity emission standards*—(1) *Applicability.* The non-opacity emission standards set forth in this part shall apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the non-opacity emission standards set forth in this part, then that emission point must still be required to comply with the non-opacity emission standards and other applicable requirements.

(2) *Methods for determining compliance.* (i) The Administrator will determine compliance with nonopacity emission standards in this part based on the results of performance tests conducted according to the procedures in §63.7, unless otherwise specified in an applicable subpart of this part.

(ii) The Administrator will determine compliance with nonopacity emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, including the evaluation of monitoring data, as specified in §63.6(e) and applicable subparts of this part.

(iii) If an affected source conducts performance testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The performance test was conducted within a reasonable amount of time before an initial performance test is required to be conducted under the relevant standard;

(B) The performance test was conducted under representative operating conditions for the source;

(C) The performance test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e) of this subpart; and

(D) The performance test was appropriately quality-assured, as specified in §63.7(c).

(iv) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by review of records, inspection of the source, and other procedures specified in applicable subparts of this part.

(v) The Administrator will determine compliance with design, equipment, work practice, or operational emission standards in this part by evaluation of an owner or operator's conformance with operation and maintenance requirements, as specified in paragraph (e) of this section and applicable subparts of this part.

(3) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with a non-opacity emission standard, as specified in paragraphs (f)(1) and (2) of this section, upon obtaining all the compliance information required by the relevant standard (including the written reports of performance test results, monitoring results, and other information, if applicable), and information available to the Administrator pursuant to paragraph (e)(1)(i) of this section.

(g) *Use of an alternative nonopacity emission standard.* (1) If, in the Administrator's judgment, an owner or operator of an affected source has established that an alternative means of emission limitation will achieve a reduction in emissions of a hazardous air pollutant from an affected source at least equivalent to the reduction in emissions of that pollutant from that source achieved under any design, equipment, work practice, or operational emission standard, or combination thereof, established under this part pursuant to section 112(h) of the Act, the Administrator will publish in the FEDERAL REGISTER a notice permitting the use of the alternative emission standard for purposes of compliance with the promulgated standard. Any FEDERAL REGISTER notice under this paragraph shall be published only after the public is notified and given the opportunity to comment. Such notice will restrict the permission to the stationary source(s) or category(ies) of sources from which the alternative emission standard will achieve equivalent emission reductions. The Administrator will condition permission in such notice on requirements to assure the proper operation and maintenance of equipment and practices required for compliance with the alternative emission standard and other requirements, including appropriate quality assurance and quality control requirements, that are deemed necessary.

(2) An owner or operator requesting permission under this paragraph shall, unless otherwise specified in an applicable subpart, submit a proposed test plan or the results of testing and monitoring in accordance with §63.7 and §63.8, a description of the procedures followed in testing or monitoring, and a description of pertinent conditions during testing or monitoring. Any

testing or monitoring conducted to request permission to use an alternative nonopacity emission standard shall be appropriately quality assured and quality controlled, as specified in §63.7 and §63.8.

(3) The Administrator may establish general procedures in an applicable subpart that accomplish the requirements of paragraphs (g)(1) and (g)(2) of this section.

(h) *Compliance with opacity and visible emission standards*—(1) *Applicability.* The opacity and visible emission standards set forth in this part must apply at all times except during periods of startup, shutdown, and malfunction, and as otherwise specified in an applicable subpart. If a startup, shutdown, or malfunction of one portion of an affected source does not affect the ability of particular emission points within other portions of the affected source to comply with the opacity and visible emission standards set forth in this part, then that emission point shall still be required to comply with the opacity and visible emission standards and other applicable requirements.

(2) *Methods for determining compliance.* (i) The Administrator will determine compliance with opacity and visible emission standards in this part based on the results of the test method specified in an applicable subpart. Whenever a continuous opacity monitoring system (COMS) is required to be installed to determine compliance with numerical opacity emission standards in this part, compliance with opacity emission standards in this part shall be determined by using the results from the COMS. Whenever an opacity emission test method is not specified, compliance with opacity emission standards in this part shall be determined by conducting observations in accordance with Test Method 9 in appendix A of part 60 of this chapter or the method specified in paragraph (h)(7)(ii) of this section. Whenever a visible emission test method is not specified, compliance with visible emission standards in this part shall be determined by conducting observations in accordance with Test Method 22 in appendix A of part 60 of this chapter.

(ii) [Reserved]

(iii) If an affected source undergoes opacity or visible emission testing at startup to obtain an operating permit in the State in which the source is located, the results of such testing may be used to demonstrate compliance with a relevant standard if—

(A) The opacity or visible emission test was conducted within a reasonable amount of time before a performance test is required to be conducted under the relevant standard;

(B) The opacity or visible emission test was conducted under representative operating conditions for the source;

(C) The opacity or visible emission test was conducted and the resulting data were reduced using EPA-approved test methods and procedures, as specified in §63.7(e); and

(D) The opacity or visible emission test was appropriately quality-assured, as specified in §63.7(c) of this section.

(3) [Reserved]

(4) *Notification of opacity or visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting opacity or visible emission observations in accordance with §63.9(f), if such observations are required for the source by a relevant standard.

(5) *Conduct of opacity or visible emission observations.* When a relevant standard under this part includes an opacity or visible emission standard, the owner or operator of an affected source shall comply with the following:

(i) For the purpose of demonstrating initial compliance, opacity or visible emission observations shall be conducted concurrently with the initial performance test required in §63.7 unless one of the following conditions applies:

(A) If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 60 days after achieving the maximum production rate at which a new or reconstructed source will be operated, but not later than 120 days after initial startup of the source, or within 120 days after the effective date of the relevant standard in the case of new sources that start up before the standard's effective date. If no performance test under §63.7 is required, opacity or visible emission observations shall be conducted within 120 days after the compliance date for an existing or modified source; or

(B) If visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, or within the time period specified in paragraph (h)(5)(i)(A) of this section, the source's owner or operator shall reschedule the opacity or visible emission observations as soon after the initial performance test, or time period, as possible, but not later than 30 days thereafter, and shall advise the Administrator of the rescheduled date. The rescheduled opacity or visible emission observations shall be conducted (to the extent possible) under the same operating conditions that existed during the initial performance test conducted under §63.7. The visible emissions observer shall determine whether visibility or other conditions prevent the opacity or visible emission observations from being made concurrently with the initial performance test in accordance with procedures contained in Test Method 9 or Test Method 22 in appendix A of part 60 of this chapter.

(ii) For the purpose of demonstrating initial compliance, the minimum total time of opacity observations shall be 3 hours (30 6-minute averages) for the performance test or other required set of observations (e.g., for fugitive-type emission sources subject only to an opacity emission standard).

(iii) The owner or operator of an affected source to which an opacity or visible emission standard in this part applies shall conduct opacity or visible emission observations in accordance with the provisions of this section, record the results of the evaluation of emissions, and report to the Administrator the opacity or visible emission results in accordance with the provisions of §63.10(d).

(iv) [Reserved]

(v) Opacity readings of portions of plumes that contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity emission standards.

(6) *Availability of records.* The owner or operator of an affected source shall make available, upon request by the Administrator, such records that the Administrator deems necessary to determine the conditions under which the visual observations were made and shall provide evidence indicating proof of current visible observer emission certification.

(7) *Use of a continuous opacity monitoring system.* (i) The owner or operator of an affected source required to use a continuous opacity monitoring system (COMS) shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results in accordance with the provisions of §63.10(e)(4).

(ii) Whenever an opacity emission test method has not been specified in an applicable subpart, or an owner or operator of an affected source is required to conduct Test Method 9 observations (see appendix A of part 60 of this chapter), the owner or operator may submit, for compliance purposes, COMS data results produced during any performance test required under §63.7 in lieu of Method 9 data. If the owner or operator elects to submit COMS data for compliance with the opacity emission standard, he or she shall notify the Administrator of that decision, in writing, simultaneously with the notification under §63.7(b) of the date the performance test is scheduled to begin. Once the owner or operator of an affected source has notified the Administrator to that effect, the COMS data results will be used to determine opacity compliance during subsequent performance tests required under §63.7, unless the owner or operator notifies the Administrator in writing to the contrary not later than with the notification under §63.7(b) of the date the subsequent performance test is scheduled to begin.

(iii) For the purposes of determining compliance with the opacity emission standard during a performance test required under §63.7 using COMS data, the COMS data shall be reduced to 6-minute averages over the duration of the mass emission performance test.

(iv) The owner or operator of an affected source using a COMS for compliance purposes is responsible for demonstrating that he/she has complied with the performance evaluation requirements of §63.8(e), that the COMS has been properly maintained, operated, and data quality-assured, as specified in §63.8(c) and §63.8(d), and that the resulting data have not been altered in any way.

(v) Except as provided in paragraph (h)(7)(ii) of this section, the results of continuous monitoring by a COMS that indicate that the opacity at the time visual observations were made was not in excess of the emission standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the affected source proves that, at the time of the alleged violation, the instrument used was properly maintained, as specified in §63.8(c), and met Performance Specification 1 in appendix B of part 60 of this chapter, and that the resulting data have not been altered in any way.

(8) *Finding of compliance.* The Administrator will make a finding concerning an affected source's compliance with an opacity or visible emission standard upon obtaining all the compliance information required by the relevant standard (including the written reports of the results of the performance tests required by §63.7, the results of Test Method 9 or another required opacity or visible emission test method, the observer certification required by paragraph (h)(6) of this section, and the continuous opacity monitoring system results, whichever is/are applicable) and any information available to the Administrator needed to determine whether proper operation and maintenance practices are being used.

(9) *Adjustment to an opacity emission standard.* (i) If the Administrator finds under paragraph (h)(8) of this section that an affected source is in compliance with all relevant standards for which initial performance tests were conducted under §63.7, but during the time such performance tests were conducted fails to meet any relevant opacity emission standard, the owner or operator of such source may petition the Administrator to make appropriate adjustment to the opacity emission standard for the affected source. Until the Administrator notifies the owner or operator of the appropriate adjustment, the relevant opacity emission standard remains applicable.

(ii) The Administrator may grant such a petition upon a demonstration by the owner or operator that—

(A) The affected source and its associated air pollution control equipment were operated and maintained in a manner to minimize the opacity of emissions during the performance tests;

(B) The performance tests were performed under the conditions established by the Administrator; and

(C) The affected source and its associated air pollution control equipment were incapable of being adjusted or operated to meet the relevant opacity emission standard.

(iii) The Administrator will establish an adjusted opacity emission standard for the affected source meeting the above requirements at a level at which the source will be able, as indicated by the performance and opacity tests, to meet the opacity emission standard at all times during which the source is meeting the mass or concentration emission standard. The Administrator will promulgate the new opacity emission standard in the FEDERAL REGISTER.

(iv) After the Administrator promulgates an adjusted opacity emission standard for an affected source, the owner or operator of such source shall be subject to the new opacity emission standard, and the new opacity emission standard shall apply to such source during any subsequent performance tests.

(i) *Extension of compliance with emission standards.* (1) Until an extension of compliance has been granted by the Administrator (or a State with an approved permit program) under this paragraph, the owner or operator of an affected source subject to the requirements of this section shall comply with all applicable requirements of this part.

(2) *Extension of compliance for early reductions and other reductions*—(i) *Early reductions.* Pursuant to section 112(i)(5) of the Act, if the owner or operator of an existing source demonstrates that the source has achieved a reduction in emissions of hazardous air pollutants in accordance with the provisions of subpart D of this part, the Administrator (or the State with an approved permit program) will grant the owner or operator an extension of compliance with specific requirements of this part, as specified in subpart D.

(ii) *Other reductions.* Pursuant to section 112(i)(6) of the Act, if the owner or operator of an existing source has installed best available control technology (BACT) (as defined in section 169(3) of the Act) or technology required to meet a lowest achievable emission rate (LAER) (as defined in section 171 of the Act) prior to the promulgation of an emission standard in this part applicable to such source and the same pollutant (or stream of pollutants) controlled pursuant to the BACT or LAER installation, the Administrator will grant the owner or operator an extension of compliance with such emission standard that will apply until the date 5 years after the date on which such installation was achieved, as determined by the Administrator.

(3) *Request for extension of compliance.* Paragraphs (i)(4) through (i)(7) of this section concern requests for an extension of compliance with a relevant standard under this part (except requests for an extension of compliance under paragraph (i)(2)(i) of this section will be handled through procedures specified in subpart D of this part).

(4)(i)(A) The owner or operator of an existing source who is unable to comply with a relevant standard established under this part pursuant to section 112(d) of the Act may request that the Administrator (or a State, when the State has an approved part 70 permit program and the source is required to obtain a part 70 permit under that program, or a State, when the State has been delegated the authority to implement and enforce the emission standard for that source) grant an extension allowing the source up to 1 additional year to comply with the standard, if such additional period is necessary for the installation of controls. An additional extension of up to 3 years may be added for mining waste operations, if the 1-year extension of compliance is insufficient to dry and cover mining waste in order to reduce emissions of any hazardous air pollutant. The owner or operator of an affected source who has requested an extension of compliance under this paragraph and who is otherwise required to obtain a title V permit shall apply for such permit or apply to have the source's title V permit revised to incorporate the conditions of the extension of compliance. The conditions of an extension of compliance granted under this paragraph will be incorporated into the affected source's title V permit according to the provisions of part 70 or Federal title V regulations in this chapter (42 U.S.C. 7661), whichever are applicable.

(B) Any request under this paragraph for an extension of compliance with a relevant standard must be submitted in writing to the appropriate authority no later than 120 days prior to the affected source's compliance date (as specified in paragraphs (b) and (c) of this section), except as provided for in paragraph (i)(4)(i)(C) of this section. Nonfrivolous requests submitted under this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the date of denial. Emission standards established under this part may specify alternative dates for the submittal of requests for an extension of compliance if alternatives are appropriate for the source categories affected by those standards.

(C) An owner or operator may submit a compliance extension request after the date specified in paragraph (i)(4)(i)(B) of this section provided the need for the compliance extension arose after that date, and before the otherwise applicable compliance date and the need arose due to circumstances beyond reasonable control of the owner or operator. This request must include, in addition to the information required in paragraph (i)(6)(i) of this section, a statement of the reasons additional time is needed and the date when the owner or operator first learned of the problems. Nonfrivolous requests submitted under

this paragraph will stay the applicability of the rule as to the emission points in question until such time as the request is granted or denied. A denial will be effective as of the original compliance date.

(ii) The owner or operator of an existing source unable to comply with a relevant standard established under this part pursuant to section 112(f) of the Act may request that the Administrator grant an extension allowing the source up to 2 years after the standard's effective date to comply with the standard. The Administrator may grant such an extension if he/she finds that such additional period is necessary for the installation of controls and that steps will be taken during the period of the extension to assure that the health of persons will be protected from imminent endangerment. Any request for an extension of compliance with a relevant standard under this paragraph must be submitted in writing to the Administrator not later than 90 calendar days after the effective date of the relevant standard.

(5) The owner or operator of an existing source that has installed BACT or technology required to meet LAER [as specified in paragraph (i)(2)(ii) of this section] prior to the promulgation of a relevant emission standard in this part may request that the Administrator grant an extension allowing the source 5 years from the date on which such installation was achieved, as determined by the Administrator, to comply with the standard. Any request for an extension of compliance with a relevant standard under this paragraph shall be submitted in writing to the Administrator not later than 120 days after the promulgation date of the standard. The Administrator may grant such an extension if he or she finds that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(6)(i) The request for a compliance extension under paragraph (i)(4) of this section shall include the following information:

(A) A description of the controls to be installed to comply with the standard;

(B) A compliance schedule, including the date by which each step toward compliance will be reached. At a minimum, the list of dates shall include:

(*1*) The date by which on-site construction, installation of emission control equipment, or a process change is planned to be initiated; and

(*2*) The date by which final compliance is to be achieved.

(*3*) The date by which on-site construction, installation of emission control equipment, or a process change is to be completed; and

(*4*) The date by which final compliance is to be achieved;

(C)-(D)

(ii) The request for a compliance extension under paragraph (i)(5) of this section shall include all information needed to demonstrate to the Administrator's satisfaction that the installation of BACT or technology to meet LAER controls the same pollutant (or stream of pollutants) that would be controlled at that source by the relevant emission standard.

(7) Advice on requesting an extension of compliance may be obtained from the Administrator (or the State with an approved permit program).

(8) *Approval of request for extension of compliance.* Paragraphs (i)(9) through (i)(14) of this section concern approval of an extension of compliance requested under paragraphs (i)(4) through (i)(6) of this section.

(9) Based on the information provided in any request made under paragraphs (i)(4) through (i)(6) of this section, or other information, the Administrator (or the State with an approved permit program) may grant an extension of compliance with an emission standard, as specified in paragraphs (i)(4) and (i)(5) of this section.

(10) The extension will be in writing and will—

(i) Identify each affected source covered by the extension;

(ii) Specify the termination date of the extension;

(iii) Specify the dates by which steps toward compliance are to be taken, if appropriate;

(iv) Specify other applicable requirements to which the compliance extension applies (e.g., performance tests); and

(v)(A) Under paragraph (i)(4), specify any additional conditions that the Administrator (or the State) deems necessary to assure installation of the necessary controls and protection of the health of persons during the extension period; or

(B) Under paragraph (i)(5), specify any additional conditions that the Administrator deems necessary to assure the proper operation and maintenance of the installed controls during the extension period.

(11) The owner or operator of an existing source that has been granted an extension of compliance under paragraph (i)(10) of this section may be required to submit to the Administrator (or the State with an approved permit program) progress reports indicating whether the steps toward compliance outlined in the compliance schedule have been reached. The contents of the progress reports and the dates by which they shall be submitted will be specified in the written extension of compliance granted under paragraph (i)(10) of this section.

(12)(i) The Administrator (or the State with an approved permit program) will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(i) or (i)(5) of this section. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 30 calendar days after receipt of the original application and within 30 calendar days after receipt of any supplementary information that is submitted. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 30 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator (or the State with an approved permit program) will notify the owner or operator in writing of the Administrator's (or the State's) intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator (or the State) before further action on the request.

(iv) The Administrator's final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(13)(i) The Administrator will notify the owner or operator in writing of approval or intention to deny approval of a request for an extension of compliance within 30 calendar days after receipt of sufficient information to evaluate a request submitted under paragraph (i)(4)(ii) of this section. The 30-day approval or denial period will begin after the owner or operator has been notified in writing that his/her application is complete. The Administrator (or the State) will notify the owner or operator in writing of the status of his/her application, that is, whether the application contains sufficient information to make a determination, within 15 calendar days after receipt of the original application and within 15 calendar days after receipt of any supplementary information that is submitted.

(ii) When notifying the owner or operator that his/her application is not complete, the Administrator will specify the information needed to complete the application and provide notice of opportunity for the applicant to present, in writing, within 15 calendar days after he/she is notified of the incomplete application, additional information or arguments to the Administrator to enable further action on the application.

(iii) Before denying any request for an extension of compliance, the Administrator will notify the owner or operator in writing of the Administrator's intention to issue the denial, together with—

(A) Notice of the information and findings on which the intended denial is based; and

(B) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the intended denial, additional information or arguments to the Administrator before further action on the request.

(iv) A final determination to deny any request for an extension will be in writing and will set forth the specific grounds on which the denial is based. The final determination will be made within 30 calendar days after presentation of additional information or argument (if the application is complete), or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(14) The Administrator (or the State with an approved permit program) may terminate an extension of compliance at an earlier date than specified if any specification under paragraph (i)(10)(iii) or (iv) of this section is not met. Upon a determination

to terminate, the Administrator will notify, in writing, the owner or operator of the Administrator's determination to terminate, together with:

(i) Notice of the reason for termination; and

(ii) Notice of opportunity for the owner or operator to present in writing, within 15 calendar days after he/she is notified of the determination to terminate, additional information or arguments to the Administrator before further action on the termination.

(iii) A final determination to terminate an extension of compliance will be in writing and will set forth the specific grounds on which the termination is based. The final determination will be made within 30 calendar days after presentation of additional information or arguments, or within 30 calendar days after the final date specified for the presentation if no presentation is made.

(15) [Reserved]

(16) The granting of an extension under this section shall not abrogate the Administrator's authority under section 114 of the Act.

(j) *Exemption from compliance with emission standards.* The President may exempt any stationary source from compliance with any relevant standard established pursuant to section 112 of the Act for a period of not more than 2 years if the President determines that the technology to implement such standard is not available and that it is in the national security interests of the United States to do so. An exemption under this paragraph may be extended for 1 or more additional periods, each period not to exceed 2 years.

[59 FR 12430, Mar. 16, 1994, as amended at 67 FR 16599, Apr. 5, 2002; 68 FR 32600, May 30, 2003; 71 FR 20454, Apr. 20, 2006]

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§63.7 Performance testing requirements.

(a) *Applicability and performance test dates.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) Except as provided in paragraph (a)(4) of this section, if required to do performance testing by a relevant standard, and unless a waiver of performance testing is obtained under this section or the conditions of paragraph (c)(3)(ii)(B) of this section apply, the owner or operator of the affected source must perform such tests within 180 days of the compliance date for such source.

(i)-(viii) [Reserved]

(ix) Except as provided in paragraph (a)(4) of this section, when an emission standard promulgated under this part is more stringent than the standard proposed (see §63.6(b)(3)), the owner or operator of a new or reconstructed source subject to that standard for which construction or reconstruction is commenced between the proposal and promulgation dates of the standard shall comply with performance testing requirements within 180 days after the standard's effective date, or within 180 days after startup of the source, whichever is later. If the promulgated standard is more stringent than the proposed standard, the owner or operator may choose to demonstrate compliance with either the proposed or the promulgated standard. If the owner or operator chooses to comply with the proposed standard initially, the owner or operator shall conduct a second performance test within 3 years and 180 days after the effective date of the standard, or after startup of the source, whichever is later, to demonstrate compliance with the promulgated standard.

(3) The Administrator may require an owner or operator to conduct performance tests at the affected source at any other time when the action is authorized by section 114 of the Act.

(4) If a force majeure is about to occur, occurs, or has occurred for which the affected owner or operator intends to assert a claim of force majeure:

(i) The owner or operator shall notify the Administrator, in writing as soon as practicable following the date the owner or operator first knew, or through due diligence should have known that the event may cause or caused a delay in testing beyond the regulatory deadline specified in paragraph (a)(2) or (a)(3) of this section, or elsewhere in this part, but the notification must occur before the performance test deadline unless the initial force majeure or a subsequent force majeure event delays the notice, and in such cases, the notification shall occur as soon as practicable.

(ii) The owner or operator shall provide to the Administrator a written description of the force majeure event and a rationale for attributing the delay in testing beyond the regulatory deadline to the force majeure; describe the measures taken or to be taken to minimize the delay; and identify a date by which the owner or operator proposes to conduct the performance test. The performance test shall be conducted as soon as practicable after the force majeure occurs.

(iii) The decision as to whether or not to grant an extension to the performance test deadline is solely within the discretion of the Administrator. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an extension as soon as practicable.

(iv) Until an extension of the performance test deadline has been approved by the Administrator under paragraphs (a)(4)(i), (a)(4)(ii), and (a)(4)(iii) of this section, the owner or operator of the affected facility remains strictly subject to the requirements of this part.

(b) *Notification of performance test.* (1) The owner or operator of an affected source must notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is initially scheduled to begin to allow the Administrator, upon request, to review an approve the site-specific test plan required under paragraph (c) of this section and to have an observer present during the test.

(2) In the event the owner or operator is unable to conduct the performance test on the date specified in the notification requirement specified in paragraph (b)(1) of this section due to unforeseeable circumstances beyond his or her control, the owner or operator must notify the Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled. This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any other applicable provisions of this part or with any other applicable Federal, State, or local requirement, nor will it prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(c) *Quality assurance program.* (1) The results of the quality assurance program required in this paragraph will be considered by the Administrator when he/she determines the validity of a performance test.

(2)(i) *Submission of site-specific test plan.* Before conducting a required performance test, the owner or operator of an affected source shall develop and, if requested by the Administrator, shall submit a site-specific test plan to the Administrator for approval. The test plan shall include a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program. Data quality objectives are the pretest expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision; an example of internal QA is the sampling and analysis of replicate samples.

(iii) The performance testing shall include a test method performance audit (PA) during the performance test. The PAs consist of blind audit samples supplied by an accredited audit sample provider and analyzed during the performance test in order to provide a measure of test data bias. Gaseous audit samples are designed to audit the performance of the sampling system as well as the analytical system and must be collected by the sampling system during the compliance test just as the compliance samples are collected. If a liquid or solid audit sample is designed to audit the sampling system, it must also be collected by the sampling system during the compliance test. If multiple sampling systems or sampling trains are used during the compliance test for any of the test methods, the tester is only required to use one of the sampling systems per method to collect the audit sample. The audit sample must be analyzed by the same analyst using the same analytical reagents and analytical system and at the same time as the compliance samples. Retests are required when there is a failure to produce acceptable results for an audit sample. However, if the audit results do not affect the compliance or noncompliance status of the affected facility, the compliance authority may waive the reanalysis requirement, further audits, or retests and accept the results of the compliance test. Acceptance of the test results shall constitute a waiver of the reanalysis requirement, further audits, or retests. The compliance authority may also use the audit sample failure and the compliance test results as evidence to determine the compliance or noncompliance status of the affected facility. A blind audit sample is a sample whose value is known only to the sample provider and is not revealed to the tested facility until after they report the measured value of the audit sample. For pollutants that exist in the gas phase at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in air or nitrogen that can be introduced into the sampling system of the test method at or near the same entry point as a sample from the emission source. If no gas phase audit samples are available, an acceptable alternative is a sample of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. For samples that exist only in a liquid or solid form at ambient temperature, the audit sample shall consist of an appropriate concentration of the pollutant in the same matrix that would be produced when the sample is recovered from the sampling system as required by the test method. An accredited audit sample provider (AASP) is an organization that has been accredited to prepare audit samples by an independent, third party accrediting body.

(A) The source owner, operator, or representative of the tested facility shall obtain an audit sample, if commercially available, from an AASP for each test method used for regulatory compliance purposes. No audit samples are required for the following test methods: Methods 3A and 3C of appendix A-3 of part 60 of this chapter; Methods 6C, 7E, 9, and 10 of appendix A-4 of part 60; Methods 18 and 19 of appendix A-6 of part 60; Methods 20, 22, and 25A of appendix A-7 of part 60; Methods 30A and 30B of appendix A-8 of part 60; and Methods 303, 318, 320, and 321 of appendix A of this part. If multiple sources at a single facility are tested during a compliance test event, only one audit sample is required for each method used during a compliance test. The compliance authority responsible for the compliance test may waive the requirement to include an audit

sample if they believe that an audit sample is not necessary. “Commercially available” means that two or more independent AASPs have blind audit samples available for purchase. If the source owner, operator, or representative cannot find an audit sample for a specific method, the owner, operator, or representative shall consult the EPA Web site at the following URL, *www.epa.gov/ttn/emc,* to confirm whether there is a source that can supply an audit sample for that method. If the EPA Web site does not list an available audit sample at least 60 days prior to the beginning of the compliance test, the source owner, operator, or representative shall not be required to include an audit sample as part of the quality assurance program for the compliance test. When ordering an audit sample, the source owner, operator, or representative shall give the sample provider an estimate for the concentration of each pollutant that is emitted by the source or the estimated concentration of each pollutant based on the permitted level and the name, address, and phone number of the compliance authority. The source owner, operator, or representative shall report the results for the audit sample along with a summary of the emission test results for the audited pollutant to the compliance authority and shall report the results of the audit sample to the AASP. The source owner, operator, or representative shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the AASP. If the method being audited is a method that allows the samples to be analyzed in the field and the tester plans to analyze the samples in the field, the tester may analyze the audit samples prior to collecting the emission samples provided a representative of the compliance authority is present at the testing site. The tester may request, and the compliance authority may grant, a waiver to the requirement that a representative of the compliance authority must be present at the testing site during the field analysis of an audit sample. The source owner, operator, or representative may report the results of the audit sample to the compliance authority and then report the results of the audit sample to the AASP prior to collecting any emission samples. The test protocol and final test report shall document whether an audit sample was ordered and utilized and the pass/fail results as applicable.

(B) An AASP shall have and shall prepare, analyze, and report the true value of audit samples in accordance with a written technical criteria document that describes how audit samples will be prepared and distributed in a manner that will ensure the integrity of the audit sample program. An acceptable technical criteria document shall contain standard operating procedures for all of the following operations:

(*1*) Preparing the sample;

(*2*) Confirming the true concentration of the sample;

(*3*) Defining the acceptance limits for the results from a well qualified tester. This procedure must use well established statistical methods to analyze historical results from well qualified testers. The acceptance limits shall be set so that there is 95 percent confidence that 90 percent of well qualified labs will produce future results that are within the acceptance limit range;

(*4*) Providing the opportunity for the compliance authority to comment on the selected concentration level for an audit sample;

(*5*) Distributing the sample to the user in a manner that guarantees that the true value of the sample is unknown to the user;

(*6*) Recording the measured concentration reported by the user and determining if the measured value is within acceptable limits;

(*7*) Reporting the results from each audit sample in a timely manner to the compliance authority and to the source owner, operator, or representative by the AASP. The AASP shall make both reports at the same time and in the same manner or shall report to the compliance authority first and then report to the source owner, operator, or representative. The results shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, and whether the testing company passed or failed the audit. The AASP shall report the true value of the audit sample to the compliance authority. The AASP may report the true value to the source owner, operator, or representative if the AASP's operating plan ensures that no laboratory will receive the same audit sample twice.

(*8*) Evaluating the acceptance limits of samples at least once every two years to determine in consultation with the voluntary consensus standard body if they should be changed.

(*9*) Maintaining a database, accessible to the compliance authorities, of results from the audit that shall include the name of the facility tested, the date on which the compliance test was conducted, the name of the company performing the sample collection, the name of the company that analyzed the compliance samples including the audit sample, the measured result for the audit sample, the true value of the audit sample, the acceptance range for the measured value, and whether the testing company passed or failed the audit.

(C) The accrediting body shall have a written technical criteria document that describes how it will ensure that the AASP is operating in accordance with the AASP technical criteria document that describes how audit samples are to be prepared and distributed. This document shall contain standard operating procedures for all of the following operations:

(*1*) Checking audit samples to confirm their true value as reported by the AASP.

(*2*) Performing technical systems audits of the AASP's facilities and operating procedures at least once every two years.

(*3*) Providing standards for use by the voluntary consensus standard body to approve the accrediting body that will accredit the audit sample providers.

(D) The technical criteria documents for the accredited sample providers and the accrediting body shall be developed through a public process guided by a voluntary consensus standards body (VCSB). The VCSB shall operate in accordance with the procedures and requirements in the Office of Management and Budget *Circular A-119.* A copy of Circular A-119 is available upon request by writing the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, by calling (202) 395-6880 or downloading online at *http://standards.gov/standards__gov/a119.cfm.* The VCSB shall approve all accrediting bodies. The Administrator will review all technical criteria documents. If the technical criteria documents do not meet the minimum technical requirements in paragraphs (c)(2)(iii)(B) through (C) of this section, the technical criteria documents are not acceptable and the proposed audit sample program is not capable of producing audit samples of sufficient quality to be used in a compliance test. All acceptable technical criteria documents shall be posted on the EPA Web site at the following URL, *http://www.epa.gov/ttn/emc.*

(iv) The owner or operator of an affected source shall submit the site-specific test plan to the Administrator upon the Administrator's request at least 60 calendar days before the performance test is scheduled to take place, that is, simultaneously with the notification of intention to conduct a performance test required under paragraph (b) of this section, or on a mutually agreed upon date.

(v) The Administrator may request additional relevant information after the submittal of a site-specific test plan.

(3) *Approval of site-specific test plan.* (i) The Administrator will notify the owner or operator of approval or intention to deny approval of the site-specific test plan (if review of the site-specific test plan is requested) within 30 calendar days after receipt of the original plan and within 30 calendar days after receipt of any supplementary information that is submitted under paragraph (c)(3)(i)(B) of this section. Before disapproving any site-specific test plan, the Administrator will notify the applicant of the Administrator's intention to disapprove the plan together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present, within 30 calendar days after he/she is notified of the intended disapproval, additional information to the Administrator before final action on the plan.

(ii) In the event that the Administrator fails to approve or disapprove the site-specific test plan within the time period specified in paragraph (c)(3)(i) of this section, the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the test method(s) specified in the relevant standard or with only minor changes to those tests methods (see paragraph (e)(2)(i) of this section), the owner or operator must conduct the performance test within the time specified in this section using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method when the Administrator approves the site-specific test plan (if review of the site-specific test plan is requested) or after the alternative method is approved (see paragraph (f) of this section). However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval 45 days after submission of the site-specific test plan or request to use an alternative method. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(iii) Neither the submission of a site-specific test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(d) *Performance testing facilities.* If required to do performance testing, the owner or operator of each new source and, at the request of the Administrator, the owner or operator of each existing source, shall provide performance testing facilities as

follows:

(1) Sampling ports adequate for test methods applicable to such source. This includes:

(i) Constructing the air pollution control system such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and procedures; and

(ii) Providing a stack or duct free of cyclonic flow during performance tests, as demonstrated by applicable test methods and procedures;

(2) Safe sampling platform(s);

(3) Safe access to sampling platform(s);

(4) Utilities for sampling and testing equipment; and

(5) Any other facilities that the Administrator deems necessary for safe and adequate testing of a source.

(e) *Conduct of performance tests.* (1) Performance tests shall be conducted under such conditions as the Administrator specifies to the owner or operator based on representative performance (i.e., performance based on normal operating conditions) of the affected source. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test, nor shall emissions in excess of the level of the relevant standard during periods of startup, shutdown, and malfunction be considered a violation of the relevant standard unless otherwise specified in the relevant standard or a determination of noncompliance is made under §63.6(e). 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.

(2) Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures set forth in this section, in each relevant standard, and, if required, in applicable appendices of parts 51, 60, 61, and 63 of this chapter unless the Administrator—

(i) Specifies or approves, in specific cases, the use of a test method with minor changes in methodology (see definition in §63.90(a)). Such changes may be approved in conjunction with approval of the site-specific test plan (see paragraph (c) of this section); or

(ii) Approves the use of an intermediate or major change or alternative to a test method (see definitions in §63.90(a)), the results of which the Administrator has determined to be adequate for indicating whether a specific affected source is in compliance; or

(iii) Approves shorter sampling times or smaller sample volumes when necessitated by process variables or other factors; or

(iv) Waives the requirement for performance tests because the owner or operator of an affected source has demonstrated by other means to the Administrator's satisfaction that the affected source is in compliance with the relevant standard.

(3) Unless otherwise specified in a relevant standard or test method, each performance test shall consist of three separate runs using the applicable test method. Each run shall be conducted for the time and under the conditions specified in the relevant standard. For the purpose of determining compliance with a relevant standard, the arithmetic mean of the results of the three runs shall apply. Upon receiving approval from the Administrator, results of a test run may be replaced with results of an additional test run in the event that—

(i) A sample is accidentally lost after the testing team leaves the site; or

(ii) Conditions occur in which one of the three runs must be discontinued because of forced shutdown; or

(iii) Extreme meteorological conditions occur; or

(iv) Other circumstances occur that are beyond the owner or operator's control.

(4) Nothing in paragraphs (e)(1) through (e)(3) of this section shall be construed to abrogate the Administrator's authority to require testing under section 114 of the Act.

(f) *Use of an alternative test method*—(1)*General.* Until authorized to use an intermediate or major change or alternative to a test method, the owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) The owner or operator of an affected source required to do performance testing by a relevant standard may use an alternative test method from that specified in the standard provided that the owner or operator—

(i) Notifies the Administrator of his or her intention to use an alternative test method at least 60 days before the performance test is scheduled to begin;

(ii) Uses Method 301 in appendix A of this part to validate the alternative test method. This may include the use of specific procedures of Method 301 if use of such procedures are sufficient to validate the alternative test method; and

(iii) Submits the results of the Method 301 validation process along with the notification of intention and the justification for not using the specified test method. The owner or operator may submit the information required in this paragraph well in advance of the deadline specified in paragraph (f)(2)(i) of this section to ensure a timely review by the Administrator in order to meet the performance test date specified in this section or the relevant standard.

(3) The Administrator will determine whether the owner or operator's validation of the proposed alternative test method is adequate and issue an approval or disapproval of the alternative test method. If the owner or operator intends to demonstrate compliance by using an alternative to any test method specified in the relevant standard, the owner or operator is authorized to conduct the performance test using an alternative test method after the Administrator approves the use of the alternative method. However, the owner or operator is authorized to conduct the performance test using an alternative method in the absence of notification of approval/disapproval 45 days after submission of the request to use an alternative method and the request satisfies the requirements in paragraph (f)(2) of this section. The owner or operator is authorized to conduct the performance test within 60 calendar days after he/she is authorized to demonstrate compliance using an alternative test method. Notwithstanding the requirements in the preceding three sentences, the owner or operator may proceed to conduct the performance test as required in this section (without the Administrator's prior approval of the site-specific test plan) if he/she subsequently chooses to use the specified testing and monitoring methods instead of an alternative.

(4) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative test method for the purposes of demonstrating compliance with a relevant standard, the Administrator may require the use of a test method specified in a relevant standard.

(5) If the owner or operator uses an alternative test method for an affected source during a required performance test, the owner or operator of such source shall continue to use the alternative test method for subsequent performance tests at that affected source until he or she receives approval from the Administrator to use another test method as allowed under §63.7(f).

(6) Neither the validation and approval process nor the failure to validate an alternative test method shall abrogate the owner or operator's responsibility to comply with the requirements of this part.

(g) *Data analysis, recordkeeping, and reporting.* (1) Unless otherwise specified in a relevant standard or test method, or as otherwise approved by the Administrator in writing, results of a performance test shall include the analysis of samples, determination of emissions, and raw data. A performance test is “completed” when field sample collection is terminated. The owner or operator of an affected source shall report the results of the performance test to the Administrator before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator (see §63.9(i)). The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h). Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall send the results of the performance test to the appropriate permitting authority.

(2) Contents of a performance test, CMS performance evaluation, or CMS quality assurance test report (electronic or paper submitted copy). Unless otherwise specified in a relevant standard, test method, CMS performance specification, or quality assurance requirement for a CMS, or as otherwise approved by the Administrator in writing, the report shall include the elements identified in paragraphs (g)(2)(i) through (vi) of this section.

(i) General identification information for the facility including a mailing address, the physical address, the owner or operator or responsible official (where applicable) and his/her email address, and the appropriate Federal Registry System (FRS) number for the facility.

(ii) Purpose of the test including the applicable regulation requiring the test, the pollutant(s) and other parameters being measured, the applicable emission standard, and any process parameter component, and a brief process description.

(iii) Description of the emission unit tested including fuel burned, control devices, and vent characteristics; the appropriate source classification code (SCC); the permitted maximum process rate (where applicable); and the sampling location.

(iv) Description of sampling and analysis procedures used and any modifications to standard procedures, quality assurance procedures and results, record of process operating conditions that demonstrate the applicable test conditions are met, and values for any operating parameters for which limits were being set during the test.

(v) Where a test method, CEMS, PEMS, or COMS performance specification, or on-going quality assurance requirement for a CEMS, PEMS, or COMS requires you record or report, the following shall be included in your report: Record of preparation of standards, record of calibrations, raw data sheets for field sampling, raw data sheets for field and laboratory analyses, chain-of-custody documentation, and example calculations for reported results.

(vi) Identification of the company conducting the performance test including the primary office address, telephone number, and the contact for this test including his/her email address.

(3) For a minimum of 5 years after a performance test is conducted, the owner or operator shall retain and make available, upon request, for inspection by the Administrator the records or results of such performance test and other data needed to determine emissions from an affected source.

(h) *Waiver of performance tests.* (1) Until a waiver of a performance testing requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Individual performance tests may be waived upon written application to the Administrator if, in the Administrator's judgment, the source is meeting the relevant standard(s) on a continuous basis, or the source is being operated under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) *Request to waive a performance test.* (i) If a request is made for an extension of compliance under §63.6(i), the application for a waiver of an initial performance test shall accompany the information required for the request for an extension of compliance. If no extension of compliance is requested or if the owner or operator has requested an extension of compliance and the Administrator is still considering that request, the application for a waiver of an initial performance test shall be submitted at least 60 days before the performance test if the site-specific test plan under paragraph (c) of this section is not submitted.

(ii) If an application for a waiver of a subsequent performance test is made, the application may accompany any required compliance progress report, compliance status report, or excess emissions and continuous monitoring system performance report [such as those required under §63.6(i), §63.9(h), and §63.10(e) or specified in a relevant standard or in the source's title V permit], but it shall be submitted at least 60 days before the performance test if the site-specific test plan required under paragraph (c) of this section is not submitted.

(iii) Any application for a waiver of a performance test shall include information justifying the owner or operator's request for a waiver, such as the technical or economic infeasibility, or the impracticality, of the affected source performing the required test.

(4) *Approval of request to waive performance test.* The Administrator will approve or deny a request for a waiver of a performance test made under paragraph (h)(3) of this section when he/she—

(i) Approves or denies an extension of compliance under §63.6(i)(8); or

(ii) Approves or disapproves a site-specific test plan under §63.7(c)(3); or

(iii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iv) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

[59 FR 12430, Mar. 16, 1994, as amended at 65 FR 62215, Oct. 17, 2000; 67 FR 16602, Apr. 5, 2002; 72 FR 27443, May 16, 2007; 75 FR 55655, Sept. 13, 2010; 79 FR 11277, Feb. 27, 2014; 81 FR 59825, Aug. 30, 2016; 83 FR 56725, Nov. 14, 2018]

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§63.8 Monitoring requirements.

(a) *Applicability.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For the purposes of this part, all CMS required under relevant standards shall be subject to the provisions of this section upon promulgation of performance specifications for CMS as specified in the relevant standard or otherwise by the Administrator.

(3) [Reserved]

(4) Additional monitoring requirements for control devices used to comply with provisions in relevant standards of this part are specified in §63.11.

(b) *Conduct of monitoring.* (1) Monitoring shall be conducted as set forth in this section and the relevant standard(s) unless the Administrator—

(i) Specifies or approves the use of minor changes in methodology for the specified monitoring requirements and procedures (see §63.90(a) for definition); or

(ii) Approves the use of an intermediate or major change or alternative to any monitoring requirements or procedures (see §63.90(a) for definition).

(iii) Owners or operators with flares subject to §63.11(b) are not subject to the requirements of this section unless otherwise specified in the relevant standard.

(2)(i) When the emissions from two or more affected sources are combined before being released to the atmosphere, the owner or operator may install an applicable CMS for each emission stream or for the combined emissions streams, provided the monitoring is sufficient to demonstrate compliance with the relevant standard.

(ii) If the relevant standard is a mass emission standard and the emissions from one affected source are released to the atmosphere through more than one point, the owner or operator must install an applicable CMS at each emission point unless the installation of fewer systems is—

(A) Approved by the Administrator; or

(B) Provided for in a relevant standard (e.g., instead of requiring that a CMS be installed at each emission point before the effluents from those points are channeled to a common control device, the standard specifies that only one CMS is required to be installed at the vent of the control device).

(3) When more than one CMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CMS. However, when one CMS is used as a backup to another CMS, the owner or operator shall report the results from the CMS used to meet the monitoring requirements of this part. If both such CMS are used during a particular reporting period to meet the monitoring requirements of this part, then the owner or operator shall report the results from each CMS for the relevant compliance period.

(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).

(2)(i) All CMS must be installed such that representative measures of emissions or process parameters from the affected source are obtained. In addition, CEMS must be located according to procedures contained in the applicable performance specification(s).

(ii) Unless the individual subpart states otherwise, the owner or operator must ensure the read out (that portion of the CMS that provides a visual display or record), or other indication of operation, from any CMS required for compliance with the emission standard is readily accessible on site for operational control or inspection by the operator of the equipment.

(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:

(i) All COMS shall complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(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.

(5) Unless otherwise approved by the Administrator, minimum procedures for COMS shall include a method for producing a simulated zero opacity condition and an upscale (high-level) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of all the analyzer's internal optical surfaces and all electronic circuitry, including the lamp and photodetector assembly normally used in the measurement of opacity.

(6) The owner or operator of a CMS that is not a CPMS, which is installed in accordance with the provisions of this part and the applicable CMS performance specification(s), must check the zero (low-level) and high-level calibration drifts at least once daily in accordance with the written procedure specified in the performance evaluation plan developed under paragraphs (e)(3)(i) and (ii) of this section. The zero (low-level) and high-level calibration drifts must be adjusted, at a minimum, whenever the 24-hour zero (low-level) drift exceeds two times the limits of the applicable performance specification(s) specified in the relevant standard. The system shall allow the amount of excess zero (low-level) and high-level drift measured at the 24-hour interval checks to be recorded and quantified whenever specified. For COMS, all optical and instrumental surfaces exposed to the effluent gases must be cleaned prior to performing the zero (low-level) and high-level drift adjustments; the optical surfaces and instrumental surfaces must be cleaned when the cumulative automatic zero compensation, if applicable, exceeds 4 percent opacity. The CPMS must be calibrated prior to use for the purposes of complying with this section. The CPMS must be checked daily for indication that the system is responding. If the CPMS system includes an internal system check, results must be recorded and checked daily for proper operation.

(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).

(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.

(e) *Performance evaluation of continuous monitoring systems*—(1) *General.* When required by a relevant standard, and at any other time the Administrator may require under section 114 of the Act, the owner or operator of an affected source being monitored shall conduct a performance evaluation of the CMS. Such performance evaluation shall be conducted according to the applicable specifications and procedures described in this section or in the relevant standard.

(2) *Notification of performance evaluation.* The owner or operator shall notify the Administrator in writing of the date of the performance evaluation simultaneously with the notification of the performance test date required under §63.7(b) or at least 60 days prior to the date the performance evaluation is scheduled to begin if no performance test is required.

(3)(i) *Submission of site-specific performance evaluation test plan.* Before conducting a required CMS performance evaluation, the owner or operator of an affected source shall develop and submit a site-specific performance evaluation test plan to the Administrator for approval upon request. The performance evaluation test plan shall include the evaluation program objectives, an evaluation program summary, the performance evaluation schedule, data quality objectives, and both an internal and external QA program. Data quality objectives are the pre-evaluation expectations of precision, accuracy, and completeness of data.

(ii) The internal QA program shall include, at a minimum, the activities planned by routine operators and analysts to provide an assessment of CMS performance. The external QA program shall include, at a minimum, systems audits that include the opportunity for on-site evaluation by the Administrator of instrument calibration, data validation, sample logging, and documentation of quality control data and field maintenance activities.

(iii) The owner or operator of an affected source shall submit the site-specific performance evaluation test plan to the Administrator (if requested) at least 60 days before the performance test or performance evaluation is scheduled to begin, or on a mutually agreed upon date, and review and approval of the performance evaluation test plan by the Administrator will occur with the review and approval of the site-specific test plan (if review of the site-specific test plan is requested).

(iv) The Administrator may request additional relevant information after the submittal of a site-specific performance evaluation test plan.

(v) In the event that the Administrator fails to approve or disapprove the site-specific performance evaluation test plan within the time period specified in §63.7(c)(3), the following conditions shall apply:

(A) If the owner or operator intends to demonstrate compliance using the monitoring method(s) specified in the relevant standard, the owner or operator shall conduct the performance evaluation within the time specified in this subpart using the specified method(s);

(B) If the owner or operator intends to demonstrate compliance by using an alternative to a monitoring method specified in the relevant standard, the owner or operator shall refrain from conducting the performance evaluation until the Administrator approves the use of the alternative method. If the Administrator does not approve the use of the alternative method within 30 days before the performance evaluation is scheduled to begin, the performance evaluation deadlines specified in paragraph (e)(4) of this section may be extended such that the owner or operator shall conduct the performance evaluation within 60 calendar days after the Administrator approves the use of the alternative method. Notwithstanding the requirements in the preceding two sentences, the owner or operator may proceed to conduct the performance evaluation as required in this section (without the Administrator's prior approval of the site-specific performance evaluation test plan) if he/she subsequently chooses to use the specified monitoring method(s) instead of an alternative.

(vi) Neither the submission of a site-specific performance evaluation test plan for approval, nor the Administrator's approval or disapproval of a plan, nor the Administrator's failure to approve or disapprove a plan in a timely manner shall—

(A) Relieve an owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, State, or local requirement; or

(B) Prevent the Administrator from implementing or enforcing this part or taking any other action under the Act.

(4) *Conduct of performance evaluation and performance evaluation dates.* The owner or operator of an affected source shall conduct a performance evaluation of a required CMS during any performance test required under §63.7 in accordance with the applicable performance specification as specified in the relevant standard. Notwithstanding the requirement in the previous sentence, if the owner or operator of an affected source elects to submit COMS data for compliance with a relevant opacity emission standard as provided under §63.6(h)(7), he/she shall conduct a performance evaluation of the COMS as specified in the relevant standard, before the performance test required under §63.7 is conducted in time to submit the results of the performance evaluation as specified in paragraph (e)(5)(ii) of this section. If a performance test is not required, or the requirement for a performance test has been waived under §63.7(h), the owner or operator of an affected source shall conduct the performance evaluation not later than 180 days after the appropriate compliance date for the affected source, as specified in §63.7(a), or as otherwise specified in the relevant standard.

(5) *Reporting performance evaluation results.* (i) The owner or operator shall furnish the Administrator a copy of a written report of the results of the performance evaluation containing the information specified in §63.7(g)(2)(i) through (vi) simultaneously with the results of the performance test required under §63.7 or within 60 days of completion of the performance evaluation, unless otherwise specified in a relevant standard.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation under this paragraph. The copies shall be provided at least 15 calendar days before the performance test required under §63.7 is conducted.

(f) *Use of an alternative monitoring method*—(1) *General.* Until permission to use an alternative monitoring procedure (minor, intermediate, or major changes; see definition in §63.90(a)) has been granted by the Administrator under this paragraph (f)(1), the owner or operator of an affected source remains subject to the requirements of this section and the relevant standard.

(2) After receipt and consideration of written application, the Administrator may approve alternatives to any monitoring methods or procedures of this part including, but not limited to, the following:

(i) Alternative monitoring requirements when installation of a CMS specified by a relevant standard would not provide accurate measurements due to liquid water or other interferences caused by substances within the effluent gases;

(ii) Alternative monitoring requirements when the affected source is infrequently operated;

(iii) Alternative monitoring requirements to accommodate CEMS that require additional measurements to correct for stack moisture conditions;

(iv) Alternative locations for installing CMS when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements;

(v) Alternate methods for converting pollutant concentration measurements to units of the relevant standard;

(vi) Alternate procedures for performing daily checks of zero (low-level) and high-level drift that do not involve use of high-level gases or test cells;

(vii) Alternatives to the American Society for Testing and Materials (ASTM) test methods or sampling procedures specified by any relevant standard;

(viii) Alternative CMS that do not meet the design or performance requirements in this part, but adequately demonstrate a definite and consistent relationship between their measurements and the measurements of opacity by a system complying with the requirements as specified in the relevant standard. The Administrator may require that such demonstration be performed for each affected source; or

(ix) Alternative monitoring requirements when the effluent from a single affected source or the combined effluent from two or more affected sources is released to the atmosphere through more than one point.

(3) If the Administrator finds reasonable grounds to dispute the results obtained by an alternative monitoring method, requirement, or procedure, the Administrator may require the use of a method, requirement, or procedure specified in this section or in the relevant standard. If the results of the specified and alternative method, requirement, or procedure do not agree, the results obtained by the specified method, requirement, or procedure shall prevail.

(4)(i) *Request to use alternative monitoring procedure.* An owner or operator who wishes to use an alternative monitoring procedure must submit an application to the Administrator as described in paragraph (f)(4)(ii) of this section. The application may be submitted at any time provided that the monitoring procedure is not the performance test method used to demonstrate compliance with a relevant standard or other requirement. If the alternative monitoring procedure will serve as the performance test method that is to be used to demonstrate compliance with a relevant standard, the application must be submitted at least 60 days before the performance evaluation is scheduled to begin and must meet the requirements for an alternative test method under §63.7(f).

(ii) The application must contain a description of the proposed alternative monitoring system which addresses the four elements contained in the definition of monitoring in §63.2 and a performance evaluation test plan, if required, as specified in paragraph (e)(3) of this section. In addition, the application must include information justifying the owner or operator's request for an alternative monitoring method, such as the technical or economic infeasibility, or the impracticality, of the affected source using the required method.

(iii) The owner or operator may submit the information required in this paragraph well in advance of the submittal dates specified in paragraph (f)(4)(i) above to ensure a timely review by the Administrator in order to meet the compliance demonstration date specified in this section or the relevant standard.

(iv) Application for minor changes to monitoring procedures, as specified in paragraph (b)(1) of this section, may be made in the site-specific performance evaluation plan.

(5) *Approval of request to use alternative monitoring procedure.* (i) The Administrator will notify the owner or operator of approval or intention to deny approval of the request to use an alternative monitoring method within 30 calendar days after receipt of the original request and within 30 calendar days after receipt of any supplementary information that is submitted. If a request for a minor change is made in conjunction with site-specific performance evaluation plan, then approval of the plan will constitute approval of the minor change. Before disapproving any request to use an alternative monitoring method, the Administrator will notify the applicant of the Administrator's intention to disapprove the request together with—

(A) Notice of the information and findings on which the intended disapproval is based; and

(B) Notice of opportunity for the owner or operator to present additional information to the Administrator before final action on the request. At the time the Administrator notifies the applicant of his or her intention to disapprove the request, the Administrator will specify how much time the owner or operator will have after being notified of the intended disapproval to submit the additional information.

(ii) The Administrator may establish general procedures and criteria in a relevant standard to accomplish the requirements of paragraph (f)(5)(i) of this section.

(iii) If the Administrator approves the use of an alternative monitoring method for an affected source under paragraph (f)(5)(i) of this section, the owner or operator of such source shall continue to use the alternative monitoring method until he or she receives approval from the Administrator to use another monitoring method as allowed by §63.8(f).

(6) *Alternative to the relative accuracy test.* An alternative to the relative accuracy test for CEMS specified in a relevant standard may be requested as follows:

(i) *Criteria for approval of alternative procedures.* An alternative to the test method for determining relative accuracy is available for affected sources with emission rates demonstrated to be less than 50 percent of the relevant standard. The owner or operator of an affected source may petition the Administrator under paragraph (f)(6)(ii) of this section to substitute the relative accuracy test in section 7 of Performance Specification 2 with the procedures in section 10 if the results of a performance test conducted according to the requirements in §63.7, or other tests performed following the criteria in §63.7, demonstrate that the emission rate of the pollutant of interest in the units of the relevant standard is less than 50 percent of the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the owner or operator may petition the Administrator to substitute the relative accuracy test with the procedures in section 10 of Performance Specification 2 if the control device exhaust emission rate is less than 50 percent of the level needed to meet the control efficiency requirement. The alternative procedures do not apply if the CEMS is used continuously to determine compliance with the relevant standard.

(ii) *Petition to use alternative to relative accuracy test.* The petition to use an alternative to the relative accuracy test shall include a detailed description of the procedures to be applied, the location and the procedure for conducting the alternative, the concentration or response levels of the alternative relative accuracy materials, and the other equipment checks included in the alternative procedure(s). The Administrator will review the petition for completeness and applicability. The Administrator's determination to approve an alternative will depend on the intended use of the CEMS data and may require specifications more stringent than in Performance Specification 2.

(iii) *Rescission of approval to use alternative to relative accuracy test.* The Administrator will review the permission to use an alternative to the CEMS relative accuracy test and may rescind such permission if the CEMS data from a successful completion of the alternative relative accuracy procedure indicate that the affected source's emissions are approaching the level of the relevant standard. The criterion for reviewing the permission is that the collection of CEMS data shows that emissions have exceeded 70 percent of the relevant standard for any averaging period, as specified in the relevant standard. For affected sources subject to emission limitations expressed as control efficiency levels, the criterion for reviewing the permission is that the collection of CEMS data shows that exhaust emissions have exceeded 70 percent of the level needed to meet the control efficiency requirement for any averaging period, as specified in the relevant standard. The owner or operator of the affected source shall maintain records and determine the level of emissions relative to the criterion for permission to use an alternative for relative accuracy testing. If this criterion is exceeded, the owner or operator shall notify the Administrator within 10 days of such occurrence and include a description of the nature and cause of the increased emissions. The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 7 of Performance Specification 2. The Administrator will review the notification and may rescind permission to use an alternative and require the owner or operator to conduct a relative accuracy test of the CEMS as specified in section 8.4 of Performance Specification 2.

(g) *Reduction of monitoring data.* (1) The owner or operator of each CMS must reduce the monitoring data as specified in paragraphs (g)(1) through (5) of this section.

(2) The owner or operator of each COMS shall reduce all data to 6-minute averages calculated from 36 or more data points equally spaced over each 6-minute period. Data from CEMS for measurement other than opacity, unless otherwise specified in the relevant standard, shall be reduced to 1-hour averages computed from four or more data points equally spaced over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities pursuant to provisions of this part are being performed. During these periods, a valid hourly average shall consist of at least two data points with each representing a 15-minute period. Alternatively, an arithmetic or integrated 1-hour average of CEMS data may be used. Time periods for averaging are defined in §63.2.

(3) The data may be recorded in reduced or nonreduced form (e.g., ppm pollutant and percent O_2 or ng/J of pollutant).

(4) All emission data shall be converted into units of the relevant standard for reporting purposes using the conversion procedures specified in that standard. After conversion into units of the relevant standard, the data may be rounded to the same number of significant digits as used in that standard to specify the emission limit (e.g., rounded to the nearest 1 percent opacity).

(5) Monitoring data recorded during periods of unavoidable CMS breakdowns, out-of-control periods, repairs, maintenance periods, calibration checks, and zero (low-level) and high-level adjustments must not be included in any data average computed under this part. For the owner or operator complying with the requirements of §63.10(b)(2)(vii)(A) or (B), data averages must include any data recorded during periods of monitor breakdown or malfunction.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16603, Apr. 5, 2002; 71 FR 20455, Apr. 20, 2006; 79 FR 11277, Feb. 27, 2014; 83 FR 56725, Nov. 14, 2018]

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§63.9 Notification requirements.

(a) *Applicability and general information.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a notice that contains all the information required in a notification listed in this section, the owner or operator may send the Administrator a copy of the notice sent to the State to satisfy the requirements of this section for that notification.

(4)(i) Before a State has been delegated the authority to implement and enforce notification requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices in §63.13).

(ii) After a State has been delegated the authority to implement and enforce notification requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit notifications to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each notification submitted to the State to the appropriate Regional

Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any notifications at its discretion.

(b) *Initial notifications.* (1)(i) The requirements of this paragraph apply to the owner or operator of an affected source when such source becomes subject to a relevant standard.

(ii) If an area source that otherwise would be subject to an emission standard or other requirement established under this part if it were a major source subsequently increases its emissions of hazardous air pollutants (or its potential to emit hazardous air pollutants) such that the source is a major source that is subject to the emission standard or other requirement, such source shall be subject to the notification requirements of this section.

(iii) Affected sources that are required under this paragraph to submit an initial notification may use the application for approval of construction or reconstruction under §63.5(d) of this subpart, if relevant, to fulfill the initial notification requirements of this paragraph.

(2) The owner or operator of an affected source that has an initial startup before the effective date of a relevant standard under this part shall notify the Administrator in writing that the source is subject to the relevant standard. The notification, which shall be submitted not later than 120 calendar days after the effective date of the relevant standard (or within 120 calendar days after the source becomes subject to the relevant standard), shall provide the following information:

(i) The name and address of the owner or operator;

(ii) The address (i.e., physical location) of the affected source;

(iii) An identification of the relevant standard, or other requirement, that is the basis of the notification and the source's compliance date;

(iv) A brief description of the nature, size, design, and method of operation of the source and an identification of the types of emission points within the affected source subject to the relevant standard and types of hazardous air pollutants emitted; and

(v) A statement of whether the affected source is a major source or an area source.

(3) [Reserved]

(4) The owner or operator of a new or reconstructed major affected source for which an application for approval of construction or reconstruction is required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new major-emitting affected source, reconstruct a major-emitting affected source, or reconstruct a major source such that the source becomes a major-emitting affected source with the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i); and

(ii)-(iv) [Reserved]

(v) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(5) The owner or operator of a new or reconstructed affected source for which an application for approval of construction or reconstruction is not required under §63.5(d) must provide the following information in writing to the Administrator:

(i) A notification of intention to construct a new affected source, reconstruct an affected source, or reconstruct a source such that the source becomes an affected source, and

(ii) A notification of the actual date of startup of the source, delivered or postmarked within 15 calendar days after that date.

(iii) Unless the owner or operator has requested and received prior permission from the Administrator to submit less than the information in §63.5(d), the notification must include the information required on the application for approval of construction or reconstruction as specified in §63.5(d)(1)(i).

(c) *Request for extension of compliance.* If the owner or operator of an affected source cannot comply with a relevant standard by the applicable compliance date for that source, or if the owner or operator has installed BACT or technology to meet LAER consistent with §63.6(i)(5) of this subpart, he/she may submit to the Administrator (or the State with an approved permit program) a request for an extension of compliance as specified in §63.6(i)(4) through §63.6(i)(6).

(d) *Notification that source is subject to special compliance requirements.* An owner or operator of a new source that is subject to special compliance requirements as specified in §63.6(b)(3) and §63.6(b)(4) shall notify the Administrator of his/her compliance obligations not later than the notification dates established in paragraph (b) of this section for new sources that are not subject to the special provisions.

(e) *Notification of performance test.* The owner or operator of an affected source shall notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin to allow the Administrator to review and approve the site-specific test plan required under §63.7(c), if requested by the Administrator, and to have an observer present during the test.

(f) *Notification of opacity and visible emission observations.* The owner or operator of an affected source shall notify the Administrator in writing of the anticipated date for conducting the opacity or visible emission observations specified in §63.6(h)(5), if such observations are required for the source by a relevant standard. The notification shall be submitted with the notification of the performance test date, as specified in paragraph (e) of this section, or if no performance test is required or visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the initial performance test required under §63.7, the owner or operator shall deliver or postmark the notification not less than 30 days before the opacity or visible emission observations are scheduled to take place.

(g) *Additional notification requirements for sources with continuous monitoring systems.* The owner or operator of an affected source required to use a CMS by a relevant standard shall furnish the Administrator written notification as follows:

(1) A notification of the date the CMS performance evaluation under §63.8(e) is scheduled to begin, submitted simultaneously with the notification of the performance test date required under §63.7(b). If no performance test is required, or if the requirement to conduct a performance test has been waived for an affected source under §63.7(h), the owner or operator shall notify the Administrator in writing of the date of the performance evaluation at least 60 calendar days before the evaluation is scheduled to begin;

(2) A notification that COMS data results will be used to determine compliance with the applicable opacity emission standard during a performance test required by §63.7 in lieu of Method 9 or other opacity emissions test method data, as allowed by §63.6(h)(7)(ii), if compliance with an opacity emission standard is required for the source by a relevant standard. The notification shall be submitted at least 60 calendar days before the performance test is scheduled to begin; and

(3) A notification that the criterion necessary to continue use of an alternative to relative accuracy testing, as provided by §63.8(f)(6), has been exceeded. The notification shall be delivered or postmarked not later than 10 days after the occurrence of such exceedance, and it shall include a description of the nature and cause of the increased emissions.

(h) *Notification of compliance status.* (1) The requirements of paragraphs (h)(2) through (h)(4) of this section apply when an affected source becomes subject to a relevant standard.

(2)(i) Before a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit to the Administrator a notification of compliance status, signed by the responsible official who shall certify its accuracy, attesting to whether the source has complied with the relevant standard. The notification shall list—

(A) The methods that were used to determine compliance;

(B) The results of any performance tests, opacity or visible emission observations, continuous monitoring system (CMS) performance evaluations, and/or other monitoring procedures or methods that were conducted;

(C) The methods that will be used for determining continuing compliance, including a description of monitoring and reporting requirements and test methods;

(D) The type and quantity of hazardous air pollutants emitted by the source (or surrogate pollutants if specified in the relevant standard), reported in units and averaging times and in accordance with the test methods specified in the relevant standard;

(E) If the relevant standard applies to both major and area sources, an analysis demonstrating whether the affected source is a major source (using the emissions data generated for this notification);

(F) A description of the air pollution control equipment (or method) for each emission point, including each control device (or method) for each hazardous air pollutant and the control efficiency (percent) for each control device (or method); and

(G) A statement by the owner or operator of the affected existing, new, or reconstructed source as to whether the source has complied with the relevant standard or other requirements.

(ii) The notification must be sent before the close of business on the 60th day following the completion of the relevant compliance demonstration activity specified in the relevant standard (unless a different reporting period is specified in the standard, in which case the letter must be sent before the close of business on the day the report of the relevant testing or monitoring results is required to be delivered or postmarked). For example, the notification shall be sent before close of business on the 60th (or other required) day following completion of the initial performance test and again before the close of

business on the 60th (or other required) day following the completion of any subsequent required performance test. If no performance test is required but opacity or visible emission observations are required to demonstrate compliance with an opacity or visible emission standard under this part, the notification of compliance status shall be sent before close of business on the 30th day following the completion of opacity or visible emission observations. Notifications may be combined as long as the due date requirement for each notification is met.

(3) After a title V permit has been issued to the owner or operator of an affected source, the owner or operator of such source shall comply with all requirements for compliance status reports contained in the source's title V permit, including reports required under this part. After a title V permit has been issued to the owner or operator of an affected source, and each time a notification of compliance status is required under this part, the owner or operator of such source shall submit the notification of compliance status to the appropriate permitting authority following completion of the relevant compliance demonstration activity specified in the relevant standard.

(4) [Reserved]

(5) If an owner or operator of an affected source submits estimates or preliminary information in the application for approval of construction or reconstruction required in §63.5(d) in place of the actual emissions data or control efficiencies required in paragraphs (d)(1)(ii)(H) and (d)(2) of §63.5, the owner or operator shall submit the actual emissions data and other correct information as soon as available but no later than with the initial notification of compliance status required in this section.

(6) Advice on a notification of compliance status may be obtained from the Administrator.

(i) *Adjustment to time periods or postmark deadlines for submittal and review of required communications.* (1)(i) Until an adjustment of a time period or postmark deadline has been approved by the Administrator under paragraphs (i)(2) and (i)(3) of this section, the owner or operator of an affected source remains strictly subject to the requirements of this part.

(ii) An owner or operator shall request the adjustment provided for in paragraphs (i)(2) and (i)(3) of this section each time he or she wishes to change an applicable time period or postmark deadline specified in this part.

(2) Notwithstanding time periods or postmark deadlines specified in this part for the submittal of information to the Administrator by an owner or operator, or the review of such information by the Administrator, such time periods or deadlines may be changed by mutual agreement between the owner or operator and the Administrator. An owner or operator who wishes to request a change in a time period or postmark deadline for a particular requirement shall request the adjustment in writing as soon as practicable before the subject activity is required to take place. The owner or operator shall include in the request whatever information he or she considers useful to convince the Administrator that an adjustment is warranted.

(3) If, in the Administrator's judgment, an owner or operator's request for an adjustment to a particular time period or postmark deadline is warranted, the Administrator will approve the adjustment. The Administrator will notify the owner or operator in writing of approval or disapproval of the request for an adjustment within 15 calendar days of receiving sufficient information to evaluate the request.

(4) If the Administrator is unable to meet a specified deadline, he or she will notify the owner or operator of any significant delay and inform the owner or operator of the amended schedule.

(j) *Change in information already provided.* Any change in the information already provided under this section shall be provided to the Administrator in writing within 15 calendar days after the change.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16604, Apr. 5, 2002; 68 FR 32601, May 30, 2003]

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§63.10 Recordkeeping and reporting requirements.

(a) *Applicability and general information.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) For affected sources that have been granted an extension of compliance under subpart D of this part, the requirements of this section do not apply to those sources while they are operating under such compliance extensions.

(3) If any State requires a report that contains all the information required in a report listed in this section, an owner or operator may send the Administrator a copy of the report sent to the State to satisfy the requirements of this section for that report.

(4)(i) Before a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit

reports to the appropriate Regional Office of the EPA (to the attention of the Director of the Division indicated in the list of the EPA Regional Offices in §63.13).

(ii) After a State has been delegated the authority to implement and enforce recordkeeping and reporting requirements established under this part, the owner or operator of an affected source in such State subject to such requirements shall submit reports to the delegated State authority (which may be the same as the permitting authority). In addition, if the delegated (permitting) authority is the State, the owner or operator shall send a copy of each report submitted to the State to the appropriate Regional Office of the EPA, as specified in paragraph (a)(4)(i) of this section. The Regional Office may waive this requirement for any reports at its discretion.

(5) If an owner or operator of an affected source in a State with delegated authority is required to submit periodic reports under this part to the State, and if the State has an established timeline for the submission of periodic reports that is consistent with the reporting frequency(ies) specified for such source under this part, the owner or operator may change the dates by which periodic reports under this part shall be submitted (without changing the frequency of reporting) to be consistent with the State's schedule by mutual agreement between the owner or operator and the State. For each relevant standard established pursuant to section 112 of the Act, the allowance in the previous sentence applies in each State beginning 1 year after the affected source's compliance date for that standard. Procedures governing the implementation of this provision are specified in §63.9(i).

(6) If an owner or operator supervises one or more stationary sources affected by more than one standard established pursuant to section 112 of the Act, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required for each source shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the latest compliance date for any relevant standard established pursuant to section 112 of the Act for any such affected source(s). Procedures governing the implementation of this provision are specified in §63.9(i).

(7) If an owner or operator supervises one or more stationary sources affected by standards established pursuant to section 112 of the Act (as amended November 15, 1990) and standards set under part 60, part 61, or both such parts of this chapter, he/she may arrange by mutual agreement between the owner or operator and the Administrator (or the State permitting authority) a common schedule on which periodic reports required by each relevant (i.e., applicable) standard shall be submitted throughout the year. The allowance in the previous sentence applies in each State beginning 1 year after the stationary source is required to be in compliance with the relevant section 112 standard, or 1 year after the stationary source is required to be in compliance with the applicable part 60 or part 61 standard, whichever is latest. Procedures governing the implementation of this provision are specified in §63.9(i).

(b) *General recordkeeping requirements.* (1) The owner or operator of an affected source subject to the provisions of this part shall maintain files of all information (including all reports and notifications) required by this part recorded 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. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

(2) The owner or operator of an affected source subject to the provisions of this part shall maintain relevant records for such source of—

(i) The occurrence and duration of each startup or shutdown when the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards;

(ii) The occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment;

(iii) All required maintenance performed on the air pollution control and monitoring equipment;

(iv)(A) Actions taken during periods of startup or shutdown when the source exceeded applicable emission limitations in a relevant standard and when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)); or

(B) Actions taken during periods of malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3));

(v) All information necessary, including actions taken, to demonstrate conformance with the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)) when all actions taken during periods of startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), and

malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan. (The information needed to demonstrate conformance with the startup, shutdown, and malfunction plan may be recorded using a "checklist," or some other effective form of recordkeeping, in order to minimize the recordkeeping burden for conforming events);

(vi) Each period during which a CMS is malfunctioning or inoperative (including out-of-control periods);

(vii) All required measurements needed to demonstrate compliance with a relevant standard (including, but not limited to, 15-minute averages of CMS data, raw performance testing measurements, and raw performance evaluation measurements, that support data that the source is required to report);

(A) This paragraph applies to owners or operators required to install a continuous emissions monitoring system (CEMS) where the CEMS installed is automated, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. An automated CEMS records and reduces the measured data to the form of the pollutant emission standard through the use of a computerized data acquisition system. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain the most recent consecutive three averaging periods of subhourly measurements and a file that contains a hard copy of the data acquisition system algorithm used to reduce the measured data into the reportable form of the standard.

(B) This paragraph applies to owners or operators required to install a CEMS where the measured data is manually reduced to obtain the reportable form of the standard, and where the calculated data averages do not exclude periods of CEMS breakdown or malfunction. In lieu of maintaining a file of all CEMS subhourly measurements as required under paragraph (b)(2)(vii) of this section, the owner or operator shall retain all subhourly measurements for the most recent reporting period. The subhourly measurements shall be retained for 120 days from the date of the most recent summary or excess emission report submitted to the Administrator.

(C) The Administrator or delegated authority, upon notification to the source, may require the owner or operator to maintain all measurements as required by paragraph (b)(2)(vii), if the administrator or the delegated authority determines these records are required to more accurately assess the compliance status of the affected source.

(viii) All results of performance tests, CMS performance evaluations, and opacity and visible emission observations;

(ix) All measurements as may be necessary to determine the conditions of performance tests and performance evaluations;

(x) All CMS calibration checks;

(xi) All adjustments and maintenance performed on CMS;

(xii) Any information demonstrating whether a source is meeting the requirements for a waiver of recordkeeping or reporting requirements under this part, if the source has been granted a waiver under paragraph (f) of this section;

(xiii) All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under §63.8(f)(6); and

(xiv) All documentation supporting initial notifications and notifications of compliance status under §63.9.

(3) *Recordkeeping requirement for applicability determinations.* If an owner or operator determines that his or her stationary source that emits (or has the potential to emit, without considering controls) one or more hazardous air pollutants regulated by any standard established pursuant to section 112(d) or (f), and that stationary source is in the source category regulated by the relevant standard, but that source is not subject to the relevant standard (or other requirement established under this part) because of limitations on the source's potential to emit or an exclusion, the owner or operator must keep a record of the applicability determination on site at the source for a period of 5 years after the determination, or until the source changes its operations to become an affected source, whichever comes first. The record of the applicability determination must be signed by the person making the determination and include an analysis (or other information) that demonstrates why the owner or operator believes the source is unaffected (e.g., because the source is an area source). The analysis (or other information) must be sufficiently detailed to allow the Administrator to make a finding about the source's applicability status with regard to the relevant standard or other requirement. If relevant, the analysis must be performed in accordance with requirements established in relevant subparts of this part for this purpose for particular categories of stationary sources. If relevant, the analysis should be performed in accordance with EPA guidance materials published to assist sources in making applicability determinations under section 112, if any. The requirements to determine applicability of a standard under §63.1(b)(3) and to record the results of that determination under paragraph (b)(3) of this section shall not by themselves create an obligation for the owner or operator to obtain a title V permit.

(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).

(d) *General reporting requirements.* (1) Notwithstanding the requirements in this paragraph or paragraph (e) of this section, and except as provided in §63.16, the owner or operator of an affected source subject to reporting requirements under this part shall submit reports to the Administrator in accordance with the reporting requirements in the relevant standard(s).

(2) *Reporting results of performance tests.* Before a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of any performance test under §63.7 to the Administrator. After a title V permit has been issued to the owner or operator of an affected source, the owner or operator shall report the results of a required performance test to the appropriate permitting authority. The owner or operator of an affected source shall report the results of the performance test to the Administrator (or the State with an approved permit program) before the close of business on the 60th day following the completion of the performance test, unless specified otherwise in a relevant standard or as approved otherwise in writing by the Administrator. The results of the performance test shall be submitted as part of the notification of compliance status required under §63.9(h).

(3) *Reporting results of opacity or visible emission observations.* The owner or operator of an affected source required to conduct opacity or visible emission observations by a relevant standard shall report the opacity or visible emission results (produced using Test Method 9 or Test Method 22, or an alternative to these test methods) along with the results of the performance test required under §63.7. If no performance test is required, or if visibility or other conditions prevent the opacity or visible emission observations from being conducted concurrently with the performance test required under §63.7, the owner or operator shall report the opacity or visible emission results before the close of business on the 30th day following the completion of the opacity or visible emission observations.

(4) *Progress reports.* The owner or operator of an affected source who is required to submit progress reports as a condition of receiving an extension of compliance under §63.6(i) shall submit such reports to the Administrator (or the State with an approved permit program) by the dates specified in the written extension of compliance.

(5)(i) *Periodic startup, shutdown, and malfunction reports.* If actions taken by an owner or operator during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of an affected source (including actions taken to correct a malfunction) are consistent with the procedures specified in the source's startup, shutdown, and malfunction plan (see §63.6(e)(3)), the owner or operator shall state such information in a startup, shutdown, and malfunction report. Actions taken to minimize emissions during such startups, shutdowns, and malfunctions shall be summarized in the report and may be done in checklist form; if actions taken are the same for each event, only one checklist is necessary. Such a report shall also include 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. Reports shall only be required if a startup or shutdown caused the source to exceed any applicable emission limitation in the relevant emission standards, or if a malfunction occurred during the reporting period. The startup, shutdown, and malfunction report shall consist of a letter, containing the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, that shall be submitted to the Administrator semiannually (or on a more frequent basis if specified otherwise in a relevant standard or as established otherwise by the permitting authority in the source's title V permit). The startup, shutdown, and malfunction report shall be delivered or postmarked by the 30th day following the end of each calendar half (or other calendar reporting period, as appropriate). If the owner or operator is required to submit excess emissions and continuous monitoring system performance (or other periodic) reports under this part, the startup, shutdown, and malfunction reports required under this paragraph may be submitted simultaneously with the excess emissions and continuous monitoring system performance (or other) reports. If startup, shutdown, and malfunction reports are submitted with excess emissions and continuous monitoring system performance (or other periodic) reports, and the owner or operator receives approval to reduce the frequency of reporting for the latter under paragraph (e) of this section, the frequency of reporting for the startup, shutdown, and malfunction reports also may be reduced if the Administrator does not object to the intended change. The procedures to implement the allowance in the preceding sentence shall be the same as the procedures specified in paragraph (e)(3) of this section.

(ii) *Immediate startup, shutdown, and malfunction reports.* Notwithstanding the allowance to reduce the frequency of reporting for periodic startup, shutdown, and malfunction reports under paragraph (d)(5)(i) of this section, any time an action taken by an owner or operator 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. The immediate report required under this paragraph (d)(5)(ii) shall consist of a telephone call (or facsimile (FAX) transmission) to the Administrator within 2 working days after commencing actions inconsistent with the plan, and it shall be followed by a letter, delivered or postmarked within 7 working days after the end of the event, that contains the name, title, and signature of the owner or operator or other responsible official who is certifying its accuracy, explaining the circumstances of the event, the reasons for not following the startup, shutdown, and malfunction plan, describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions), and actions taken to minimize emissions in conformance with §63.6(e)(1)(i). Notwithstanding the requirements of the previous sentence, after the effective date of an approved permit program in the State in which an affected source is located, the owner or operator may make alternative reporting arrangements, in advance, with the permitting authority in that State. Procedures governing the arrangement of alternative reporting requirements under this paragraph (d)(5)(ii) are specified in §63.9(i).

(e) *Additional reporting requirements for sources with continuous monitoring systems*—(1) *General.* When more than one CEMS is used to measure the emissions from one affected source (e.g., multiple breechings, multiple outlets), the owner or operator shall report the results as required for each CEMS.

(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.

(ii) The owner or operator of an affected source using a COMS to determine opacity compliance during any performance test required under §63.7 and described in §63.6(d)(6) shall furnish the Administrator two or, upon request, three copies of a written report of the results of the COMS performance evaluation conducted under §63.8(e). The copies shall be furnished at least 15 calendar days before the performance test required under §63.7 is conducted.

(3) *Excess emissions and continuous monitoring system performance report and summary report.* (i) Excess emissions and parameter monitoring exceedances are defined in relevant standards. The owner or operator of an affected source required to install a CMS by a relevant standard shall submit an excess emissions and continuous monitoring system performance report and/or a summary report to the Administrator semiannually, except when—

(A) More frequent reporting is specifically required by a relevant standard;

(B) The Administrator determines on a case-by-case basis that more frequent reporting is necessary to accurately assess the compliance status of the source; or

(C) [Reserved]

(D) The affected source is complying with the Performance Track Provisions of §63.16, which allows less frequent reporting.

(ii) *Request to reduce frequency of excess emissions and continuous monitoring system performance reports.* Notwithstanding the frequency of reporting requirements specified in paragraph (e)(3)(i) of this section, an owner or operator who is required by a relevant standard to submit excess emissions and continuous monitoring system performance (and summary) reports on a quarterly (or more frequent) basis may reduce the frequency of reporting for that standard to semiannual if the following conditions are met:

(A) For 1 full year (e.g., 4 quarterly or 12 monthly reporting periods) the affected source's excess emissions and continuous monitoring system performance reports continually demonstrate that the source is in compliance with the relevant standard;

(B) The owner or operator continues to comply with all recordkeeping and monitoring requirements specified in this subpart and the relevant standard; and

(C) The Administrator does not object to a reduced frequency of reporting for the affected source, as provided in paragraph (e)(3)(iii) of this section.

(iii) The frequency of reporting of excess emissions and continuous monitoring system performance (and summary) reports required to comply with a relevant standard may be reduced only after the owner or operator notifies the Administrator in writing of his or her intention to make such a change and the Administrator does not object to the intended change. In deciding whether to approve a reduced frequency of reporting, the Administrator may review information concerning the source's entire previous performance history during the 5-year recordkeeping period prior to the intended change, including performance test results, monitoring data, and evaluations of an owner or operator's conformance with operation and maintenance requirements. Such information may be used by the Administrator to make a judgment about the source's potential for noncompliance in the future. If the Administrator disapproves the owner or operator's request to reduce the frequency of reporting, the Administrator will notify the owner or operator in writing within 45 days after receiving notice of the owner or operator's intention. The notification from the Administrator to the owner or operator will specify the grounds on which the disapproval is based. In the absence of a notice of disapproval within 45 days, approval is automatically granted.

(iv) As soon as CMS data indicate that the source is not in compliance with any emission limitation or operating parameter specified in the relevant standard, the frequency of reporting shall revert to the frequency specified in the relevant standard, and the owner or operator shall submit an excess emissions and continuous monitoring system performance (and summary) report for the noncomplying emission points at the next appropriate reporting period following the noncomplying event. After demonstrating ongoing compliance with the relevant standard for another full year, the owner or operator may again request approval from the Administrator to reduce the frequency of reporting for that standard, as provided for in paragraphs (e)(3)(ii) and (e)(3)(iii) of this section.

(v) *Content and submittal dates for excess emissions and monitoring system performance reports.* All excess emissions and monitoring system performance reports and all summary reports, if required, shall be delivered or postmarked by the 30th day following the end of each calendar half or quarter, as appropriate. Written reports of excess emissions or exceedances of process or control system parameters shall include all the information required in paragraphs (c)(5) through (c)(13) of this section, in §§63.8(c)(7) and 63.8(c)(8), and in the relevant standard, and they shall contain the name, title, and signature of the responsible official who is certifying the accuracy of the report. When no excess emissions or exceedances of a parameter have occurred, or a CMS has not been inoperative, out of control, repaired, or adjusted, such information shall be stated in the report.

(vi) *Summary report.* As required under paragraphs (e)(3)(vii) and (e)(3)(viii) of this section, one summary report shall be submitted for the hazardous air pollutants monitored at each affected source (unless the relevant standard specifies that more than one summary report is required, e.g., one summary report for each hazardous air pollutant monitored). The summary report shall be entitled “Summary Report—Gaseous and Opacity Excess Emission and Continuous Monitoring System Performance” and shall contain the following information:

(A) The company name and address of the affected source;

(B) An identification of each hazardous air pollutant monitored at the affected source;

(C) The beginning and ending dates of the reporting period;

(D) A brief description of the process units;

(E) The emission and operating parameter limitations specified in the relevant standard(s);

(F) The monitoring equipment manufacturer(s) and model number(s);

(G) The date of the latest CMS certification or audit;

(H) The total operating time of the affected source during the reporting period;

(I) An emission data summary (or similar summary if the owner or operator monitors control system parameters), including the total duration of excess emissions during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of excess emissions expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total duration of excess emissions during the reporting period into those that are due to startup/shutdown, control equipment problems, process problems, other known causes, and other unknown causes;

(J) A CMS performance summary (or similar summary if the owner or operator monitors control system parameters), including the total CMS downtime during the reporting period (recorded in minutes for opacity and hours for gases), the total duration of CMS downtime expressed as a percent of the total source operating time during that reporting period, and a breakdown of the total CMS downtime during the reporting period into periods that are due to monitoring equipment malfunctions, nonmonitoring equipment malfunctions, quality assurance/quality control calibrations, other known causes, and other unknown causes;

(K) A description of any changes in CMS, processes, or controls since the last reporting period;

(L) The name, title, and signature of the responsible official who is certifying the accuracy of the report; and

(M) The date of the report.

(vii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is less than 1 percent of the total operating time for the reporting period, and CMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report shall be submitted, and the full excess emissions and continuous monitoring system performance report need not be submitted unless required by the Administrator.

(viii) If the total duration of excess emissions or process or control system parameter exceedances for the reporting period is 1 percent or greater of the total operating time for the reporting period, or the total CMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, both the summary report and the excess emissions and continuous monitoring system performance report shall be submitted.

(4) *Reporting continuous opacity monitoring system data produced during a performance test.* The owner or operator of an affected source required to use a COMS shall record the monitoring data produced during a performance test required under §63.7 and shall furnish the Administrator a written report of the monitoring results. The report of COMS data shall be submitted simultaneously with the report of the performance test results required in paragraph (d)(2) of this section.

(f) *Waiver of recordkeeping or reporting requirements.* (1) Until a waiver of a recordkeeping or reporting requirement has been granted by the Administrator under this paragraph, the owner or operator of an affected source remains subject to the requirements of this section.

(2) Recordkeeping or reporting requirements may be waived upon written application to the Administrator if, in the Administrator's judgment, the affected source is achieving the relevant standard(s), or the source is operating under an extension of compliance, or the owner or operator has requested an extension of compliance and the Administrator is still considering that request.

(3) If an application for a waiver of recordkeeping or reporting is made, the application shall accompany the request for an extension of compliance under §63.6(i), any required compliance progress report or compliance status report required under this part (such as under §§63.6(i) and 63.9(h)) or in the source's title V permit, or an excess emissions and continuous monitoring system performance report required under paragraph (e) of this section, whichever is applicable. The application shall include whatever information the owner or operator considers useful to convince the Administrator that a waiver of recordkeeping or reporting is warranted.

(4) The Administrator will approve or deny a request for a waiver of recordkeeping or reporting requirements under this paragraph when he/she—

(i) Approves or denies an extension of compliance; or

(ii) Makes a determination of compliance following the submission of a required compliance status report or excess emissions and continuous monitoring systems performance report; or

(iii) Makes a determination of suitable progress towards compliance following the submission of a compliance progress report, whichever is applicable.

(5) A waiver of any recordkeeping or reporting requirement granted under this paragraph may be conditioned on other recordkeeping or reporting requirements deemed necessary by the Administrator.

(6) Approval of any waiver granted under this section shall not abrogate the Administrator's authority under the Act or in any way prohibit the Administrator from later canceling the waiver. The cancellation will be made only after notice is given to the owner or operator of the affected source.

[59 FR 12430, Mar. 16, 1994, as amended at 64 FR 7468, Feb. 12, 1999; 67 FR 16604, Apr. 5, 2002; 68 FR 32601, May 30, 2003; 69 FR 21752, Apr. 22, 2004; 71 FR 20455, Apr. 20, 2006]

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§63.11 Control device and work practice requirements.

(a) *Applicability.* (1) The applicability of this section is set out in §63.1(a)(4).

(2) This section contains requirements for control devices used to comply with applicable subparts of this part. The requirements are placed here for administrative convenience and apply only to facilities covered by subparts referring to this section.

(3) This section also contains requirements for an alternative work practice used to identify leaking equipment. This alternative work practice is placed here for administrative convenience and is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(b) *Flares.* (1) Owners or operators using flares to comply with the provisions of this part shall monitor these control devices to assure that they are operated and maintained in conformance with their designs. Applicable subparts will provide provisions stating how owners or operators using flares shall monitor these control devices.

(2) Flares shall be steam-assisted, air-assisted, or non-assisted.

(3) Flares shall be operated at all times when emissions may be vented to them.

(4) Flares shall be designed for and operated with no visible emissions, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. Test Method 22 in appendix A of part 60 of this chapter shall be used to determine the compliance of flares with the visible emission provisions of this part. The observation period is 2 hours and shall be used according to Method 22.

(5) Flares shall be operated with a flame present at all times. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

(6) An owner/operator has the choice of adhering to the heat content specifications in paragraph (b)(6)(ii) of this section, and the maximum tip velocity specifications in paragraph (b)(7) or (b)(8) of this section, or adhering to the requirements in paragraph (b)(6)(i) of this section.

(i)(A) Flares shall be used that have a diameter of 3 inches or greater, are nonassisted, have a hydrogen content of 8.0 percent (by volume) or greater, and are designed for and operated with an exit velocity less than 37.2 m/sec (122 ft/sec) and less than the velocity V_{max}, as determined by the following equation:

$$V_{max} = (X_{H2} - K_1) * K_2$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

K_1 = Constant, 6.0 volume-percent hydrogen.

K_2 = Constant, 3.9(m/sec)/volume-percent hydrogen.

X_{H2} = The volume-percent of hydrogen, on a wet basis, as calculated by using the American Society for Testing and Materials (ASTM) Method D1946-77. (Incorporated by reference as specified in §63.14).

(B) The actual exit velocity of a flare shall be determined by the method specified in paragraph (b)(7)(i) of this section.

(ii) Flares shall be used only with the net heating value of the gas being combusted at 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted at 7.45 M/scm (200

Btu/scf) or greater if the flares is non-assisted. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K\sum_{i=1}^{n} C_i H_i$$

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Where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25 °C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20 °C.

K = Constant =

$$1.740\times10^{-7}\left(\frac{1}{ppmv}\right)\left(\frac{\text{g-mole}}{\text{scm}}\right)\left(\frac{\text{MJ}}{\text{kcal}}\right)$$

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where the standard temperature for (g-mole/scm) is 20 °C.

C_i = Concentration of sample component i in ppmv on a wet basis, as measured for organics by Test Method 18 and measured for hydrogen and carbon monoxide by American Society for Testing and Materials (ASTM) D1946-77 or 90 (Reapproved 1994) (incorporated by reference as specified in §63.14).

H_i = Net heat of combustion of sample component i, kcal/g-mole at 25 °C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 or 88 or D4809-95 (incorporated by reference as specified in §63.14) if published values are not available or cannot be calculated.

n = Number of sample components.

(7)(i) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity less than 18.3 m/sec (60 ft/sec), except as provided in paragraphs (b)(7)(ii) and (b)(7)(iii) of this section. The actual exit velocity of a flare shall be determined by dividing by the volumetric flow rate of gas being combusted (in units of emission standard temperature and pressure), as determined by Test Method 2, 2A, 2C, or 2D in appendix A to 40 CFR part 60 of this chapter, as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

(ii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, equal to or greater than 18.3 m/sec (60 ft/sec) but less than 122 m/sec (400 ft/sec), are allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).

(iii) Steam-assisted and nonassisted flares designed for and operated with an exit velocity, as determined by the method specified in paragraph (b)(7)(i) of this section, less than the velocity V_{max}, as determined by the method specified in this paragraph, but less than 122 m/sec (400 ft/sec) are allowed. The maximum permitted velocity, V_{max}, for flares complying with this paragraph shall be determined by the following equation:

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8)/31.7$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

28.8 = Constant.

31.7 = Constant.

H_T = The net heating value as determined in paragraph (b)(6) of this section.

(8) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity V_{max}. The maximum permitted velocity, V_{max}, for air-assisted flares shall be determined by the following equation:

$$V_{max} = 8.71 + 0.708(H_T)$$

Where:

V_{max} = Maximum permitted velocity, m/sec.

8.71 = Constant.

0.708 = Constant.

H_T = The net heating value as determined in paragraph (b)(6)(ii) of this section.

(c) *Alternative work practice for monitoring equipment for leaks.* Paragraphs (c), (d), and (e) of this section apply to all equipment for which the applicable subpart requires monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor, except for closed vent systems, equipment designated as leakless, and equipment identified in the applicable subpart as having no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. An owner or operator may use an optical gas imaging instrument instead of a 40 CFR part 60, sppendix A-7, Method 21 monitor. Requirements in the existing subparts that are specific to the Method 21 instrument do not apply under this section. All other requirements in the applicable subpart that are not addressed in paragraphs (c), (d), and (e) of this section continue to apply. For example, equipment specification requirements, and non-Method 21 instrument recordkeeping and reporting requirements in the applicable subpart continue to apply. The terms defined in paragraphs (c)(1) through (5) of this section have meanings that are specific to the alternative work practice standard in paragraphs (c), (d), and (e) of this section.

(1) *Applicable subpart* means the subpart in 40 CFR parts 60, 61, 63, and 65 that requires monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(2) *Equipment* means pumps, valves, pressure relief valves, compressors, open-ended lines, flanges, connectors, and other equipment covered by the applicable subpart that require monitoring with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(3) *Imaging* means making visible emissions that may otherwise be invisible to the naked eye.

(4) *Optical gas imaging instrument* means an instrument that makes visible emissions that may otherwise be invisible to the naked eye.

(5) *Repair* means that equipment is adjusted, or otherwise altered, in order to eliminate a leak.

(6) *Leak* means:

(i) Any emissions imaged by the optical gas instrument;

(ii) Indications of liquids dripping;

(iii) Indications by a sensor that a seal or barrier fluid system has failed; or

(iv) Screening results using a 40 CFR part 60, appendix A-7, Method 21 monitor that exceed the leak definition in the applicable subpart to which the equipment is subject.

(d) The alternative work practice standard for monitoring equipment for leaks is available to all subparts in 40 CFR parts 60, 61, 63, and 65 that require monitoring of equipment with a 40 CFR part 60, appendix A-7, Method 21 monitor.

(1) An owner or operator of an affected source subject to 40 CFR parts 60, 61, 63, or 65 can choose to comply with the alternative work practice requirements in paragraph (e) of this section instead of using the 40 CFR part 60, appendix A-7, Method 21 monitor to identify leaking equipment. The owner or operator must document the equipment, process units, and facilities for which the alternative work practice will be used to identify leaks.

(2) Any leak detected when following the leak survey procedure in paragraph (e)(3) of this section must be identified for repair as required in the applicable subpart.

(3) If the alternative work practice is used to identify leaks, re-screening after an attempted repair of leaking equipment must be conducted using either the alternative work practice or the 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subparts to which the equipment is subject.

(4) The schedule for repair is as required in the applicable subpart.

(5) When this alternative work practice is used for detecting leaking equipment, choose one of the monitoring frequencies listed in Table 1 to subpart A of this part in lieu of the monitoring frequency specified for regulated equipment in the applicable subpart. Reduced monitoring frequencies for good performance are not applicable when using the alternative work practice.

(6) When this alternative work practice is used for detecting leaking equipment, the following are not applicable for the equipment being monitored:

(i) Skip period leak detection and repair;

(ii) Quality improvement plans; or

(iii) Complying with standards for allowable percentage of valves and pumps to leak.

(7) When the alternative work practice is used to detect leaking equipment, the regulated equipment in paragraph (d)(1)(i) of this section must also be monitored annually using a 40 CFR part 60, Appendix A-7, Method 21 monitor at the leak definition required in the applicable subpart. The owner or operator may choose the specific monitoring period (for example, first quarter) to conduct the annual monitoring. Subsequent monitoring must be conducted every 12 months from the initial period. Owners or operators must keep records of the annual Method 21 screening results, as specified in paragraph (i)(4)(vii) of this section.

(e) An owner or operator of an affected source who chooses to use the alternative work practice must comply with the requirements of paragraphs (e)(1) through (e)(5) of this section.

(1) *Instrument specifications.* The optical gas imaging instrument must comply with the requirements specified in paragraphs (e)(1)(i) and (e)(1)(ii) of this section.

(i) Provide the operator with an image of the potential leak points for each piece of equipment at both the detection sensitivity level and within the distance used in the daily instrument check described in paragraph (e)(2) of this section. The detection sensitivity level depends upon the frequency at which leak monitoring is to be performed.

(ii) Provide a date and time stamp for video records of every monitoring event.

(2) *Daily instrument check.* On a daily basis, and prior to beginning any leak monitoring work, test the optical gas imaging instrument at the mass flow rate determined in paragraph (e)(2)(i) of this section in accordance with the procedure specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each camera configuration used during monitoring (for example, different lenses used), unless an alternative method to demonstrate daily instrument checks has been approved in accordance with paragraph (e)(2)(v) of this section.

(i) Calculate the mass flow rate to be used in the daily instrument check by following the procedures in paragraphs (e)(2)(i)(A) and (e)(2)(i)(B) of this section.

(A) For a specified population of equipment to be imaged by the instrument, determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level.

(B) Multiply the standard detection sensitivity level, corresponding to the selected monitoring frequency in Table 1 of subpart A of this part, by the mass fraction of detectable chemicals from the stream identified in paragraph (e)(2)(i)(A) of this section to determine the mass flow rate to be used in the daily instrument check, using the following equation.

$$E_{dic} = (E_{sds}) \sum_{i=1}^{k} x_i$$

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Where:

E_{dic} = Mass flow rate for the daily instrument check, grams per hour

x_i = Mass fraction of detectable chemical(s) i seen by the optical gas imaging instrument, within the distance to be used in paragraph (e)(2)(iv)(B) of this section, at or below the standard detection sensitivity level, E_{sds}.

E_{sds} = Standard detection sensitivity level from Table 1 to subpart A, grams per hour

k = Total number of detectable chemicals emitted from the leaking equipment and seen by the optical gas imaging instrument.

(ii) Start the optical gas imaging instrument according to the manufacturer's instructions, ensuring that all appropriate settings conform to the manufacturer's instructions.

(iii) Use any gas chosen by the user that can be viewed by the optical gas imaging instrument and that has a purity of no less than 98 percent.

(iv) Establish a mass flow rate by using the following procedures:

(A) Provide a source of gas where it will be in the field of view of the optical gas imaging instrument.

(B) Set up the optical gas imaging instrument at a recorded distance from the outlet or leak orifice of the flow meter that will not be exceeded in the actual performance of the leak survey. Do not exceed the operating parameters of the flow meter.

(C) Open the valve on the flow meter to set a flow rate that will create a mass emission rate equal to the mass rate calculated in paragraph (e)(2)(i) of this section while observing the gas flow through the optical gas imaging instrument

viewfinder. When an image of the gas emission is seen through the viewfinder at the required emission rate, make a record of the reading on the flow meter.

(v) Repeat the procedures specified in paragraphs (e)(2)(ii) through (e)(2)(iv) of this section for each configuration of the optical gas imaging instrument used during the leak survey.

(vi) To use an alternative method to demonstrate daily instrument checks, apply to the Administrator for approval of the alternative under §63.177 or §63.178, whichever is applicable.

(3) *Leak survey procedure.* Operate the optical gas imaging instrument to image every regulated piece of equipment selected for this work practice in accordance with the instrument manufacturer's operating parameters. All emissions imaged by the optical gas imaging instrument are considered to be leaks and are subject to repair. All emissions visible to the naked eye are also considered to be leaks and are subject to repair.

(4) *Recordkeeping.* Keep the records described in paragraphs (e)(4)(i) through (e)(4)(vii) of this section:

(i) The equipment, processes, and facilities for which the owner or operator chooses to use the alternative work practice.

(ii) The detection sensitivity level selected from Table 1 to subpart A of this part for the optical gas imaging instrument.

(iii) The analysis to determine the piece of equipment in contact with the lowest mass fraction of chemicals that are detectable, as specified in paragraph (e)(2)(i)(A) of this section.

(iv) The technical basis for the mass fraction of detectable chemicals used in the equation in paragraph (e)(2)(i)(B) of this section.

(v) The daily instrument check. Record the distance, per paragraph (e)(2)(iv)(B) of this section, and the flow meter reading, per paragraph (e)(2)(iv)(C) of this section, at which the leak was imaged. Keep a video record of the daily instrument check for each configuration of the optical gas imaging instrument used during the leak survey (for example, the daily instrument check must be conducted for each lens used). The video record must include a time and date stamp for each daily instrument check. The video record must be kept for 5 years.

(vi) *Recordkeeping requirements in the applicable subpart.* A video record must be used to document the leak survey results. The video record must include a time and date stamp for each monitoring event. A video record can be used to meet the recordkeeping requirements of the applicable subparts if each piece of regulated equipment selected for this work practice can be identified in the video record. The video record must be kept for 5 years.

(vii) The results of the annual Method 21 screening required in paragraph (h)(7) of this section. Records must be kept for all regulated equipment specified in paragraph (h)(1) of this section. Records must identify the equipment screened, the screening value measured by Method 21, the time and date of the screening, and calibration information required in the existing applicable subparts.

(5) *Reporting.* Submit the reports required in the applicable subpart. Submit the records of the annual Method 21 screening required in paragraph (h)(7) of this section to the Administrator via e-mail to *CCG-AWP@EPA.GOV.*

[59 FR 12430, Mar. 16, 1994, as amended at 63 FR 24444, May 4, 1998; 65 FR 62215, Oct. 17, 2000; 67 FR 16605, Apr. 5, 2002; 73 FR 78211, Dec. 22, 2008]

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§63.12 State authority and delegations.

(a) The provisions of this part shall not be construed in any manner to preclude any State or political subdivision thereof from—

(1) Adopting and enforcing any standard, limitation, prohibition, or other regulation applicable to an affected source subject to the requirements of this part, provided that such standard, limitation, prohibition, or regulation is not less stringent than any requirement applicable to such source established under this part;

(2) Requiring the owner or operator of an affected source to obtain permits, licenses, or approvals prior to initiating construction, reconstruction, modification, or operation of such source; or

(3) Requiring emission reductions in excess of those specified in subpart D of this part as a condition for granting the extension of compliance authorized by section 112(i)(5) of the Act.

(b)(1) Section 112(l) of the Act directs the Administrator to delegate to each State, when appropriate, the authority to implement and enforce standards and other requirements pursuant to section 112 for stationary sources located in that State. Because of the unique nature of radioactive material, delegation of authority to implement and enforce standards that control radionuclides may require separate approval.

(2) Subpart E of this part establishes procedures consistent with section 112(l) for the approval of State rules or programs to implement and enforce applicable Federal rules promulgated under the authority of section 112. Subpart E also establishes procedures for the review and withdrawal of section 112 implementation and enforcement authorities granted through a section 112(l) approval.

(c) All information required to be submitted to the EPA under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act, provided that each specific delegation may exempt sources from a certain Federal or State reporting requirement. The Administrator may permit all or some of the information to be submitted to the appropriate State agency only, instead of to the EPA and the State agency.

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§63.13 Addresses of State air pollution control agencies and EPA Regional Offices.

(a) All requests, reports, applications, submittals, and other communications to the Administrator pursuant to this part shall be submitted to the appropriate Regional Office of the U.S. Environmental Protection Agency indicated in the following list of EPA Regional Offices.

EPA Region I (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) Director, Enforcement and Compliance Assurance Division, U.S. EPA Region I, 5 Post Office Square—Suite 100 (04-2), Boston, MA 02109-3912, Attn: Air Compliance Clerk.

EPA Region II (New Jersey, New York, Puerto Rico, Virgin Islands), Director, Air and Waste Management Division, 26 Federal Plaza, New York, NY 10278.

EPA Region III (Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia), Director, Air Protection Division, 1650 Arch Street, Philadelphia, PA 19103.

EPA Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee). Director, Air, Pesticides and Toxics Management Division, Atlanta Federal Center, 61 Forsyth Street, Atlanta, GA 30303-3104.

EPA Region V (Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin), Director, Air and Radiation Division, 77 West Jackson Blvd., Chicago, IL 60604-3507.

EPA Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas); Director; Enforcement and Compliance Assurance Division; U.S. Environmental Protection Agency, 1201 Elm Street, Suite 500, Mail Code 6ECD, Dallas, Texas 75270-2102.

EPA Region VII (Iowa, Kansas, Missouri, Nebraska), Director, Air and Waste Management Division, 11201 Renner Boulevard, Lenexa, Kansas 66219.

EPA Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming) Director, Air and Toxics Technical Enforcement Program, Office of Enforcement, Compliance and Environmental Justice, Mail Code 8ENF-AT, 1595 Wynkoop Street, Denver, CO 80202-1129.

EPA Region IX (Arizona, California, Hawaii, Nevada; the territories of American Samoa and Guam; the Commonwealth of the Northern Mariana Islands; the territories of Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Palmyra Atoll, and Wake Islands; and certain U.S. Government activities in the freely associated states of the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau), Director, Air Division, 75 Hawthorne Street, San Francisco, CA 94105.

EPA Region X (Alaska, Idaho, Oregon, Washington), Director, Office of Air Quality, 1200 Sixth Avenue (OAQ-107), Seattle, WA 98101.

(b) All information required to be submitted to the Administrator under this part also shall be submitted to the appropriate State agency of any State to which authority has been delegated under section 112(l) of the Act. The owner or operator of an affected source may contact the appropriate EPA Regional Office for the mailing addresses for those States whose delegation requests have been approved.

(c) If any State requires a submittal that contains all the information required in an application, notification, request, report, statement, or other communication required in this part, an owner or operator may send the appropriate Regional Office of the EPA a copy of that submittal to satisfy the requirements of this part for that communication.

[59 FR 12430, Mar. 16, 1994, as amended at 63 FR 66061, Dec. 1, 1998; 67 FR 4184, Jan. 29, 2002; 68 FR 32601, May 30, 2003; 68 FR 35792, June 17, 2003; 73 FR 24871, May 6, 2008; 75 FR 69532, Nov. 12, 2010; 76 FR 49673, Aug. 11, 2011; 78 FR 37977, June 25, 2013; 84 FR 34069, July 17, 2019; 84 FR 44230, Aug. 23, 2019]

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§63.14 Incorporations by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the EPA must publish notice of change in the FEDERAL REGISTER and the material must be available to the public. All approved material is available

for inspection at the Air and Radiation Docket and Information Center, U.S. EPA, 401 M St. SW., Washington, DC, telephone number 202-566, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to *www.archives.gov/federal-register/cfr/ibr-locations.html.*

(b) American Conference of Governmental Industrial Hygienists (ACGIH), Customer Service Department, 1330 Kemper Meadow Drive, Cincinnati, Ohio 45240, telephone number (513) 742-2020.

(1) Industrial Ventilation: A Manual of Recommended Practice, 22nd Edition, 1995, Chapter 3, “Local Exhaust Hoods” and Chapter 5, “Exhaust System Design Procedure.” IBR approved for §§63.843(b) and 63.844(b).

(2) Industrial Ventilation: A Manual of Recommended Practice, 23rd Edition, 1998, Chapter 3, “Local Exhaust Hoods” and Chapter 5, “Exhaust System Design Procedure.” IBR approved for §§63.1503, 63.1506(c), 63.1512(e), Table 2 to subpart RRR, Table 3 to subpart RRR, and appendix A to subpart RRR, and §63.2984(e).

(3) Industrial Ventilation: A Manual of Recommended Practice for Design, 27th Edition, 2010. IBR approved for §§63.1503, 63.1506(c), 63.1512(e), Table 2 to subpart RRR, Table 3 to subpart RRR, and appendix A to subpart RRR, and §63.2984(e).

(c) American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005.

(1) API Publication 2517, Evaporative Loss from External Floating-Roof Tanks, Third Edition, February 1989, IBR approved for §§63.111, 63.1402, and 63.2406.

(2) API Publication 2518, Evaporative Loss from Fixed-roof Tanks, Second Edition, October 1991, IBR approved for §63.150(g).

(3) API Manual of Petroleum Measurement Specifications (MPMS) Chapter 19.2 (API MPMS 19.2), Evaporative Loss From Floating-Roof Tanks, First Edition, April 1997, IBR approved for §§63.1251 and 63.12005.

(d) American Society of Heating, Refrigerating, and Air-Conditioning Engineers at 1791 Tullie Circle, NE., Atlanta, GA 30329 *orders@ashrae.org.*

(1) American Society of Heating, Refrigerating, and Air Conditioning Engineers Method 52.1, “Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter, June 4, 1992,” IBR approved for §§63.11173(e) and 63.11516(d).

(2) [Reserved]

(e) American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990, Telephone (800) 843-2763, *http://www.asme.org;* also available from HIS, Incorporated, 15 Inverness Way East, Englewood, CO 80112, Telephone (877) 413-5184, *http://global.ihs.com.*

(1) ANSI/ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses [Part 10, Instruments and Apparatus], issued August 31, 1981, IBR approved for §§63.309(k), 63.457(k), 63.772(e) and (h), 63.865(b), 63.1282(d) and (g), 63.1625(b), 63.3166(a), 63.3360(e), 63.3545(a), 63.3555(a), 63.4166(a), 63.4362(a), 63.4766(a), 63.4965(a), 63.5160(d), table 4 to subpart UUUU, 63.9307(c), 63.9323(a), 63.11148(e), 63.11155(e), 63.11162(f), 63.11163(g), 63.11410(j), 63.11551(a), 63.11646(a), and 63.11945, table 5 to subpart DDDDD, table 4 to subpart JJJJJ, table 4 to subpart KKKKK, tables 4 and 5 of subpart UUUUU, table 1 to subpart ZZZZZ, and table 4 to subpart JJJJJJ.

(2) [Reserved]

(f) The Association of Florida Phosphate Chemists, P.O. Box 1645, Bartow, Florida 33830.

(1) Book of Methods Used and Adopted By The Association of Florida Phosphate Chemists, Seventh Edition 1991:

(i) Section IX, Methods of Analysis for Phosphate Rock, No. 1 Preparation of Sample, IBR approved for §63.606(f), §63.626(f).

(ii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method A—Volumetric Method, IBR approved for §63.606(f), §63.626(f).

(iii) Section IX, Methods of Analysis for Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(f), §63.626(f).

(iv) Section IX, Methods of Analysis For Phosphate Rock, No. 3 Phosphorus-P2O5 or Ca3(PO4)2, Method C—Spectrophotometric Method, IBR approved for §63.606(f), §63.626(f).

(v) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method A—Volumetric Method, IBR approved for §63.606(f), §63.626(f), and (g).

(vi) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method B—Gravimetric Quimociac Method, IBR approved for §63.606(f), §63.626(f), and (g).

(vii) Section XI, Methods of Analysis for Phosphoric Acid, Superphosphate, Triple Superphosphate, and Ammonium Phosphates, No. 3 Total Phosphorus-P2O5, Method C—Spectrophotometric Method, IBR approved for §63.606(f), §63.626(f), and (g).

(2) [Reserved]

(g) Association of Official Analytical Chemists (AOAC) International, Customer Services, Suite 400, 2200 Wilson Boulevard, Arlington, Virginia 22201-3301, Telephone (703) 522-3032, Fax (703) 522-5468.

(1) AOAC Official Method 929.01 Sampling of Solid Fertilizers, Sixteenth edition, 1995, IBR approved for §63.626(g).

(2) AOAC Official Method 929.02 Preparation of Fertilizer Sample, Sixteenth edition, 1995, IBR approved for §63.626(g).

(3) AOAC Official Method 957.02 Phosphorus (Total) in Fertilizers, Preparation of Sample Solution, Sixteenth edition, 1995, IBR approved for §63.626(g).

(4) AOAC Official Method 958.01 Phosphorus (Total) in Fertilizers, Spectrophotometric Molybdovanadophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(5) AOAC Official Method 962.02 Phosphorus (Total) in Fertilizers, Gravimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(6) AOAC Official Method 969.02 Phosphorus (Total) in Fertilizers, Alkalimetric Quinolinium Molybdophosphate Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(7) AOAC Official Method 978.01 Phosphorus (Total) in Fertilizers, Automated Method, Sixteenth edition, 1995, IBR approved for §63.626(g).

(h) ASTM International, 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428-2959, Telephone (610) 832-9585, *http://www.astm.org;* also available from ProQuest, 789 East Eisenhower Parkway, Ann Arbor, MI 48106-1346, Telephone (734) 761-4700, *http://www.proquest.com.*

(1) ASTM D95-05 (Reapproved 2010), Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation, approved May 1, 2010, IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(2) ASTM D240-09 Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter, approved July 1, 2009, IBR approved for table 6 to subpart DDDDD.

(3) ASTM Method D388-05, Standard Classification of Coals by Rank, approved September 15, 2005, IBR approved for §§63.7575, 63.10042, and 63.11237.

(4) ASTM Method D396-10, Standard Specification for Fuel Oils, including Appendix X1, approved October 1, 2010, IBR approved for §63.10042.

(5) ASTM D396-10, Standard Specification for Fuel Oils, approved October 1, 2010, IBR approved for §§63.7575 and 63.11237.

(6) ASTM D523-89, Standard Test Method for Specular Gloss, IBR approved for §63.782.

(7) ASTM D975-11b, Standard Specification for Diesel Fuel Oils, approved December 1, 2011, IBR approved for §63.7575.

(8) ASTM D1193-77, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(9) ASTM D1193-91, Standard Specification for Reagent Water, IBR approved for appendix A to part 63: Method 306, Sections 7.1.1 and 7.4.2.

(10) ASTM D1331-89, Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents, IBR approved for appendix A to part 63: Method 306B, Sections 6.2, 11.1, and 12.2.2.

(11) ASTM D1475-90, Standard Test Method for Density of Paint, Varnish Lacquer, and Related Products, IBR approved for appendix A to subpart II.

(12) ASTM D1475-98 (Reapproved 2003), “Standard Test Method for Density of Liquid Coatings, Inks, and Related Products,” IBR approved for §§63.3151(b), 63.3941(b) and (c), 63.3951(c), 63.4141(b) and (c), and 63.4551(c).

(13) ASTM D1475-13, Standard Test Method for Density of Liquid Coatings, Inks, and Related Products, approved November 1, 2013, IBR approved for §§63.4141(b) and (c), 63.4741(b) and (c), 63.4751(c), and 63.4941(b) and (c).

(14) ASTM Method D1835-05, Standard Specification for Liquefied Petroleum (LP) Gases, approved April 1, 2005, IBR approved for §§63.7575 and 63.11237.

(15) ASTM D1945-03 (Reapproved 2010), Standard Test Method for Analysis of Natural Gas by Gas Chromatography, Approved January 1, 2010, IBR approved for §§63.670(j), 63.772(h), and 63.1282(g).

(16) ASTM D1945-14, Standard Test Method for Analysis of Natural Gas by Gas Chromatography, Approved November 1, 2014, IBR approved for §63.670(j).

(17) ASTM D1946-77, Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §63.11(b).

(18) ASTM D1946-90 (Reapproved 1994), Standard Method for Analysis of Reformed Gas by Gas Chromatography, IBR approved for §§63.11(b) and 63.1412.

(19) ASTM D2013/D2013M-09, Standard Practice for Preparing Coal Samples for Analysis, (Approved November 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(20) ASTM D2099-00, Standard Test Method for Dynamic Water Resistance of Shoe Upper Leather by the Maeser Water Penetration Tester, IBR approved for §63.5350.

(21) ASTM D2111-10 (Reapproved 2015), Standard Test Methods for Specific Gravity and Density of Halogenated Organic Solvents and Their Admixtures, approved June 1, 2015, IBR approved for §§63.4141(b) and (c) and 63.4741(a).

(22) ASTM D2216-05, Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass, IBR approved for the definition of “Free organic liquids” in §63.10692.

(23) ASTM D2234/D2234M-10, Standard Practice for Collection of a Gross Sample of Coal, approved January 1, 2010, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ .

(24) ASTM D2369-93, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(25) ASTM D2369-95, Standard Test Method for Volatile Content of Coatings, IBR approved for appendix A to subpart II.

(26) ASTM D2369-10 (Reapproved 2015)^{e}, Standard Test Method for Volatile Content of Coatings, approved June 1, 2015, IBR approved for §§63.4141(a) and (b), 63.4161(h), 63.4321(e), 63.4341(e), 63.4351(d), 63.4741(a), 63.4941(a) and (b), and 63.4961(j).

(27) ASTM D2382-76, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §63.11(b).

(28) ASTM D2382-88, Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method), IBR approved for §63.11(b).

(29) ASTM D2697-86 (Reapproved 1998), Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, IBR approved for §§63.3161(f), 63.3521(b), 63.3941(b), 63.4141(b), 63.4741(b), 63.4941(b), and 63.5160(c).

(30) ASTM D2697-03 (Reapproved 2014), Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings, approved July 1, 2014, IBR approved for §§63.4141(b), 63.4741(a) and (b), and 63.4941(b).

(31) ASTM D2879-83, Standard Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, IBR approved for §§63.111, 63.1402, 63.2406, and 63.12005.

(32) ASTM D2879-96, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope, (Approved 1996), IBR approved for §§63.111, 63.2406, and 63.12005.

(33) ASTM D2908-74, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved June 27, 1974, IBR approved for §63.1329(c).

(34) ASTM D2908-91, Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 15, 1991, IBR approved for §63.1329(c).

(35) ASTM D2908-91(Reapproved 2001), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 15, 1991, IBR approved for §63.1329(c).

(36) ASTM D2908-91(Reapproved 2005), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved December 1, 2005, IBR approved for §63.1329(c).

(37) ASTM D2908-91(Reapproved 2011), Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography, Approved May 1, 2011, IBR approved for §63.1329(c).

(38) ASTM D2986-95A, “Standard Practice for Evaluation of Air Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test,” approved September 10, 1995, IBR approved for section 7.1.1 of Method 315 in appendix A to this part.

(39) ASTM D3173-03 (Reapproved 2008), Standard Test Method for Moisture in the Analysis Sample of Coal and Coke, (Approved February 1, 2008), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(40) ASTM D3257-93, Standard Test Methods for Aromatics in Mineral Spirits by Gas Chromatography, IBR approved for §63.786(b).

(41) ASTM D3370-76, Standard Practices for Sampling Water, Approved August 27, 1976, IBR approved for §63.1329(c).

(42) ASTM D3370-95a, Standard Practices for Sampling Water from Closed Conduits, Approved September 10, 1995, IBR approved for §63.1329(c).

(43) ASTM D3370-07, Standard Practices for Sampling Water from Closed Conduits, Approved December 1, 2007, IBR approved for §63.1329(c).

(44) ASTM D3370-08, Standard Practices for Sampling Water from Closed Conduits, Approved October 1, 2008, IBR approved for §63.1329(c).

(45) ASTM D3370-10, Standard Practices for Sampling Water from Closed Conduits, Approved December 1, 2010, IBR approved for §63.1329(c).

(46) ASTM D3588-98 (Reapproved 2003), Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels, (Approved May 10, 2003), IBR approved for §§63.772(h) and 63.1282(g).

(47) ASTM D3695-88, Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography, IBR approved for §63.365(e).

(48) ASTM D3792-91, Standard Method for Water Content of Water-Reducible Paints by Direct Injection into a Gas Chromatograph, IBR approved for appendix A to subpart II.

(49) ASTM D3912-80, Standard Test Method for Chemical Resistance of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(50) ASTM D4006-11, Standard Test Method for Water in Crude Oil by Distillation, including Annex A1 and Appendix X1, (Approved June 1, 2011), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(51) ASTM D4017-81, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(52) ASTM D4017-90, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(53) ASTM D4017-96a, Standard Test Method for Water in Paints and Paint Materials by the Karl Fischer Titration Method, IBR approved for appendix A to subpart II.

(54) ASTM D4057-06 (Reapproved 2011), Standard Practice for Manual Sampling of Petroleum and Petroleum Products, including Annex A1, (Approved June 1, 2011), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(55) ASTM D4082-89, Standard Test Method for Effects of Gamma Radiation on Coatings for Use in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(56) ASTM D4084-07, Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method), (Approved June 1, 2007), IBR approved for table 6 to subpart DDDDD.

(57) ASTM D4177-95 (Reapproved 2010), Standard Practice for Automatic Sampling of Petroleum and Petroleum Products, including Annexes A1 through A6 and Appendices X1 and X2, (Approved May 1, 2010), IBR approved for §63.10005(i) and table 6 to subpart DDDDD.

(58) ASTM D4208-02 (Reapproved 2007), Standard Test Method for Total Chlorine in Coal by the Oxygen Bomb Combustion/Ion Selective Electrode Method, approved May 1, 2007, IBR approved for table 6 to subpart DDDDD.

(59) ASTM D4239-14e1, “Standard Test Method for Sulfur in the Analysis Sample of Coal and Coke Using High-Temperature Tube Furnace Combustion,” approved March 1, 2014, IBR approved for §63.849(f).

(60) ASTM D4256-89, Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(61) ASTM D4256-89 (Reapproved 94), Standard Test Method for Determination of the Decontaminability of Coatings Used in Light-Water Nuclear Power Plants, IBR approved for §63.782.

(62) ASTM D4606-03 (Reapproved 2007), Standard Test Method for Determination of Arsenic and Selenium in Coal by the Hydride Generation/Atomic Absorption Method, (Approved October 1, 2007), IBR approved for table 6 to subpart DDDDD.

(63) ASTM D4809-95, Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method), IBR approved for §63.11(b).

(64) ASTM D4840-99 (Reapproved 2018)^{e}, Standard Guide for Sampling Chain-of-Custody Procedures, approved August 15, 2018, IBR approved for appendix A to part 63.

(65) ASTM D4891-89 (Reapproved 2006), Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion, (Approved June 1, 2006), IBR approved for §§63.772(h) and 63.1282(g).

(66) ASTM D5066-91 (Reapproved 2001), Standard Test Method for Determination of the Transfer Efficiency Under Production Conditions for Spray Application of Automotive Paints-Weight Basis, IBR approved for §63.3161(g).

(67) ASTM D5087-02, Standard Test Method for Determining Amount of Volatile Organic Compound (VOC) Released from Solventborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for §63.3165(e) and appendix A to subpart IIII.

(68) ASTM D5192-09, Standard Practice for Collection of Coal Samples from Core, (Approved June 1, 2009), IBR approved for table 6 to subpart DDDDD.

(69) ASTM D5198-09, Standard Practice for Nitric Acid Digestion of Solid Waste, (Approved February 1, 2009), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(70) ASTM D5228-92, Standard Test Method for Determination of Butane Working Capacity of Activated Carbon, (Reapproved 2005), IBR approved for §63.11092(b).

(71) ASTM D5291-02, Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants, IBR approved for appendix A to subpart MMMM.

(72) ASTM D5790-95, Standard Test Method for Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, IBR approved for Table 4 to subpart UUUU.

(73) ASTM D5864-11, Standard Test Method for Determining Aerobic Aquatic Biodegradation of Lubricants or Their Components, (Approved March 1, 2011), IBR approved for table 6 to subpart DDDDD.

(74) ASTM D5865-10a, Standard Test Method for Gross Calorific Value of Coal and Coke, (Approved May 1, 2010), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(75) ASTM D5954-98 (Reapproved 2006), Test Method for Mercury Sampling and Measurement in Natural Gas by Atomic Absorption Spectroscopy, (Approved December 1, 2006), IBR approved for table 6 to subpart DDDDD.

(76) ASTM D5965-02, Standard Test Methods for Specific Gravity of Coating Powders, IBR approved for §§63.3151(b) and 63.3951(c).

(77) ASTM D6053-00, Standard Test Method for Determination of Volatile Organic Compound (VOC) Content of Electrical Insulating Varnishes, IBR approved for appendix A to subpart MMMM.

(78) ASTM D6093-97 (Reapproved 2003), Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer, IBR approved for §§63.3161, 63.3521, 63.3941, and 63.5160(c).

(79) ASTM D6093-97 (Reapproved 2016), Standard Test Method for Percent Volume Nonvolatile Matter in Clear or Pigmented Coatings Using a Helium Gas Pycnometer, Approved December 1, 2016, IBR approved for §§63.4141(b), 63.4741(a) and (b), and 63.4941(b).

(80) ASTM D6196-03 (Reapproved 2009), Standard Practice for Selection of Sorbents, Sampling, and Thermal Desorption Analysis Procedures for Volatile Organic Compounds in Air, Approved March 1, 2009, IBR approved for appendix A to this part: Method 325A and Method 325B.

(81) ASTM D6266-00a, Test Method for Determining the Amount of Volatile Organic Compound (VOC) Released from Waterborne Automotive Coatings and Available for Removal in a VOC Control Device (Abatement), IBR approved for §63.3165(e).

(82) ASTM D6323-98 (Reapproved 2003), Standard Guide for Laboratory Subsampling of Media Related to Waste Management Activities, (Approved August 10, 2003), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(83) ASTM D6348-03, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, IBR approved for §§63.457(b) and 63.1349, table 4 to subpart DDDD, table 4 to subpart ZZZZ, and table 8 to subpart HHHHHHH.

(84) ASTM D6348-03 (Reapproved 2010), Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, including Annexes A1 through A8, Approved October 1, 2010, IBR approved for §§63.1571(a), 63.4751(i), 63.4752(e), 63.4766(b), tables 4 and 5 to subpart JJJJJ, tables 4 and 6 to subpart KKKKK, tables 1, 2, and 5 to subpart UUUUU and appendix B to subpart UUUUU.

(85) ASTM D6348-12e1, Standard Test Method for Determination of Gaseous Compounds by Extractive Direct Interface Fourier Transform Infrared (FTIR) Spectroscopy, Approved February 1, 2012, IBR approved for §63.1571(a).

(86) ASTM D6350-98 (Reapproved 2003), Standard Test Method for Mercury Sampling and Analysis in Natural Gas by Atomic Fluorescence Spectroscopy, (Approved May 10, 2003), IBR approved for table 6 to subpart DDDDD.

(87) ASTM D6357-11, Test Methods for Determination of Trace Elements in Coal, Coke, and Combustion Residues from Coal Utilization Processes by Inductively Coupled Plasma Atomic Emission Spectrometry, (Approved April 1, 2011), IBR approved for table 6 to subpart DDDDD.

(88) ASTM D6376-10, “Standard Test Method for Determination of Trace Metals in Petroleum Coke by Wavelength Dispersive X-Ray Fluorescence Spectroscopy,” Approved July 1, 2010, IBR approved for §63.849(f).

(89) ASTM D6420-99, Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, IBR approved for §§63.5799, 63.5850, and Table 4 of Subpart UUUU.

(90) ASTM D6420-99 (Reapproved 2004), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, (Approved October 1, 2004), IBR approved for §§63.457(b), 63.485(g), 60.485a(g), 63.772(a), 63.772(e), 63.1282(a) and (d), 63.2351(b), and 63.2354(b), and table 8 to subpart HHHHHHH.

(91) ASTM D6420-99 (Reapproved 2010), Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry, Approved October 1, 2010, IBR approved for §63.670(j) and appendix A to this part: Method 325B.

(92) ASTM D6522-00, Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers, IBR approved for §63.9307(c).

(93) ASTM D6522-00 (Reapproved 2005), Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas Fired Reciprocating Engines, Combustion Turbines, Boilers, and

Process Heaters Using Portable Analyzers, (Approved October 1, 2005), IBR approved for table 4 to subpart ZZZZ, table 5 to subpart DDDDDD, table 4 to subpart JJJJJJ, and §§63.772(e) and (h)) and 63.1282(d) and (g).

(94) ASTM D6721-01 (Reapproved 2006), Standard Test Method for Determination of Chlorine in Coal by Oxidative Hydrolysis Microcoulometry, (Approved April 1, 2006), IBR approved for table 6 to subpart DDDDD.

(95) ASTM D6722-01 (Reapproved 2006), Standard Test Method for Total Mercury in Coal and Coal Combustion Residues by the Direct Combustion Analysis, (Approved April 1, 2006), IBR approved for Table 6 to subpart DDDDD and Table 5 to subpart JJJJJJ.

(96) ASTM D6735-01 (Reapproved 2009), Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method, IBR approved for tables 4 and 5 to subpart JJJJJ and tables 4 and 6 to subpart KKKKK.

(97) ASTM D6751-11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels, (Approved July 15, 2011), IBR approved for §§63.7575 and 63.11237.

(98) ASTM D6784-02 (Reapproved 2008), Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method), (Approved April 1, 2008), IBR approved for §§63.11646(a), 63.11647(a) and (d), tables 1, 2, 5, 11, 12t, and 13 to subpart DDDDD, tables 4 and 5 to subpart JJJJJ, tables 4 and 6 to subpart KKKKK, table 4 to subpart JJJJJJ, table 5 to subpart UUUUU, and appendix A to subpart UUUUU.

(99) ASTM D6883-04, Standard Practice for Manual Sampling of Stationary Coal from Railroad Cars, Barges, Trucks, or Stockpiles, (Approved June 1, 2004), IBR approved for table 6 to subpart DDDDD.

(100) ASTM D7430-11ae1, Standard Practice for Mechanical Sampling of Coal, (Approved October 1, 2011), IBR approved for table 6 to subpart DDDDD.

(101) ASTM D7520-13, Standard Test Method for Determining the Opacity of a Plume in an Outdoor Ambient Atmosphere, approved December 1, 2013. IBR approved for §§63.1510(f), 63.1511(d), 63.1512(a), 63.1517(b) and 63.1625(b).

(102) ASTM D7520-16, Standard Test Method for Determining the Opacity of a Plume in the Outdoor Ambient Atmosphere, approved April 1, 2016, IBR approved for §§63.1625(b).

(103) ASTM E145-94 (Reapproved 2001), Standard Specification for Gravity-Convection and Forced-Ventilation Ovens, IBR approved for appendix A to subpart PPPP.

(104) ASTM E180-93, Standard Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals, IBR approved for §63.786(b).

(105) ASTM E260-91, General Practice for Packed Column Gas Chromatography, IBR approved for §§63.750(b) and 63.786(b).

(106) ASTM E260-96, General Practice for Packed Column Gas Chromatography, IBR approved for §§63.750(b) and 63.786(b).

(107) ASTM E515-95 (Reapproved 2000), Standard Test Method for Leaks Using Bubble Emission Techniques, IBR approved for §63.425(i).

(108) ASTM E711-87 (Reapproved 2004), Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter, (Approved August 28, 1987), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(109) ASTM E776-87 (Reapproved 2009), Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel, (Approved July 1, 2009), IBR approved for table 6 to subpart DDDDD.

(110) ASTM E871-82 (Reapproved 2006), Standard Test Method for Moisture Analysis of Particulate Wood Fuels, (Approved November 1, 2006), IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(111) ASTM UOP539-12, Refinery Gas Analysis by GC, Copyright 2012 (to UOP), IBR approved for §63.670(j).

(i) Bay Area Air Quality Management District (BAAQMD), 939 Ellis Street, San Francisco, California 94109, *http://www.arb.ca.gov/DRDB/BA/CURHTML/ST/st30.pdf.*

(1) “BAAQMD Source Test Procedure ST-30—Static Pressure Integrity Test, Underground Storage Tanks,” adopted November 30, 1983, and amended December 21, 1994, IBR approved for §63.11120(a).

(2) [Reserved]

(j) British Standards Institute, 389 Chiswick High Road, London W4 4AL, United Kingdom.

(1) BS EN 1593:1999, Non-destructive Testing: Leak Testing—Bubble Emission Techniques, IBR approved for §63.425(i).

(2) BS EN 14662-4:2005, Ambient air quality standard method for the measurement of benzene concentrations—Part 4: Diffusive sampling followed by thermal desorption and gas chromatography, Published June 27, 2005, IBR approved for appendix A to this part: Method 325A and Method 325B.

(k) California Air Resources Board (CARB), 1001 I Street, P.O. Box 2815, Sacramento, CA 95812-2815, Telephone (916) 327-0900, *http://www.arb.ca.gov/*.

(1) Method 428, "Determination Of Polychlorinated Dibenzo-P-Dioxin (PCDD), Polychlorinated Dibenzofuran (PCDF), and Polychlorinated Biphenyle Emissions from Stationary Sources," amended September 12, 1990, IBR approved for §63.849(a)(13) and (14).

(2) Method 429, Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources, Adopted September 12, 1989, Amended July 28, 1997, IBR approved for §63.1625(b).

(3) California Air Resources Board Vapor Recovery Test Procedure TP-201.1—"Volumetric Efficiency for Phase I Vapor Recovery Systems," adopted April 12, 1996, and amended February 1, 2001 and October 8, 2003, IBR approved for §63.11120(b).

(4) California Air Resources Board Vapor Recovery Test Procedure TP-201.1E—"Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves," adopted October 8, 2003, IBR approved for §63.11120(a).

(5) California Air Resources Board Vapor Recovery Test Procedure TP-201.3—"Determination of 2-Inch WC Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities," adopted April 12, 1996 and amended March 17, 1999, IBR approved for §63.11120(a).

(l) Composite Panel Association, 19465 Deerfield Avenue, Suite 306, Leesburg, VA 20176, Telephone (703)724-1128, and *www.compositepanel.org.*

(1) ANSI A135.4-2012, Basic Hardboard, approved June 8, 2012, IBR approved for §63.4781.

(2) [Reserved]

(m) Environmental Protection Agency. Air and Radiation Docket and Information Center, 1200 Pennsylvania Avenue NW., Washington, DC 20460, telephone number (202) 566-1745.

(1) *California Regulatory Requirements Applicable to the Air Toxics Program,* November 16, 2010, IBR approved for §63.99(a).

(2) New Jersey's *Toxic Catastrophe Prevention Act Program,* (July 20, 1998), IBR approved for §63.99(a).

(3) Delaware Department of Natural Resources and Environmental Control, Division of Air and Waste Management, Accidental Release Prevention Regulation, sections 1 through 5 and sections 7 through 14, effective January 11, 1999, IBR approved for §63.99(a).

(4) State of Delaware Regulations Governing the Control of Air Pollution (October 2000), IBR approved for §63.99(a).

(5) Massachusetts Department of Environmental Protection regulations at 310 CMR 7.26(10)-(16), Air Pollution Control, effective as of September 5, 2008, corrected March 6, 2009, and 310 CMR 70.00, Environmental Results Program Certification, effective as of December 28, 2007. IBR approved for §63.99(a).

(6)(i) New Hampshire Regulations at Env-Sw 2100, Management and Control of Asbestos Disposal Sites Not Operated after July 9, 1981, effective February 16, 2010 (including a letter from Thomas S. Burack, Commissioner, Department of Environmental Services, State of New Hampshire, to Carol J. Holahan, Director, Office of Legislative Services, dated February 12, 2010, certifying that the enclosed rule, Env-Sw 2100, is the official version of this rule), IBR approved for §63.99(a).

(ii) New Hampshire Code of Administrative Rules: Chapter Env-A 1800, Asbestos Management and Control, effective as of May 5, 2017 (certified with June 23, 2017 letter from Clark B. Freise, Assistant Commissioner, Department of Environmental Services, State of New Hampshire), as follows: Revision Notes #1 and #2; Part Env-A 1801-1807, excluding Env-A 1801.02(e), Env-A 1801.07, Env-A 1802.02, Env-A 1802.04, Env-A 1802.07-1802.09, Env-A 1802.13, Env-A 1802.15-1802.17, Env-A

1802.25, Env-A 1802.31, Env-A 1802.37, Env-A 1802.40, Env-A 1802.44, and Env-A 1803.05-1803.09; and Appendices B, C, and D; IBR approved for §63.99(a).

(7) Maine Department of Environmental Protection regulations at Chapter 125, Perchloroethylene Dry Cleaner Regulation, effective as of June 2, 1991, last amended on June 24, 2009. IBR approved for §63.99(a).

(8) California South Coast Air Quality Management District's “Spray Equipment Transfer Efficiency Test Procedure for Equipment User, May 24, 1989,” IBR approved for §§63.11173(e) and 63.11516(d).

(9) California South Coast Air Quality Management District's “Guidelines for Demonstrating Equivalency with District Approved Transfer Efficient Spray Guns, September 26, 2002,” Revision 0, IBR approved for §§63.11173(e) and 63.11516(d).

(10) Rhode Island Department of Environmental Management regulations at Air Pollution Control Regulation No. 36, Control of Emissions from Organic Solvent Cleaning, effective April 8, 1996, last amended October 9, 2008, IBR approved for §63.99(a).

(11) Rhode Island Air Pollution Control, General Definitions Regulation, effective July 19, 2007, last amended October 9, 2008. IBR approved for §63.99(a).

(12) Alaska Statute 42.45.045. Renewable energy grant fund and recommendation program, available at *http://www.legis.state.ak.us/basis/folio.asp*, IBR approved for §63.6675.

(13) Vermont Air Pollution Control Regulations, Chapter 5, Air Pollution Control, section 5-253.11, Perchloroethylene Dry Cleaning, effective as of December 15, 2016. Incorporation by reference approved for §63.99(a).

(n) U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue NW., Washington, DC 20460, (202) 272-0167, *http://www.epa.gov.*

(1) EPA-453/R-01-005, National Emission Standards for Hazardous Air Pollutants (NESHAP) for Integrated Iron and Steel Plants—Background Information for Proposed Standards, Final Report, January 2001, IBR approved for §63.7491(g).

(2) EPA-454/B-08-002, Office of Air Quality Planning and Standards (OAQPS), Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements, Version 2.0 (Final), March 24, 2008, IBR approved for §63.658(d) and appendix A to this part: Method 325A.

(3) EPA-454/R-98-015, Office of Air Quality Planning and Standards (OAQPS), Fabric Filter Bag Leak Detection Guidance, September 1997, *https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=2000D5T6.PDF,* IBR approved for §§63.548(e), 63.864(e), 63.7525(j), 63.8450(e), 63.8600(e), and 63.11224(f).

(4) EPA-454/R-99-005, Office of Air Quality Planning and Standards (OAQPS), Meteorological Monitoring Guidance for Regulatory Modeling Applications, February 2000, IBR approved for appendix A to this part: Method 325A.

(5) EPA/600/R-12/531, EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, May 2012, IBR approved for §63.2163(b).

(6) EPA-625/3-89-016, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-Dioxins and -Dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989. IBR approved for §63.1513(d).

(7) SW-846-3020A, Acid Digestion of Aqueous Samples And Extracts For Total Metals For Analysis By GFAA Spectroscopy, Revision 1, July 1992, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(8) SW-846-3050B, Acid Digestion of Sediments, Sludges, and Soils, Revision 2, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(9) SW-846-7470A, Mercury In Liquid Waste (Manual Cold-Vapor Technique), Revision 1, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(10) SW-846-7471B, Mercury In Solid Or Semisolid Waste (Manual Cold-Vapor Technique), Revision 2, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD and table 5 to subpart JJJJJJ.

(11) SW-846-8015C, Nonhalogenated Organics by Gas Chromatography, Revision 3, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(12) SW-846-8260B, Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(13) SW-846-8270D, Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 4, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960, 63.11980, and table 10 to subpart HHHHHHH.

(14) SW-846-8315A, Determination of Carbonyl Compounds by High Performance Liquid Chromatography (HPLC), Revision 1, December 1996, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for §§63.11960 and 63.11980, and table 10 to subpart HHHHHHH.

(15) SW-846-5050, Bomb Preparation Method for Solid Waste, Revision 0, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition IBR approved for table 6 to subpart DDDDD.

(16) SW-846-6010C, Inductively Coupled Plasma-Atomic Emission Spectrometry, Revision 3, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(17) SW-846-6020A, Inductively Coupled Plasma-Mass Spectrometry, Revision 1, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(18) SW-846-7060A, Arsenic (Atomic Absorption, Furnace Technique), Revision 1, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(19) SW-846-7740, Selenium (Atomic Absorption, Furnace Technique), Revision 0, September 1986, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(20) SW-846-9056, Determination of Inorganic Anions by Ion Chromatography, Revision 1, February 2007, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(21) SW-846-9076, Test Method for Total Chlorine in New and Used Petroleum Products by Oxidative Combustion and Microcoulometry, Revision 0, September 1994, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(22) SW-846-9250, Chloride (Colorimetric, Automated Ferricyanide AAI), Revision 0, September 1986, in EPA Publication No. SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition, IBR approved for table 6 to subpart DDDDD.

(23) Method 200.8, Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma—Mass Spectrometry, Revision 5.4, 1994, IBR approved for table 6 to subpart DDDDD.

(24) Method 1631 Revision E, Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Absorption Fluorescence Spectrometry, Revision E, EPA-821-R-02-019, August 2002, IBR approved for table 6 to subpart DDDDD.

(o) International Standards Organization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland, + 41 22 749 01 11, *http://www.iso.org/iso/home.htm.*

(1) ISO 6978-1:2003(E), Natural Gas—Determination of Mercury—Part 1: Sampling of Mercury by Chemisorption on Iodine, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(2) ISO 6978-2:2003(E), Natural gas—Determination of Mercury—Part 2: Sampling of Mercury by Amalgamation on Gold/Platinum Alloy, First edition, October 15, 2003, IBR approved for table 6 to subpart DDDDD.

(3) ISO 16017-2:2003(E): Indoor, ambient and workplace air—sampling and analysis of volatile organic compounds by sorbent tube/thermal desorption/capillary gas chromatography—Part 2: Diffusive sampling, May 15, 2003, IBR approved for

appendix A to this part: Method 325A and Method 325B.

(p) National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI), P.O. Box 133318, Research Triangle Park, NC 27709-3318 or at *http://www.ncasi.org.*

(1) NCASI Method DI/MEOH-94.03, Methanol in Process Liquids and Wastewaters by GC/FID, Issued May 2000, IBR approved for §§63.457 and 63.459.

(2) NCASI Method CI/WP-98.01, Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol, 1998, Methods Manual, IBR approved for table 4 to subpart DDDD.

(3) NCASI Method DI/HAPS-99.01, Selected HAPs In Condensates by GC/FID, Issued February 2000, IBR approved for §63.459(b).

(4) NCASI Method IM/CAN/WP-99.02, Impinger/Canister Source Sampling Method for Selected HAPs and Other Compounds at Wood Products Facilities, January 2004, Methods Manual, IBR approved for table 4 to subpart DDDD.

(5) NCASI Method ISS/FP A105.01, Impinger Source Sampling Method for Selected Aldehydes, Ketones, and Polar Compounds, December 2005, Methods Manual, IBR approved for table 4 to subpart DDDD and §§63.4751(i) and 63.4752(e).

(q) National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605-6000 or (800) 553-6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800.

(1) Handbook 44, Specificiations, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices 1998, IBR approved for §63.1303(e).

(2) “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” EPA Publication SW-846, Third Edition. (A suffix of “A” in the method number indicates revision one (the method has been revised once). A suffix of “B” in the method number indicates revision two (the method has been revised twice).

(i) Method 0023A, “Sampling Method for Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources,” dated December 1996, IBR approved for §63.1208(b).

(ii) Method 9071B, “n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples,” dated April 1998, IBR approved for §63.7824(e).

(iii) Method 9095A, “Paint Filter Liquids Test,” dated December 1996, IBR approved for §§63.7700(b) and 63.7765.

(iv) Method 9095B, “Paint Filter Liquids Test,” (revision 2), dated November 2004, IBR approved for the definition of “Free organic liquids” in §§63.10692, 63.10885(a), and the definition of “Free liquids” in §63.10906.

(v) SW-846 74741B, Revision 2, “Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique),” February 2007, IBR approved for §63.11647(f).

(3) National Institute of Occupational Safety and Health (NIOSH) test method compendium, “NIOSH Manual of Analytical Methods,” NIOSH publication no. 94-113, Fourth Edition, August 15, 1994.

(i) NIOSH Method 2010, “Amines, Aliphatic,” Issue 2, August 15, 1994, IBR approved for §63.7732(g).

(ii) [Reserved]

(r) North American Electric Reliability Corporation, 1325 G Street, NW., Suite 600, Washington, DC 20005-3801, *http://www.nerc.com, http://www.nerc.com/files/EOP0002-3__1.pdf.*

(1) North American Electric Reliability Corporation Reliability Standard EOP-002-3, Capacity and Energy Emergencies, adopted August 5, 2010, IBR approved for §63.6640(f).

(2)[Reserved]

(s) Technical Association of the Pulp and Paper Industry (TAPPI), 15 Technology Parkway South, Norcross, GA 30092, (800) 332-8686, *http://www.tappi.org.*

(1) TAPPI T 266, Determination of Sodium, Calcium, Copper, Iron, and Manganese in Pulp and Paper by Atomic Absorption Spectroscopy (Reaffirmation of T 266 om-02), Draft No. 2, July 2006, IBR approved for table 6 to subpart DDDDD.

(2) [Reserved]

(t) Texas Commission on Environmental Quality (TCEQ) Library, Post Office Box 13087, Austin, Texas 78711-3087, telephone number (512) 239-0028, *http://www.tceq.state.tx.us/assets/public/implementation/air/sip/sipdocs/2002-12-HGB/02046sipapp__ado.pdf.*

(1) "Air Stripping Method (Modified El Paso Method) for Determination of Volatile Organic Compound Emissions from Water Sources," Revision Number One, dated January 2003, Sampling Procedures Manual, Appendix P: Cooling Tower Monitoring, January 31, 2003, IBR approved for §§63.654(c) and (g), 63.655(i), and 63.11920.

(2) [Reserved]

[79 FR 11277, Feb. 27, 2014, as amended at 79 FR 17363, Mar. 27, 2014; 80 FR 37389, June 30, 2015; 80 FR 50436, Aug. 19, 2015; 80 FR 56738, Sept. 18, 2015; 80 FR 62414, Oct. 15, 2015; 80 FR 65520, Oct. 26, 2015; 80 FR 75817, Dec. 4, 2015; 80 FR 75236, Dec. 1, 2015; 82 FR 5407, Jan. 18, 2017; 82 FR 47347, Oct. 11, 2017; 82 FR 48178, Oct. 16, 2017; 83 FR 9218, Mar. 5, 2018; 83 FR 48256, Sept. 24, 2018; 83 FR 51582, Oct. 15, 2018; 84 FR 6692, Feb. 28, 2019; 84 FR 7698; 84 FR 9611, Mar. 15, 2019]

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§63.15 Availability of information and confidentiality.

(a) *Availability of information.* (1) With the exception of information protected through part 2 of this chapter, all reports, records, and other information collected by the Administrator under this part are available to the public. In addition, a copy of each permit application, compliance plan (including the schedule of compliance), notification of compliance status, excess emissions and continuous monitoring systems performance report, and title V permit is available to the public, consistent with protections recognized in section 503(e) of the Act.

(2) The availability to the public of information provided to or otherwise obtained by the Administrator under this part shall be governed by part 2 of this chapter.

(b) *Confidentiality.* (1) If an owner or operator is required to submit information entitled to protection from disclosure under section 114(c) of the Act, the owner or operator may submit such information separately. The requirements of section 114(c) shall apply to such information.

(2) The contents of a title V permit shall not be entitled to protection under section 114(c) of the Act; however, information submitted as part of an application for a title V permit may be entitled to protection from disclosure.

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§63.16 Performance Track Provisions.

(a) Notwithstanding any other requirements in this part, an affected source at any major source or any area source at a Performance Track member facility, which is subject to regular periodic reporting under any subpart of this part, may submit such periodic reports at an interval that is twice the length of the regular period specified in the applicable subparts; provided, that for sources subject to permits under 40 CFR part 70 or 71 no interval so calculated for any report of the results of any required monitoring may be less frequent than once in every six months.

(b) Notwithstanding any other requirements in this part, the modifications of reporting requirements in paragraph (c) of this section apply to any major source at a Performance Track member facility which is subject to requirements under any of the subparts of this part and which has:

(1) Reduced its total HAP emissions to less than 25 tons per year;

(2) Reduced its emissions of each individual HAP to less than 10 tons per year; and

(3) Reduced emissions of all HAPs covered by each MACT standard to at least the level required for full compliance with the applicable emission standard.

(c) For affected sources at any area source at a Performance Track member facility and which meet the requirements of paragraph (b)(3) of this section, or for affected sources at any major source that meet the requirements of paragraph (b) of this section:

(1) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using add-on control technology, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is meeting the emission standard by continuing to use that control

technology. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(2) If the emission standard to which the affected source is subject is based on add-on control technology, and the affected source complies by using pollution prevention, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is continuing to use pollution prevention to reduce HAP emissions to levels at or below those required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(3) If the emission standard to which the affected source is subject is based on pollution prevention, and the affected source complies by using pollution prevention and reduces emissions by an additional 50 percent or greater than required by the applicable emission standard, then all required reporting elements in the periodic report may be met through an annual certification that the affected source is continuing to use pollution prevention to reduce HAP emissions by an additional 50 percent or greater than required by the applicable emission standard. The affected source must maintain records of all calculations that demonstrate the level of HAP emissions required by the emission standard as well as the level of HAP emissions achieved by the affected source. The affected source must continue to meet all relevant monitoring and recordkeeping requirements. The compliance certification must meet the requirements delineated in Clean Air Act section 114(a)(3).

(4) Notwithstanding the provisions of paragraphs (c)(1) through (3), of this section, for sources subject to permits under 40 CFR part 70 or 71, the results of any required monitoring and recordkeeping must be reported not less frequently than once in every six months.

[69 FR 21753, Apr. 22, 2004]

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Table 1 to Subpart A of Part 63—Detection Sensitivity Levels (grams per hour)

Monitoring frequency per subpart[a]	Detection sensitivity level
Bi-Monthly	60
Semi-Quarterly	85
Monthly	100

[a]When this alternative work practice is used to identify leaking equipment, the owner or operator must choose one of the monitoring frequencies listed in this table, in lieu of the monitoring frequency specified in the applicable subpart. Bi-monthly means every other month. Semi-quarterly means twice per quarter. Monthly means once per month.

[73 FR 78213, Dec. 22, 2008]

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Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-11

Crossing Permit Thresholds

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3

1a) AQ Facility ID number: 12300088 **1b)** AQ File number: 3518

2) Facility name: Northern Iron LLC

Use this form to determine if the proposed changes cause the facility to become subject for the first time to the requirement to obtain either a State or a Part 70 permit. Please attach your documentation.

3) Does the facility currently hold a Part 70 permit and after the proposed change the facility PTE will remain above the Part 70 threshold?

☐ Yes – done with this form.
☒ No – Proceed to question 4. Include calculations supporting the facility PTE and permit status after the change.

4) Table 1 – Total facility Potential-to-Emit (PTE) after proposed change

☐ This project does not increase emissions; therefore there is no need to complete the table in item 4.

Pollutant	PM_{10} tpy	$PM_{2.5}$ tpy	SO_2 tpy	NO_x tpy	CO tpy	VOC tpy	Lead tpy	Single HAP tpy	Total HAPs tpy	CO_2e tpy
Total facility PTE after change	24.52	17.11	1.03	26.27	41.46	8.45	0.05	<10	<25	

☒ Calculations supporting Table 1 are attached. Proceed to question 5.

5) Table 2 – Facility permit status before and after proposed change

Total facility PTE and permit status before change	Total facility PTE and permit status after change	Action required
☐ Below all permit thresholds	Remains below all permit thresholds and the change does not cause the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61)	No permit action required
☐ Below all permit thresholds	Remains below all permit thresholds but the change causes the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61).	Apply for and receive a permit only for those sources subject to that regulation. Check applicability of registration permit and general permit.
☐ Below all permit thresholds	Exceeds a threshold for a State permit but not for a Part 70 permit.	Apply for and receive a permit to construct before beginning actual construction of the change. Apply for a state operating permit within 180 days after beginning operation of the change.
☐ Below all permit thresholds ☐ Above a state permit threshold but below all Part 70 thresholds and facility holds a state operating permit	Exceeds a threshold for a Part 70 permit	Apply for and receive a permit to construct before beginning actual construction of the change. Apply for a Part 70 permit within 365 days after beginning operation of the change.
☒ Above a state permit threshold but below all Part 70 thresholds and facility holds a state operating permit	Remains above a State permit threshold but below all Part 70 thresholds	Apply for an amendment to your existing state operating permit.
☐ Above a state or Part 70 permit threshold but facility does not hold a state or Part 70 operating permit	Remains above Part 70 Threshold	Apply for and receive a Part 70 operating permit before beginning actual construction of the change.
☐ Above a state permit threshold and below all Part 70 thresholds but facility does not hold a state operating permit ☐ Above state and Part 70 permit thresholds but facility does not hold a state or Part 70 operating permit	Remains above a State permit threshold but below all Part 70 thresholds	Apply for and receive a state operating permit before beginning actual construction of the change.

Instructions for Form CH-11

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3) **Does the facility currently hold a Part 70 permit and after the proposed change the facility PTE will remain above the Part 70 threshold?** – If your facility currently holds a Part 70 permit and after the proposed change the facility PTE will remain above Part 70 thresholds, you are done with this form and will need to apply for an amendment to your existing Part 70 permit. Otherwise, continue to question 4.

4) **Table 1 – Total facility Potential-to-Emit (PTE) after proposed change**

Note: if your project does not increase emissions, you do not need to complete the table in item 4.

Follow the guidelines below to calculate the total facility Potential-to-Emit (PTE), in tons per year (tpy), before and after the proposed change. Attach your calculations and complete Table 1 with the resulting total facility PTE after the proposed change.

General information for calculations

You may take into account any federally-enforceable conditions which are contained in your permit or will be proposed in your application. These include the effect of air pollution control equipment and restrictions on the hours of operation, or the type or amount of material combusted, stored or processed.

Do not take credit for air pollution control equipment that is not required by a federally-enforceable permit condition except as allowed by the Control Equipment Performance Standard, Minn. R. 7011.0060 through 7011.0080.

Calculate the existing total facility Potential-to-Emit (PTE)

Calculate the total facility Potential-to-Emit (PTE) before the proposed change. Use the calculation method described in Minn. R. 7007.0150, subp. 4. The total facility PTE before the change may also be available from Form GI-07 of your completed Total Facility Application, or from the Minnesota Pollution Control Agency (MPCA) if your Total Facility Permit has already been issued.

Calculate the PTE of the changed and new units after the proposed change

Calculate the PTE of each of the new and changed or modified units. Use Form GI-07 to record the information. Include all criteria and hazardous air pollutants. (**Note:** If the total facility potential mercury emissions before or after the proposed change are three (3) or more pounds per year, complete and submit Form HG-01 as instructed therein.)

5) **Table 2 - Facility permit status before and after proposed change**

Check the appropriate box in Table 2 by comparing the total facility PTE before and after the proposed change(s) to the permitting thresholds in Tables 3 and 4 (page 3).

If:

- o the facility was previously exempt from permitting and the new PTE exceeds a threshold in Table 3 or Table 4, or
- o the facility previously required a state permit and the new PTE exceeds the threshold in Table 4,

you need to apply for (and in some cases receive) an appropriate permit **prior to beginning construction** of your proposed change. If your facility already holds an operating permit issued under Minn. R. ch. 7007, this is a major, moderate, or minor amendment issued according to the provisions of Minn. R. 7007.1450 or 7007.1500. If your facility does not hold an operating permit, you may still get a permit to construct the change or modification using a major, moderate, or minor amendment, following the provisions of Minn. R. 7007.1450 or 7007.1500, as allowed by Minn. R. 7007.0750, subp. 5. If allowed by Minn. R. 7007.0750, subp. 5, you may apply for and receive a permit to construct and operate only the proposed modification by using the Modification application forms.

In addition:

- o If the facility as modified will for the first time require a state permit, you must also submit the application for a state operating permit for the entire facility within 180 days of beginning operation of the change for which the permit to construct and operate was issued.
- o If the facility as modified will for the first time require a Part 70 permit, you must also submit the application for the Part 70 permit within 365 days of beginning operation of the change for which the permit to construct and operate was issued.

The application for a State or Part 70 permit must include all emission units at the facility, not just those related to the modification.

If:

- the facility previously required a state permit and the PTE after the proposed modification is such that the facility will continue to qualify for a state permit, or
- the facility previously required a Part 70 permit and the PTE after the proposed modification is such that the facility will continue to qualify for a Part 70 permit,

and you hold an existing state or Part 70 operating permit for the facility, you may amend the permit using the Change/Modification forms. If you do not already hold an individual Part 70 or state operating permit, you must apply for and receive that permit before starting construction of your proposed change.

Table 3
State permit threshold values

A stationary source must obtain a State permit if it has the PTE any pollutant listed below, in amounts equal to or greater than the listed amounts, in tons per year:

Pollutant	**Threshold for state permit** (including fugitive emissions)
Lead	0.5 tons per year
SO_2	50.0 tons per year
PM_{10}	25.0 tons per year
VOC	100.0 tons per year

Table 4
Part 70 permit threshold values

A stationary source must obtain a Part 70 permit if it has the PTE for any pollutant, listed below, equal to or greater than the following amounts, in tons per year:

Pollutant	**Threshold for Part 70 permit**
PM_{10}	100.0 tons per year
$PM_{2.5}$	100.0 tons per year
SO_2	100.0 tons per year
NO_x	100.0 tons per year
CO	100.0 tons per year
VOC	100.0 tons per year
Lead	100.0 tons per year
Any Individual HAP	10.0 tons per year
All HAPs Combined	25.0 tons per year
CO_2e	100,000 tons per year

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-13

Applicability of state rules

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Some businesses and activities in Minnesota are subject to the following rules. Read each question to determine if the rule applies to the equipment or processes you are installing or modifying. If so, be sure to include the rule in Form CD-01, if you are required to fill it out for this application.

3) Minnesota standards of performance for stationary sources (Minn. R. ch. 7011)

3a) Will you be installing or modifying equipment that meets the following definition?

"A furnace, boiler or other combustion equipment in Minnesota which burns fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the smoke doesn't have direct contact with the heated medium for which another standard of performance has not been promulgated."

☒ No, my new or modified equipment **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 3b.

☐ Yes. Is or will the unit(s) be subject to a federal New Source Performance Standard (as identified on Form CH-05)?

- ☐ Yes, my new or modified equipment **is not** subject to Minn. R. 7011.0500-7011.0551. Go to question 3b.
- ☐ No, my new or modified equipment **is** subject to Minn. R. 7011.0500-7011.0551. Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment. (Read the rule to determine the specific requirements that apply.) List the subject unit(s):

3b) Is your new or modified equipment type or process equipment found in Table 3? This table contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference.

☒ No, none of the Minnesota Rules listed in Table 3 apply to my new or modified equipment. Go to question 5.

☐ Yes, my new or modified equipment may be subject to the rule associated with it in Table 3. Read the associated rule to see if it applies.

3c) After reading through Table 3 and any rule that may apply to your proposed change, list the ones that do apply in Table 1. Again, Table 3 contains only state-specific requirements; it does not contain state rules that incorporate federal rules by reference. You do not need to list the state rules that incorporate federal rules by reference. You do not need to list the Standards of Performance for Indirect Heating Fossil-Fuel Burning Equipment again, if it applies (see 3a above).

Table 1: New/Modified equipment subject to Minnesota standards of performance

Emission source id number	Minnesota rule part that applies	What the rule part applies to (whole facility or specific piece of equipment)

4) Reserved for future use.

5) Standards of performance for industrial process equipment (Minn. R. 7011.0700 - 7011.0735)

5a) Are you installing or modifying any industrial process equipment on-site that may generate any air contaminant in any amount and is not regulated by a federal New Source Performance Standard or Minnesota Rules Standard of Performance?

☒ Yes. List the units in Table 2, then go to item 5b.
☐ No, my new or modified equipment is not subject to the Industrial Process Equipment rule. Go to question 6**.**

5b) **Opacity standard**
(Note: Opacity is a measure of visible emissions or how much of the view is obscured by stack emissions. The emissions causing opacity are often smoke or dust.)

- For industrial process equipment which was *in operation before July 9, 1969*, the equipment shall not exhibit greater than 20% opacity, except for one six-minute period per hour of not more than 60% opacity. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20% or whenever any one-hour period contains one or more six-minute periods during which the average opacity exceeds 60%.
- For industrial process equipment which was *not in operation before July 9, 1969*, the equipment shall not exhibit greater than 20% opacity.

5c) Does any of the industrial process equipment you listed in Table 2 have particulate control equipment with a collection efficiency of at least 99% if it was in operation before July 9, 1969, or 99.7% if it was not in operation before July 9, 1969?

☐ No. Go to question 5d.
☒ Yes. These units are considered to be in compliance with the remaining requirements of this rule.

- For those units meeting this criterion which were in operation before July 9, 1969, complete Table 2 by checking the box labeled “Collection Efficiency > 99%.”
- For those units meeting this criterion which were not in operation before July 9, 1969, complete Table 2 by checking the box labeled “Collection Efficiency > 99.7%.”
- Then, if there are units listed in Table 2 which are not controlled by control equipment with a collection efficiency of 99% or 99.7% (as applicable), go on to question 5d.

5d) Has it been demonstrated that the operation of the entire facility is in compliance with all ambient air quality standards? This is typically shown through some level of computer dispersion modeling.

☒ Yes. Go to question 5e.
☐ No. Skip to item 5i.

5e) Is the facility located outside of the seven county Minneapolis-St. Paul metropolitan region?

☐ Yes. Go to question 5f
☒ No. Skip to item 5i.

5f) Is the facility located outside of the city of Duluth?

☐ Yes. Go to question 5g.
☐ No. Skip to item 5i.

5g) Is the facility located at least 1/4 mile from any residence or public roadway?

☐ Yes. Go to question 5h.
☐ No. Skip to item 5i.

5h) Answer this question individually for each remaining unit listed in Table 2 (those which were not identified in item 5c as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable)). Does the industrial process equipment have particulate control equipment with a collection efficiency of at least 85 percent?

☐ Yes, the unit is considered to be in compliance with the remaining requirements of this rule. For each unit for which you can answer “yes” to question 5h, complete Table 2 by checking the box labeled “Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85%.” Answer question 5h for each remaining unit on Table 2.
☐ No. For each unit for which you answered “No” to question 5h, complete Table 2 as described in item 5i. Then go to question 6.

5i) Complete Table 2 for all remaining industrial process equipment listed (those which were not identified in question 5c as being controlled by control equipment having a control efficiency of 99% or 99.7% (as applicable)). Use Table 4 to determine the particulate limit in either pounds per hour (lb/hr) or grains per dry standard cubic foot (gr/dscf). Include the calculated limit and comparison to the emission rate in the editable calculation spreadsheet included in the application package. Then go to question 6.

Table 2: New/Modified equipment subject to industrial process equipment rule

Equipment subject to industrial process equipment rule (list EU number(s))	Applicable particulate limit
*Supplementary table attached ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr
_____ ☐ In operation before July 9, 1969 ☐ Not in operation before July 9, 1969	☐ Collection Efficiency > 99% ☐ Collection Efficiency > 99.7% ☐ Outside MSP & Duluth, ¼ mile from roads/residences, collection efficiency > 85% ☐ _____ gr/dscf ☐ _____ lb/hr

6) Waste combustors (Minn. R. 7011.1201-7011.1290)

Note: Depending on the type of waste combustor you operate, you may be instructed to fill out one or more of the following forms:

- WC-01 -- Required if you determine that your waste combustor requires a permit.
- WC-02 -- Required if you install/operate a Class IV waste combustor at a hospital.
- WC-03 -- Required if you do not met the stack height requirements of Minn. R. 7011.1235.

If after reading through the following section, you determine that you are required to fill out one or more of the WC forms, contact the Air Quality Permit Document Coordinator.

6a) Are you proposing installing or modifying a waste combustor?

"Waste Combustor" means any emissions unit or emission facility where mixed municipal solid waste, solid waste, or refuse-derived fuel is combusted, and includes incinerators, energy recovery facilities, or other combustion devices. A metals recovery incinerator is a waste combustor. A combustion device combusting primarily wood, or at least 70 percent fossil fuel and wood in combination with up to 30 percent papermill wastewater treatment plant sludge is not a waste combustor. A soil treatment facility, paint burn-off oven, wood heater, or residential fireplace is not a waste combustor.

"Wood" is defined as: wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including sawdust, sander dust, wood chips, wood scraps, slabs, millings, shavings, and processed pellets made from wood and other forest residues.

A facility that is co-firing Refuse Derived Fuel (RDF) or Municipal Solid Waste (MSW) at rates less than 30 percent by weight is not regulated as a waste combustor, but is regulated as a boiler.

☐ Yes, I am installing or modifying a waste combustor. Answer questions 6b through 6e to determine whether you are allowed to continue to operate, and what type of permit the waste combustor requires. Allowed waste combustors must obtain an air emissions permit.
☒ No, the facility equipment is not subject to this rule. Done with this form.

6b) Is the waste combustor solely a crematory, pathological or an animal carcass incinerator?

☐ Yes. It is subject to standards of performance in Minn. R. 7011.1215, subp. 3. The waste combustor is an insignificant activity that does not need to be reported.
☐ No, the facility equipment is not subject to this rule.

6c) Is the design capacity of the waste combustor equal to or greater than 3 million Btu/hr?

"Design capacity" means: the hourly throughput of the waste combustor unit based on heat input from solid waste to the combustion system as stated by the manufacturer or designer, based on accepted design and engineering practices. For a non-continuous feed system, design capacity means the total heat input from solid waste per cycle.

If you don't have a manufacturer's design capacity in terms of heat input, you may estimate heat input by the following formula:

$$\mathbf{H_{in} = (HHV) \times (R)}$$

Where:

H_{in} = Heat input rate
HHV = heat value of waste
R = waste input rate, in lb/hr, as defined by the manufacturer
Commercial/Retail/Institutional Wastes = 7000 Btu/lb
General Industrial Wastes = 9000 Btu/lb
Medical/Infectious Wastes = 10,000 Btu/lb

☐ Yes, the waste combustor has a design capacity of 3 million Btu/hr or greater. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01.
☐ No, the heat input rate is below 3 million Btu/hr. Go to question 6d.

6d) Is the waste combustor used as a metal recover incinerator?

"Metals recovery incinerator" means a furnace or incinerator used primarily to recover precious and non-precious metals by burning the combustible fraction from waste. An aluminum sweat furnace is not a metals recovery incinerator.

☐ Yes. The waste combustor is subject to the standards of performance applicable to waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-01.
☐ No. Go to question 6e.

6e) Is the waste combustor located at a hospital?

☐ Yes. The waste combustor is subject to the standards of performance applicable to Class IV waste combustors. There are also additional permit application requirements for this unit, as described in Minn. R. 7007.0501, or 7011.1210. Complete form WC-02 if the waste combustor will comply with all of the design, operating, and standards of performance in parts 7011.1201 to 7011.1290. Otherwise, an air emissions permit must be issued, and you must complete for WC-01. [**Please Note:** There are federal Standards of Performance that must also be met for new sources (see Form CH-05), and the state will be adopting more stringent standards for existing incinerators.]

☐ No, the waste combustor is not located at a hospital. The operation of this waste combustor was banned after January 30, 1996. Your compliance plan must contain specific steps to cease operation of this waste combustor.

Table 3: Minnesota standards of performance for stationary sources*

Facility or Equipment type	Associated Minnesota Rule
Electric generating unit	7011.0561
Direct Heating Equipment	7011.0600 through 7011.0625
Concrete Manufacturing Plants	7011.0850 through 7011.0860
Stage One Vapor Recovery	7011.0865 through 7011.0870
Hot Mix Asphalt Plants	7011.0900 through 7011.0925
Bulk Agricultural Commodity Facilities (Grain Elevators)	7011.1000 through 7011.1015
Coal Handling Facilities	7011.1100 through 7011.1140
Incinerators (waste combustors)	7011.1201 though 7011.1285
Petroleum Refineries	7011.1400 through 7011.1430
Liquid Petroleum and Volatile Organic Compounds (VOCs) Storage Vessels	7011.1500 through 7011.1515
Sulfuric Acid Plants	7011.1600 through 7011.1630
Nitric Acid Plants	7011.1700 through 7011.1725
Brass and Bronze Plants	7011.1900 through 7011.1915
Iron and Steel Plants	7011.2000 through 7011.2015
Inorganic Fibrous Materials	7011.2100 through 7011.2105
Stationary Internal Combustion Engine (Generators)	7011.2300
Municipal Solid Waste Landfills	7011.3500 through 7011.3510
Asbestos	7011.9921 through 7011.9927

** This table does not include Minnesota Rules which incorporate federal New Source Performance Standards (NSPS) or National Emission standards for Hazardous Air Pollutant Sources (NESHAPS) by reference.*

Table 4: Instructions for determining your particulate limit

Minnesota has a State rule for the concentration of particulate matter that may be in your exhaust stream. The unit of the standard is grains per dry standard cubic foot. You need to convert your actual exhaust flow to dry standard cubic feet per minute to find the emission limit from the rule.

Sources subject to this rule are required to meet the emission limits established at all times. These limits will vary depending on operating conditions. To determine compliance at any point in time (i.e. for a stack test), follow the steps below. Include the results of the numerical limit in Table 2 above. Include the calculated limit and comparison to emission rate in the editable calculation spreadsheet included in the application package.

1. Determine the amount of dry material (subtract any water or moisture content) in pounds per hour that is processed by your equipment.
2. Use Table 4.1 to determine your allowed emission rate based on process weight rate. If your process weight rate falls between two values on the table, interpolate or extrapolate using the equation:

$$E = 3.59 \times \left(\frac{P}{2000}\right)^{0.62} \quad \text{for} \quad P \leq 60{,}000 \text{ lbs/hour; and:}$$

$$E = 17.31 \times \left(\frac{P}{2000}\right)^{0.16} \quad \text{for} \quad P > 60{,}000 \text{ lbs/hour}$$

where: E = emission rate in lbs/hour; and
P = process weight rate in lbs/hour

3. If your process equipment is vented to the atmosphere, determine the airflow through your stack. Correct to 68 F and 14.7 psi, and correct to remove any moisture in the gas stream to obtain the air flow in dry standard cubic feet per minute (dscfm).

4. Use Table 4.2 to determine your allowed concentration in grains per dry standard cubic foot (gr/dscf). Interpolate using the equation for airflow rates between 7,000 dscfm and 1,000,000 dscfm:

$$c = 1.7627 \times (\mathrm{FR}_{corrected})^{-0.3241}$$

where: c = concentration in gr/dscf,
$\mathrm{FR}_{\text{corrected}}$ = gas volume in dscfm

5. Determine which of the two emission rates calculated above is *less stringent*. To convert a concentration (calculated in step 4) to an emission rate (calculated in step 2), use the following equation:

$$\mathbf{E = c \times V \times \left(\frac{60}{7000} \right)}$$

where:
E = emission rate in lbs/hour;
c = concentration in gr/dscf,
V = gas volume in dscfm

Table 4.1

Process rate (lbs/hour)	Emission rate (lbs/hour)
100	0.55
500	1.53
1,000	2.25
5,000	6.34
10,000	9.73
20,000	14.99
60,000	29.60
80,000	31.19
120,000	33.28
160,000	34.85
200,000	36.11
400,000	40.35
1,000,000	46.72

Table 4.2

Source gas volume (dscfm)	Concentration (gr/dscf)
7,000 or less	0.100
8,000	0.096
9,000	0.092
10,000	0.089
20,000	0.071
30,000	0.062
40,000	0.057
50,000	0.053
60,000	0.050
80,000	0.045
100,000	0.042
120,000	0.040
140,000	0.038
160,000	0.036
180,000	0.035
200,000	0.034
300,000	0.030
400,000	0.027
500,000	0.025
600,000	0.024
800,000	0.021
1,000,000 or more	0.020

Regardless of the allowable emission rates calculated from Tables 4.1 and 4.2, no process equipment is allowed to emit more than 0.30 grains per standard cubic foot of exhaust gas.

AQ Facility ID Number: 12300088
Facility Name: Northern Iron LLC
Agency Interest ID: 3518
Form CH-13 Supplement

Table 2: New/Modified equipment subject to industrial proces equipment rule

Equipment Subject to industrial process	PWR (lbs/hr)	In operation before July 9, 1969?	Applicable Particulate Limit	
EQUI41	1000	No	Collection Efficiency >99.7%	
EQUI42	1000	No	Collection Efficiency >99.7%	
EQUI51	200	No	Collection Efficiency >99.7%	
EQUI52	1000	No	2.34	lbs/hr
EQUI53	826	No	2.07	lbs/hr
EQUI54	660	No	Collection Efficiency >99.7%	
EQUI55	660	No	Collection Efficiency >99.7%	
EQUI56	2200	No	Collection Efficiency >99.7%	
EQUI60	90000	No	31.83	lbs/hr
EQUI61	90000	No	31.83	lbs/hr
EQUI62	90000	No	31.83	lbs/hr
EQUI63	90000	No	31.83	lbs/hr
EQUI64	90000	No	31.83	lbs/hr
EQUI65	90000	No	31.83	lbs/hr
EQUI66	90000	No	31.83	lbs/hr
EQUI67	90000	No	31.83	lbs/hr
EQUI68	90000	No	31.83	lbs/hr
EQUI69	90000	No	31.83	lbs/hr
EQUI70	90000	No	31.83	lbs/hr
EQUI71	90000	No	31.83	lbs/hr
EQUI72	52000	No	27.06	lbs/hr
EQUI73	52000	No	27.06	lbs/hr
EQUI74	52000	No	27.06	lbs/hr
EQUI75	52000	No	27.06	lbs/hr
EQUI76	52000	No	27.06	lbs/hr
EQUI77	52000	No	27.06	lbs/hr
EQUI78	52000	No	27.06	lbs/hr
EQUI79	52000	No	27.06	lbs/hr
EQUI80	10000	No	9.74	lbs/hr
EQUI81	10000	No	9.74	lbs/hr
EQUI82	10000	No	9.74	lbs/hr
EQUI83	10000	No	9.74	lbs/hr
EQUI84	10000	No	9.74	lbs/hr
EQUI85	52000	No	27.06	lbs/hr

AQ Facility ID Number: 12300088
Facility Name: Northern Iron LLC
Agency Interest ID: 3518
Form CH-13 Supplement

Table 2: New/Modified equipment subject to industrial proces equipment rule

Equipment Subject to industrial process	PWR (lbs/hr)	In operation before July 9, 1969?	Applicable Particulate Limit	
EQUI86	52000	No	27.06	lbs/hr
EQUI87	52000	No	27.06	lbs/hr
EQUI88	52000	No	27.06	lbs/hr
EQUI89	52000	No	27.06	lbs/hr
EQUI90	52000	No	27.06	lbs/hr
EQUI91	52000	No	27.06	lbs/hr
EQUI92	90000	No	31.83	lbs/hr
EQUI93	90000	No	31.83	lbs/hr
EQUI94	90000	No	31.83	lbs/hr
EQUI95	52000	No	27.06	lbs/hr
EQUI96	52000	No	27.06	lbs/hr
EQUI97	52000	No	27.06	lbs/hr
EQUI98	90000	No	31.83	lbs/hr
EQUI100	1500	No	Collection Efficiency >99.7%	
EQUI102	52000	No	27.06	lbs/hr
EQUI103	90000	No	31.83	lbs/hr
EQUI104	90000	No	31.83	lbs/hr
EQUI105	52000	No	27.06	lbs/hr
EQUI106	90000	No	31.83	lbs/hr
EQUI107	90000	No	31.83	lbs/hr
EQUI108	90000	No	31.83	lbs/hr
EQUI109	90000	No	31.83	lbs/hr
EQUI110	52000	No	27.06	lbs/hr
EQUI111	1000	No	2.34	lbs/hr
EQUI112	826	No	2.07	lbs/hr
EQUI113	3520	No	5.10	lbs/hr
EQUI115	52000	No	27.06	lbs/hr
EQUI116	90000	No	31.83	lbs/hr
EQUI117	500	Yes	Collection Efficiency >99%	
EQUI118	200	No	Collection Efficiency >99.7%	
EQUI119	40	No	Collection Efficiency >99.7%	

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: COMG1 - Melting

Emission units/tanks/fugitive sources included in group: EQUI1, EQUI2, EQUI3, EQUI4, EQUI5

Control equipment included in group: TREA47

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☐ No. Go on to question 21.

☒ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration
Minn. R. 7011.0700 (IPER)	See CH-12 Supplement for calculated limits	Building as total enclosure and use of control equipment

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 22.

☒ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
32,400 ton/year metal melt	recordkeeping of TPUTs

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

Use Form CD-05 to describe operating parameters of control equipment.

Organization

Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

Once you determine which portions of your facility have applicable requirements in common, you can then proceed to fill out your CD-01 forms as follows:

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

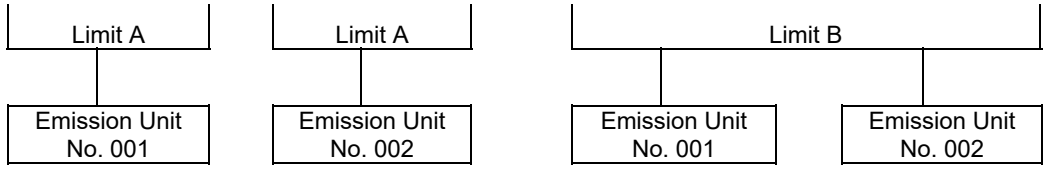
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



Individual Items Grouped Items

Section A or Section B

Use Section A when you are applying for a new individual operating permit, whether that's for construction of a new facility, a permit for an existing facility that's never needed a permit before, or a permit for a facility that holds a general permit, capped permit, or registration permit and now needs an individual permit.

When you are completing Section A, you will be referencing the GI-09 series of forms, where you identified, at a general level, the state and federal rules applicable to the facility. When you are completing Section B, you will be referencing the CH-xx series of forms, where you identified the same kind of information, but relative to changes to the existing facility.

Applicable requirements

Some Minnesota rules apply to all facilities in the state. These rules are listed in table CD-01.1 of these instructions. You are not required to include the rules listed in table CD-01.1 in the form. However, keep in mind that when you sign the certification statement that accompanies your application, you will be certifying that you are operating in compliance with the Minnesota rules listed in table CD-01.1. The requirements listed in table CD-01.1 will automatically be included in your permit.

When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

If you are proposing alternative operating scenarios or emission trading in your application, you must complete a separate compliance plan for each proposed alternative operating scenario or emission trade.

Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
Minnesota and National Ambient Air Quality Standards	Parts 7009.0010 through 7009.0080
Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: EQUIs 60-62, 64, 67-79*, 85-98, 102-113, 115, 116

Emission units/tanks/fugitive sources included in group: TREA2, TREA23, TREA46, TREA47

Control equipment included in group: _____

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU12, STRU13, STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☐ No. Go on to question 21.

☒ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration
Minn. R. 7011.0700 (IPER)	See CH-13 Supplement for calculated limits	Building as total enclosure and use of control equipment

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 22.

☒ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
324,000 ton/year sand TPUT	Recordkeeping of TPUTs

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

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Use Form CD-05 to describe operating parameters of control equipment.

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Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

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1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

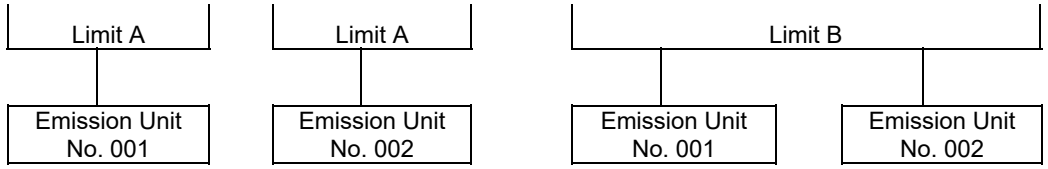
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



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When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

If you are proposing alternative operating scenarios or emission trading in your application, you must complete a separate compliance plan for each proposed alternative operating scenario or emission trade.

Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
Minnesota and National Ambient Air Quality Standards	Parts 7009.0010 through 7009.0080
Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: COMG3 - Pouring & Cooling

Emission units/tanks/fugitive sources included in group: EQUI12, EQUI13

Control equipment included in group: TREA46, TREA47

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☐ No. Go on to question 21.

☒ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration
Minn. R. 7011.0700 (IPER)	See CH-13 Supplement for calculated limits	Building as total enclosure and use of control equipment

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 22.

☒ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
32,400 ton/year metal melt (poured)	recordkeeping of TPUTs

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

Use Form CD-05 to describe operating parameters of control equipment.

Organization

Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

Once you determine which portions of your facility have applicable requirements in common, you can then proceed to fill out your CD-01 forms as follows:

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

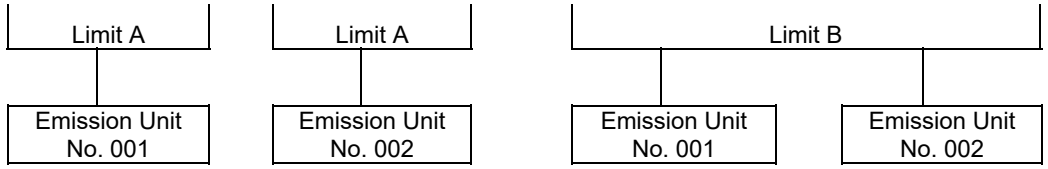
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



Individual Items Grouped Items

Section A or Section B

Use Section A when you are applying for a new individual operating permit, whether that's for construction of a new facility, a permit for an existing facility that's never needed a permit before, or a permit for a facility that holds a general permit, capped permit, or registration permit and now needs an individual permit.

When you are completing Section A, you will be referencing the GI-09 series of forms, where you identified, at a general level, the state and federal rules applicable to the facility. When you are completing Section B, you will be referencing the CH-xx series of forms, where you identified the same kind of information, but relative to changes to the existing facility.

Applicable requirements

Some Minnesota rules apply to all facilities in the state. These rules are listed in table CD-01.1 of these instructions. You are not required to include the rules listed in table CD-01.1 in the form. However, keep in mind that when you sign the certification statement that accompanies your application, you will be certifying that you are operating in compliance with the Minnesota rules listed in table CD-01.1. The requirements listed in table CD-01.1 will automatically be included in your permit.

When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

If you are proposing alternative operating scenarios or emission trading in your application, you must complete a separate compliance plan for each proposed alternative operating scenario or emission trade.

Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
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Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: COMG4 - Shakeout

Emission units/tanks/fugitive sources included in group: EQUI63, 65, 66, 80-84

Control equipment included in group: TREA46, TREA47

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☐ No. Go on to question 21.

☒ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration
Minn. R. 7011.0700 (IPER)	See CH-13 Supplement for calculated limits	Building as total enclosure and use of control equipment

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 22.

☒ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
32,400 ton/year metal melt	recordkeeping of TPUTs

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

Use Form CD-05 to describe operating parameters of control equipment.

Organization

Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

Once you determine which portions of your facility have applicable requirements in common, you can then proceed to fill out your CD-01 forms as follows:

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

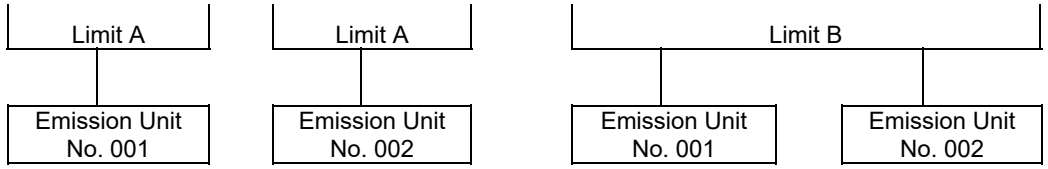
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



Individual Items Grouped Items

Section A or Section B

Use Section A when you are applying for a new individual operating permit, whether that's for construction of a new facility, a permit for an existing facility that's never needed a permit before, or a permit for a facility that holds a general permit, capped permit, or registration permit and now needs an individual permit.

When you are completing Section A, you will be referencing the GI-09 series of forms, where you identified, at a general level, the state and federal rules applicable to the facility. When you are completing Section B, you will be referencing the CH-xx series of forms, where you identified the same kind of information, but relative to changes to the existing facility.

Applicable requirements

Some Minnesota rules apply to all facilities in the state. These rules are listed in table CD-01.1 of these instructions. You are not required to include the rules listed in table CD-01.1 in the form. However, keep in mind that when you sign the certification statement that accompanies your application, you will be certifying that you are operating in compliance with the Minnesota rules listed in table CD-01.1. The requirements listed in table CD-01.1 will automatically be included in your permit.

When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

If you are proposing alternative operating scenarios or emission trading in your application, you must complete a separate compliance plan for each proposed alternative operating scenario or emission trade.

Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
Minnesota and National Ambient Air Quality Standards	Parts 7009.0010 through 7009.0080
Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s):

Associated control equipment number(s):

Associated Monitoring System(s) (CEMS or COMS):

Associated stack/vent number(s):

OR

3b) Group description: COMG - Grinding/Cutting Operations

Emission units/tanks/fugitive sources included in group: EQUIs17, 18, 20, 23, 24, 28-30, 41, 42, 100, 117

Control equipment included in group: TREA13/30, TREA22/35, TREA29/19, TREA37/21, TREA40/39, TREA41/42, TREA43/38, TREA46, TREA47, TREA48

Monitoring systems (CEMS or COMS) included in group:

Stack/vents included in group: STRU35, STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☐ No. Go on to question 21.

☒ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration
Minn. R. 7011.0700 (IPER)	See CH-13 Supplement for calculated limits	Building as total enclosure and use of control equipment

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 22.

☒ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
Limited by 32,400 ton/year metal melt	recordkeeping of TPUTs

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

Use Form CD-05 to describe operating parameters of control equipment.

Organization

Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

Once you determine which portions of your facility have applicable requirements in common, you can then proceed to fill out your CD-01 forms as follows:

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

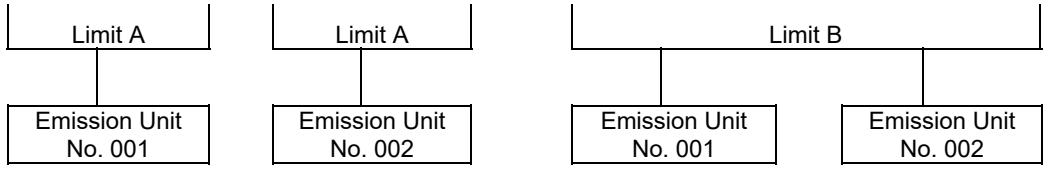
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



Individual Items Grouped Items

Section A or Section B

Use Section A when you are applying for a new individual operating permit, whether that's for construction of a new facility, a permit for an existing facility that's never needed a permit before, or a permit for a facility that holds a general permit, capped permit, or registration permit and now needs an individual permit.

When you are completing Section A, you will be referencing the GI-09 series of forms, where you identified, at a general level, the state and federal rules applicable to the facility. When you are completing Section B, you will be referencing the CH-xx series of forms, where you identified the same kind of information, but relative to changes to the existing facility.

Applicable requirements

Some Minnesota rules apply to all facilities in the state. These rules are listed in table CD-01.1 of these instructions. You are not required to include the rules listed in table CD-01.1 in the form. However, keep in mind that when you sign the certification statement that accompanies your application, you will be certifying that you are operating in compliance with the Minnesota rules listed in table CD-01.1. The requirements listed in table CD-01.1 will automatically be included in your permit.

When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

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Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
Minnesota and National Ambient Air Quality Standards	Parts 7009.0010 through 7009.0080
Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: COMG6 - Combustion Emissions

Emission units/tanks/fugitive sources included in group: EQUIs1, 2, 9, 36, 46-50, 54-56, 59, 114, 120

Control equipment included in group: TREA46, TREA47, TREA48

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU35, STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☒ No. Go on to question 21.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☒ No. Go on to question 22.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

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24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

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Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

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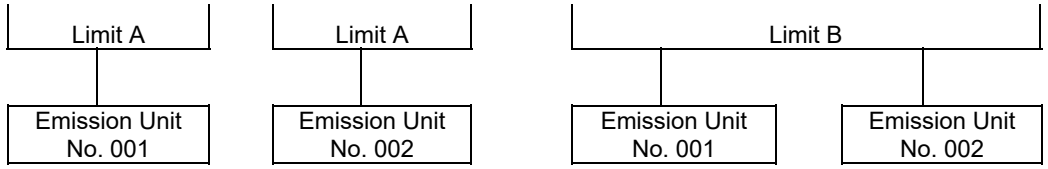
2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



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The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
Air Emission Permits	Parts 7007.0050 through 7007.4030
Minnesota and National Ambient Air Quality Standards	Parts 7009.0010 through 7009.0080
Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-01

Compliance Plan
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 7

Facility information

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Submit a separate form for each Emission Unit/Tank/Fugitive Source or Group of Sources as necessary.

3a) Emission unit/tank/fugitive source identification number(s): _____

Associated control equipment number(s): _____

Associated Monitoring System(s) (CEMS or COMS): _____

Associated stack/vent number(s): _____

OR

3b) Group description: COMG7 - VOC/HAP Sources (Non-Combustion)

Emission units/tanks/fugitive sources included in group: EQUI11, 52, 53

Control equipment included in group: _____

Monitoring systems (CEMS or COMS) included in group: _____

Stack/vents included in group: STRU46, STRU47

CEMS = continuous emission monitoring system; COMS = continuous opacity monitoring system

Use **Section A** of this form when you are applying for the first time for a new individual operating permit (federal or state). This includes:

- permits for construction of new facilities
- permits for existing facilities that are switching to an individual permit from a Registration Permit, Capped Permit, or General Permit
- permits for existing facilities subject to permitting for the first time

Use **Section B** of this form when you are applying for an amendment to an existing individual operating permit (federal or state).

In addition to this form, use **Form CD-05** to identify operating parameters of control equipment when you are applying for the first time for an individual operating permit, or when applying for an amendment to an existing individual operating permit.

Section A – Compliance plan for a new individual operating permit

4) National Emission Standards for Hazardous Air Pollutants (NESHAP) for source categories (40 CFR pt. 63)

4a) On Form GI-09A, did you identify a Part 63 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 4b.

☐ Yes. Attach a copy of each applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart.

☐ Attached ☐ Not attached

4b) On Form GI-09A, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☐ No. Go on to question 4c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

4c) On Form GI-09A, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 5.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

5) National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR pt. 61)

5a) On Form GI-09B, did you identify a Part 61 NESHAP that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 6.

☐ Yes. Attach a highlighted copy of each applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

6) New Source Performance Standards (NSPS) (40 CFR pt. 60)

6a) If required to complete Form GI-09D, did you identify a NSPS that is or will be applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 7.

☐ Yes. Attach a copy of each applicable NSPS subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

7) Acid rain requirements (40 CFR pt. 72)

7a) On Form GI-09 or GI-09E, did you identify that the acid rain requirements are applicable to the item or group identified in question 3a or 3b (of this form)?

☐ No. Go on to question 8.

☐ Yes. Refer to the U.S. Environmental Protection Agency (EPA) website at http://www.epa.gov/airmarkets/business/forms.html#arp for the applicable acid rain program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate

☐ Not attached

8) New Source Review (40 CFR pt. 52.21)

8a) On Form GI-09C, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source under New Source Review, or so that portions of the proposed facility are not subject to certain elements of New Source Review?

☐ No. Go on to question 8b.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

8b) Will the stationary source be permitted as a major source under New Source Review?

☐ No. Go on to question 9.

☐ Yes. Go on to question 8c.

8c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Control Technology (BACT) requirements?

☐ No. Go on to question 9.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

9) Minnesota standards of performance (Minn. R. ch. 7011)

9a) On Form GI-09I, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 2a of Form GI-09I), any other industry specific Minnesota standard of performance (Table H of Form GI-09I), or to Minn. R 7011.0715 (item 4 of Form GI-09I)?

☐ No. Go on to question 10.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

10) National or Minnesota Ambient Air Quality Standards (NAAQS or MAAQS)

10a) Is the item or group identified in question 3a or 3b subject to an existing or proposed limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☐ No. Go on to question 11.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11) Environmental Assessment Worksheets (EAW) and Air Emissions Risk Analysis (AERA)

11a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☐ No.

☐ Yes: ☐ To avoid an AERA and/or ☐ To avoid an EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

11b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☐ No.

☐ Yes. ☐ AERA and/or ☐ EAW
List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

12) Is there pollution control equipment associated with the item or group identified?

☐ No.

☐ Yes. Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

13) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

13a) Is the item in 3a or does the group identified in 3b include a new or modified stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 megawatts electric (MWe) producing electricity for sale?

☐ No.

☐ Yes. Complete form GI-09K and include in your application.

Section B – Compliance plan for an amendment to an existing individual operating permit

14) To the extent that your proposed permit amendment consists of edits to existing permit language, you should attach to this form a copy of the relevant page(s) of the existing permit with proposed changes clearly marked.

Check one or more of the following statements, as applicable:

☐ All or part of the proposed permit changes for the item or group identified in question 3a or 3b are shown by edits to the existing permit language, a copy of which is attached to this form. If you show all changes with the edits to the existing permit language, you are done with this form.

☒ Some of the proposed permit changes for the item or group identified in question 3a or 3b cannot be shown by simply marking up existing permit language, so I am answering the questions below.

☐ New requirements to existing equipment are inclusively shown by including a highlighted copy of the applicable rule. If the highlighted rule does not include all requirements (e.g. control equipment operating requirements), or if newly applicable requirements cannot be exclusively shown with a highlighted version of the rule, answer the questions below.

For any proposed changes that cannot be easily and clearly shown by submitting marked-up pages from your existing permit, answer the questions that follow.

15) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) for Source Categories (40 CFR pt. 63)

15a) On CH-07, did you identify a newly applicable Part 63 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 15b.

☐ Yes. Attach a copy of each newly applicable Part 63 NESHAP subpart and subpart A. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

15b) On Form CH-07, did you propose limits on the item or group identified in question 3a or 3b (of this form) so that the entire facility is not a major source of HAPs?

☒ No. Go on to question 15c.

☐ Yes. Below, list the limit(s) you proposed, providing the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

15c) On Form CH-07, did you identify that a case-by-case determination of Maximum Achievable Control Technology (MACT) is required for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 16.

☐ Yes. Attach your case-by-case proposal, including proposed compliance demonstration.

☐ Attached ☐ Not attached

16) National Emission Standards for Hazardous Air Pollutant Sources (NESHAPS) (40 CFR pt. 61)

16a) On Form CH-06, did you identify a newly applicable Part 61 NESHAP for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 17.

☐ Yes. Attach a highlighted copy of each newly applicable Part 61 NESHAP. Highlight all applicable requirements of the entire subpart. ☐ Attached ☐ Not attached

17) New Source Performance Standards (NSPS) (40 CFR pt. 60)

17a) On Form CH-05, did you identify a newly applicable NSPS for the item or group identified in question 3a or 3b (of this form)?

☒ No. Go on to question 18.

☐ Yes. Attach a copy of each newly applicable NSPS subpart and subpart A. Highlight all applicable requirements of the subparts. ☐ Attached ☐ Not attached

18) Acid Rain Requirements (40 CFR pt. 72)

18a) Does the unit or group identified in question 3a or 3b include new electricity generating equipment capable of generating 25 MW or more of electricity?

☒ No. Go on to question 19.

☐ Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at http://www.epa.gov/airmarkets/business/ forms.html#arp for the applicable Acid Rain Program forms and instructions.

☐ Applicable forms attached and sent to EPA as appropriate ☐ Not attached

19) New Source Review (40 CFR pt. 52.21)

19a) On Form CH-04, CH-04a, CH-04b, or CH-04d, did you indicate the intention to propose limits on the item or group identified in question 3a or 3b (of this form) so that the proposed modification is not subject to New Source Review, or so that entire facility is not a major source under New Source Review, or so that portions of the facility or modification are not subject to certain elements of New Source Review? (If you are proposing limits, but on an item or group other than identified in question 3a or 3b of this form, then answer **No**; complete a separate CD-01 for the item or group for which you are proposing limits)

☒ No. Go on to question 19b.

☐ Yes. Below, list the limit(s) you are proposing, including the proposed compliance demonstration. Then go on to question 20.

Proposed limit	Proposed compliance demonstration

19b) Is the unit or group identified in question 3a or 3b (of this form) subject to New Source Review? This would be determined on Form CH-04b or CH-04d.

☒ No. Go on to question 20.

☐ Yes. Go on to question 19c.

19c) Is the item or group identified in question 3a or 3b (of this form) subject to Best Available Technology (BACT) requirements?

☐ No. Go on to question 20.

☐ Yes. Below, list the BACT requirements proposed for the item or group identified in question 3a or 3b of this form, providing the proposed compliance demonstration.

Proposed BACT limit	Proposed compliance demonstration

20) Minnesota Standards of Performance (Minn. R. ch. 7011)

20a) On Form CH-13, did you identify the item or group listed in question 3a or 3b (of this form) as being subject to Minn. R. 7011.0515 (item 3a of Form CH-13), any other industry specific Minnesota standard of performance (Table 1 of Form CH-13), or to Minn. R 7011.0715 (item 5 of Form CH-13)?

☒ No. Go on to question 21.

☐ Yes. List the rule(s) and specific limit(s) below, along with the proposed compliance demonstration.

Applicable rule	Rule limit	Proposed compliance demonstration

21) National Ambient Air Quality Standard (NAAQS) or Minnesota Ambient Air Quality Standard (MAAQS)

21a) Will the item or group identified in question 3a or 3b be subject to a limit required in order to meet NAAQS or MAAQS? (This would be identified through modeling.)

☒ No. Go on to question 22.

☐ Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22) Environmental Assessment Worksheet (EAW) and Air Emission Risk Analysis (AERA)

22a) Did you assume limits on the item or group listed in question 3a or 3b in order to avoid the need to do an EAW or AERA?

☒ No.

☐ Yes. ☐ To avoid an AERA and/or ☐ To avoid an EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

22b) Does the item or group identified in question 3a or 3b require limits based on the results of an EAW or AERA that was performed?

☒ No.

☐ Yes. ☐ AERA and/or ☐ EAW

List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration

23) Is there pollution control equipment associated with the item or group identified?

☐ No ☒ Yes – Complete Form CD-05 for each associated control device or submit marked-up pages of the permit if only making changes to operating parameter values of existing control equipment.

24) Cross-State Air Pollution Rule (CSAPR) (40 CFR pt. 97)

24a) Is the item in 3a or does the group identified in 3b include a stationary fossil-fuel-fired boiler or stationary fossil-fuel-fired combustion turbine serving at any time, on or after January 1, 2005, a generator with a nameplate capacity or more than 25 MWe producing electricity for sale?

☒ No.

☐ Yes. Go on to question 24b.

24b) Have the requirements of CSAPR (40 CFR pt. 97) already been incorporated into your permit?

☐ No because the units described in question 24a are exempt from CSAPR under 40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i) or 40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i) **and** you've previously submitted form GI-09k indicating such exemption(s) for all units described in question 3a.

☐ No and the units described in question 24a are not exempt from CSAPR **or** you have not previously submitted form GI-09K – Complete form GI-09K and include in your application.

☐ Yes.

Instructions for form CD-01

This form is intended to be used for applications for new individual permits for new facilities, for applications for new individual permits for existing facilities, and for applications for amendments to existing individual permits. It is not intended to be used for applications for reissuance of an existing permit.

Use Form CD-05 to describe operating parameters of control equipment.

Organization

Form CD-01 requires you to organize your compliance plan based on how different portions of your facility are affected by the applicable requirements you identified in the Form GI-09 series. Form CD-01 requires that all applicable requirements listed on the form apply to all portions of the facility listed on the form. Therefore, you will find that you probably will need to use more than one form for your facility. Use as many copies of the forms as you need until you have covered all state and federal rules and regulations that apply to your facility.

Once you determine which portions of your facility have applicable requirements in common, you can then proceed to fill out your CD-01 forms as follows:

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01, item 1a.

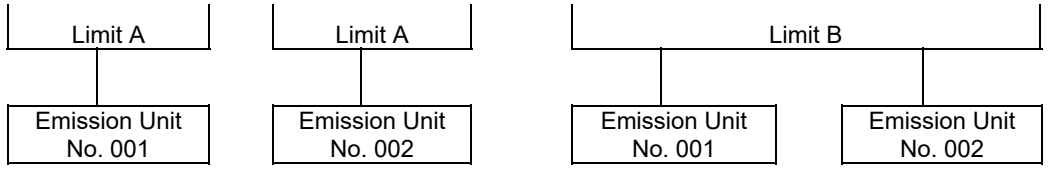
1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your facility name as indicated on Form GI-01, item 2.

3) Use item 3a when you are filling out the form for an individual item or several individual items, all of which are individually subject to the same requirements. Use item 3b when you are using the form for a group of items that when combined are subject to a common requirement. See examples below:

3a) An example of individual items you would list on the same CD-01 form would be two boilers that were each individually subject to the same applicable requirement. Both boilers could have identical limits, but because the limits would apply individually to each unit, they would be considered individual items (see drawing below).

3b) Items should be grouped when they share a common limit, as opposed to several individual items that each has its own limit (see drawing below). An example of grouped items would be two boilers limited to a total quantity of fuel that can be burned. An example of items that are <u>not</u> a group would be two stacks that each can not exceed three pounds per hour of particulate emissions. Even though the limit is exactly the same for each stack, this is not a group. Beginning with the number 001, assign a Group ID number to the first group and provide a brief description. Group ID numbers should be assigned sequentially for your entire facility, even though they will appear on more than one CD-01 form. For example, if you have five groups at your facility, you would assign them Group ID numbers 001-005.



Individual Items Grouped Items

Section A or Section B

Use Section A when you are applying for a new individual operating permit, whether that's for construction of a new facility, a permit for an existing facility that's never needed a permit before, or a permit for a facility that holds a general permit, capped permit, or registration permit and now needs an individual permit.

When you are completing Section A, you will be referencing the GI-09 series of forms, where you identified, at a general level, the state and federal rules applicable to the facility. When you are completing Section B, you will be referencing the CH-xx series of forms, where you identified the same kind of information, but relative to changes to the existing facility.

Applicable requirements

Some Minnesota rules apply to all facilities in the state. These rules are listed in table CD-01.1 of these instructions. You are not required to include the rules listed in table CD-01.1 in the form. However, keep in mind that when you sign the certification statement that accompanies your application, you will be certifying that you are operating in compliance with the Minnesota rules listed in table CD-01.1. The requirements listed in table CD-01.1 will automatically be included in your permit.

When filling out Form CD-01, make sure that you address any synthetic minor limits you are proposing in your application. For example, if you are applying to be a synthetic minor source for the New Source Review program, describe the specific limits, monitoring, recordkeeping, and reporting practices that you will follow to demonstrate that you are operating as a minor source. Examples of compliance demonstration might include stack testing, continuous emission monitoring systems (CEMs), monitoring and recordkeeping, etc. Include a frequency for the compliance demonstration.

The General Application Instructions provide additional guidance on proposing and complying with synthetic minor limits. You must understand the individual regulations that affect your facility and tailor any synthetic minor limitations to your operations to ensure that the permit accurately reflects your facility.

If you are proposing alternative operating scenarios or emission trading in your application, you must complete a separate compliance plan for each proposed alternative operating scenario or emission trade.

Standard permit language

The Minnesota Pollution Control Agency (MPCA) has developed standardized language that will be used in your permit for many applicable requirements. You will still need to provide additional site-specific information. For example, if you are installing a new boiler subject to a New Source Performance Standard, the MPCA has and will use some standard template language in the permit, but you must still state what fuels are used and submit a copy of the rule highlighting which provisions apply. You will be given the opportunity to review the permit before public notice or issuance, as applicable.

Assistance

If you find you have questions about applicability of a rule, or how to fill out a form, contact the MPCA at 1-800-657-3864 or 651-296-6300.

Table CD-01.1

Title of the rule	Minnesota rule citation
Air Quality Emission Fees	Parts 7002.0025 through 7002.0085
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Applicability of Standards of Performance	Parts 7011.0010 and 7011.0050
Circumvention	Part 7011.0020
Emission Standards for Visible Air Contaminants	Parts 7011.0100 through 7011.0120
Preventing Particulate Matter from Becoming Airborne	Part 7011.0150
Continuous Monitors	Part 7017.1002 through 7017.1220
Performance Tests	Parts 7017.2001 through 7017.2060
Notifications	Part 7019.1000
Emission Inventory	Parts 7019.3000 through 7019.3100
Motor Vehicles	Parts 7023.0100 through 7023.0120
Noise Pollution Control – Stationary Sources	Parts 7030.0010 through 7030.0080
Noise Pollution Control – Mobile Sources	Parts 7030.1000 through 7030.1060

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-12

Written Notification Form

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3a) Only fill out this form if you have determined that there are no significant emissions increases associated with the proposed change or modification, the change or modification does not require a major amendment, and the change or modification does not require a permit action of any type. Please confirm the following statements:

I answered "no" to all questions on form CH-03.

- ☐ No. This indicates that a major amendment is required; this form is not applicable.
- ☒ Yes. The proposed change does not require a major amendment.

I determined using form CH-10 that there is no emissions increase requiring a minor or moderate amendment associated with the proposed change.

- ☐ I was not instructed to complete form CH-10.
- ☐ No. This indicates that there is an associated emissions increase requiring either a moderate or minor amendment; this form is not applicable.
- ☐ Yes. There is no emissions increase associated with the proposed change.

I determined that the change does not require an administrative amendment.

- ☐ No. The change does require an administrative amendment; this form is not applicable.
- ☐ Yes. The changes listed below may be made without applying for or obtaining an amendment. You are required to provide written notice to the Minnesota Pollution Control Agency (MPCA) seven (7) days before making the change. Check the instructions for this form to be sure the change you want to make qualifies. Check the appropriate box and use this form to provide the written notice to the MPCA. Also include with this a description of emission units deleted from the facility and other changes which result in applicable requirements no longer applying.

3b) After you have confirmed that your proposed change qualifies under the written notification provisions, please indicate what type of notification you are submitting:

- ☒ Installation of new air pollution control equipment
  - Include a completed form GI-05A to describe the equipment, a form GI-05B/GI-05C/GI-05D to indicate which emissions unit/tank/fugitive source is controlled by the new equipment, a form CD-01 describing the operating and monitoring requirements. It is not necessary to include form CH-03 (or the forms filled out to complete CH-03) with your submittal. Keep a copy of the completed CH-03 and associated forms for your records; you may need to provide a copy if requested by the MPCA. Use form CH-14 to make sure you submit all forms that are required.
- ☐ Replacement of an air emission unit with one which does not increase emissions and does not cause emission of a pollutant not previously emitted
  - Include a completed form GI-05B, GI-05C, and/or GI-05D describing the new unit/tank/fugitive source, form CD-01 describing compliance with applicable requirements. Include form CH-03 (and the forms filled out to complete CH-03) with your submittal. Use form CH-14 to make sure you submit all forms that are required.
  - List the unit(s) (emission unit, tank, or fugitive source) being replaced; use the "EQUI" or "FUGI" designation, or if the current permit was issued before October 2015, use the "EU," "TK," or "FS" designation.

☐ Replacement of air pollution control equipment with listed control equipment that attains at least the control equipment efficiencies for listed control equipment in Minn. R. 7011.0070 for each applicable pollutant and has a listed control efficiency that is equivalent better to the control efficiency of the control equipment being replaced for each applicable pollutant. The "equivalent to better control efficiency" can only be the control equipment efficiency listed in Minn. R. 7011. 0070, subp. 1a, Table A, or approved under Minn. R. 7011. 0070, subp. 2. (Note: This does not include replacement of existing control equipment with control equipment that is not "listed control equipment" under Minn. R. 7011.0060, subp. 4, or replacement of controls required by a permit with listed controls of a different type such that you would no longer comply with the existing permit conditions related to limits, monitoring, or recordkeeping for the existing required control equipment.)

- Include a completed form GI-05A to describe the equipment, a form GI-05B/GI-05C/GI-05D to indicate which emissions unit/tank/fugitive source is controlled by the new equipment, and form CD-01 if monitoring, recordkeeping, or reporting requirements change. Include form CH-03 (and the forms filled out to complete CH-03) with your submittal. Use form CH-14 to make sure you submit all forms that are required.
- List the control device(s) being replaced; use the "TREA" designation, or if the current permit was issued before October 2015, use the "CE" designation.

☐ Accumulated insignificant modifications

- If you have made Insignificant Modifications under Minn. R. 7007.1250, subp. 1B, during the past five years and the total emission increases from those modifications exceeds the thresholds in the instructions for this form, you must report all unreported Insignificant Modifications made under Minn. R. 7007.1250, subp. 1B during the past five years to the MPCA using this form.
- Do not submit a notification of each individual insignificant modification made under Minn. R. 7007. 1250, subp. 1A; it is never necessary to send notifications of these changes. It is only necessary to notify MPCA of accumulated insignificant modifications under Minn. R. 7007.1250, subp. 1B.
- Include supporting calculations, a revised form GI-07, and any other forms needed to describe the installed or modified equipment (e.g., GI-05A, GI-05B, GI-05C, GI-05D, CH-13, etc. It is not necessary to include CH-03 (or the forms filled out to complete CH-03) with your submittal. Keep a copy of the completed CH-03 and associated forms for your records; you may need to provide a copy if requested by the MPCA. Use form CH-14 to make sure you submit all forms that are required.
- Complete the following table.

Insignificant modification description and date	**Emission increase, in lbs/hr**					
	NO_X	SO_2	VOC	PM_{10}	CO	Lead
Total emission increase (compare to Table 2 at end of instructions)						

Instructions for form CH-12

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter your Facility name.

3) This form can be used for situations which are bulleted below.

- **Installation of new air pollution control equipment.**
- **Replacement of an emissions unit with one which does not increase emissions and does not cause emission of a pollutant not previously emitted.**
- **Replacement of existing air pollution control equipment with listed control equipment which has equal or better control efficiency.**

You may make these three types of changes seven (7) working days after providing a written notice to the MPCA, provided that the change: (i) does not increase emissions of any regulated air pollutant; (ii) does not constitute a title I modification; and (iii) does not constitute any other type of modification, if the change is one of the following:

(1) installing air pollution control equipment;

(2) replacing an emission unit identified in the permit with one that does not increase emissions; or

(3) replacing existing air pollution control equipment with listed control equipment, as defined in Minn. R. 7011.0060, subp. 4, provided that the replacement attains at least the control efficiency in Minn. R. 7011.0070 for each applicable pollutant; and has a listed control efficiency in Minn. R. 7011.0070 that is equivalent or better than the control efficiency of the control equipment being replaced for each applicable pollutant.

If the installation or replacement constitutes a title I modification or other type of modification, this item does not apply, and the Permittee shall follow the applicable procedures of Minn. R. 7007.1250, 7007.1350, 7007.1450, or 7007.1500.

You must include all information needed to determine the applicability of, or to impose, any applicable requirement related to the change.

You may not use these notification procedures for any project that would result in the violation of an applicable requirement **or** existing permit condition, such as the requirement to operate and/or monitor specific existing control equipment; this would require a permit amendment.

The notice must be received at least seven working days prior to the installation or replacement.

If the MPCA finds that no additional permitting requirements are required, your written notice will be attached to your permit. You will not be notified.

If additional permitting requirements are required, the MPCA will initiate the amendment process. If you have notified the MPCA as required and if the change does not otherwise require a permit amendment, the installation and operation of the pollution control equipment or the replacement equipment will not be considered to be a violation of your existing permit.

Note on use of this procedure for installing or replacing air pollution control equipment: No debottlenecking or capacity utilization increase is allowed as a result of the installation or replacement unless the new PTE is below NSR thresholds.

- **Accumulated insignificant modifications**

Minn. R. 7007.1250, subp. 4 requires notification to the MPCA when the total increase in emissions of all Insignificant Modifications made under Minn. R. 7007.1250, subp. 1B within five years of each other exceeds four times the threshold for any one Insignificant Modification. The notification must include a certification by a responsible official that the modifications listed were not part of a single project which taken as a whole would not be authorized as an Insignificant Modification.

Table 1 below contains the thresholds for a single change to qualify as an Insignificant Modification. If all Insignificant Modifications made within a five year period add up to an increase in emissions equal to or greater than Table 2, all of those Insignificant Modifications must be reported to the MPCA.

Table 1

Pollutant	Threshold
NO_X	2.28 pounds per hour
SO_2	2.28 pounds per hour
VOC	2.28 pounds per hour
PM_{10}	0.855 pounds per hour
CO	5.70 pounds per hour
Lead	0.025 pounds per hour

Table 2

Pollutant	Threshold
NO_X	9.13 pounds per hour
SO_2	9.13 pounds per hour
VOC	9.13 pounds per hour
PM_{10}	3.42 pounds per hour
CO	22.80 pounds per hour
Lead	0.11 pounds per hour

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

IA-01

Insignificant activities required to be listed

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Check and describe insignificant activities:

	Rule citation	Description of activities at the facility
☐	7007.1300, subp. 3(A)	
☐	7007.1300, subp. 3(B)(1)	
☐	7007.1300, subp. 3(B)(2)	
☐	7007.1300, subp. 3(C)(1)	
☐	7007.1300, subp. 3(C)(2)	
☒	7007.1300, subp. 3(D)	Lab equipment including Sander, Grinder, Lathe, Polisher#1, Polisher#2, Misc. Sand Testing Equipment
☐	7007.1300, subp. 3(E)	
☒	7007.1300, subp. 3(F)	Machine shop equipment including 8 oil-based casting finishing machines and 4 lathes
☐	7007.1300, subp. 3(G)	
☐	7007.1300, subp. 4	
☐	7008.4100	
☐	7008.4110	

Form IA-01 instructions

Four tables of insignificant activities are provided below.

- **Table IA-01.1, Insignificant activities not required to be listed**, specifies those activities that **do not** need to be included in your permit application.
- **Table IA-01.2**, **Insignificant activities required to be listed, and Table IA-01.4, Conditionally insignificant activities**, specify those activities that must be included in your application, on the **IA-01** form.
- **Table IA-01.3, Insignificant activities required to be listed for part 70 sources**, specifies insignificant activities which are required to be listed in part 70 permit applications but do not qualify as insignificant activities for state permits.
- If your facility has a Plantwide Applicability Limit (PAL), or you are applying for a PAL, all activities from Tables IA-01.2, 3, and 4 that emit the PAL pollutant no longer qualify as Insignificant Activities and must be included in your permit application as emitting equipment using the appropriate forms (e.g., GI-04, GI-05B, GI-05C, GI-07, CD-01, etc.).
- Any activity that requires a permit under 40 CFR § 52.21 (e.g., it is included in a previous Best Available Control Technology [BACT] determination or is subject to conditions to avoid New Source Review), no longer qualifies as Insignificant Activity and must be included in your permit application on the appropriate forms (e.g., GI-04, GI-05B, GI-05C, GI-07, CD-01, etc.).
- It is possible that activities listed on this form may be included in your permit with applicable requirements and associated periodic monitoring.

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number as listed on form GI-01, item 1a.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number as listed on form GI-01, item 1b.

2) **Facility name --** Enter your Facility name as listed on form GI-01, item 2.

3) **Description of activities -** Check the boxes for the insignificant activities listed in Tables IA-01.2, IA-01.3, and IA-01.4 that take place at your stationary source. For each checked activity, provide a brief description of the activity taking place at your stationary source. Fill out a separate row for each listed activity. Provide enough detail in your description so it is clear how the emission unit(s) at your source meet the definition of the insignificant activity. For example, insignificant activity subpart 3(C)(1) corresponds to gasoline storage tanks with a combined total tankage capacity of not more than 10,000 gallons. If you have gasoline storage tanks that meet this definition, indicate the total capacity of your tanks to show that it is under 10,000 gallons. If you run out of room on the table, make additional copies of the form.

The Minnesota Pollution Control Agency (MPCA) may require you to submit calculations of emissions from these emission units and may choose to include them in your permit. You must calculate emissions from these emission units and include them in your permit application on the appropriate forms (e.g., GI-04, GI-05B, GI-05C, GI-07, CD-01, etc.) if any of the following are true:

- The emissions units are described in Minn. R. 7007.1300, subp. 3(F);
- The emissions units are described under Minn. R. 7007.1300, subp. 4;
- The emissions units are subject to additional requirements under Section 114(a)(3) of the Clean Air Act;
- The emissions units are subject to Hazardous Air Pollutant requirements under Section 112 of the Clean Air Act;
- The emissions units are part of a Title I modification;
- If accounted for, the emissions units make the stationary source subject to a part 70 permit; or
- If the emissions units meet the criteria listed at the beginning of these instructions (e.g., if they are included in a PAL).

Table IA-01.1 Insignificant activities not required to be listed

The activities described below are **not required to be listed** in your permit application under Minn. R. 7007.0500, subp. 2(C)(2), except as described above.

Subp. 2(A)	Fuel use: 1. production of hot water for on-site personal use not related to any industrial process; 2. fuel use related to food preparation by a restaurant or cafeteria; and 3. fuel burning equipment with a heat input capacity less than 19,000 British thermal unit per hour (Btu/hour), but only if the combined total heat input capacity of all fuel burning equipment at the stationary source with a heat input capacity less than 19,000 Btu/hour is less than or equal to 420,000 Btu/hour.
Subp. 2(B)	Plant upkeep: 1. routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source, such as: painting buildings, retarring roofs, paving parking lots; 2. routine maintenance of buildings, grounds, and equipment; 3. use of vacuum cleaning systems and equipment for portable steam cleaning; 4. clerical activities such as operating copy machines and document printers, except operation of such units on a commercial basis; 5. janitorial activities; 6. sampling connections used exclusively to withdraw materials for laboratory analysis and testing; and 7. use of handheld aerosol spray cans for routine building and equipment maintenance.
Subp. 2(C)	Fabrication operations: 1. equipment used for the inspection of metal products; 2. equipment used exclusively for forging, pressing, drawing, spinning, or extruding hot or cold metals; 3. equipment used exclusively to mill or grind coatings and molding compounds where all materials charged are in paste form; and 4. mixers, blenders, roll mills, or calendars for rubber or plastics for which no materials in powder form are added and in which no organic solvents, diluents, or thinners are used.
Subp. 2(D)	Processing operations: 1. closed tumblers used for cleaning or deburring metal products without abrasive blasting; 2. equipment for washing or drying fabricated glass or metal products, if no Volatile Organic Compounds (VOCs) are used in the process, and no gas, oil, or solid fuel is burned; 3. blast-cleaning operations using suspension of abrasive in water or sponge media; 4. open tumblers with a batch capacity of 1,000 pounds or less used for cleaning or deburring metal products; 5. equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning, provided that the equipment is: a) handheld; or b) infrequently used and not associated with the primary production processes at the stationary source; and 6. ultraviolet-light curing or disinfection processes.
Subp. 2(E)	Storage tanks: 1. pressurized storage tanks for anhydrous ammonia, liquid petroleum gas (LPG), liquid natural gas (LNG), or natural gas; 2. storage tanks holding lubricating oils; 3. above- and below-ground fuel oil storage tanks with a combined total tankage capacity of less than 100,000 gallons; 4. gasoline storage tanks with a combined total tankage capacity of less than 2,000 gallons; and 5. storage tanks holding inorganic liquids, including water, except for acids that volatilize hazardous air pollutants or volatile organic compounds.
Subp. 2(F)	Drain, waste, and vent piping: 1. stacks or vents to prevent escape of sewer gases through plumbing traps, not including stacks and vents associated with processing at wastewater treatment plants; 2. sewer maintenance access covers and shafts; 3. sludge and septage landspreading sites;

	4. sludge loadout pumping operations for publicly owned treatment works with a design flow less than 5,000,000 gallons per day; and 5. odor control systems on components of publicly owned treatment works collection systems.
Subp. 2(G)	Residential activities: typical emissions from residential structures, not including: 1. fuel burning equipment with a total heat input capacity of 420,000 Btu/hour or greater; and 2. emergency backup generators.
Subp. 2(H)	Recreational activities: use of the following for recreational purposes: 1. fireplaces; 2. barbecue pits and cookers; and 3. kerosene fuel use.
Subp. 2(I)	Health care activities: activities and equipment directly associated with the diagnosis, care, and treatment of patients in medical or veterinary facilities or offices, not including support activities such as power plants, heating plants, emergency generators, incinerators, or other units affected by applicable requirements as defined in Minn. R. 7007.0100, subp. 7.
Subp. 2(J)	Miscellaneous: 1. safety devices, such as fire extinguishers, if associated with a permitted emission source, but not including sources of continuous emissions; 2. flares to indicate danger to the public; 3. vehicle exhaust emissions from the operation of mobile sources at a stationary source; 4. purging of natural gas and liquid petroleum gas lines; 5. natural draft hoods, natural draft ventilation, comfort air conditioning, or comfort ventilating systems not designed or used to remove air contaminants generated by, or released from specific units of equipment; 6. funeral home embalming processes and associated ventilation systems; 7. use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act, where the product is used at academic and health care institutions in the same manner as normal consumer use; 8. equipment used exclusively for packaging: a) lubricants or greases; or b) waterborne adhesives, coatings, or binders; 9. equipment used exclusively for mixing and blending materials at ambient temperature to make waterborne adhesives, coatings, or binders; 10. equipment used for hydraulic or hydrostatic testing; 11. plasma- or laser-cutting operations using a water table; 12. blueprint copiers and photographic processes; 13. equipment used exclusively for melting or applying wax; 14. nonasbestos equipment used exclusively for bonding lining to brake shoes; 15. solvent distillation equipment with a batch capacity of 55 gallons or less; and 16. electric steam sterilizers.
Subp. 2(K)	Demonstration project conducted by a teaching institution, where the sole purpose of a demonstration project is to provide an actual functional example of a process unit operation to the students or other interested persons, where actual operating hours of each emissions unit must not exceed a total of 350 hours in a calendar year and where the emissions unit is not used to dispose of waste materials.
Subp. 2(L)	Commercial self-service laundries, not including dry cleaners or industrial laundries.

Table IA-01.2 Insignificant activities required to be listed

The activities described below are **required to be listed** in your permit application under Minn. R. 7007.0500, subp. 2(C)(2), and calculations provided as described above.

Subp. 3(A)	Fuel use: space heaters fueled by, kerosene, natural gas, or propane, but only if the combined total heat input capacity of all space heaters at the stationary source is less than or equal to 420,000 Btu/hour. A space heater is a heating unit that is not connected to piping or ducting to distribute the heat.
Subp. 3(B)	Infrared electric ovens and indirect heating equipment: 1. infrared electric ovens; and 2. indirect heating equipment with a heat input capacity less than 420,000 Btu/hour but only if the total combined heat input capacity of all indirect heating equipment at the stationary source with a heat input capacity less than 420,000 Btu/hour is less than or equal to 1,400,000 Btu/hour.
Subp. 3(C)	Storage tanks: 1. gasoline storage tanks with a combined total tankage capacity of not more than 10,000 gallons; and 2. non-hazardous air pollutant VOC storage tanks with a combined total tankage capacity of not more than 10,000 gallons of non-hazardous air pollutant VOCs and with a vapor pressure of not more than 1.0 psia at 60 degrees Fahrenheit.
Subp. 3(D)	Emissions from a laboratory, as defined in this item. "Laboratory" means a place or activity devoted to experimental study or teaching in any science, or to the testing and analysis of drugs, chemicals, chemical compounds or other substances, or similar activities, provided that the activities described in this sentence are conducted on a laboratory scale. Activities are conducted on a laboratory scale if the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person. If an emission facility manufactures or produces products for profit in any quantity, it may not be considered to be a laboratory under this item. Support activities necessary to the operation of the laboratory are considered to be part of the laboratory. Support activities do not include the provision of power to the laboratory from sources that provide power to multiple projects or from sources that would otherwise require permitting, such as boilers that provide power to an entire facility.
Subp. 3(E)	Miscellaneous brazing, soldering, torch-cutting, or welding equipment.
Subp. 3(F)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: 1. 4,000 lbs/year of carbon monoxide; 2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone; and 3. 1,000 tons/year of greenhouse gases (CO_2e).
Subp. 3(G)	Fugitive Emissions from unpaved entrance roads and parking lots, except from a stationary source applying for an Option D registration permit under Minn. R. 7007.1130.

Table IA-01.3 Insignificant activities required to be listed for part 70 sources

Part 70 permits: If you are applying for an initial part 70 permit, activities that are not listed in Table IA-01.1, but have potential emissions less than those in this table may be included as insignificant activities to be listed in your part 70 permit application. If you use this form for subsequent permit actions, only include existing emissions units that were identified in the original part 70 permit as insignificant activities under Minn. R. 7007.1300, subp. 4. New emissions units do **not** qualify under Minn. R. 7007.1300, subp. 4. as insignificant activities. Verify that existing emissions units continue to qualify.

The activities described below are **required to be listed** in your permit application under Minn. R. 7007.0500, subp. 2(C)(2), and calculations provided as described above.

Other permits: If you are applying for any type of state permit (including an individual state permit, a state general permit, or a state registration permit) or an amendment to any permit (state or part 70), this table does not apply.

Subp. 4	Individual emissions units at a stationary source, each of which have potential emissions less than the following limits: A. 5.7 lbs/hr of carbon monoxide; B. 2.28 lbs/hr or actual emissions of one ton per year for nitrogen oxides, sulfur dioxide, particulate matter, particulate matter less than ten microns, and volatile organic compounds; C. for hazardous air pollutants, emissions units with: 1. potential emissions of 25 percent or less of the hazardous air pollutant thresholds listed in Minn. R 7007.1300, subp. 5; or 2. combined HAP actual emissions of one ton per year unless the emissions unit emits one or more of the following HAPs: carbon tetrachloride; 1,2-dibromo-3-chloropropane; ethylene dibromide; hexachlorobenzene; polycyclic organic matter; antimony compounds; arsenic compounds, including inorganic arsine; cadmium compounds; chromium compounds; lead compounds; manganese compounds; mercury compounds; nickel compounds; selenium compounds; 2,3,7,8-tetrachlorodibenzo-p-dioxin; or dibenzofuran. If the emissions unit emits one or more of the HAPs listed in this subitem, the emissions unit is not an insignificant activity under this subitem; **and** D. potential emissions up to 10,000 tons per year or actual emissions up to 1,000 tons per year of CO_2e.

Table IA-01.4 Conditionally insignificant activities

The activities described below are **required to be listed** in your permit application under Minn. R. 7007.0500, subp. 2(C)(2), and calculations provided as described above.

7008.4100	Conditionally insignificant material usage. All material usage activities at the stationary source are included in the following limits: A. VOC emissions less than 10,000 pounds in each calendar year or VOC usage less than 1000 gallons in each calendar year; and B. Particulate matter emissions less than 8,000 pounds in each calendar year. See Minn. R. 7008.4100 for recordkeeping and calculation requirements for this activity.
7008.4110	Conditionally Insignificant Mechanical Finishing Operations. All mechanical finishing operations at the stationary source are included in the following limit: • Particulate matter emissions less than 10,000 pounds in each calendar year. See Minn. R. 7008.4110 for recordkeeping and calculation requirements for this activity.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-02

Process Flow Diagram

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 2.

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Flow diagram: (Insert flow diagram below or attach a separate sheet.)

See Attached.

Instructions for Form GI-02

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) Number (No.). This is the first eight digits of the permit number for all permits issued under the current operating permit program.

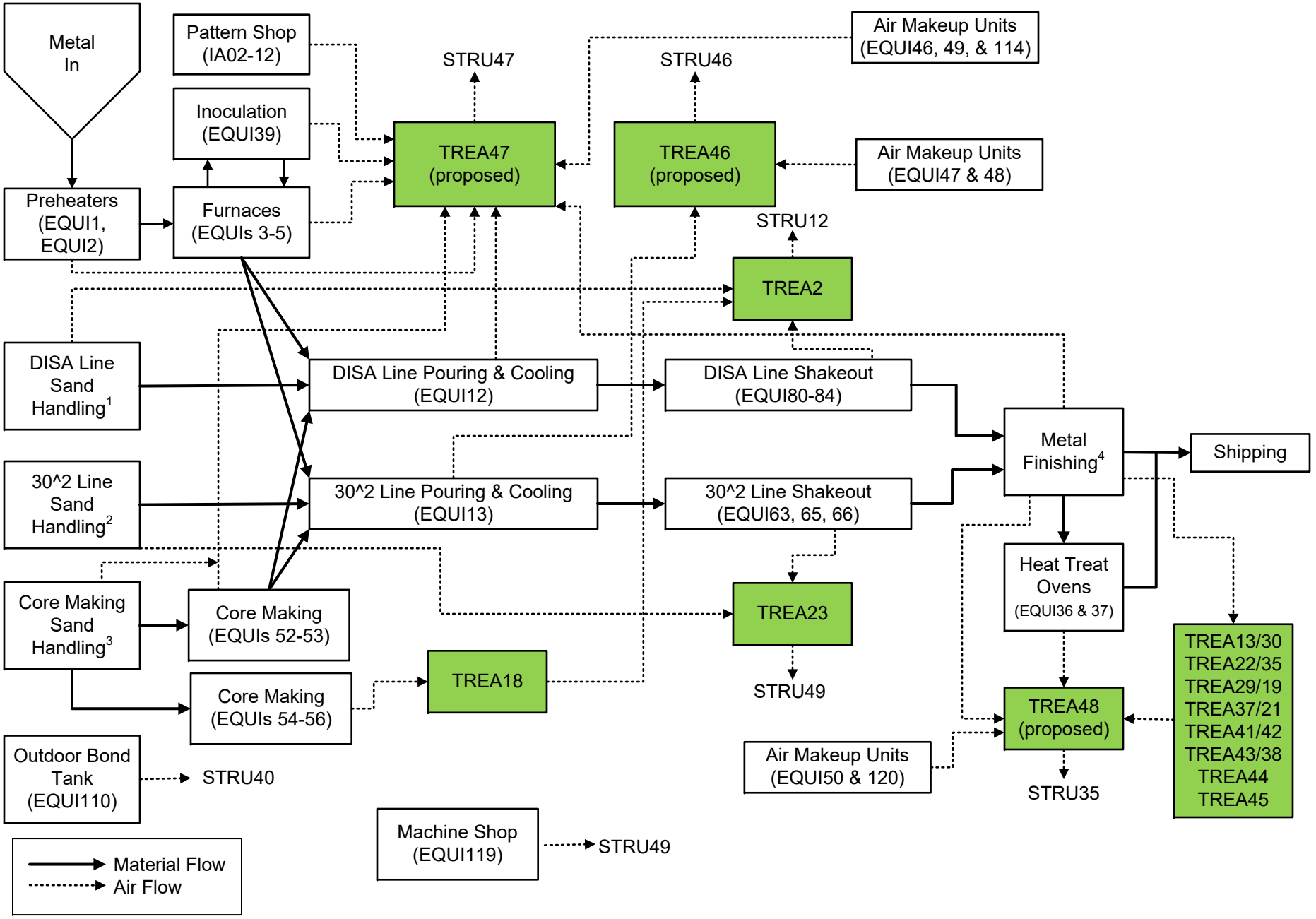
1b) **Agency Interest ID number --** Fill in your Agency Interest identification (ID) number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3) **Flow diagram –** Follow instructions at Process Flow Diagram Instructions - Air Quality Permit Program (state.mn.us).

You may use this sheet or attach another drawing provided it includes all of the information requested. If you attach another drawing or additional sheets, please include the AQ Facility ID No. and Facility Name in the upper left hand corner of each additional sheet.

Northern Iron LLC
Process Flow Diagram September 2024



AQ FACILITY ID: 12300088

FACILITY NAME: NORTHERN IRON LLC

Superscripts included in Process Flow Diagram denote the EQUIs as listed below:

1 – DISA Line Sand Handling: EQUIs 72-79, 85-91, 95-97, 102, 105, 110, 115

2 – 30^2 Line Sand Handling: EQUIs 60-62, 64, 67-71, 92-94, 98, 103, 104, 106-109, 116

3 – Core Making Sand Handling: EQUIs 111-113

4 – Metal Finishing: EQUIs 16-18, 20, 23, 24, 28-30, 41, 42, 51, 58, 100, 117-119

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-03

Facility and Stack Vent Diagram

Air Quality Permit Program

Doc Type: Permitting Checklist

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Facility and Stack/Vent Diagram: (insert stack vent diagram below or attach a separate sheet)

See Attached.

Instructions for form GI-03

All fields as directed by the form are **mandatory** except the Agency Interest ID number (if unknown). **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01-R, item 1.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name as indicated on Form GI-01, item 2 or in your e-Services application.

3) **Facility and Stack/Vent Diagram –** Follow instructions at Facility and Stack Vent Diagram Instructions (state.mn.us). You may use this form or attach another drawing if it provides all the information required. If you attach another drawing or additional sheets, please include the AQ facility ID number and facility name in the upper left hand corner of each additional sheet.

Instructions for form GI-03-R

All fields as directed by the form are **mandatory** except the Agency Interest ID number (if unknown). **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility Identification (ID) number as indicated on Form GI-01-R, item 1.

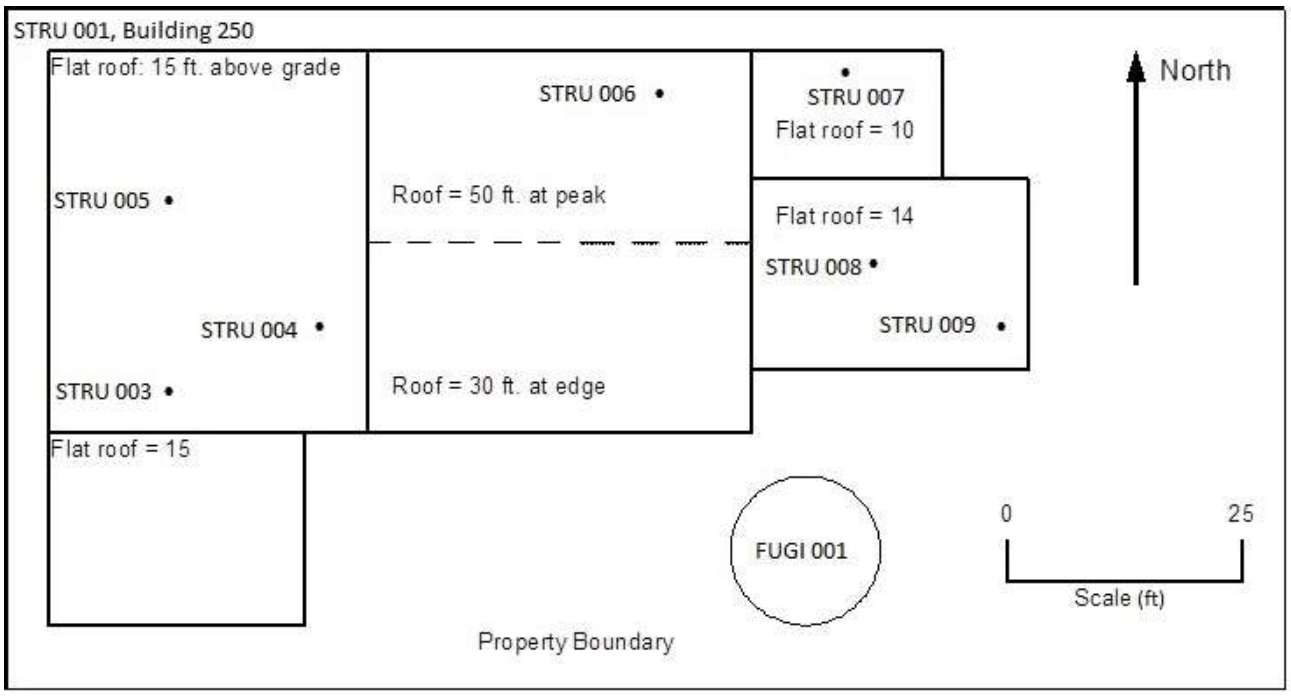
1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name as indicated on Form GI-01, item 2.

3) **Facility and Stack/Vent Diagram --** Provide a plan view site diagram of the facility showing all buildings with building ID numbers. Show the location of each stack/vent, of each fugitive emission source, and each storage tank. Include an ID number for each stack/vent. These ID numbers must also be used as on the GI-04 form for stacks/vents. Include building roof height on this drawing. For buildings with a flat roof, only the roof height needs to be given. For buildings with sloping roofs, use a dashed line to indicate the peak of the roof, and provide both the height of the peak and the height of the roof at the edge. **Include the property line and provide the distance from each stack/vent to the nearest property line or do a drawing of the entire property to scale.** You may use this form or attach another drawing if it provides all the information required. If you attach another drawing or additional sheets, please include the AQ facility ID number. and facility name in the upper left hand corner of each additional sheet.

The following figure is an **example** of what a facility and stack/vent diagram might look like; yours will be different.

where: STRU indicates a stack or a vent (when marked by a single location, otherwise it is a building) and,
FUGI indicates a fugitive source



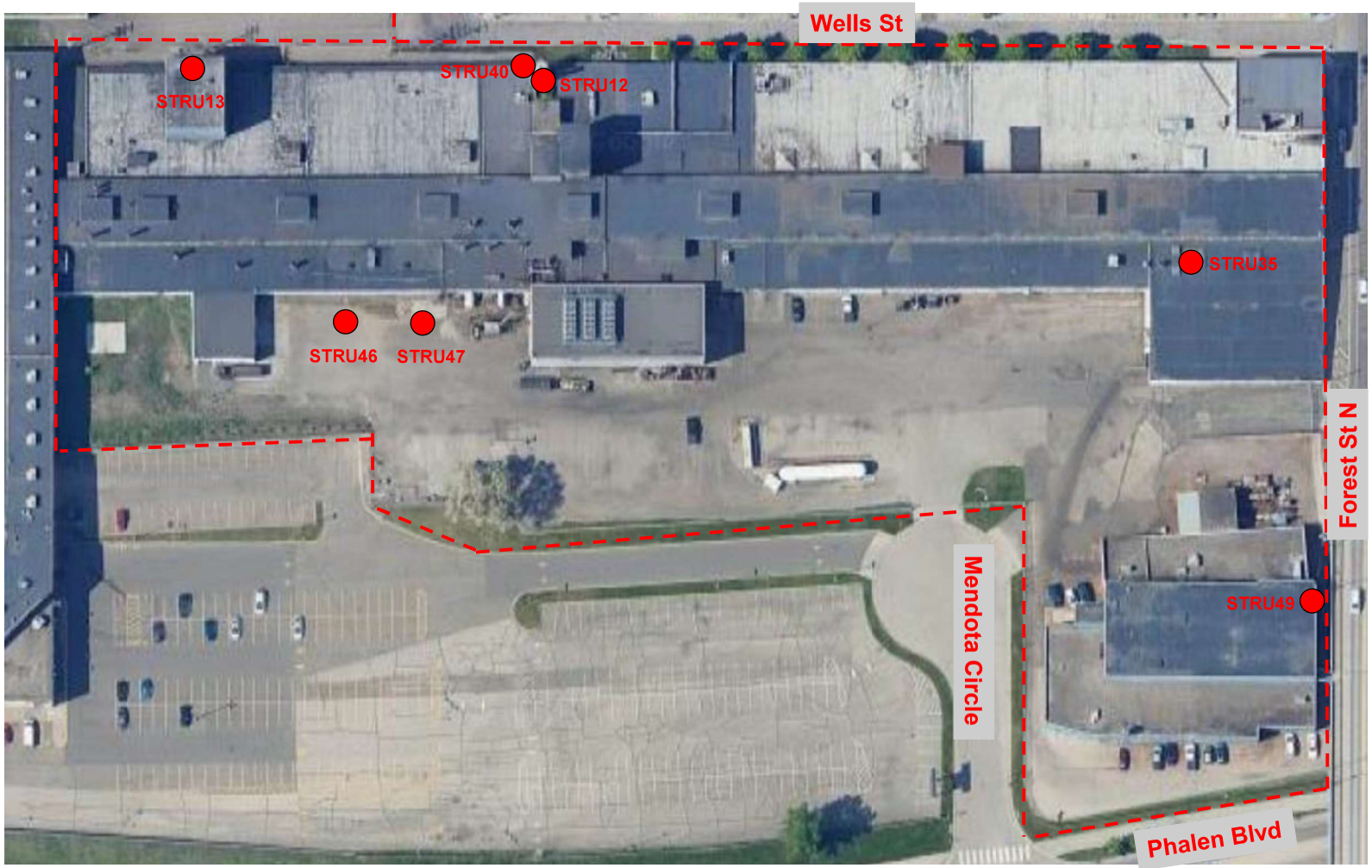
AQ FACILITY ID: 12300088

FACILITY NAME: NORTHERN IRON LLC

GI-03 FACILITY AND STACK/VENT DIAGRAM

Northern Iron LLC

867 Forest St, St. Paul MN



MAP LEGEND

DIAGRAM FEATURES

= Exhaust Stack

= Property Line

APPROXIMATE DISTANCE TO PROPERTY LINE

STRU12: ~30 FEET

STRU13: ~30 FEET

STRU35: ~100 FEET

STRU40: ~22 FEET

STRU46: ~90 FEET

STRU47: ~95 FEET

STRU49: ~13 FEET

0 50

SCALE (FT)

Latitude: 44° 58' 1.884" N
Longitude: 93° 3' 43.38" W

August 2024

N

US COMPLIANCE

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-04

Stack/Vent (SV) information

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Form GI-05F *Emission Source Association* must also be completed and submitted whenever this form is required.

3a)	**SV ID number**	STRU46	STRU47	STRU35	STRU12
3b)	**Stack/Vent operator's description**	Dust Hog 1 Stack	Dust Hog 2 Stack	CPV-3 Stack	Pallet Line Sand Handling/Shakeout Stack
3c)	**Height of opening from ground (feet)**	40	40	30	35
3d)	**Inside diameter (feet)**	6	6	1.5	3
	length (feet)				
	width (feet)				
3e)	**Design flow rate (cubic feet/minute)**	110,000	110,000	15,000	32,000
3f)	**Exit gas temp. (°F)**	80.33	80.33	80.00	80.00
3g)	**Flow rate/temp. information source**	M	M	M	M
3h)	**Discharge direction**	U	U	U	U
3i)	**Status**	Active	Active	Active	Active
3j)	**Removal date (mm/dd/yyyy)**				
3k)	**Reasons for changes/modifications**	New/To Be Constructed	New/To Be Constructed	New/To Be Constructed	Increasing Stack Height and Increasing Control Efficiency

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-04

Stack/Vent (SV) information

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Form GI-05F *Emission Source Association* must also be completed and submitted whenever this form is required.

3a)	**SV ID number**	STRU13	STRU40	STRU49	
3b)	**Stack/Vent operator's description**	Flask Line Sand Handling/Shakeout Stack	Outdoor Bond Tank Stack	Machine Shop Electrical Stack	
3c)	**Height of opening from ground (feet)**	70	30	10	
3d)	**Inside diameter (feet)**	3	1.5	1	
	length (feet)				
	width (feet)				
3e)	**Design flow rate (cubic feet/minute)**	19,660	10,000	50	
3f)	**Exit gas temp. (°F)**	72	ambient	ambient	
3g)	**Flow rate/temp. information source**	M	E	E	
3h)	**Discharge direction**	U	U	H	
3i)	**Status**	Active	Active	Active	
3j)	**Removal date (mm/dd/yyyy)**				
3k)	**Reasons for changes/modifications**	Decreasing Stack Inside Diameter and Increasing Control Efficiency	No Changes	No Changes	

Instructions for adding stack/vents to the list

Complete the table on this form for all the stacks and vents at your facility. Do not include stacks and vents that vent only from insignificant activities or which do not vent any regulated pollutant. Regulated air pollutants include the criteria pollutants for which a national ambient air standard has been established, pollutants regulated under an NSPS, pollutants regulated under the National Emission Standards for Hazardous Air Pollutants program under Section 112 of the Clean Air Act (40 CFR pt. 61 and 40 CFR pt. 63), ozone depleting chemicals, and chemicals regulated under the accidental release program under section 112(r) of the Clean Air Act (40 CFR pt. 68).

All fields as directed by the form are **mandatory** except the Agency identification (ID) number. (if unknown). **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

1a) **AQ Facility ID number –** Fill in your Air Quality Facility ID number (No.) as indicated on the *Facility Information Form* (GI-01), item 1a. This is the first eight digits of the permit number for all permits issued under the operating permit program.

1b) **Agency Interest ID number –** Fill in your Agency Interest ID No. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name –** Enter your facility name as indicated on the *Facility Information Form* (GI-01), item 2.

3a) **S/V ID number –** Number the stacks and vents at your facility sequentially (001, 002, 003, etc.). This number will be used in other forms to identify the stack that is described in this form. Even if the stack replaces a previously removed stack, assign the next number; do not reuse numbers. This number will be used in other forms to identify the stack that is described in this form. This ID number is unique to this stack and must be used consistently throughout the application.

Stacks and vents from building and room ventilation systems which are designed only to provide fresh air for the occupants or to remove heat for comfort should not be listed, unless processes inside that building have emissions that could escape through these vents (e.g., are not vented directly to their own stack so their emissions leave through general building ventilation). All such stacks and vents for each building may be grouped under a single S/V ID number. Provide an estimate of the total air flow and temperature. In some cases, you may want to group these stacks or vents by rooms within a building. You may also list these stacks and vents individually if you wish.

Stacks or vents from buildings or room ventilation systems whose design basis is the removal of airborne contaminants must be listed individually with an estimate of air flowrate, temperature and emission rate of each contaminant which is a regulated air pollutant.

3b) **Operator's description –** Please provide a short description that you would use to describe the function of the stack or vent. (For example, "boiler exhaust" or "dryer emissions.") You may also include any identifying numbers that you use for the stacks or vents (this will be separate from the number prescribed in item a).

3c) **Height of opening from ground –** The height is from the top of the stack to nearest ground level.

3d) **Inside diameter in ft. or length and width in ft. –** Provide the inside dimension(s) of the stack at the exit.

3e) **Design flowrate at exit and 3f) exit gas temperature at exit (°F) –** You must use the same source of data for both if these items, for instance, if you contact the manufacturer for the flowrate, have them provide the temperature also. Provide the design flowrate in actual cubic feet per minute and the temperature in degrees F corresponding to the flowrate from this stack. This data should be based on the stationary source(s) operating at its maximum design capacity. If this information is not known or documented, consult the following guidance (below).

Acceptable sources for this information are stack tests if there is no introduction of air or other process gases downstream of the test ports, manufacturer's estimates based on engineering calculations, or your own estimates based on engineering calculations.

3g) **Rate/temp information source –** Indicate the source of the flowrate and temperature entries separately, using the following code letters:

- M - information provided by manufacturer
- T - information obtained through testing
- C - information obtained through continuous monitoring systems
- E - estimated

3h) **Discharge direction –** Provide the direction of flow of the gases exiting the stack or vent using the following codes:

- U - gases exit upwards (with no cap on stack/vent)
- C - gases exit upwards (with a cap on stack/vent)
- D - gases exit downward
- H - gases exit horizontally

3i) **Status –** Provide the status of the emission unit as either active or inactive. If status is inactive, provide a removal date.

3j) **Removal date –** If status is inactive, provide date stack/vent was removed. This includes dates for inactivating stacks that no longer have process emissions.

3k) **Reason for changes/modification –** Provide reason for changes or modification of emission unit.

Instructions for determining or estimating stack flowrate and exit temperature for GI-04

Under each type of equipment or emission unit, several methods of estimating flowrate and temperature may be given. The first method is the most preferred and should provide the most accurate data, but the other methods are also acceptable.

1. Boilers and other equipment burning common fuels

1.1 Preferred method – Determine the maximum rate at which each fuel can be burned based on the overall facility design, and contact the equipment manufacturer for the stack flowrate and temperature at that fuel-burning rate.

- **1.2 Alternate method –** Calculate the stack flowrate using the procedure below (steps 1-9). To aid in calculation, a spreadsheet is also available at https://www.pca.state.mn.us/air-permit-application-forms, the flue gas rate estimation for stack or vent flow rates template (aq-f1-gi04a).

Step 1: For a given fuel, obtain a wet basis (wb) analysis by percent mass for carbon (C_{wb}), hydrogen (H_{wb}), sulfur (S_{wb}), oxygen (O_{wb}), nitrogen (N_{wb}), ash (A_{wb}), and moisture (M_{wb}). A wet basis analysis may be obtained from the manufacturer or through testing.

Analysis (wet basis)

Variable	Species	% Mass
C_{wb}	Carbon	
H_{wb}	Hydrogen	
S_{wb}	Sulfur	
O_{wb}	Oxygen	
N_{wb}	Nitrogen	
A_{wb}	Ash	
M_{wb}	Moisture	

Step 2: Obtain the fuel higher heating value, with units Btu/lb fuel, on a wet basis (HHV_{wb}).

Higher heating value (Btu/lb fuel):

Step 3: Obtain the fuel heat input value (He_{in}) with units MMBtu/hr.

Fuel heat input (MMBtu/hr):

Step 4: Obtain the percentage of excess air used in combustion (E).

Excess air (%):

Step 5: Obtain the temperature of flue gas at stack exit (T) in degrees Fahrenheit.

Exit temperature (°F):

Step 6: Calculate the percent oxygen in dry flue gas (Ox_{df}) using the following method:

$Ox_{df} = 20.9 * E / (100 + E)$

Oxygen in dry flue gas (%):

Step 7: Calculate a whole flue gas factor (F_w), in units scf/MMBtu using the following method:

$F_w = 1{,}000{,}000 * [(C_{wb} * 1.533) + (H_{wb} * 5.525) + (S_{wb} * 0.574) + (O_{wb} * -0.455) + (N * 0.138) + (M_{wb} * 0.214)] / HHV_{wb}$

Flue gas factor (scf/MMBtu):

Step 8: Calculate the flue gas flow rate in standard cubic feet per minute (Q_{scfm}) using the following method:

$Q_{scfm} = [He_{in} * F_w * 20.9 / (20.9 - Ox_{df})] / 60$

Standard flue gas flow rate (scfm):

Step 9: Calculate the flue gas flow rate in actual cubic feet per minute (Q_{acfm}) using the following method:

$Q_{acfm} = Q_{scfm} * (460 + T) / 528$

Actual flue gas flow rate (acfm):

1.3 Alternate method – performance test data

Performance test data may be used to provide flowrate and temperature. If the test is not conducted at the design fuel-burning rate, the measured flowrate may need to be extrapolated to the design condition.

2. Fan-powered ventilation systems

2.1 Preferred method – Consult purchase documents for the fan specifications which will usually specify the volumetric flowrate of air for which the fan is designed. If the air is cleaned by a baghouse, scrubber, cyclone or other air pollution control equipment, the purchase documents for that equipment will usually specify the design gas flowrate. If both are available, the smaller number should be reported.

2.2 Alternate method – Measure the air volume in a straight run of duct using a pitot tube and U.S. Environmental Protection Agency (EPA) Method 1 and 2. Stack tests already performed are adequate if conducted at the design conditions. EPA test methods are found in the Appendices to 40 CFR pt. 60.

2.3 Alternate method – Determine the fan model number from the manufacturer's nameplate and speed from the motor and drive, and measure the static pressure at the fan inlet. Consult the manufacturer's performance curve for the fan, or call the manufacturer to determine the fan performance.

2.4 Last-resort-method for flowrate – Multiply the cross-sectional area of the fan outlet or exhaust stack, in square feet, by 4000 feet per minute.

3. Natural draft ventilation systems

3.1 Natural draft ventilation systems usually consist of roof openings with a weather hood designed to facilitate exhaust of indoor air due to temperature difference (the indoor air is usually warmer) and may be assisted by wind. Obtain the manufacturer's model number from purchasing records if available or from nameplates if accessible and contact the manufacturer for estimated air flow. If the name of the architect or engineering company that designed the building is still available, they may have design calculations of the required ventilation flowrate.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05A

Pollution control equipment information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 2

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Form *GI-05F Emission source association* must also be completed and submitted whenever this form is required.

3a) Control equip ID no.	3b) CE type code	3c) Description	3d) Manufacturer	3e) Model number	3f) Installation date (mm/dd/yyyy)	3g) Removal date (mm/dd/yyyy)	3h) Pollutants controlled	3i) Capture efficiency	3j) Destruct/ collect efficiency	3k) Afterburner/ Oxidizer combustion parameters
TREA2	018	Fabric Filter - Low Temp, T<180 deg F	Torit		1/1/1974		PM	80%/100%	99%	
							PM10	80%/100%	95%	
							PM2.5	80%/100%	95%	
							Lead	80%/100%	95%	
TREA23	018	Fabric Filter - Low Temp, T<180 deg F	Torit		7/10/2011		PM	80%/100%	99%	
							PM10	80%/100%	95%	
							PM2.5	80%/100%	95%	
							Lead	80%/100%	95%	

Describe changes to existing control devices and/or operations:

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
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GI-05A

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TREA46	018	Dust Hog 1 (Fabric Filter - Low Temp, T<180 deg F)	Dust Hog	160-4	On or after 8/30/2024		PM	100%	99%	
							PM10	100%	93%	
							PM2.5	100%	93%	
							Lead	100%	93%	

Describe changes to existing control devices and/or operations:

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TREA47	018	Dust Hog 1 (Fabric Filter - Low Temp, T<180 deg F)	Dust Hog	160-4	On or after 8/30/2024		PM	100%	99%	
							PM10	100%	93%	
							PM2.5	100%	93%	
							Lead	100%	93%	

Describe changes to existing control devices and/or operations:

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3a) Control equip ID no.	**3b) CE type code**	**3c) Description**	**3d) Manufacturer**	**3e) Model number**	**3f) Installation date** (mm/dd/yyyy)	**3g) Removal date** (mm/dd/yyyy)	**3h) Pollutants controlled**	**3i) Capture efficiency**	**3j) Destruct/ collect efficiency**	**3k) Afterburner/ Oxidizer combustion parameters**
TREA48	018	CPV-3 (Fabric Filter - Low Temp, T<180 deg F)	Torit	CPV-3	On or after 9/20/2024		PM	100%	99%	
							PM10	100%	93%	
							PM2.5	100%	93%	
							Lead	100%	93%	

Describe changes to existing control devices and/or operations:

Instructions for Form GI-05A

Complete the table on this form for all air pollution control devices or operations, and pollution prevention control practices at your facility. If you are completing this form as part of an application for a change or modification at your facility, clearly show any changes to existing control devices or operations along with proposed new control devices or operations. For devices or operations that will be removed, enter all information for the device or operation and then (except for the removal date) strike out the entered data. If the device or operation is not being removed but parameters are changed, enter the current parameters in one row, strike out the parameters that will be changed, and enter the revised parameters in the row immediately below. Describe all changes in the table bottom row.

1a) **AQ Facility ID No. --** Fill in your Air Quality (AQ) Facility Identification Number (ID) Number (No.). This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) **Agency Interest ID No. --** Fill in your Agency Interest ID No. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3a) **Control equipment (CE) ID no. --** Assign a control equipment ID number to each piece of pollution control equipment (e.g., fabric filter or afterburner), control approach, or pollution control practice (e.g., dust suppression by water spray). Number the pollution control equipment/practices at your facility sequentially (001, 002, 003, etc.). The assigned number will be used in other forms to identify control equipment that is described in this form. This ID number is unique to this piece of equipment and must be used consistently throughout the application. If a control device or emission source employs more than one control approach (e.g., Selective Catalytic Reduction [SCR] and catalytic oxidation), each control approach should be identified with a unique control equipment ID number.

If you are adding new pollution control equipment to your permit or replacing existing pollution control equipment, it is important not to reuse previously used CE numbers. The new or replacement control equipment should be numbered consecutively beginning with the next number after the last one used. Numbers used for removed control equipment cannot be reused for new or replacement control equipment.

3b) **CE type code --** Fill in the appropriate CE type code from Table GI-05A.1 at the end of these instructions. For control equipment or pollution control practices that are not listed in Table GI-05A.1, enter the CE type Code 099 for "other" and describe the equipment or practice. **The type-code for the control equipment must be entered correctly, since this will be the primary means of recording and identifying the type of air pollution control equipment at this facility.**

3c) **Description --** Fill in the appropriate control equipment or control practice description. This description ***must*** correspond with the control equipment type code in the second column (Item 3b). For control equipment assigned control equipment type code 099, please provide a detailed description of the control equipment or pollution control practice; use additional pages if necessary.

3d) **Manufacturer --** Fill in the name of the pollution control equipment manufacturer. Pollution control practices such as dust suppression by water spray or chemical oxidation may not use control equipment. In these cases, fill N/A for items 3d and 3e.

3e) **Model number --** Fill in the manufacturer's model number for the pollution control equipment. If no control equipment is used, fill in NA.

3f) **Installation date --** Provide the date the control equipment was installed. If unknown, provide your best estimate.

3g) **Removal date --** Provide the date the control equipment was removed. Leave blank if control equipment has not been removed.

3h) **Pollutants controlled --** Fill in the pollutants controlled. **If multiple pollutants are controlled, enter the criteria pollutants first in alphabetical order, followed by Hazardous Air Pollutants (HAPs) in alphabetical order.** List each pollutant controlled, using a new box for each pollutant. For example, if a wet scrubber is used to control both sulfur dioxide and particulate matter emissions from an emissions unit at your facility, list Particulate Matter (PM) in the first row, and Sulfur Dioxide (SO_2), and Particulate Matter less than 10 um in size (PM_{10}) in the second and third rows. It is not necessary to repeat the other information in the other columns (i.e., equipment manufacturer's name, equipment model number, etc.).

3i) **Capture efficiency --** Fill in the capture efficiency of the emission capture device. The capture efficiency is the portion of the pollutants emitted that are routed via ducting to the control equipment (e.g., a fabric filter). For emission units in which all of the pollutants emitted are routed via ducting to a fabric filter the capture efficiency is 100 percent. These devices are called total enclosures. Total enclosure is defined in Minnesota Rules as "an enclosure that completely surrounds emissions from an emissions unit such that all emissions are captured and discharged through ductwork to control equipment".

Hoods and other devices that do not completely surround the emissions from an emission unit do not capture all of the pollutants emitted and therefore have a capture efficiency that is less than 100 percent. An example of a hood is a three-sided spray booth because the enclosure does not completely surround the emissions.

If you are applying for an operating permit, if the capture efficiency has been determined by performance testing in accordance with Minn. R. 7017.2001 to 7017.2060, and the test report has been reviewed and approved by the Minnesota Pollution Control Agency (MPCA), the determined efficiency must be used.

If you are applying for an operating permit and the capture efficiency has not been determined by a performance test, but the capture device is a hood that has been evaluated and conforms with the requirements of "Industrial Ventilation- A Manual of Recommended Practices", 21st ed., fill in 80 percent. Hood evaluations must be conducted by qualified personnel and a responsible official must sign the certification below. If the capture device is a total enclosure, fill in 100 percent. The certification must be submitted with the application.

Note for Fugitive Emissions: When the control is being applied to a fugitive emissions (for example, control of road dust using water spray), the capture efficiency will not be 100 percent. Using the example of applying water spray to a road, the collection efficiency (item 3h) will be 100 percent, assuming water is sprayed over the entire road. The capture efficiency (item 3g) is that portion of dust that is not wetted and therefore not held to the ground by the water, and will be something less than 100 percent.

Note for Pollution Prevention Control Practices: For pollution control practices that prevent formation of a pollutant (such as low NO_X burners, staged combustion, overfire air, etc. that prevent NO_X formation), enter 100% for the capture efficiency.

Hoods that have not been evaluated or do not conform to the recommended design and operating practices in "Industrial Ventilation - A Manual of Recommended Practices", 21st ed., must be either evaluated and brought into conformity with those design and operating practices or tested in accordance with Minn. R. 7017.2001 to 7017.2060, and the test report reviewed and approved and approved by the Agency, to determine a capture efficiency. You may propose an alternative capture efficiency based on engineering calculations approved by the Commissioner.

If you are applying for a modification to an existing emission unit with a hood to collect emissions, for the purpose of determining if the proposed change is a Title I modification, you may not assume a capture efficiency for the hood unless the use of the hood is part of an enforceable permit (For the definition of Title I modification, refer to Minn. R. 7007.0100, subp. 26.). You may assume a capture efficiency of 80 percent for a hood included in an enforceable permit if the hood has been evaluated and conforms with the design and operating practices recommended in "Industrial Ventilation - A Manual of Recommended Practices, 21st ed., American Conference of Governmental Industrial Hygienists". A responsible official shall sign the following hood certification to be submitted with the application.

Hood certification

I certify under penalty of law that the aforementioned hood(s) has (have) been evaluated under my direction or supervision by qualified personnel and that, to the best of my knowledge and belief, the (each) hood conforms to the design and operating practices recommended in "Industrial Ventilation - A Manual of Recommended Practices, 21st ed., American Conference of Governmental Industrial Hygienists."

The results of the evaluation and a copy of the certification must be kept on site. The owner or operator must make this evaluation and certification available for examination and copying upon request of the Commissioner and must, upon request, submit these records to the Commissioner by the time specified in the request.

3j) Destruct/Collect efficiency -- Fill in the collection or destruction efficiency. The collection or destruction efficiency is the portion of the pollutants that are captured and routed to the control equipment that is either collected and retained in the control equipment or is destroyed by the control equipment. U.S. Environmental Protection Agency (EPA) publications and data bases are the preferred sources for destruction/collection efficiency factors.

If you conducted a performance test which was reviewed and accepted by the Agency, you may propose that efficiency. You must always attach a description of the basis/justification for any efficiency you propose.

Table GI-05A.1 lists most of the types of air pollution control equipment in use. For any destruction/collection efficiency you enter here, for either a criteria pollutant or a HAP, you must indicate in a compliance plan on Form CD-05 how you will demonstrate and maintain the efficiency. Attach additional sheets as needed to explain the basis for the proposed efficiency.

The efficiency you enter here is the efficiency of control you may assume for the purpose of calculating Controlled Emissions and Actual Emissions as required on the EC forms. Note that the efficiency on the EC Forms, pollution control efficiency, is the product of the capture efficiency and the destruction/collection efficiency. You must propose a compliance plan on Form CD-05 for each control device for which you assume an efficiency to comply with an applicable requirement, such an emission limit, or to avoid an applicable requirement, such as a synthetic minor limit to obtain a State permit or to be exempt from New Source Review. Form GI-09C helps you decide whether to propose a synthetic minor limit to avoid New Source Review. If your compliance plan is acceptable, the control efficiency becomes enforceable when your permit is issued.

Minn. R. 7011.0070 contains a shorter list of control equipment including efficiencies for criteria pollutants which are enforceable and may be used in calculating your Potential-to-Emit to determine what type of permit to apply for, provided you comply with the compliance demonstration requirements in that Rule. If you use the control efficiencies in Minn. R. 7011.0070, you must include the compliance demonstration requirements in that Rule in your Compliance Plan on Form CD-05. Note that you cannot use the control efficiencies in Minn. R. 7011.0070 to calculate Potential-to-Emit to determine if you require a permit.

If you conducted a performance test which was reviewed and accepted by the MPCA, you may propose that efficiency.

Note for Fugitive Emissions: When the control is being applied to a fugitive emissions (for example, control of road dust using water spray), the collection efficiency (item 3h) will be 100 percent. Using the water spray example, this is assuming water is sprayed over the entire road. The capture efficiency (item 3g) is that portion of dust that is not wetted and therefore not held to the ground by the water, and will be something less than 100 percent.

Note for Pollution Prevention Control Practices: For pollution prevention control practices, the destruct/collect efficiency is the percent of pollutant not created by the process due to the use of the pollution prevention control practice, compared to the emissions that would be created without the use of pollution prevention control practice. For example, a low NO_X burner emits 60% of the NO_X emissions that a non-low NO_X burner emits resulting in 40% less NO_X emissions. The destruct/collection efficiency would be 40%.

3k) **Afterburner/oxidizer combustion parameters --** Fill in the combustion parameters for **afterburners/oxidizers only**. The parameters of interest are the temperature and residence time of the unit. Please state the temperature in degrees Fahrenheit and the residence time in seconds. List the parameters in a column, filling in each square with only one parameter (i.e., minimum operating temperature and residence time). For example, list the unit's minimum operating temperature in the first row and the residence time in the second row. It is not necessary to repeat the other information in the other columns (i.e., equipment manufacturer's name, equipment model number, etc.). Recommended monitoring, recordkeeping, operation and maintenance guidelines for other types of control equipment are included in Tables CD-01.2 and CD-01.3 following in the instructions for completing Form CD-01. Also, include the afterburner/oxidizer as an emission unit on Form GI-05B.

Table GI-05A.1

Code	Control device/Pollution control practice	Code	Control device/Pollution control practice
001	Wet scrubber, high eff.	057	Dynamic separator (wet)
002	Wet scrubber, med. Eff.	058	Mat or panel filter
003	Wet scrubber, low eff.	059	Metal fabric filter screen (cotton gins)
004	Gravity collector, high eff.	060	Process gas recovery
005	Gravity collector, med. eff.	061	Dust suppression by water spray, 10,000 gal/min
006	Gravity collector, low eff.	062	Dust suppression by chemical stabilizers or wetting agents, 350 gal/min
007	Centrifugal collector (cyclone), high eff.	063	Gravel bed filter
008	Centrifugal collector (cyclone), med. eff.	064	Annular ring filter
009	Centrifugal collector (cyclone), low eff.	065	Catalytic reduction
010	Electrostatic precipitator, high eff.	066	Molecular sieve
011	Electrostatic precipitator, med. eff.	067	Wet lime slurry scrubbing
012	Electrostatic precipitator, low eff.	068	Alkaline fly ash scrubbing
013	Gas scrubber (general)	069	Sodium carbonate scrubbing
014	Mist eliminator (v>250 ft/min), high vel.	070	Sodium-alkali scrubbing
015	Mist eliminator (v<250 ft/min), low vel.	071	Fluid bed dry scrubber
016	Fabric filter (T>250 °F), high temp.	072	Tube and shell condenser
017	Fabric filter (180 °F <T<250 °F), med. Temp.	073	Refrigerated condenser
018	Fabric filter (T<180 °F), low temp.	074	Barometric condenser
019	Catalytic afterburner, no heat exch.	075	Single cyclone
020	Catalytic afterburner, w/heat exch.	076	Multiple cyclone w/o fly ash reinjection
021	Direct flame afterburner, no heat exch.	077	Multiple cyclone w/fly ash reinjection
022	Direct flame afterburner, w/heat exch.	080	Chemical oxidation
023	Flaring	081	Chemical reduction
024	Modified furnace or burner design	082	Ozonation
025	Staged combustion	083	Chemical neutralization
026	Flue gas recirculation	084	Activated clay adsorption
027	Reduced combustion - air preheat	085	Wet cyclone separator
028	Steam or water injection	086	Water curtain
029	Low excess - air firing	099	Other control equipment or pollution control practices
030	Fuel w/low nitrogen content	101	High efficiency particulate air filter (HEPA)
031	Air injection	106	Dust suppression by physical stabilization
032	Ammonia injection	107	Selective noncatalytic reduction for Nitrogen Oxides (NOx)

Code	Control device/Pollution control practice
033	Control of percent Oxygen (O_2) in combustion Air
034	Wellman-Lord/sodium sulfite scrubbing
035	Magnesium oxide scrubbing
036	Dual alkali scrubbing
037	Citrate process scrubbing
038	Ammonia scrubbing
039	Cat. Oxidation - flue gas desulfurization
040	Alkalized alumina
041	Dry limestone injection
042	Wet limestone injection
043	Sulfuric acid plant- contact process
044	Sulfuric acid plant- double contact process
045	Sulfur plant
047	Vapor recovery system (Including condensers, hoods, other encl.)
048	Activated carbon adsorption
049	Liquid filtration system
050	Packed-gas absorption column
051	Tray-type gas absorption column
052	Spray tower
053	Venturi scrubber
055	Impingement plate scrubber
056	Dynamic separator (dry)

Code	Control device/Pollution control practice
109	Catalytic oxydizer
113	Rotoclone
131	Thermal oxydizer
139	Selective catalytic reduction (SCR)
146	Wet electrostatic precipitator
159	Electrified filter bed
203	Catalytic converter
204	Overfire air
205	Low NO_X burners
206	Dry sorbent injection
207	Carbon injection
312	Oxidation catalyst
901	Moisture content of material, 2-3 percent
902	Moisture content of material, 4 percent
903	Moisture content of material, 5 percent
904	Moisture content of material, 6 percent or more
905	Paper filter (not accordion)
906	Fiberglass filter (with cardboard frame)
907	Fiberglass filter (without cardboard frame)
908	Andre -- cardboard Binks filter (accordion)
909	Roll media -- fiberglass tack filter (tacky on one side)
910	Split paper + polyester paint arrestor

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CD-05

Compliance plan for control equipment

Air Quality Permit Program

Doc Type: Permit Application

Facility information

1a) AQ Facility ID number: 12300088 **1b) Agency Interest ID number:** 3518

2) Facility name: Northern Iron LLC

3) Electrostatic precipitators (includes wet electrostatic precipitators) (control codes 010, 011, 012, 146)

Complete the following information for each electrostatic precipitator not already included in an existing individual permit. For changes to parameters of electrostatic precipitators already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Voltage (kVolts)	Secondary current (mA)	Total power (kW)	Minimum fields online	Using conditioning agent?	Conditioning agent flow rate, if applicable	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

CAM = Compliance Assurance Monitoring
PSEU = Pollutant specific emission unit

4) Fabric filters (control codes 016, 017, 018)

Complete the following information for each fabric filter not already included in an existing individual permit. For changes to parameters for fabric filters already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on Form GI-05A)	Using control equipment rule?	Minimum pressure drop (in. of water column)	Maximum pressure drop (in. of water column)	Bag leak detector in use?	Subject to CAM?	For a "Large" or "Other" PSEU?
TREA46	Building is total enclosure. Controls uncaptured and controlled emissions released indoors for units in proximity to inlets.	☐ No ☒ Yes	0.5	10	☒ Yes ☐ No	☐ Yes ☒ No	☐ Large ☐ Other ☒ NA
TREA47	Building is total enclosure. Controls uncaptured and controlled emissions released indoors for units in proximity to inlets.	☐ No ☒ Yes	0.5	10	☒ Yes ☐ No	☐ Yes ☒ No	☐ Large ☐ Other ☒ NA
TREA48	Building is total enclosure. Controls uncaptured and controlled emissions released indoors for units in proximity to inlets.	☐ No ☒ Yes	0.5	6	☐ Yes ☒ No	☐ Yes ☒ No	☐ Large ☐ Other ☒ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

5) Panel/Wall filters (including high efficiency particulate air [HEPA] filters) (control codes 058, 101), Mechanically aided separators (control codes 056, 113)

Complete the following information for each wall or panel filter not already included in an existing individual permit. For changes to parameters for filters already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

6) **Cyclones/Multiclones (control codes 007, 008, 009, 075, 076, 077)**

Complete the following information for each cyclone or multiclone not already included in an existing individual permit. For changes to parameters for cyclones or multiclones already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 007, 008, 009, and 076.

7) **Wet cyclone separator (control codes 057, 085)**

Complete the following information for each wet cyclone separator not already included in an existing individual permit. For changes to parameters for wet cyclone separators already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Water pressure (psi)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

8) Wet scrubber (control codes 001, 002, 003), Spray tower (control code 052), Venturi scrubber (control code 053), or Impingement plate scrubber (control code 055)

Complete the following information for each wet scrubber not already included in an existing individual permit. For changes to parameters for wet scrubbers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Minimum liquid flow rate (gal/min)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 052, 053, and 055.

9) Injection systems (control codes 028, 031, 032, 041, 042, 067, 068, 069, 070, 071, 206, 207)

Complete the following information for each injection system not already included in an existing individual permit. For changes to parameters for injection systems already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Minimum injection rate	Min. rate units (gal./hr or lbs/hr)	Maximum injection rate	Max. rate units (gal./hr or lbs/hr)	Material injected**	Subject to CAM?	For a "Large" or "Other" PSEU?
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

******Use one of the following for material injected: air; ammonia (anhydrous); calcium bromide; carbon; chlorine flux; limestone, dry; limestone, wet; mercury additive; mercury reagent; molten sulfur; other; perlite; reactive flux; reagent; sorbent, dry; steam or water; trona

10) Thermal oxidation (control codes 021, 022, 131, 133)

Complete the following information for each thermal oxidizer not already included in an existing individual permit. For changes to parameters for thermal oxidizers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Combustion temperature (degrees F)	Inlet and Outlet temperatures (degrees F)	Residence time (seconds)	Burner capacity (MMBtu/hr)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

11) Catalytic oxidation (control codes 019, 020, 039, 109)

Complete the following information for each catalytic oxidizer not already included in an existing individual permit. For changes to parameters for catalytic oxidizers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Catalyst bed reactivity (kat)	Inlet and Outlet temperatures (degrees F)	Burner capacity (MMBtu/hr)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 019, 020, and 109.

12) Vapor recovery systems (including condensers) (control codes 047, 072, 073, 074)

Complete the following information for each vapor recovery system not already included in an existing individual permit. For changes to parameters for vapor recovery systems already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Temperature range (degrees F)	Condenser pressure drop range (inches of water column)	Filter pressure drop range (inches of water column)	Subject to CAM?	For a "Large" or "Other" PSEU?
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

13) Oxidation catalyst (control codes 203, 312)

Complete the following information for each oxidation catalyst not already included in an existing individual permit. For changes to parameters for oxidation catalyst already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Inlet temperature (degrees F)	Outlet temperature (degrees F)	Subject to CAM?	For a "Large" or "Other" PSEU?
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

14) Other controls (control codes 004, 005, 006, 013, 014, 015, 023, 024, 025, 026, 027, 029, 030, 033, 034, 035, 036, 037, 038, 040, 043, 044, 045, 046, 048, 049, 050, 051, 054, 059, 060, 061, 062, 063, 064, 065, 066, 078, 080, 081, 082, 083, 084, 086, 099, 106, 107, 139, 159, 201, 204, 205, 302, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910)

Complete the following information for each control device not described above and not already included in an existing individual permit. For changes to parameters for any other control devices that are already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Operating parameters (describe)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can be used only for control codes 023 and 086.

Instructions for form CD-05

If you are applying for a new individual operating permit, you must fill out the appropriate table for each control device. If you are adding new control equipment to an existing permit, you must fill out the appropriate table for the control device(s) you are adding.

If you are amending the operating parameters listed in an existing operating permit for an existing control device, you have two options.

1. Complete the *CD-05* form for the existing control device; or
2. If you can show all necessary operating parameter(s) revisions on relevant marked-up permit page(s) for the existing control device, you may elect to submit only the marked-up permit page(s). If you use this option, you do not have to submit the *CD-05* form to show the existing control device changes.

If the control equipment is subject to CAM (Reference form *GI-09H*), and the permit action for which you are applying requires CAM to be implemented, a pollutant specific CAM plan must be attached.

Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*) – For every table on this CD-05 form, the control efficiency basis must be one of the following: control equipment rule (Minn. R. 7011.0060 – 7011.0080), manufacturer/vendor data, other (provide details), test data (include performance test report with application).

The following tables are provided as guidance for parameter monitoring and for operation and maintenance.

Table CD-05.1 Recordkeeping and monitoring guidelines

This table shows generally acceptable recordkeeping and monitoring practices for certain types of air pollution control equipment. These guidelines represent a minimum standard; additional requirements will apply when 40 CFR pt. 64 (CAM) applies.

Pollution control equipment type	Monitoring requirement	Recordkeeping requirement
Centrifugal Collector (Cyclone)	Pressure drop	Record pressure drop Every 24 Hours if in Operation
Electrostatic Precipitator	Number of fields on-line	Record each parameter every 24 hours if in operation
Fabric Filter (Bag House) – high temperature or medium temperature	Pressure drop	Record pressure drop every 24 hours if in operation
Fabric Filter (Bag House) – low temperature	Visible Emissions and/or Pressure Drop	Record Existence of Visible Emissions Every 24 Hours if in Operation; Record Pressure Drop if Conditions Don't Allow Visible Emissions Observation
Spray Tower	Liquid flow rate and pressure drop	Record each parameter every 24 hours if in operation
Venturi Scrubber, Impingement Plate Scrubber	Pressure drop and liquid flow rate	Record each parameter every 24 hours if in operation
HEPA and Other Wall Filters	Condition of the filters including, but not limited to, alignment; saturation; and tears and holes	Record of filter(s) condition every 24 hours if in operation
Dust Suppression by water Spray	Test moisture content daily	Record moisture content daily
Wet Cyclone Separator	Pressure drop and water pressure	Record each parameter every 24 hours if in operation
Thermal Incinerator	Combustion temperature or inlet and outlet temperatures	Continuous hard copy readout of temperatures or manual readings every 15 minutes
Catalytic Incinerator	Inlet and Outlet temperatures; and catalyst bed reactivity as per manufacturer's specifications	Continuous hard copy readout of temperatures or manual readings every 15 minutes; and results of catalyst bed reactivity
Flaring	Temperature indicating presence of a Flame	Continuous hard copy readout of temperatures or manual readings every 15 minutes
Modified Furnace or Burner Design (low nitrogen oxides [NO_X] Burner)	Continuous monitoring of the air to fuel ratio at each fuel and or air port	Hard copy records of continuous monitoring
Staged Combustion - Over-Fire Air or Reburning	Continuous monitoring of the air to fuel ratio at each fuel and or air port	Hard copy records of continuous monitoring
Flue Gas Recirculation	Continuous monitoring of the amount of flue gas recirculated to the burner windbox	Hard copy records of continuous monitoring
Steam or Water Injection	Continuous monitoring of the fuel consumption and the ratio of water to fuel being fired	Hard copy records of continuous monitoring
Low Excess Air Firing	Continuous monitoring of the percent of excess air introduced into the boiler	Hard copy records of continuous monitoring

Table CD-05.2 Operation and maintenance plan guidelines

At a minimum, operation and maintenance (O&M) plans should include the following components. If you need additional guidance on O&M plans, the MPCA has a guidance document commissioned by the U. S. Environmental Protection Agency regarding this subject available for your use. Do not submit your O&M plan with your application. You should, however, maintain your O&M plan on site at your facility, available for review.

Pollution control equipment Type	O&M plans
All types	1. Maintain an adequate inventory of spare parts. 2. Ensure staff training on operation and monitoring of pollution control equipment as well as troubleshooting. 3. Conduct a thorough annual inspection of control equipment. This may require shutting down operations temporarily. 4. Conduct monthly inspections of control equipment mechanical operations (moving parts) including bearings, belts, fans, etc. as well as checking nozzles for plugging. 5. Conduct quarterly inspections of control equipment structure (non-moving parts) including housings, ductwork, hoses, etc. 6. Do daily checks on monitoring equipment (pressure gauges, chart recorders, temperature meters, etc.) to ensure that they are operational. 7. Calibrate monitoring equipment annually. 8. Respond to alarms, abnormal temperatures, noise, and odors which are all signs of a malfunctioning system and record in a log the corrective action taken. 9. Address additional operation and maintenance items recommended by the manufacturer if they are not covered by items 1-8.
Baghouse (Fabric Filter)	1. Check hopper/dust removal system with a frequency appropriate to the system. The permittee must specify this frequency in the permit application. 2. Adjust the bag cleaning frequency if the pressure drop indicates there is a problem. 3. Replace bags when the monitoring system indicates decreasing particulate removal. 4. Yearly pressure gauge calibration. 5. Items 1-9 listed for "All Types" above.
Cyclone/Rotoclone	1. Yearly pressure gauge calibration. 2. Certify annually that the level indicator works. 3. Items 1-9 listed for "All Types" above.
Catalytic Oxidizer	1. Sample the catalyst bed every 3 months for reactivity. You must report what reactivity level necessitates changing the bed with the first report you submit after permit issuance. Add to the catalyst or replace the bed as needed. 2. Annual Calibration of temperature meters. 3. Items 1-9 listed for "All Types" above.
Adsorber	1. Test adsorbability and retentivity once per quarter by opening up bed and extracting samples from all layers as needed. 2. Annual calibration of temperature meter. 3. Annual calibration of the Volatile Organic Compounds (VOCs) monitor. 4. Items 1-9 listed for “All Types” above.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 1 / EU001	EQUI 2 / EU002	EQUI 3 / EU003	EQUI 4 / EU004
3b) Emission unit type	Dryer/oven, direct fired	Dryer/oven, direct fired	Furnace	Furnace
3c) Emission unit operator's description	Scrap Preheat Oven 1	Scrap Preheat Oven 2	Electric Induction Furnace 1	Electric Induction Furnace 2
3d) Manufacturer	Gaylord	Gaylord	Brown Boveri	Brown Boveri
3e) Model number	4MBTU	4MBTU	SCC4	SCC4
3f) Max design capacity, material and units	4 units: MBTU/ Hr material: Heat	4 units: MBTU/ Hr material: Heat	1.5 units: Tons/ Hr material: Iron	1.5 units: Tons/ Hr material: Iron
3g) Commence construction date (mm/dd/yyyy)	7/1/1984 ☐ to be determined	7/1/1984 ☐ to be determined	1/1/1964 ☐ to be determined	1/1/1964 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/15/1994 ☐ to be determined	7/15/1994 ☐ to be determined	1/1/1964 ☐ to be determined	1/1/1964 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 5 / EU005	EQUI 6 / EU006	EQUI 7 / EU007	EQUI 8 / EU011
3b) Emission unit type	Furnace	Furnace	Furnace	Dryer/oven, unknown
3c) Emission unit operator's description	Electric Induction Furnace 3	Electric Induction Furnace A	Electric Induction Furnace B	Old Core Oil Oven
3d) Manufacturer	Brown Boveri	Brown Boveri	Brown Boveri	Coleman
3e) Model number	SCC4	IT7P	IT7P	FE-50C
3f) Max design capacity, material and units	1.5 units: Tons/ Hr material: Iron	4 units: Tons/ Hr material: Iron	4 units: Tons/ Hr material: Iron	units: / material:
3g) Commence construction date (mm/dd/yyyy)	1/1/1973 ☐ to be determined	1/1/1973 ☐ to be determined	1/1/1973 ☐ to be determined	1/1/1948 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1973 ☐ to be determined	1/1/1973 ☐ to be determined	1/1/1973 ☐ to be determined	1/1/1948 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Inactive	Inactive	Inactive
3q) Removal date (mm/dd/yyyy)		9/1/2010	9/1/2010	1/1/2003
3r) Reasons for changes/modifications		Removed	Removed	Removed

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 9 / EU012	EQUI 10 / EU013	EQUI 11 / EU014	EQUI 12 / EU015
3b) Emission unit type	Other Combustion	Molding Equipment	Washer	Other Emission Unit
3c) Emission unit operator's description	Core Tunnel Oven	Various	Core Wash	DISA Line Pouring and Cooling
3d) Manufacturer	Eclipse		NIC	Newyago Engineering
3e) Model number	80RAH		N/A	N/A
3f) Max design capacity, material and units	.8 units: MBTU/ Hr material: Heat	1.5 units: MBTU/ Hr material: Heat	15 units: Gal/ Day material: VOC	5 units: Tons/ Day material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/15/1994 ☐ to be determined	1/1/1964 ☐ to be determined	3/1/1993 ☐ to be determined	7/1/1966 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/15/1994 ☐ to be determined	1/1/1964 ☐ to be determined	3/1/1993 ☐ to be determined	7/1/1966 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Inactive	Active	Active
3q) Removal date (mm/dd/yyyy)		1/1/2005		
3r) Reasons for changes/modifications		Removed		

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 13 / EU016	EQUI 14 / EU019	EQUI 15 / EU020	EQUI 16 / EU021
3b) Emission unit type	Other Emission Unit	Abrasive Equipment	Abrasive Equipment	Abrasive Equipment
3c) Emission unit operator's description	30^2 Line Pouring and Cooling	Shot Blast Booth 1	Shot Blast Booth 2	Tableblast / Shot Blast Booth 3
3d) Manufacturer	Cecast Equipment	Wheelabrator	Drumblast	Table Blast
3e) Model number	N/A	M30 Drum	M30 Drum	TB8 25 hp motor
3f) Max design capacity, material and units	10 units: Tons/ Day material: Sand	28 units: units/ Each material: Castings	28 units: units/ Each material: Castings	32000 units: lbs/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	7/1/1975 ☐ to be determined	7/1/1966 ☐ to be determined	7/1/1973 ☐ to be determined	3/1/1988 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1975 ☐ to be determined	7/1/1966 ☐ to be determined	7/1/1973 ☐ to be determined	3/1/1988 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Inactive	Inactive	Active
3q) Removal date (mm/dd/yyyy)		12/31/2014	12/31/2014	
3r) Reasons for changes/modifications		Removed	Removed	

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GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 17 / EU029	EQUI 18 / EU030	EQUI 19 / EU031	EQUI 20 / EU032
3b) Emission unit type	Grinder	Sawing Equipment	Sawing Equipment	Sawing Equipment
3c) Emission unit operator's description	South Swing Grinder	East Cutoff Saw	Center Cutoff Saw	West Cutoff Saw
3d) Manufacturer	Setco	Tabor	Tabor	Tabor
3e) Model number	HSFV-106	C25-SFF	C25-SFF	C25-SFF
3f) Max design capacity, material and units	1 units: tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	10/1/1974 ☐ to be determined	10/1/1974 ☐ to be determined	10/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Inactive	Active
3q) Removal date (mm/dd/yyyy)			1/1/2015	
3r) Reasons for changes/modifications			Removed	

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GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 21 / EU033	EQUI 22 / EU034	EQUI 23 / EU035	EQUI 24 / EU036
3b) Emission unit type	Grinder	Grinder	Sanding Equipment	Grinder
3c) Emission unit operator's description	Double Disc Grinder	Surface Grinder	Double Belt Sander	SW Bench Grinder
3d) Manufacturer	Wester & Park Tool	Besly	Webster	Baldor
3e) Model number	N/A	208	C104	1216W
3f) Max design capacity, material and units	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	1/1/1950 ☐ to be determined	1/1/1950 ☐ to be determined	1/1/1950 ☐ to be determined	1/1/1983 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1950 ☐ to be determined	1/1/1950 ☐ to be determined	1/1/1950 ☐ to be determined	1/1/1983 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Inactive	Inactive	Active	Active
3q) Removal date (mm/dd/yyyy)	1/1/2015	1/1/2015		
3r) Reasons for changes/modifications	Removed	Removed		

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GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 25 / EU037	EQUI 26 / EU038	EQUI 27 / EU039	EQUI 28 / EU040
3b) Emission unit type	Grinder	Grinder	Grinder	Chipping Equipment
3c) Emission unit operator's description	#1 Bench Grinder	#2 Bench Grinder	#3 Bench Grinder	NE Bench Grinder
3d) Manufacturer				Wester & Parks Tool
3e) Model number				
3f) Max design capacity, material and units	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	.75 units: Tons/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	1/1/1970 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1970 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Inactive	Inactive	Inactive	Active
3q) Removal date (mm/dd/yyyy)	1/1/2015	1/1/2015	1/1/2015	
3r) Reasons for changes/modifications	Removed	Removed	Removed	

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Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 29 / EU041	EQUI 30 / EU042	EQUI 31 / EU008	EQUI 32 / EU009
3b) Emission unit type	Chipping Equipment	Grinder	Material Handling Equipment	Material Handling Equipment
3c) Emission unit operator's description	SE Bench Grinder	North Swing Grinder	Pallet Line Sand Handling	Flask Line Sand Handling
3d) Manufacturer	Wester & Parks Tool	Setco	Newyago Engineering	Cecast Equipment
3e) Model number	N/A	HSFV-106	50-10658	2098-504
3f) Max design capacity, material and units	.75 units: Tons/ Hr material: Castings	1 units: Ton/ Hr material: Castings	45 units: Tons/ Hr material: Sand	90 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1964 ☐ to be determined	1/1/1964 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1964 ☐ to be determined	1/1/1964 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Inactive	Inactive
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications			Existing, now listed as individual emissions units	Existing, now listed as individual emissions units

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Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 33 / EU010	EQUI 34 / EU017	EQUI 35 / EU018	EQUI 36 / EU025
3b) Emission unit type	Material Handling Equipment	Separation Equipment	Molding Equipment	Dryer/Oven, direct fired
3c) Emission unit operator's description	Core Sand Handling	DISA Line Mold Shakeout	30^2 Line Mold Shakeout	Large Heat Treat Oven
3d) Manufacturer		Newyago Engineering	Cecast Equipment	Johnson
3e) Model number		N/A	N/A	38100 5x6x5
3f) Max design capacity, material and units	2.5 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	90 units: Tons/ Hr material: Sand	1.6 units: MBTU/ Hr material: Heat
3g) Commence construction date (mm/dd/yyyy)	1/1/1964 ☐ to be determined	7/1/1967 ☐ to be determined	7/1/1975 ☐ to be determined	1/1/1986 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1964 ☐ to be determined	7/1/1967 ☐ to be determined	7/1/1975 ☐ to be determined	1/1/1986 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Inactive	Inactive	Inactive	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications	Existing, now listed as individual emissions units	Existing, now listed as individual emissions units	Existing, now listed as individual emissions units	

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Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 37 / EU026	EQUI 38 (Does Not Exist)	EQUI 39 / EU028	EQUI 40 / EU043
3b) Emission unit type	Furnace		Reactor	Grinder
3c) Emission unit operator's description	Small Heat Treat Oven		Inoculation	Snag Grinder 1
3d) Manufacturer	North American		Midmark	Fox Grinders Division
3e) Model number	4808		Tundish Ladle	F10-00135-25
3f) Max design capacity, material and units	4 units: MMBtu/ Hr material: Gas	units: / material:	1 units: Ton/ Hr material: Iron	.5 units: Tons/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	7/1/1967 ☐ to be determined	☐ to be determined	1/1/1964 ☐ to be determined	7/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1967 ☐ to be determined	☐ to be determined	1/1/1964 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning		Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No		No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active		Active	Inactive
3q) Removal date (mm/dd/yyyy)				4/1/2022
3r) Reasons for changes/modifications				Removed

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Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 41 / EU044	EQUI 42 / EU045	EQUI 43 (Does Not Exist)	EQUI 44 (Does Not Exist)
3b) Emission unit type	Grinder	Grinder		
3c) Emission unit operator's description	Snag Grinder 2	Snag Grinder 3		
3d) Manufacturer	Setco	Setco		
3e) Model number	HS33VPWRY	HS33VPWRY		
3f) Max design capacity, material and units	.5 units: Tons/ Hr material: Castings	.5 units: Tons/ Hr material: Castings	units: / material:	units: / material:
3g) Commence construction date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	☐ to be determined	☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	☐ to be determined	☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning		
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No		
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active		
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 45 (Does Not Exist	EQUI 46	EQUI 47	EQUI 48
3b) Emission unit type		East MUA	West MUA	North MUA
3c) Emission unit operator's description		Other Combustion	Other Combustion	Other Combustion
3d) Manufacturer				
3e) Model number				
3f) Max design capacity, material and units	units: / material:	6.05 units: MMbtu/ Hr material: Gas	6.05 units: MMbtu/ Hr material: Gas	3.3 units: MMbtu/ Hr material: Gas
3g) Commence construction date (mm/dd/yyyy)	☐ to be determined	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	☐ to be determined	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method		Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?		No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status		Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 49	EQUI 50	EQUI 51	EQUI 52
3b) Emission unit type	Other Combustion	Other Combustion	Abrasive Equipment	Mixing Equipment
3c) Emission unit operator's description	South MUA	Finishing MUA	Tumblemill	Disco Core Machine
3d) Manufacturer			Rayersford Fdry Machine Co	IMF
3e) Model number			N/A	Disco 3200
3f) Max design capacity, material and units	3.3 units: MMbtu/ Hr material: Gas	2.25 units: MMbtu/ Hr material: Gas	200 units: lbs/ Hr material: Iron	.5 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/2011 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/2011 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/1970 ☐ to be determined	1/1/2011 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 53	EQUI 54	EQUI 55	EQUI 56
3b) Emission unit type	Mixing Equipment	Thermal Process Equipment	Thermal Process Equipment	Thermal Process Equipment
3c) Emission unit operator's description	ABC6 Core Machine	West CR16	East CR16	CR22
3d) Manufacturer	Beardsly & Piper	Redford/Carver	Redford/Carver	Redford/Carver
3e) Model number	ABC6	HS-16-RA	HS-16-RA	HS-16-RA
3f) Max design capacity, material and units	.413 units: Tons/ Hr material: Sand	.33 units: Tons/ Hr material: Sand	.33 units: Tons/ Hr material: Sand	1.1 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1970 ☐ to be determined	5/1/1984 ☐ to be determined	5/1/1984 ☐ to be determined	5/1/1984 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1970 ☐ to be determined	5/1/1984 ☐ to be determined	5/1/1984 ☐ to be determined	5/1/1984 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 57 (Does Not Exist)	EQUI 58	EQUI 59 (Does Not Exist)	EQUI 60
3b) Emission unit type		Abrasive Equipment		Conveyor
3c) Emission unit operator's description		BCT Drumblast		30^2 Machine Belt Sand
3d) Manufacturer				Cecast Equipment
3e) Model number				N/A
3f) Max design capacity, material and units	units: / material:	64000 units: lb/ Hr material: Castings	units: / material:	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	☐ to be determined	1/1/2015 ☐ to be determined	☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	☐ to be determined	10/1/2015 ☐ to be determined	☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method		Not coal burning		
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?		No		No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status		Active		Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 61	EQUI 62	EQUI 63	EQUI 64
3b) Emission unit type	Conveyor	Conveyor	Separation Equipment	Conveyor
3c) Emission unit operator's description	30^2 Sprue Belt	30^2 Machine Incline	30^2 Unit 10	30^2 Mag Belt
3d) Manufacturer	Cecast Equipment	Cecast Equipment	Simplicity	Cecast Equipment
3e) Model number	N/A	N/A	Double Deck	N/A
3f) Max design capacity, material and units	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 65	EQUI 66	EQUI 67	EQUI 68
3b) Emission unit type	Conveyor	Conveyor	Elevator	Pulverizer
3c) Emission unit operator's description	30^2 Unit 11	30^2 Unit 12	30^2 Return Sand Elevator	30^2 Aerator
3d) Manufacturer	Simplicity	Simplicity	Cecast Equipment	Cecast Equipment
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 69	EQUI 70	EQUI 71	EQUI 72
3b) Emission unit type	Conveyor	Blowing Equipment	Cooler	Mixing Equipment
3c) Emission unit operator's description	30^2 Incline to Blower	30^2 Blower	30^2 Sand Cooler	DISA Line Muller
3d) Manufacturer	Cecast Equipment	G&K	G&K	B&P
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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GI-05B

Emission unit information
Air Quality Permit Program
Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 73	EQUI 74	EQUI 75	EQUI 76
3b) Emission unit type	Conveyor	Conveyor	Conveyor	Conveyor
3c) Emission unit operator's description	DISA Muller Discharge Belt	DISA Muller Distribution Belt	DISA Feed Belt	DISA Spill Belt
3d) Manufacturer	Newyago Engineering	Newyago Engineering	Summit	Newyago Engineering
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	7/1/2007 ☐ to be determined	7/1/2007 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	10/1/2007 ☐ to be determined	10/1/2007 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Air Quality Permit Program

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Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 77	EQUI 78	EQUI 79	EQUI 80
3b) Emission unit type	Conveyor	Conveyor	Conveyor	Conveyor
3c) Emission unit operator's description	DISA Spill Pan	DISA Spill Belt	DISA Cross Belt	DISA #1 Oscillator
3d) Manufacturer	G&K	Neyago Engineering	Neyago Engineering	G&K
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	5 units: Tons/ Hr material: Iron
3g) Commence construction date (mm/dd/yyyy)	7/1/2007 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	10/1/2007 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 81	EQUI 82	EQUI 83	EQUI 84
3b) Emission unit type	Conveyor	Conveyor	Separation Equipment	Conveyor
3c) Emission unit operator's description	DISA #2 Oscillator	DISA #3 Oscillator	DISA Didion	DISA #5 Oscillator
3d) Manufacturer	G&K	Carrier	Didion	G&K
3e) Model number	N/A	BXHH1	MD-50	N/A
3f) Max design capacity, material and units	5 units: Tons/ Hr material: Iron	5 units: Tons/ Hr material: Iron	5 units: Tons/ Hr material: Iron	5 units: Tons/ Hr material: Iron
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 85	EQUI 86	EQUI 87	EQUI 88
3b) Emission unit type	Conveyor	Elevator	Silo/Bin	Conveyor
3c) Emission unit operator's description	DISA Mag Belt	DISA Return Sand Elevator	DISA 125-Ton Sand Bin	DISA 125-Ton Belt
3d) Manufacturer	Newyago Engineering	Newyago Engineering	Newyago Engineering	Newyago Engineering
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 89	EQUI 90	EQUI 91	EQUI 92
3b) Emission unit type	Conveyor	Conveyor	Silo/Bin	Conveyor
3c) Emission unit operator's description	DISA New/Old Belt	DISA New/Old Elevator	DISA Muller Storage Tank	30^2 Discharge Conveyor
3d) Manufacturer	Newyago Engineering	Newyago Engineering	Newyago Engineering	Cecast Equipment
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 93	EQUI 94	EQUI 95	EQUI 96
3b) Emission unit type	Conveyor	Conveyor	Hopper	Hopper
3c) Emission unit operator's description	30^2 Cross Belt Conveyor	30^2 Distribution Belt Conveyor	DISA Prepared Sand Tank	DISA Bond Day Tank
3d) Manufacturer	Cecast Equipment	Cecast Equipment	DISA	Newyago Engineering
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	7/1/2007 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	10/1/2007 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information

Air Quality Permit Program

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 97	EQUI 98	EQUI 99	EQUI 100
3b) Emission unit type	Molding Equipment	Molding Equipment	Other Emission Unit	Chipping Equipment
3c) Emission unit operator's description	DISA Mold Machine	30^2 Mold Machine	30^2 Mold Handler	SW Chipping Bench
3d) Manufacturer	DISA			Polaris
3e) Model number	Disamatic	N/A	N/A	V-4500
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	120 units: Molds/ Hr material: Molds	.75 units: Tons/ Hr material: Castings
3g) Commence construction date (mm/dd/yyyy)	1/1/2007 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/2015 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	10/1/2007 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined	1/1/2015 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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Emission unit information

Air Quality Permit Program

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Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 101	EQUI 102	EQUI 103	EQUI 104
3b) Emission unit type	Other Emission Unit	Pulverizer	Hopper	Mixing Equipment
3c) Emission unit operator's description	DISA Mold Handler	DISA Aerator	30^2 Return Sand Tank	30^2 Muller
3d) Manufacturer	Summit	Summit	Cecast Equipment	Cecast Equipment
3e) Model number	N/A	N/A	N/A	N/A
3f) Max design capacity, material and units	100 units: Molds/ Hr material: Molds	26 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	7/1/2007 ☐ to be determined	7/1/2007 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	10/1/2007 ☐ to be determined	10/1/2007 ☐ to be determined	7/1/1974 ☐ to be determined	7/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 105	EQUI 106	EQUI 107	EQUI 108
3b) Emission unit type	Other Emission Unit	Other Emission Unit	Other Emission Unit	Other Emission Unit
3c) Emission unit operator's description	DISA Bond Transport	30^2 Sand Tank	30^2 Bond Tank	30^2 Sand Day Tank
3d) Manufacturer				
3e) Model number				
3f) Max design capacity, material and units	26 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 109	EQUI 110	EQUI 111	EQUI 112
3b) Emission unit type	Other Emission Unit	Other Emission Unit	Other Emission Unit	Other Emission Unit
3c) Emission unit operator's description	30^2 Prepared Sand Tank	DISA Outdoor Bond Tank	ABC6 Sand Tank	Disco Sand Tank
3d) Manufacturer				
3e) Model number				
3f) Max design capacity, material and units	45 units: Tons/ Hr material: Sand	26 units: Tons/ Hr material: Sand	.500 units: Tons/ Hr material: Sand	.413 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/2011 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/2011 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 113	EQUI 114	EQUI 115	EQUI 116
3b) Emission unit type	Loading-unloading equipment	Other Combustion	Other Emission Unit	Other Emission Unit
3c) Emission unit operator's description	Sand Loading (CR16 and CR22)	Furnace Basement MUA	DISA Hopper	30^2 Bond Day Tank
3d) Manufacturer				
3e) Model number				
3f) Max design capacity, material and units	1.76 units: tons/ Hr material: Sand	.3591 units: MMBtu/ Hr material: Gas	26 units: Tons/ Hr material: Sand	45 units: Tons/ Hr material: Sand
3g) Commence construction date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1974 ☐ to be determined	1/1/2011 ☐ to be determined	1/1/1974 ☐ to be determined	1/1/1974 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

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520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05B

Emission unit information

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2.

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Fill in a column in the table below for each new or modified emission unit (EU/EQUI). Form *GI-05F Emission Source Association* must also be submitted whenever this form is required.

3a) Emission unit ID number	EQUI 117	EQUI 118	EQUI 119	EQUI 120
3b) Emission unit type	Abrasive Equipment	Abrasive Equipment	Abrasive Equipment	Other Combustion
3c) Emission unit operator's description	NE Finishing Grinder	Machine Shop Double Disc Sander	Machine Shop Blast Machine	Machine Shop MUA
3d) Manufacturer	Webster			
3e) Model number	C 104			
3f) Max design capacity, material and units	.25 units: Tons/ Hr material: Castings	.10 units: Tons/ Hr material: Castings	40 units: lbs/ Hr material: Castings	1.1 units: mmbtu/ Hr material: Gas
3g) Commence construction date (mm/dd/yyyy)	1/1/1950 ☐ to be determined	1/1/1990 ☐ to be determined	1/1/1990 ☐ to be determined	1/1/2000 ☐ to be determined
3h) Initial startup date (mm/dd/yyyy)	1/1/1950 ☐ to be determined	7/1/1990 ☐ to be determined	7/1/1990 ☐ to be determined	1/1/2000 ☐ to be determined
3i) Modification or reconstructed date (mm/dd/yyyy)				
3j) Firing method	Not coal burning	Not coal burning	Not coal burning	Not coal burning
3k) Engine use				
3l) Engine displacement	Units:	Units:	Units:	Units:
3m) Subject to CSAPR?	No	No	No	No
3n) Electric generating capacity (megawatts)				
3o) SIC code				
3p) Status	Active	Active	Active	Active
3q) Removal date (mm/dd/yyyy)				
3r) Reasons for changes/modifications				

Instructions for form GI-05B

Use one column for each emission unit (EU). Use multiple copies of this form, if necessary. Use this form to describe emission units other than liquid storage tanks and fugitive emission sources. Separate forms are provided for liquid storage tanks (GI-05C) and for fugitive emission sources (GI-05D).

All fields as directed by the form are **mandatory** except the Agency Interest Identification (ID) number. (if unknown). **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility ID number. This is the first eight digits of the permit number for all new permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter the facility name.

3a) **Emission unit ID number --** For the purposes of this application, this is an ID number you assign to each emission unit using a simple 001, 002, 003,... numbering system and must be the same as shown on the Process Flow Diagram Form (Form GI-02). Note that separate forms are provided for tanks and fugitive emission sources.

If you are adding new emission units to your permit or replacing existing emission units, it is important not to reuse previously used EU/EQUI numbers. The new or replacement emission units must be numbered consecutively beginning with the next number after the last one used. Numbers used for removed emission units cannot be reused for new or replacement emission units. This ID number is unique to this piece of equipment and must be used consistently throughout the application. If known, use Tempo IDs (EQUIxxx) instead of Delta IDs (EUxxx). Note that monitors, tanks, and emission units all use EQUI ID numbers in Tempo and the same ID number should not be used for multiple equipment.

3b) **Emission unit type --** You must choose from the following list.

Emission unit types

Abrasive equipment	Conveyor	Furnace	Process heater
Acid treatment equipment	Cooler	Gasoline loading	Pulverizer
Adhesion equipment	Cracking equipment	Glazing equipment	Pump
Aerated pond	Crusher	Gluing equipment	Purification equipment
Aggregrate handling equipment	Cutting equipment	Granulator	Quenching equipment
Aging equipment	Debarking equipment	Grinder	Reactor
Arc cutting equipment	Decanting equipment	Hopper	Reciprocating IC engine
Barge loading equipment	Degreaser	Huller	Refining equipment
Bleaching equipment	Dehydrator	Incinerator	Reflux column
Blender	Desublimer	Inline mixer	Regenerator
Blowing equipment	Digestor	Kiln	Rolling equipment
Boiler	Dipping equipment	Liquefaction equipment	Sanding equipment
Brazing equipment	Dissolver	Loading-unloading equipment	Sawing equipment
Brewing equipment	Distillation equipment	Machining equipment	Screens
Briquetting equipment	Drilling equipment	Material handling equipment	Separation equipment
Buffing equipment	Dryer/oven, direct fired	Mechanical processing	Shredding equipment
Calciner	Dryer/oven, indirect fired	Melting equipment	Silo/bin
Carbon reactivator	Dryer/oven, unknown firing method	Metal deposition equipment	Smelting equipment
Casing equipment	Duct burner	Milling equipment	Soldering equipment
Casting equipment	Electrical equipment	Mixing equipment	Solvent equipment
Causticizing equipment	Electroplating equipment	Molding equipment	Spray booth/coating line
Cementing equipment	Elevator	Neutralizer	Spraying equipment
Channel process equipment	Emulsion equipment	Open ended lines	Stripping equipment
Chemical milling equipment	Engine test cell	Open ended valves	Sulfur recovery unit
Chipping equipment	Extractor	Other combustion	Tapping equipment

Emission unit types			
Circuit board etching equipment	Extruder	Other emission unit	Thermal process equipment
Cleaning equipment	Feeder	Oxidation unit	Thermal unit
Closure device	Fermentation equipment	Potlines	Turbine
Coke handling equipment	Filling operations equipment	Pouring equipment	Valves
Combined cycle (boiler/gas turbine)	Finishing equipment	Pressing equipment	Washer
Compressor	Flaker equipment	Pressure relief device	Welding equipment
Concentrators	Fractionation equipment	Prilling equipment	
Converter	Fryer/cooker	Printing press	

3c) Emission unit operator's description -- Provide a description sufficient to identify this emission unit at the facility, for example, "North Boiler," "Heatset Web Press."

3d) Manufacturer -- For packaged and pre-assembled equipment, and for equipment completely designed by a single company and field-assembled, provide the name of the manufacturer or designer. For equipment designed and manufactured by the contractor or owner, indicate this.

3e) Model number -- For equipment which has a model number, provide the model number. If there is no model number, you may enter “NA” or something similar to indicate that there is no model number.

3f) Maximum design capacity -- Provide the maximum production capacity of each emission unit; for example, for a boiler, the maximum steam generation rate; for a crusher, the maximum crushing rate; for a paint spray booth, the maximum spraying rate; for a reciprocating IC engine, the horsepower rating.

Maximum design capacity material and units -- Provide the material and units of measure for the number provided for capacity, such as "pounds of steam per hour" or "tons crushed per hour." Enter the material (“steam,” “energy,” etc), numerator and denominator in the separate fields provided.

For example, equipment that uses fuel may have an entry similar to the following – 4 Mmbtu/Hr heat.

Note: Tempo may constrain the numerator and denominator options based on the material chosen. MPCA will contact you while processing your permit action if a different numerator or denominator is required.

If the emission unit uses fuel and has a material process throughput, you must list the max design capacity based on fuel use.

For the material, choose from the following list:

Table entry	Detail	Table entry	Detail
Acid	Acid	Hydrated Lime	Hydrated Lime
Adhesive	Adhesive	Ink	Ink
A/D Pulp	Air Dried Pulp	Lead	Lead
Airflow	Airflow	Lime	Lime
Aluminum	Aluminum	Limestone	Limestone
Ash	Ash	Log	Log
Asphalt	Asphalt	Material	Material
Battery	Battery	Metal	Metal
Bean	Bean	Methane	Methane
Beer	Beer	Natural Gas	Natural Gas
Bentonite	Bentonite	Ore	Ore
Blk Liq Slds	Black Liquor Solids (Kraft Pulp Mill)	Wood, Dried	Oven Dried Wood
Meal, Blood	Blood Meal	Paint	Paint
Board	Board	Paper	Paper
Bottle	Bottle	Pellet	Pellet
Bread	Bread	Power	Power
Can	Can	Product	Product
Carbon	Carbon	Pulp	Pulp
Casting	Casting	RDF	Refuse Derived Fuel
Chlor Dioxid	Chlorine Dioxide	Resin	Resin
Clothes	Clothes	Rock	Rock

Table entry	Detail
Coal	Coal
Coating	Coating
Coke	Coke
Core	Core
Core Oil	Core Oil
Corn	Corn
Current	Current Applied
Diesel Fuel	Diesel Fuel
DDGS	Distillers Dried Grains With Solubles
Meal, Dry Bld	Dried Blood Meal
D Pulp, Unble	Dry Pulp, Unbleached
Sludge, Dry	Dry Sludge
Elect Energy	Electrical Energy
Emery	Emery
Energy	Energy
Ethanol	Ethanol
Ethylene Oxi	Ethylene Oxide
Fiber	Fiber
Fiberglass	Fiberglass
Foam	Foam
Fuel	Fuel
Glue	Glue
Grain	Grain
Heat	Heat

Table entry	Detail
Sand	Sand
Sawdust	Sawdust
Scrap	Scrap
Shingles	Shingles
Shot	Shot Material
Silicon Diox	Silicon Dioxide
Sludge	Sludge
Solid	Solid
Waste, Solid	Solid Waste
Solvents	Solvents
Soy	Soy
Steam	Steam
Sugar	Sugar
Sulfur	Sulfur
Surface Area	Surface Area
Varnish	Varnish
Vehicle	Vehicle
VOC	Volatile Organic Compound
Wafer/Chip	Wafer/Chip
Waste	Waste
Wastewater	Waste Water
Water	Water
Wood	Wood
Yeast	Yeast

For the numerator, choose from the following list:

Note: For numerator choices where the denominator is not needed (e.g., horsepower-hours or kilowatt-hours), choose "each" for the denominator.

Table entry	Detail
Acre	Acres
Amp	Ampheres
Avg CFM	Avg Std cubic feet per minute
Batch	Batch
Bbl	Barrels
Bhp	Brake horsepower
BRDFT	Board Foot
Btu	British Thermal Unit
Bushel	Bushels
Cc	Cubic centimeters
Cord	Cord
Cycle	Cycle
E3 Gal	1000 gallons
E3 Lb	1000 pounds
E6 Bdft	Million board feet
E6 Ft2	Million square feet
E6 Lb	Million pounds
E6 Mg	Million megagrams
Each	Each
F	Degrees Farenheit
Floz	Fluid ounces
Ft	Feet
Ft2	Square feet

Table entry	Detail
Hp	Horsepower
Hp-Hr	Horsepower-hours
Hr	Hours
In	Inches
Kg	Kilograms
KPA	Kilopascals
Kw	Kilowatts
Kw-Hr	Killowatt-hours
Lb	Pounds
Lng Tns	Long tons
M	Meters
M3	Cubic meters
Mbtu	1000 British thermal units
Mcf	Thousand cubic feet
Megagram	Megagrams
Mgal	Million gallons
Mile	Miles
Mmbtu	Million British thermal units
Mmcf	Million cubic feet
Mw	Megawatts
Oz	Ounces
RPM	Revolutions per minute
Ton	English tonn (2000 U.S. Lb)

Table entry	Detail
Ft3	Cubic feet
Ft3(s)	Standard cubic feet
Gal	Gallons
Gr	Grains

Table entry	Detail
Tonne	Metric tons
Yd	Yards
Yd2	Square yards
Yd3	Cubic Yards

For the denominator, choose from the following list:

Table entry	Detail
Batch	Batch
Cycle	Cycle
Day	Days
Each	Each
Ft2	Square feet
Ft2-Hr	Square foot hours
Ft3	Cubic Feet
Gal	Gallons
Hr	Hours

Table entry	Detail
L	Liters
Lb	Pounds
M2-Hr	Square meter hours
Min	Minutes
Mo	Month
Ton	English tons (2000 U. S. lbs)
Wk	Week
Yr	Years

3g) **Commence construction date --** Provide the date on which installation of the unit started at the source. If unknown, provide your best estimate of the year construction commenced. For units on which construction has not been started, check the box "to be determined."

3h) **Initial startup date --** Provide the date on which operation of the emission unit started. For units for which the initial startup date has not occurred, check the box "to be determined."

3i) **Modification or reconstruction date --** Provide the date on which modification or reconstruction of the emission unit started. *Modification* is defined in Minn. R. 7007.0100, subp. 14, and *reconstruction* is defined in 40 CFR § 60.15.

3j) **Firing method --** For coal-burning units, indicate the firing method as one of the following.

Pulverized coal -- wet bottom
Pulverized coal -- dry bottom
Pulverized coal -- dry bottom (tangential firing)
Cyclone furnace
Spreader stoker
Overfeed stoker (traveling grate)
Underfeed stoker
Wet slurry
Atmospheric fluidized bed combustion

For non-coal burning units, indicate the firing method as one of the following.

CI
SI-4SLB
SI-2SLB
SI-4SRB
Not coal-burning

3k) **Engine use --** For engines only, fill in the appropriate usage category of the engine.

Emergency/blackstart
Limited use (less than 100 hours per year)
24 hrs or less (per year)
Unlimited use
Firepump
LFG/digester gas

3l) **Engine displacement --** For engines only, provide the engine displacement in the following units.

l/cyl	liters per cylinder	for CI or SI engines
total cc	total cubic centimeters	for SI engines only

3m) Subject to CSAPR? -- From the drop-down list, select whether the emission unit is subject to the Cross-State Air Pollution Rule (CSAPR) or not. This question is mandatory for boilers, combined cycle (boilers/gas turbines), turbines, duct burners, and incinerators. Please refer to the definitions in 40 CFR § 97.402 and 40 CFR § 97.702.

Use form GI-09K to determine applicability if you currently, or will in the future, own or operate any

- stationary fossil-fuel-fired boilers, or
- stationary fossil-fuel-fired combustion turbines
- and the boiler or turbine serves at any time, on or after January 1, 2005, a generator with a nameplate capacity of more than 25 megawatt electric (MWe) that produces electricity for sale

Any unit that otherwise would be subject to CSAPR may be exempt under one of the following two provisions.

Cogeneration (40 CFR § 97.404(b)(1)(i) and 40 CFR § 97.704(b)(1)(i)): Any unit A.) qualifying as a cogeneration unit throughout the later of 2005 or the 12-month period starting on the date the unit first produces electricity and continuing to qualify as a cogeneration unit throughout each calendar year ending after the later of 2005 or such 12-month period; and B.) Not supplying in 2005 or any calendar year thereafter more than one-third of the unit's potential electric output capacity or 219,000 Megawatt hours, whichever is greater, to any utility power distribution system for sale.

Solid waste incineration (40 CFR § 97.404(b)(2)(i) and 40 CFR § 97.704(b)(2)(i)): Any unit A.) Qualifying as a solid waste incineration unit throughout the later of 2005 or the 12-month period starting on the date the unit first produces electricity and continuing to qualify as a solid waste incineration unit throughout each calendar year ending after the later of 2005 or such 12-month period; and B.) With an average annual fuel consumption of fossil fuel for the first 3 consecutive calendar years of operation starting no earlier than 2005 of less than 20 percent (on a Btu basis) and an average annual fuel consumption of fossil fuel for any three consecutive calendar years thereafter of less than 20 percent (on a Btu basis).

Note: if any new or modified emissions unit is subject to CSAPR, you must include form GI-09K with your application.

3n) Electric generating capacity (megawatts) -- Provide the nameplate generating capacity. This is mandatory for units subject to CSAPR only (boiler, combined cycle (boiler/gas turbine), turbine, duct burner, or incinerator).

3o) SIC code -- Provide the SIC code for this emission unit if different from the primary SIC code for the stationary source. Otherwise leave this blank. Note that most emission units will not have a SIC code for that type of unit alone.

As an example, a steam generating plant that provides process steam can be assigned its own SIC code even though it is part of a larger stationary source.

3p) Status -- Provide the status of the emission unit as either active or inactive. If status is inactive, provide a removal date.

3q) Removal date -- If status is inactive, provide a removal date.

3r) Reason for changes/modification -- If you edit existing information, you must provide a reason for the changes or modification.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05E

Group information
Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 2

1a) AQ Facility ID number: 12300088 **1b)** Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

To complete this form, you will need the AQ SI details report labeled *Component Group (Members).* Any modifications or changes to the method of operation at the facility that are not currently reflected in the permit, must also be described on form *CH-01*.

3) Fill in a row in the table below for each new or modified group in your permit, or check the box below. A "group" is most often used when a limit is applied to several items (such as a fuel usage limit that applies to two or more boilers combined), or when several items are individually subject to identical requirements.

☐ Check this box if all changes can be described by marking up a copy of your permit and you are including a marked-up copy with your application. Include this form with your application.

a)	b)	c)
Group ID	Title or description of group	Group member IDs
COMG1	Melting	EQUI1, EQUI2, EQUI3, EQUI4, EQUI5
COMG2	Sand Handling	EQUIs60-62, 64, 67-79, 85-98, 102-113, 115, 116
COMG3	Pouring/Cooling	EQUI15, EQUI16
COMG4	Shakeout	EQUI63, 65, 66, 80-84
COMG5	Grinding/Cutting Operations	EQUIs17, 18, 20, 23, 24, 28-30, 41, 42, 100, 117
COMG6	Combustion Units	EQUIs 1, 2, 9, 36, 46-50, 54-56, 59, 114, 120
COMG7	VOC/HAP Sources (Non-Combustion)	EQUIs11, 52, 53

Instructions for defining new groups

All fields as directed by the form are **mandatory** except the Agency Interest Identification (ID) number (if unknown). **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility ID number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter the facility name.

3) Fill in the table according to the instructions below or check the box if you are providing a marked-up copy of your permit with your application.

- **a)** **Group ID number --** Assign a Group ID number to each additional group you wish to define. Number the groups sequentially beginning with 001 or the next number after the last one currently listed in your permit (e.g., if the last group on the list is 004, begin with 005). Do not reuse group numbers. This ID number is unique to this group and must be used consistently throughout the application. Indicate if your group IDs are from Delta or Tempo by including "GP" or "COMG" before the number, respectively. Use the Tempo designations (COMGxxx) if those are known.
- **b)** **Title or description of group --** Provide a title for or description of the group you wish to define. This would be the title or name that will be displayed in your Part 70 permit to define the group.
- **c)** **Group member IDs –** List the items you want included in this group. Use the appropriate Tempo ID numbers from previous forms (STRUxxx, EQUIxxx, TREAxxx, FUGIxxx) if known. Otherwise, you may use Delta ID numbers.

For each new group that you define, you must make sure that applicable requirements for the group are reflected in the *Compliance plan* (form *CD-01*).

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-05F

Emission source associations
Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 3.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

☐ Check this box if using GI-05F for a *Reissuance application*. You will need the AQ SI details report labeled ***SI-SI relationships***. See the instructions for fields that may be marked "null" in the *SI-SI relationships* report.

Note – If your most recent permit was issued after November 1, 2015 **or** you are applying for reissuance, use Tempo ID numbers for all equipment, stacks, controls, etc. Tempo IDs are in the form EQUIxxx, TREAxxx, STRUxxx, FUGIxxx, etc.

3a) Source ID number	3b) % Flow	3c) Relationship	3d) CE ID number	3e) Start date (mm/dd/yyyy)	3f) End date (mm/dd/yyyy)	3g) % Flow	3h) Relationship	3i) S/V ID number	3j) Start date (mm/dd/yyyy)	3k) End date (mm/dd/yyyy)	3l) Comments
		is controlled by					sends to				*See Supplement Attached
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
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		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				

Examples --

The first association below will read, “100% of flow from EU 004 is controlled by CE 002.”

The second association below reads, “100% of flow from EU 004 is controlled by CE 003 and sends to S/V 003.”

The third association below reads, “100% of flow from EU 005 is controlled by CE 005 and sends to S/V 004,” and indicates that S/V 004 is the main stack for EU 005.

The fourth association below indicates that S/V 005 is a bypass for EU 005.

The fifth association below reads, “100% of flow from TK 006 sends to S/V 006.”

The sixth and seventh associations below indicate that there are two parallel stack/vents for EU 007 and 50% of emissions are vented through each during normal operation. S/V 007 is the main stack or vent and S/V 008 is the parallel stack or vent. Any additional stacks or vents listed afterward for EU 007 would also be parallel stacks or vents.

The eighth association below indicates that FS 001 is not controlled and does not have a stack/vent.

3a) Source ID number	3b) % Flow	3c) Relationship	3d) CE ID number	3e) Start date (mm/dd/yyyy)	3f) End date (mm/dd/yyyy)	3g) % Flow	3h) Relationship	3i) S/V ID number	3j) Start date (mm/dd/yyyy)	3k) End date (mm/dd/yyyy)	3l) Comments
EU 004	100	**is controlled by**	CE 002	1/1/2012			**sends to**				CE 002 is a cyclone. Its emissions flow to CE 003
EU 004	100	**is controlled by**	CE 003	1/1/2012		100	**sends to**	S/V 003	1/1/2012		CE 003 is a baghouse.
EU 005	100	**is controlled by**	CE 005	1/1/2012		100	**sends to**	S/V 004	1/1/2012		S/V 004 is the main stack.
EU 005	0	**is controlled by**				0	**sends to**	S/V 005	1/1/2012		S/V 005 is a bypass.
TK 006	0	**is controlled by**				100	**sends to**	S/V 006	1/1/2012		TK 006 is not controlled and vents to S/V 006.
EU 007	0	**is controlled by**				50	**sends to**	S/V 007	1/1/2012		S/V 007 is parallel to S/V 008
EU 007	0	**is controlled by**				50	**sends to**	S/V 008	1/1/2012		S/V 008 is parallel to S/V 007
FS 001		**is controlled by**	NA				**sends to**	NA			FS 001 does not have controls and does not have a stack/vent.

Instructions for documenting subject item (EUs, TKs, FSs, CEs, S/Vs, etc.; EQUIs, FUGIs, TREAs, STRUs, etc.) associations

Use this form to describe the relationships of emission units, tanks, and fugitive sources with control equipment and stack/vents. ID numbers must be consistent throughout the application.

All fields as directed by the form are **mandatory** except the Agency Interest ID number (if unknown). Situations where specific fields are not required are described in the instructions for that field. **If you submit your application with blank mandatory fields or without mandatory attachments, it will be deemed incomplete and returned.**

Use the *Monitors association form* (ME-02) to describe the relationship of monitors with other subject items (emission units, control equipment, etc.).

Reissuance application use only -- Review the AQ SI details report labeled, "SI-SI relationships." Make changes to existing relationships directly on the report using a red pen. Use the table on this form to document new relationships or existing relationships that were not previously recorded. Use Tempo IDs instead of Delta IDs. Submit the SI details report with this form.

If an SI does not have any relationships, all fields in the AQ SI details report labeled "SI-SI relationships" may be "null." Otherwise, only the following fields in the report may be marked "null" (unless they are applicable) and all others require an entry.

- End date
- Confidentiality flag

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) Facility name -- Enter the facility name.

3a) Source ID number -- Provide the ID number for the emission unit (EU/EQUI), tank (TK/EQUI), or fugitive source (FS/FUGI). All cells following in the same row must relate to this EU/TK/FS/EQUI/FUGI. This field allows a maximum of 50 characters. If you are applying for reissuance or if your most recent permit was issued after November 1, 2015, use the Tempo ID number format.

3b) % Flow -- Provide the percent flow of the emissions from the EU/TK/FS/EQUI/FUGI to the CE/TREA. (This is not the same as the capture efficiency of the control equipment nor control efficiency.) If all emissions flow to one control device/method, or to two or more control devices/methods in series, this will be 100. If the emissions stream is split and flows to two or more control devices/methods in parallel, this number will be less than 100 and you will need a separate line for each stream.

For control devices/methods operated in parallel with 100% capture efficiency (as reported on form GI-05A), the % Flow for all rows associated with the same emission unit should add up to 100. For example, if the emission stream is split and flows through two separate control devices, and the air flow to each control device is the same, you would enter "50" for the % Flow for one control equipment, and enter "50" for the % Flow for another control equipment on a new line.

3c) Relationship -- This is the relationship between the EU/TK/FS/EQUI/FUGI and the control equiplment (CE/TREA). The relationship has been prefilled as "is controlled by." The EU/TK/FS/EQUI/FUGI is controlled by the CE/TREA.

3d) CE ID number -- Provide the ID number for control equipment associated with the EU/TK/FS/EQUI/FUGI listed in the same row. This is the CE/TREA that controls the EU/TK/FS/EQUI/FUGI listed in 3a) of the same row. This field allows a maximum of 50 characters.

3e) Start date -- Provide the date on which the subject item **began** its association with the control equipment. If the subject item is currently exhausting to the control equipment, provide the date that the subject item began exhausting to the control equipment. If the subject item is not yet exhausting to the control equipment (i.e., the subject item or the control equipment is not yet constructed and operating), provide the date that you established the association between the subject item and control equipment. If you do not know this date, provide the submittal date of this form.

3f) End date -- Provide the date on which the subject item **ended** its association with the control equipment. If the subject item is still associated with the control equipment, leave the date blank.

3g) % Flow -- Provide the percent flow of the emissions from the EU/TK/FS/EQUI/FUGI to the S/V / STRU. If the emissions stream is split and flows to two or more stack/vents in parallel, this number will be less than 100 and you will need a separate line for each stream. If the emission unit has a bypass stack/vent, list 0% for that stack/vent and put "bypass" in the **"Comments"** field.

The % Flow for all rows associated with the same emission unit should add up to 100. For example, if the emission stream is split and flows through two separate stacks/vents, and the air flow to each is the same, you would enter "50" for the % Flow for one stack/vent, and enter "50" for the % Flow for another stack/vent on a new line.

3h) Relationship -- This is the relationship between the EU/TK/FS/EQUI/FUGI and the stack/vent (S/V / STRU). The relationship has been prefilled as "sends to." The EU/TK/FS/EQUI/FUGI sends emissions to the stack/vent.

3i) S/V ID number -- Provide the ID number for a S/V / STRU associated with the EU/EQUI or TK/EQUI listed in 3a) of the same row. This is the S/V / STRU that the EU/TK/EQUI listed vents to. These must be the same ID numbers as on *Stack/Vent form* (form GI-04) and the *Process flow diagram form* (form GI-02). It is important to use these ID numbers consistently throughout the application. You may enter "NA" for sources that do not have a S/V / STRU or leave this field blank. This field allows a maximum of 50 characters.

3j) Start date -- Provide the date on which the subject item **began** its association with the stack/vent. If the subject item is currently exhausting to the stack/vent, provide the date that the subject item began exhausting to the stack/vent. If the subject item is not yet exhausting to the stack/vent (i.e., the subject item or the stack/vent is not yet constructed and operating), provide the date that you established the association between the subject item and stack/vent. If you do not know this date, provide the submittal date of this form.

3k) End date -- Provide the date on which the subject item **ended** its association with the stack/vent. If the subject item is still associated with the stack/vent, leave the date blank.

3l) Comments -- Use this section to provide clarifications/explanations as needed, such as whether the stack/vent is parallel or a bypass, what the control device is, or, if there are multiple control devices, which CE/TREA comes first.

AQ Facility ID Number: 12300088

Facility Name: Northern Iron LLC

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GI-05F Supplement

GI-05F Emission source associations

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	3l)
Source ID Number	**% Flow**	**Relationship**	**CE ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**% Flow**	**Relationship**	**S/V ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**Comments**
EQUI1	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI2	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI3	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI4	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI5	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI9	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI11	100	**is controlled by**				100	**sends to**	STRU47	08/31/2024		VOC emissions only. No VOC control by TREA47
EQUI12	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI13	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI16	100	**is controlled by**	TREA29/19	01/01/2005			**sends to**				TREA29/19 releases indoors
EQUI16	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI17	100	**is controlled by**	TREA40/39	01/01/2005			**sends to**				TREA40/39 releases indoors
EQUI17	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA40/39 controlled by TREA47
EQUI18	100	**is controlled by**	TREA29/19	01/01/2005			**sends to**				TREA29/19 releases indoors
EQUI18	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI20	100	**is controlled by**	TREA29/19	01/01/2005			**sends to**				TREA29/19 releases indoors
EQUI20	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI23	100	**is controlled by**	TREA13/30	01/01/2005			**sends to**				TREA13/30 releases indoors
EQUI23	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA13/30 controlled by TREA48
EQUI24	100	**is controlled by**	TREA43/38	01/01/2005			**sends to**				TREA43/38 releases indoors
EQUI24	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA43/38 controlled by TREA48
EQUI28	100	**is controlled by**	TREA43/38	01/01/2005			**sends to**				TREA43/38 releases indoors
EQUI28	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA43/38 controlled by TREA48
EQUI29	100	**is controlled by**	TREA43/38	01/01/2005			**sends to**				TREA43/38 releases indoors
EQUI29	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA43/38 controlled by TREA48
EQUI30	100	**is controlled by**	TREA41/42	01/01/2005			**sends to**				
EQUI30	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI36	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		
EQUI37	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		
EQUI39	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI41	100	**is controlled by**	TREA22/35	01/01/2005			**sends to**				TREA22/35 releases indoors
EQUI41	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA22/35 controlled by TREA47

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GI-05F Emission source associations

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	3l)
Source ID Number	**% Flow**	**Relationship**	**CE ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**% Flow**	**Relationship**	**S/V ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**Comments**
EQUI42	100	**is controlled by**	TREA22/35	01/01/2005			**sends to**				TREA22/35 releases indoors
EQUI42	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA22/35 controlled by TREA47
EQUI46	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI47	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI48	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI49	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI50	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		
EQUI51	100	**is controlled by**	TREA29/19	01/01/2005			**sends to**				TREA29/19 releases indoors
EQUI51	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI52	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI53	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI54	100	**is controlled by**	TREA18	01/01/2005			**sends to**				TREA18 releases indoors
EQUI54	100	**is controlled by**	TREA2	09/10/2024		100	**sends to**	STRU12	09/10/2024		Indoor releases from TREA18 controlled by TREA2
EQUI55	100	**is controlled by**	TREA18	01/01/2005			**sends to**				TREA18 releases indoors
EQUI55	100	**is controlled by**	TREA2	09/10/2024		100	**sends to**	STRU12	09/10/2024		Indoor releases from TREA18 controlled by TREA2
EQUI56	100	**is controlled by**	TREA18	01/01/2005			**sends to**				TREA18 releases indoors
EQUI56	100	**is controlled by**	TREA2	09/10/2024		100	**sends to**	STRU12	09/10/2024		Indoor releases from TREA18 controlled by TREA2
EQUI58	100	**is controlled by**	TREA37/21	01/01/2015			**sends to**				TREA37/21 releases indoors
EQUI58	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		Indoor releases from TREA37/21 controlled by TREA47
EQUI60	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI61	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI62	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI63	80	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		80% capture to TREA23
EQUI63	20	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		20% uncaptured by TREA23 controlled by TREA46
EQUI64	80	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		80% capture to TREA23
EQUI64	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA23 controlled by TREA47
EQUI65	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI66	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI67	80	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		80% capture to TREA23
EQUI67	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA23 controlled by TREA47
EQUI68	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI69	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		

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GI-05F Emission source associations

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	3l)
Source ID Number	**% Flow**	**Relationship**	**CE ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**% Flow**	**Relationship**	**S/V ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**Comments**
EQUI70	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI71	100	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		
EQUI72	100	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		
EQUI73	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI74	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI75	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI76	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI77	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI78	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI79	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI80	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI81	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI81	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI82	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI82	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI83	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI83	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI84	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI85	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI85	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI86	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI86	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI87	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI87	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI88	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI88	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47

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GI-05F Emission source associations

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	3l)
Source ID Number	**% Flow**	**Relationship**	**CE ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**% Flow**	**Relationship**	**S/V ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**Comments**
EQUI89	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI89	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI90	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI90	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI91	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI92	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI93	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI94	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI95	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI96	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI97	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI98	100	**is controlled by**	TREA46	08/31/2024		100	**sends to**	STRU46	08/31/2024		
EQUI100	100	**is controlled by**	TREA43/38	01/01/2015							TREA43/38 releases indoors
EQUI100	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA43/38 controlled by TREA48
EQUI102	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI103	100	**is controlled by**	TREA23	01/01/2007		100	**sends to**	STRU13	01/01/2007		
EQUI104	100	**is controlled by**	TREA23	01/01/2007		100	**sends to**	STRU13	01/01/2007		
EQUI105	100	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		
EQUI106	100	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		
EQUI107	100	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		
EQUI108	100	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		
EQUI109	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI110	100	**is controlled by**				100	**sends to**	STRU40	01/01/2005		No control for EQUI110
EQUI111	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI112	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI113	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI114	100	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		
EQUI115	80	**is controlled by**	TREA2	01/01/2005		100	**sends to**	STRU12	01/01/2005		80% capture to TREA2
EQUI115	20	**is controlled by**	TREA47	08/31/2024		100	**sends to**	STRU47	08/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI116	100	**is controlled by**	TREA23	01/01/2005		100	**sends to**	STRU13	01/01/2005		
EQUI117	100	**is controlled by**	TREA13/30	01/01/2005			**sends to**				TREA13/30 releases indoors
EQUI117	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA13/30 controlled by TREA48

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3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	3l)
Source ID Number	**% Flow**	**Relationship**	**CE ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**% Flow**	**Relationship**	**S/V ID number**	**Start date (mm/dd/yyy)**	**End date (mm/dd/yyy)**	**Comments**
EQUI118	100	**is controlled by**	TREA45	01/01/2005			**sends to**				TREA45 releases indoors
EQUI118	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	09/20/2024		Indoor releases from TREA45 controlled by TREA48
EQUI119	100	**is controlled by**	TREA44	01/01/2005		100	**sends to**	STRU49	01/01/2005		
EQUI120	100	**is controlled by**	TREA48	09/20/2024		100	**sends to**	STRU35	08/31/2024		

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-06

Air Quality Dispersion Modeling (AQDM) results form
(Previously AQDMR-01)

Doc Type: Air Dispersion Modeling

Acronym information on page 7

Instructions: Permit applicants required to conduct air dispersion modeling should submit two paper copies of the completed *Air Quality Dispersion Modeling results form* (*AQDM-06)* and all accompanying files to:

Air Quality Permit Document Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Applicants may also submit an electronic version via email, in addition to the two paper copies. This is highly recommended. Please note that all assumptions made in the air dispersion modeling analysis could result in air permit requirements.

Electronic copies of the forms and accompanying files should be emailed to: AirModeling.PCA@state.mn.us. **Note:** The air modeling e-Service may not be used to submit air modeling results.

Facility information

Tempo AI ID number: 3518 AQ facility/permit ID number: 12300088 Today's date (mm/dd/yyyy): 9/10/2024

Three-letter modeling facility ID (ex., XEK = Xcel Energy Allen S. King, MEC = Mankato Energy Center, etc.): _____

Facility name: Northern Iron LLC

Facility street address: 867 Forest Street

City: St. Paul County: Ramsey Zip code: 55106 State: MN

Facility contact: Tierney Grutza Report prepared by: Robert Osborn

Facility contact phone: 608-295-9770 Preparer phone: 281-664-2815

Facility contact email address: tgrutza@lawtonstandard.com Preparer email address: rosborn@spiritenv.com

*UTM coordinates of facility (NAD83, zone 15 extended **only**): x = 495,055.00 m East, y = 4,979,319.00 m North

**This should be the central location of the facility/source.*

These results are associated with (check all that apply):

- ☐ AERA or Dispersion/Deposition modeling for air toxics
- ☐ Environmental assessment worksheet
- ☐ Environmental impact statement
- ☐ Modeling information request
- ☐ Modeling Impacts from animal feedlots
- ☐ Siting an air monitoring station
- ☐ Siting a meteorological station
- ☐ Permit condition
- ☒ Permit modification
- ☐ Prevention of significant deterioration
- ☐ Screening modeling
- ☐ Special project
- ☐ State implementation plan

Project description (50 words or less)

Files to accompany modeling results

Include the following files with the completed modeling report form. Use checkbox to indicate that all applicable files are included.

1. ☒ AERMOD input files (*.inp, *.adi, *.ami)
   ☒ AERMOD output files (*.out, *.ado, *.amo)
   ☐ AERMOD plot files (*.plt)
   ☒ AERMOD post files (*.pst) *(If applicable)*
   ☐ AERMOD event files (*.evi, *.evo) *(If applicable)*
   ☒ AERMOD miscellaneous/other files (MAXDCONT, .DAT, .emi, etc.) *(If applicable)*
2. AERMET files: ☒ *.sfc ☒*.pfl
3. BPIP-PRIME files: ☒ Input (*.bpi) ☒ Output (*.bpo, *.sum) *(If applicable)*
4. AERMAP files: ☒ Terrain (*.dem(s), *.tif [NED files]), ☒ Input (*.ami), ☒ Output (*.rou, *.sou, etc.) *(If applicable)*
5. Background data files: ☐ Background concentrations for applicable pollutants (seasonal, monthly, daily, hourly, etc.) *(If applicable)*
6. Modeling results: ☒ Figures (*.jpeg, *.pdf), ☒ GIS Maps (*.shp)
7. AQDM-02 spreadsheet: ☒ *(Provide the final spreadsheet [i.e., AQDM-02] and indicate/highlight changes.)*
8. Paved roads results: ☐ *(If applicable)*
9. SIL analysis and results: ☒ *(If applicable)*
10. Hourly O_3 file: ☐ *(If applicable)*
11. AERA forms: ☐ *(If applicable)*
12. Other files and supporting documents (paved roads fugitive dust modeling output files, etc.):

Section 1. Modeling protocol

1. The Air Dispersion Modeling presented in this report is based on a protocol that has been:
   ☐ Approved ☒ Conditionally approved ☐ *MPCA approval date (mm/dd/yyyy): 08/05/2024
   **This is the date given on AQDM-04 form*
2. Does this modeling submittal **completely** follow the approved protocol? ☐ Yes ☒ No
   If yes, proceed to Section 3.
   If no, proceed to Section 2.

Section 2. Changes to approved/conditionally approved modeling protocol

Table 1: Protocol changes (Please indicate which sections in the approved/conditionally approved protocol have been changed.)

Modeling protocol by sections

Section name	Change/No change
Modeling purpose	No Change
Terrain	No Change
Buildings	No Change
Model selection and options	Change
Point sources	Change
Volume sources	Change
Area sources	Change
Area source coordinates	Change
Paved roads fugitive dust	No Change
Receptors	Change
Meteorological data	No Change
Area of impact analysis	Change
Background values	No Change
Nearby sources	No Change
Pollutant based considerations	No Change
Attachments	Change
AERA forms	No Change

Section 2.1: Detailed changes to modeling protocol

Please provide specific information corresponding to those sections in Table 1 where changes are indicated.

Modeling purpose

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Terrain

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Buildings

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Model selection and options

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

AERMOD v. 23132 was used for this analysis (the protocol proposed using AERMOD v. 22112).

Point sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

**Please see the attached response to the Air Permit Engineer's comments on the modeling protocol.*

Volume sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

The volume sources representing the roadways were updated based on the EPA Haul Roads Workgroup memo. The volume sources are equally spaced and adjacent. Typical haul truck dimensions of 3 m tall x 3 m wide x 10 m long were used to calculate the Initial Sigma Y and Initial Sigma Z parameters for the volume sources. Volume sources were not used for locations with ambient air receptors within the volume's exclusion zone. The area source parameterization was use used for these sources.

Area sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

One area source (Source ID FUGI2K) was added for roadway emissions that are within the volume source exclusion zone. The parameters used for this area source follow the guidance in EPA's Haul Road Workshop memo.

Area source coordinates

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

The area source is a 9 m x 9 m square located at 495,099.36 mE, 4,979,253.07 mN.

Paved roads fugitive dust

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Receptors

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

To address MPCA's concerns on the Area of Impact Analysis, a uniform cartesian coordinate system with the following spacing was used for both the SIL and full modeling analyses.

-10 m spacing at fenceline

-20 m spacing out to 200 m

-50 m spacing from 200 m to 1 km

-100 m spacing from 1 km to 2 km

-250 m spacing from 2 km to 5 km

-500 m spacing from 5 km to 10 km

-1,000 m spacing from 10 km to 20 km

This grid extends well beyoned twice the distance from the center of the source to the most distant receptor exceeding the SIL (0.87 km)

Meteorological data

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Area of impact analysis

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Background values

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Nearby sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Pollutant based considerations

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Attachments

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

A source impact analysis and AQDM-11 is provided with this submission

**Please see the attached response to the Air Permit Engineer's comments on the modeling protocol.*

AERA forms

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Section 3. Paved roads fugitive dust (Optional)

Facilities that have indicated in their e-Services submittal the exclusion of paved roads in the air dispersion modeling should provide the results of that modeling in Table 1. Results should **not** include fugitive dust from paved roads.

Table 1: Model results for paved roads fugitive dust exemption policy. (See tables 2 and 3 for categories and requirements)

	Averaging period	NAAQS ($\mu g/m^3$)	Total modeled NAAQS concentration (includes Background and Nearby Sources) ($\mu g/m^3$)	% of NAAQS	PSD Class II increments ($\mu g/m^3$)	Modeled class II increment impact concentrations ($\mu g/m^3$)	% of Class II increments
PM_{10}	24-hour	150		0.00%	30		0.00%
	Annual	-	-	-	17		0.00%
$PM_{2.5}$	24-hour	35		0.00%	9		0.00%
	Annual	12		0.00%	4		0.00%

Table 2:

	NAAQS				PSD Class II increments			
	NAAQS/MAAQS result(s) w/ background and nearby sources (%)	**Cat. 1**	**Cat. 2**	**Cat. 3**	***PSD Class II result(s) (%)***	**Cat. 1**	**Cat. 2**	**Cat. 3**
PM_{10}	**!Undefined Bookmark, TEXT190**	*# < 60%*	*60% < # < 95%*	*95% < #*	0.00%	*# < 35%*	*35% < # < 75%*	*75% < #*
$PM_{2.5}$	0.00%	*# < 80%*	*80% < # < 95%*	*95% < #*	0.00%	*# < 40%*	*40% < # < 80%*	*80% < #*

Table 3:

Cat 1:	Paved road fugitive emissions not required to be modeled, and no paved road fugitive dust permit conditions. Requirements in Minn. R. 7011.150 apply.
Cat 2:	Paved road fugitive emissions not required to be modeled, with paved road fugitive dust permit conditions determined by levels of traffic at the facility.
Cat 3:	Paved road fugitive emissions **are** required to be modeled, with site-specific paved road fugitive dust permit conditions. Re-modeling and/or addition of paved road fugitive emissions source group required.

Section 4. Modeling results

Table 2: Pollutants and averaging periods (Check all the boxes for each pollutant and averaging period(s) modeled.)

Pollutant	Averaging period	Standard		Increment	SIL
		NAAQS	MAAQS		
CO	1-hr	☐	☐	☐	☐
	8-hr	☐	☐	☐	☐
Lead	Rolling 3 mo. Avg	☒	☐	☐	☐

	Quarterly Avg	☐	☐	☐	☐
NO_2	1-hr	☐	☐	☐	☐
	Annual	☐	☐	☐	☐
SO_2	1-hr	☐	☐	☐	☐
	3-hr	☐	☐	☐	☐
	24-hr	☐	☐	☐	☐
	Annual	☐	☐	☐	☐
PM_{10}	24-hr	☒	☐	☐	☐
	Annual	-	-	☐	☐
$PM_{2.5}$	24-hr	☒	☐	☐	☐
	Annual	☒	☐	☐	☐

Table 3: NAAQS/MAAQS modeling results (Enter modeling results along with the percent of standard.)

Pollutant	Averaging period	NAAQS standard (ug/m^3)	MAAQS standard (ug/m^3)	Total modeled concentration (includes background and nearby sources) (ug/m^3)	Percent of standard (%)	
					NAAQS	MAAQS
CO	1-hr	40,071.5	40,071.5			
	8-hr	10,304.1	10,304.1			
Lead	Rolling 3 mo. Avg	0.15	0.15	0.0651	43.4%	
NO_2	1-hr	188.0	188.0			
	Annual	99.7	99.7			
SO_2	1-hr	196.4	196.4			
	3-hr	1309.3	1309.3			
	24-hr	366.6	366.6			
	Annual	78.6	78.6			
PM_{10}	24-hr	150.0	150.0	88.0179	58.7%	
$PM_{2.5}$	24-hr	35.0	35.0	33.0256	94.4%	
	Annual	12.0	12.0	8.803	97.8%	

Table 4: Increment modeling results (Provide the increment modeling results along with the percent of standard.)

Pollutant	Averaging period	Class II increment (ug/m^3)	Total modeled concentration (includes other increment sources) (ug/m^3)	Percent of standard (%)
NO_2	1-hr	-	-	-
	Annual	25		
SO_2	1-hr	-	-	-
	3-hr	512		
	24-hr	91		
	Annual	20		
PM_{10}	24-hr	30		
	Annual	17		
$PM_{2.5}$	24-hr	9		
	Annual	4		

Table 5: SIL modeling results (Provide the SIL modeling results along with the percent of standard.)

Pollutant	Averaging period	SIL (ug/m^3)	Total modeled concentration (ug/m^3)	Percent of standard (%)

NO_2	1-hr	7.52		
	Annual	1		
SO_2	1-hr	7.86		
	3-hr	25		
	24-hr	5		
	Annual	1		
PM_{10}	24-hr	5		
	Annual	1		
$PM_{2.5}$	24-hr	1.2		
	Annual	0.3		
CO	1-hr	2000		
	8-hr	500		

Section 5. Discussion

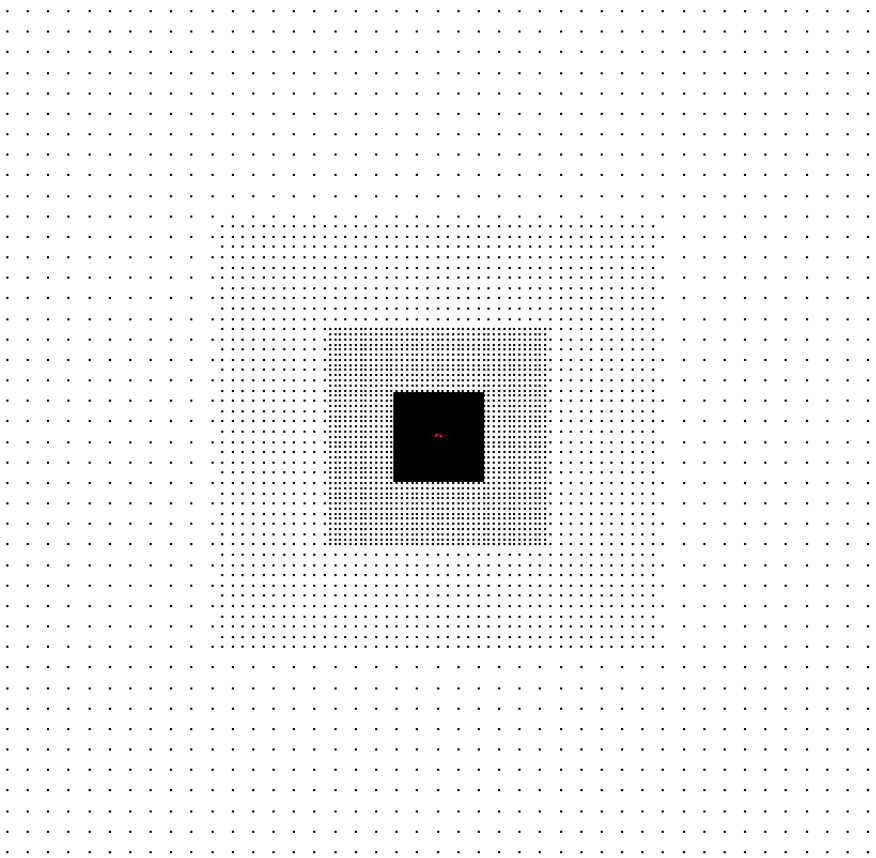
Enter any discussion or comments on the information provided in this form (this can be used as a substitute for a written report):

The modeling conducted for the changes to emission units at Northern Iron being proposed in this application demonstrates compliance with all relevant NAAQS. The modeled PM-10 concentration is 58.7% of the NAAQS. The modeled PM-2.5 24-hr concentration is 94.4% of the NAAQS and annual PM-2.5 is 97.8% of the NAAQS (which was recently lowered to 9.0 ug/m3). 3-month rolling concentrations of lead are 43.4% of the NAAQS. Based on these results, the emission controls being proposed will ensure compliance with NAAQS at this facility.

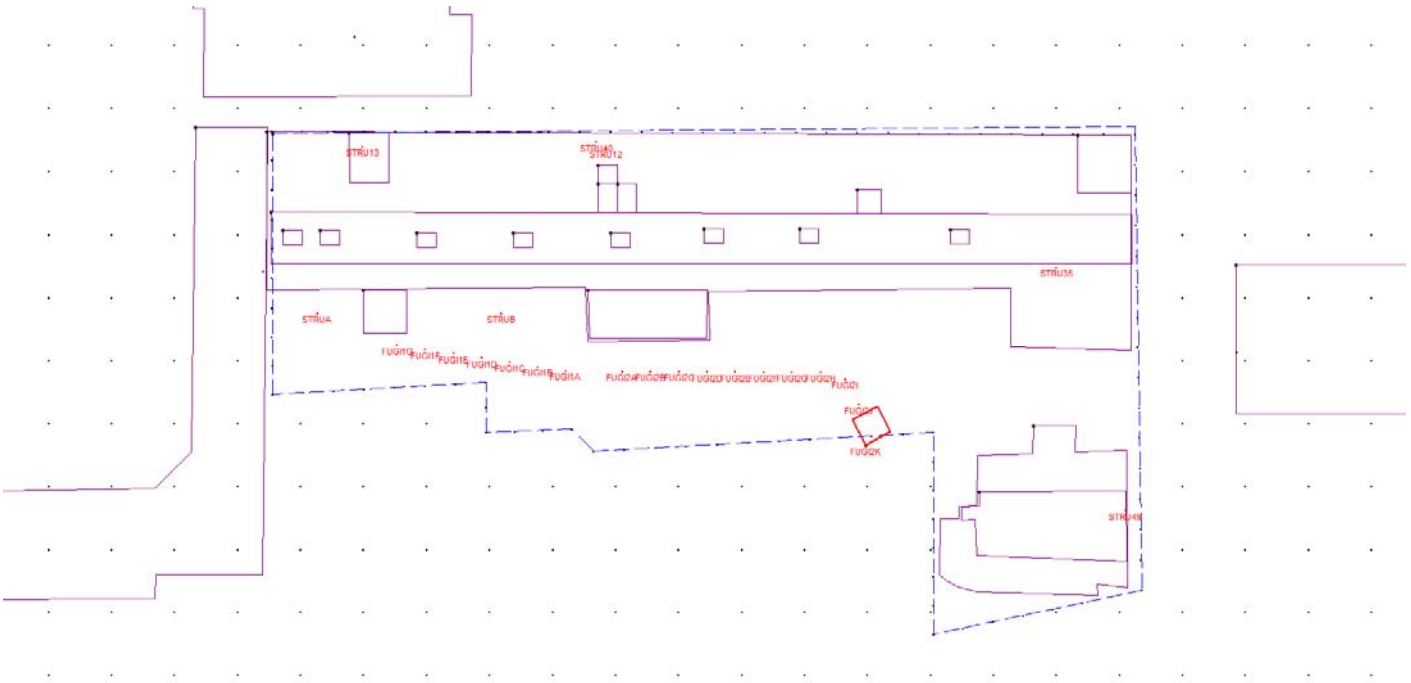
Section 6. Modeling results figures/maps

Insert a figure or map showing the facility emission sources, receptors, and the location of the modeled maximum concentration(s) for each applicable pollutant, corresponding averaging periods, and operating scenarios.

MODELED RECEPTOR GRID



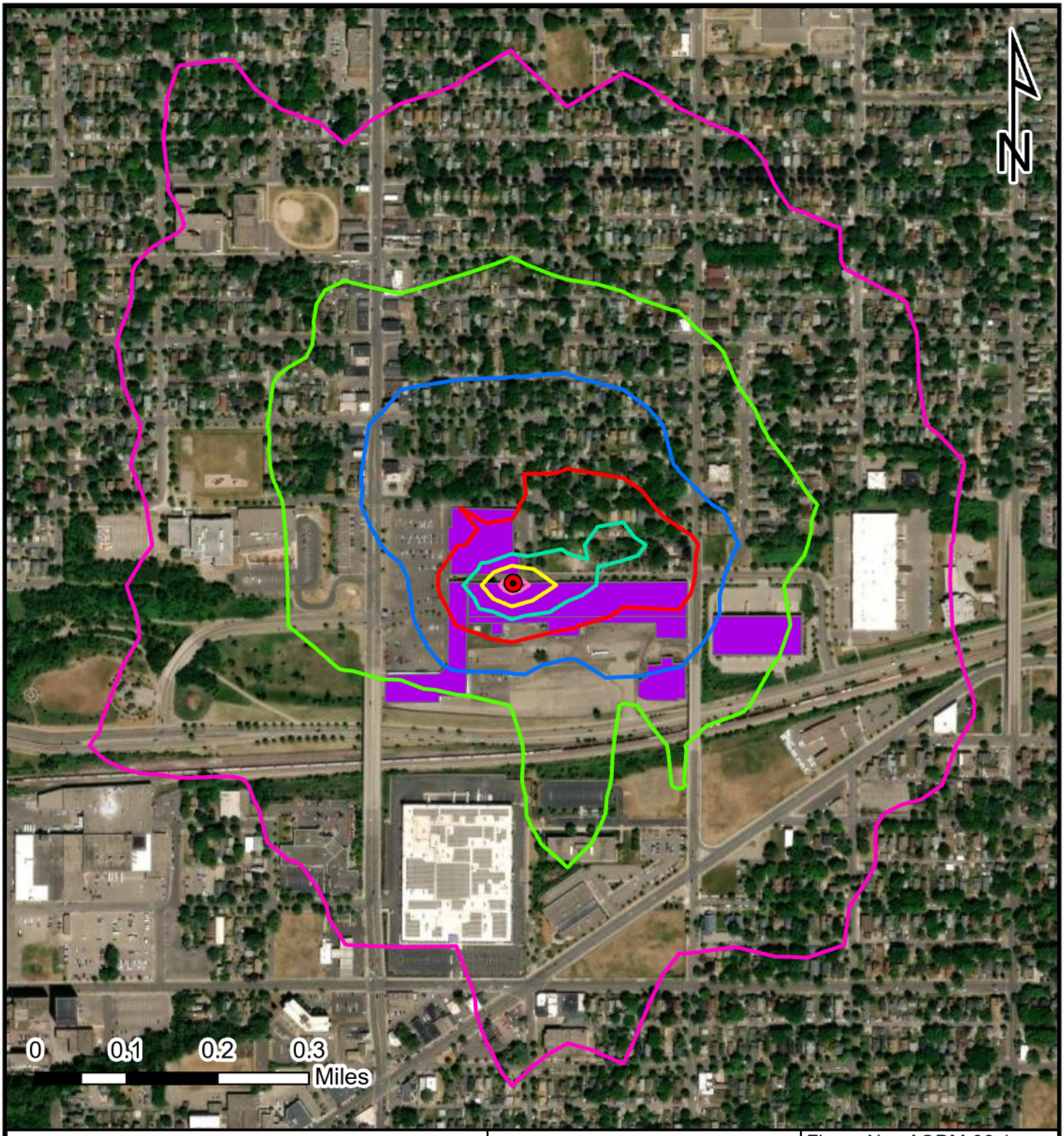
FACILITY EMISSION SOURCES



MODELED CONCENTRATIONS (See Attached Figures)

Acronyms

AERA	Air Emissions Risk Analysis
AERMAP	AERMOD Terrain Preprocessor
AERMET	AERMOD Meteorological Preprocessor
AERMOD	AMS/EPA Regulatory Model
AQ	Air Quality
AQDM	Air Quality Dispersion Modeling
AQDMR-01	Previous Modeling Results Form
BPIP-PRIME	Building Profile Input Program for PRIME
CO	Carbon Monoxide
EPA	U.S. Environmental Protection Agency
FAC	3-letter facility ID
MAAQS	Minnesota State Ambient Air Quality Standard
MPCA	Minnesota Pollution Control Agency
NAAQS	National Ambient Air Quality Standard
NO_2	Nitrogen Dioxide
OU	Operable Unit
Pb	Lead
PM_{10}	Particulate Matter less than 10 um in size
$PM_{2.5}$	Particulate Matter less than 2.5 um in size
PRIME	Plume Rise Model Enhancements
PSD	Prevention of Significant Deterioration Program
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
SIP	State Implementation Plan
SMS	Standardized Mobile Source
$\mu g/m^3$	Micrograms per cubic meter ($\mu g/m^3$)
UTM	Universal Transverse Mercator



Legend

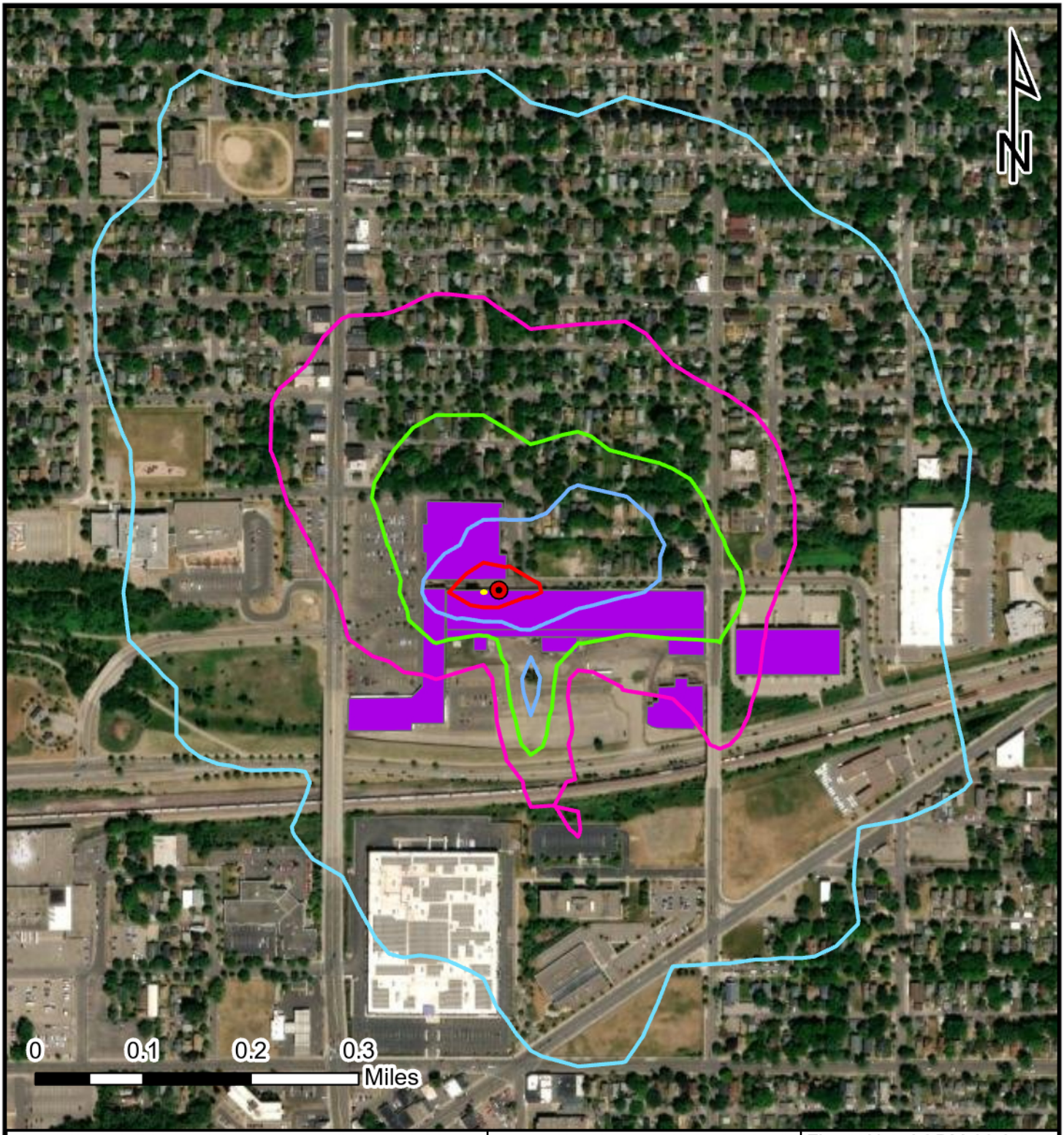
- 70.0 µg/m3
- 72.5 µg/m3
- 75.0 µg/m3
- 77.5 µg/m3
- 80.0 µg/m3
- 82.5 µg/m3
- 85.0 µg/m3
- Max Concentration = 88.02 µg/m3
- Buildings

PM10 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-1
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

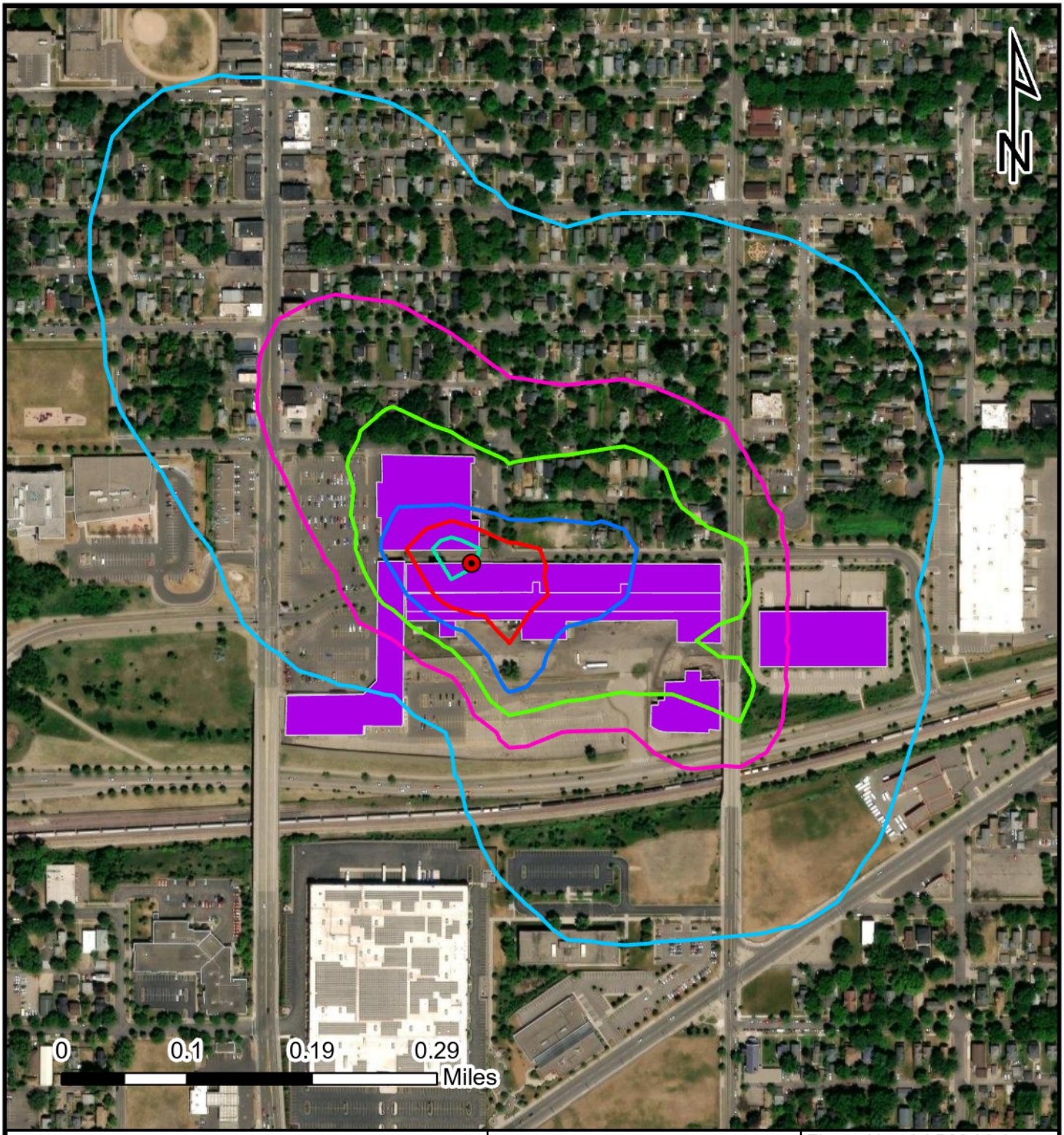
- Buildings
- 22.5
- 24.0
- 25.5
- 27.0
- 28.5
- 30.0
- Max Concentration = 33.03 µg/m3

PM 2.5 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-2
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

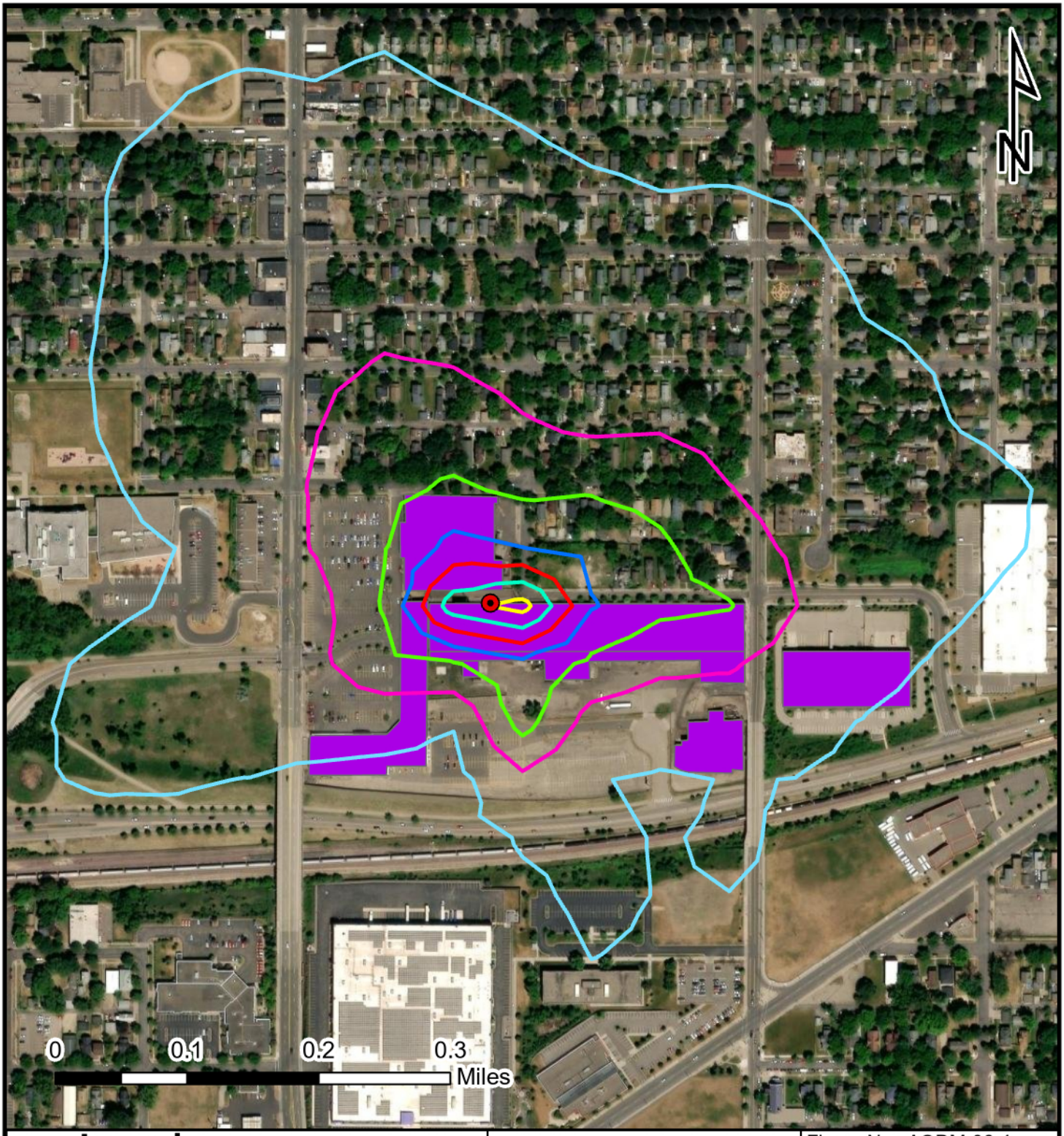
- 7.4 µg/m3
- 7.6 µg/m3
- 7.8 µg/m3
- 8.0 µg/m3
- 8.2 µg/m3
- 8.4 µg/m3
- Max Concentration = 8.80 µg/m3
- Buildings

PM2.5 ANNUAL CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-3
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

- 0.042 µg/m3
- 0.045 µg/m3
- 0.048 µg/m3
- 0.051 µg/m3
- 0.054 µg/m3
- 0.057 µg/m3
- 0.06 µg/m3
- Max Concentration = 0.0651 µg/m3
- Buildings

MONTHLY LEAD CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-4
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey

AQDM-06 Supplemental Information

Please see the following responses to comments made by the MPCA Air Permit Engineer on the modeling protocol. The Permit Engineer's comments are included followed by a response in bold text.

- **Point Sources**

  For the next modeling submittal:

  1) Include Justification for not including the following stacks in the modeling: STRU 4 and STRU 6-11

     STRU 4, STRU6, STRU10 and STRU11 are inactive and are being removed from the site. STRU 7, STRU8, and STRU 9 are active, but their emissions will be routed to the new dust collectors, therefore, they will not emit after this permitting action.

  2) Include Justification for not including the following emission units in the modeling: EQUI11 and EQUI 40

     EQUI 11 is an existing source, but it only emits VOC. Therefore, it does not need to be included in the modeling demonstration. EQUI 40 has been removed from the site.

  3) Correct the following stack parameters to match the current effective permit no. 12300088-003 (current permit) or confirm that the stack parameters need to be revised as shown in the modeling:

     - STRU 12: This stack is defined in the current permit as having a stack height of 7.62 m, but was modeled at 10.67 m; and

       The stack height for STRU 12 is being extended to 10.67 m (as modeled).

     - STRU 13: This stack is identified in the current permit as having a diameter of 1.2 m, but was modeled at 0.91 m.

       The stack exit diameter for STRU 13 is being reduced to 0.91 m (as modeled).

OFFICE: 281-664-2490
FAX: 281-664-2491

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4) Clarify proposed controls by identifying a TREA XXX with each control efficiency or performance test data used in the calculations where control is assumed.

   The proposed controls for each source have been identified in the emission calculations provided with Form GI-07.

5) Why were new combustion units EQUI 54-56 (see AQMD-02, Combustion Emissions) not modeled? If these emission sources are not being proposed, remove them. If these emission sources are being proposed, either justify why they are not being modeled or include them in the modeling, whichever is correct.

   The combustion emissions from EQUI 54-56 are emitted from STRU12 and are included in the model.

6) Do not double count emissions from EQUI 120. This modeling shows that emissions of PM10/2.5/lead from EQUI 120 will be 100% captured and both:

   - 93% controlled before being vented out STRU 35; and

   - Uncontrolled before being vented out STRU 49.

   Model only the correct venting relationship and remove the other relationship.

   Emissions from EQUI120 are vented uncontrolled from STRU 49. The modeling has been updated to remove EQUI 120 emissions from STRU 35.

7) Do not double count emissions from IA-03, IA-04, IA-05, and IA-06. This modeling shows emissions of PM10/PM2.5 from:

   - IA-02, 03, 04, 05, 06 combined

   - IA-03, IA-04, IA-05, IA-06 individual

     Were all modeled venting out STRU B. Model each IA only once.

   The IA Number for Woodworking Saw #1 is IA-02. The additional IA numbers shown for this saw were a typo and have been removed from the emission calculation table.

- **Attachment: AQDM-02 Form**

  For the next modeling submittal:

  1) EQUI 3-5, EQUI 63, EQUI 65-66, and EQUI 80-84

     Lead: Provide a link or other documentation for the CERP document referenced.

     The CERP document can be found at the following website:

     https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

     References to this link have been added to the calculation table in Form GI-07 for these sources.

  2) EQUI 12-13

     Why are PM10/PM2.5/lead emission rates divided by 100? Note: when the cell is the percentage type dividing by 100 is redundant and can be removed. Provide a sample calculation to show the proposed emission factor adjustment and, if this is a percentage correction, revise the calculation. Because EQUI 12-13 emissions are identified as 100% captured, there should be 0 uncaptured emissions (24-hr fugitive emission rates). Revise these calculations. Note: Within the same parenthesis numbers will always be divided first and subtracted second. (1-100%/100) will divide 100% by 100 first giving a value of 0.01, which will then be subtracted from 1. Correcting the formula to (1-100%) or (1-(100/100)) should fix this error.

     The PM_{10}/$PM_{2.5}$/lead emission calculations for EQUI 12-13 have been updated to remove the division of 100 from 100%. This correction results in all the emissions being emitted from the captured vent (since 100% of the emissions are captured) and zero uncaptured emissions.

  3) EQUI 16, EQUI 51, and EQUI 58

     Lead: Why was the emission rate calculated using adjusted values from Melting & Refining instead of the capacity of the emission unit? Clarify.

     The emission factor for HAP emissions from shot blasting published by the American Foundrymen's Society Air Quality Committee and MACT Task Force is based on pounds of emissions per ton of metal melted/poured. Therefore, the maximum hourly tonnage of metal melted in one hour at the site is used for this

emission calculation. Since this throughput is for the entire site, the emissions calculated using this factor are then distributed between the blast booths based on the ratio of their rated hourly shot capacity over the total shot capacity for all three booths. The emission calculation spreadsheet has been updated to list the melt capacity associated with the site and to better define the units of the emission factor used for PM_{10}, $PM_{2.5}$, and lead.

4) EQUI 16, EQUI 51, EQUI 58, and EQUI119

MPCA calculation workbooks are collections of citations and only the specific source of the chosen emission factor should be cited, not a reference to the entire calculation workbook. Revise.

The citation for the emission factors used for these sources has been updated to identify which factors are used in the calculation workbook and, where documented, the source of the factor.

5) EQUI 39

PM10: When using AP-42, Table 12.10-7 as shown in the calculations Melting & Refining tab (to calculate captured/controlled emissions prior to venting to the atmosphere), the Total Emission Factor (1.8 lb of pollutant/ton of gray iron produced) should be used. Revise.

The emission factors shown in Table 12.10-7 as "Emitted to Atmosphere" account for the settling of material in the work environment prior to being vented to the atmosphere. The magnesium treatment activities at the site emit into the foundry building (the work environment), where larger/heavier particles can settle prior to the smaller/lighter particles being captured and routed to the new emissions control device. These emissions are not directly routed to the control device. Therefore, the settling of particles will occur prior to capture and control and the use of the "Emitted to Atmosphere" emission factor is appropriate.

PM2.5: Provide a link or other documentation for the EPA Augmentation Calculator Tool Data. This assumption cannot be evaluated without additional documentation.

Since the smaller/lighter particles are the only ones emitted from this source, the $PM_{2.5}$ calculations for EQUI 39 assume that $PM_{2.5}$ emissions are equal to PM_{10} emissions. Therefore, the EPA's PM Augmentation Calculator Tool was not

used for this calculation and the reference to the tool has been removed from the emission calculation table.

Lead: Where does 0.05 lb HAP/tons of metal (HAP emission factor) come from? Provide a link or other documentation. (If the HAP emission factor is from the "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" provide a link or copy of the document).

The 0.05 lb HAP/tons of metal emission factor comes from Table 2 in the Casting Emission Reduction Program's document titled "CERP Organic HAP Emission Measurements for Iron Foundries and their Use in Development of an AFS HAP Guidance Document". This document can be found at the following link:

https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf

Table 2 can be found on Page 25 of this document (Page 31 of 36 in the pdf). The footnote for this emission calculation in Form GI-07 has been updated to include a reference to this link.

Provide a link or other documentation for the CERP document referenced, not just a screenshot of Table 5.16.

The CERP Document can be found at the following link:

https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

Table 5.16 can be found on Page 66 of this document (Page 82 of 154 in the pdf). The footnote for this emission calculation in Form GI-07 has been updated to include a reference to this link.

6) EQUI 52 - 53

Provide a link or other documentation for the PM Augmentation – Sand Handling referenced.

The EPA's PM augmentation data is contained in the EPA's Augmentation Calculator Tool, which is a large Microsoft Access database that can be downloaded at the following link:

https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip

This tool provides mass percentages of PM_{10} and $PM_{2.5}$ relative to total PM emissions from various source types. The percentages used are specific to sand handling operations (SCC 30400350). Every factor for the sand handling SCC shows an adjustment of 85% of PM as PM_{10} and 30% of PM as $PM_{2.5}$. The following table is a subset of the data included in the augmentation calculator tool related to sand handling.

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_ UNCONTROLLED	PMCALC_PM10FIL_ UNCONTROLLED	PMCALC_PM25FIL_ UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

The emission calculation table in Form GI-07 has been updated to reference the location of the PM Augmentation Tool.

7) EQUI 60 - 62, EQUI 64, EQUI 67 - 71, EQUI 73 - 79, EQUI 85 -98, EQUI 102, EQUI 103, EQUI 105 - 113, and EQUI 115 - 116

PM10/PM2.5: Why are the emission factors cited as AP-42, Table 11.19.1-1 when they don't match any of the emission factors in the table? Revise the citation to provide the correct source. If emission factors are adjusted, provide a sample calculation documenting all variables and including units for each variable.

The footnote referencing the emission factor for these sources has been updated to reflect that it is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by MPCA. The emission factor is calculated and documented on the Sand Handling EF tab in the workbook.

8) EQUI 63, EQUI 65 – 66, and EQUI 80 – 84

PM10/PM2.5: Why is the lbs/ton of metal emission factor seemingly being divided by the number of equipment? If proposing a restriction on the total capacity of a collection of equipment, adjust the capacities, not the emission factor. Provide a sample calculation to show the proposed emission factor adjustment.

The emission factor for shakeout operations provided in AP-42 is for all equipment in each shakeout line combined. Therefore, the reported emission factor was divided by the number of components in each shakeout line at the site. The total shakeout emission factor is accounted for and is distributed to each piece of equipment, as including the total shakeout factor for each item in the shakeout line would inappropriately overestimate emissions from this operation. A footnote has been added to the calculations to describe this adjustment.

9) EQUI 72 and EQUI 104

PM2.5: Provide a sample calculation documenting all variables and including units for each variable used in the calculated emission factor.

A description of how the $PM_{2.5}$ emission factor is calculated has been added to the footnotes of the emission calculation table in Form GI-07.

10) EQUI 118

Where do the PM10/PM2.5 emission factors come from? Does Note 1 apply? Only Note 2 is referenced; note 2 only identifies how to speciate a PM emission factor, it is not the emission factor shown. Revise to document the source of the emission factors used. If any calculations are included, show all work including units and citations.

The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for EQUI 118 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM_{10} emissions factor is calculated by multiplying the total PM_{10} emission factor by the ratio of PM for grinding to total PM for SCC 30400340 [PM_{10} Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lb/ton) * (EPA Fire PM_{10} Factor of 1.7 lb/ton)]. $PM_{2.5}$ is assumed to equal PM_{10}. Though fallout

is expected to occur, no reduction for fallout is claimed. The footnote referencing the emission factor for EQUI 118 in Form GI-07 has been updated to include this information.

11) IA-02 – IA-07

According to EPA's website, AP-42, 4th Edition is available for historical purposes only. Replace the obsolete emission factors.

The emission factors have been updated to be based on the factors for a sawmill reported in the EPA's May 8, 2014 Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country". The factors for sawing are now used for these sources. Since the emission factors are based on pounds of emissions per ton of wood sawn, the capacities for each source have been updated to reflect tons of wood processed per hour. A link to the EPA memo is provided below:

https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

12) IA-08 – IA-17

The PM10/PM2.5 emission factors used in the calculations do not appear to be from AP-42 Table 12.10.7. Revise emission factor.

The emission factor for these sources has been updated to the "Emitted to Atmosphere" factor published for uncontrolled cleaning & finishing operations in AP-42 Table 12.10-7.

13) IA-18

Provide a citation for the 90% wet scrubber control efficiency used to adjust the AP-42 Table 11.19.1-1 emission factor.

The 90% wet scrubber efficiency was obtained from AP-42, Appendix B-2, Table B.2-2. The value used is the lowest efficiency reported for a hi-efficiency wet scrubber.

14) STRU 12 - 13

It is unclear what is meant by PM Augmentation or where the identified values come from. Describe these values and include the citation.

STRU 12 and 13 vent emissions primarily from sand handling operations. Please see the response to Item 6 above for an explanation of the EPA's Augmentation Tool and how it was used to estimate PM_{10} and $PM_{2.5}$ emissions for sand handling operations.

15) Note – Melting & Refining, Metal Finishing: All lead emission factors referencing the "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force, (except at EQUI 39) indicate that this document doesn't identify individual HAPs (i.e. that this source was NOT used for lead emission factors).

The footnotes for the calculations that refer to this document have been updated to make it clear how the total HAP emission factor is used when calculating lead emissions.

16) Note: The following emission units were modeled at annual throughput rates that exceed maximum capacity:

EQUI 51: Why was an annual throughput restriction of 32,400 tons/year of metal proposed when annual throughput is only (200 lb/hr)(1 ton/2000 lb)(8760 hr/yr) = 876 tons/year of metal?

EQUI 72 - 79, EQUI 85 - 91, EQUI 95 - 97, EQUI 102, EQUI 105, EQUI 110, and EQUI 115: Why was an annual throughput restriction of 324,000 tons of sand/year proposed when annual throughput is only (26 tons/hr)(8760 hr/yr) = 227,760 tons of sand/year?

Although this is conservative, it is not accurate and should be revised.

The annual throughput used in the emission calculations for these sources has been updated to be based on the source's hourly throughput occurring continuously for an entire year.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-11

Air Quality Dispersion Modeling (AQDM)
Significant Impact Level (SIL) analysis
and results form

Doc Type: Air Dispersion Modeling

Instructions: If a preliminary SIL analysis has been conducted for this project, please provide results in table H-01 below. Please also attach corresponding model output files with your e-Services submittal.

Note: Refer to the Minnesota Pollution Control Agency's (MPCA) Modeling Practice Manual, "How To Model, Part II: Setting Up the Model," "Step one – Impact Area Evaluation" for more information.

SIL analysis and results

Table H-01, Class II Significant Impact Levels modeling results:

Pollutant	Averaging time	Modeled impacts (H1H) (µg/m^3)	SILs (µg/m^3) **As of 10/26/2010*	% of SIL	Exceed SIL?	Radius of impact (If exceeds SIL)
SO_2	*1-hr*		7.83	0.00%	(blank)	km
	3-hr		25	0.00%		
	24-hr		5	0.00%		
	Annual		1	0.00%		
PM_{10}	*24-hr*	22.44	5	449.00%	Yes - Refined Modeling	0.58 km
	Annual		1	0.00%		
$PM_{2.5}$	*24-hr*	12.91	1.2	1075.80%	Yes - Refined Modeling	0.87 km
	Annual	1.70	0.3	576.70%		
NO_2	*1-hr*		7.52	0.00%	(blank)	km
	Annual		1	0.00%		
CO	*1-hr*		2000	0.00%	(blank)	km
	8-hr		500	0.00%		

Additional information for this section that was not included above (if not applicable, place N/A in field below):

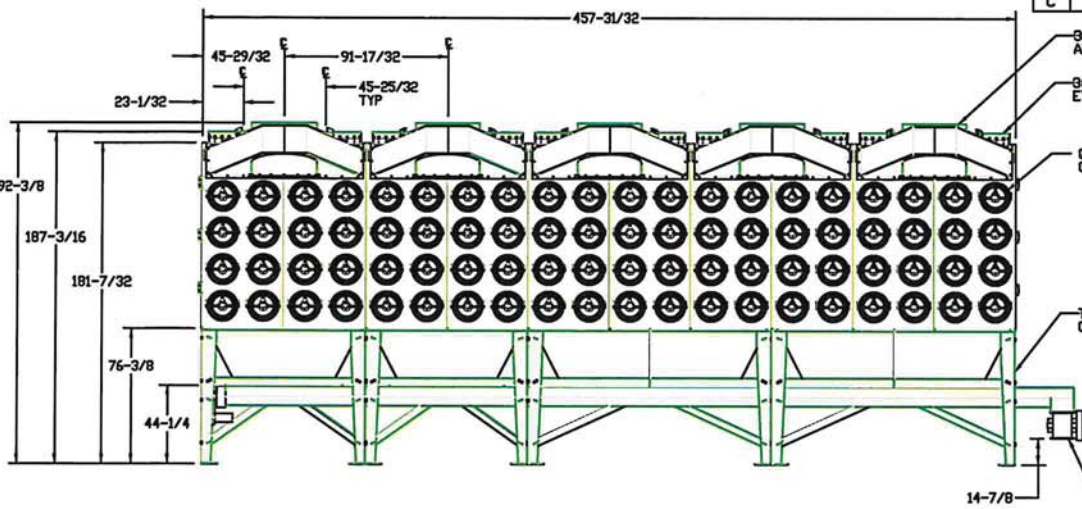
SIL analysis was conservatively modeled using the propoesd permitted emissions for all onsite sources.

7.0 Control Equipment and Filter Media Documentation

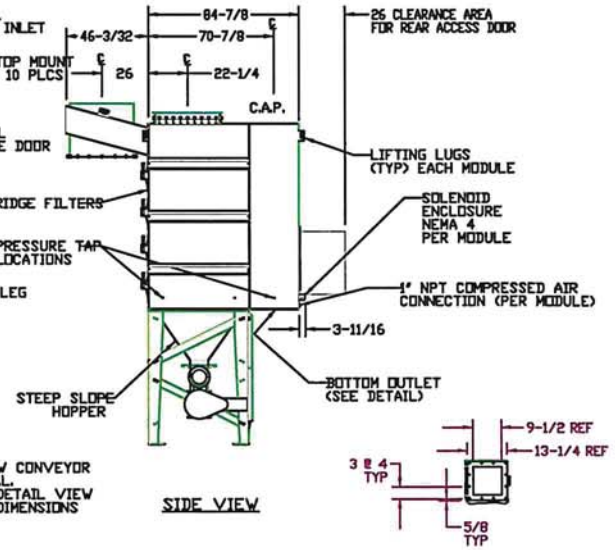
The control equipment and filter media documentation is provided on the following pages.

THIS DRAWING IS NOT TO BE SCALED. FOR ADDITIONAL INFORMATION, PLEASE CONTACT OUR ENGINEERING DEPT.

REVISIONS				
ECN #	DESCRIPTION	DRAWN	APPROVED	
B	-	CORRECTED COMP. AIR REQUIREMENTS	TLH	
C	-	MISC NOTES, HOPPER DISCHARGE DETAIL	TLH	

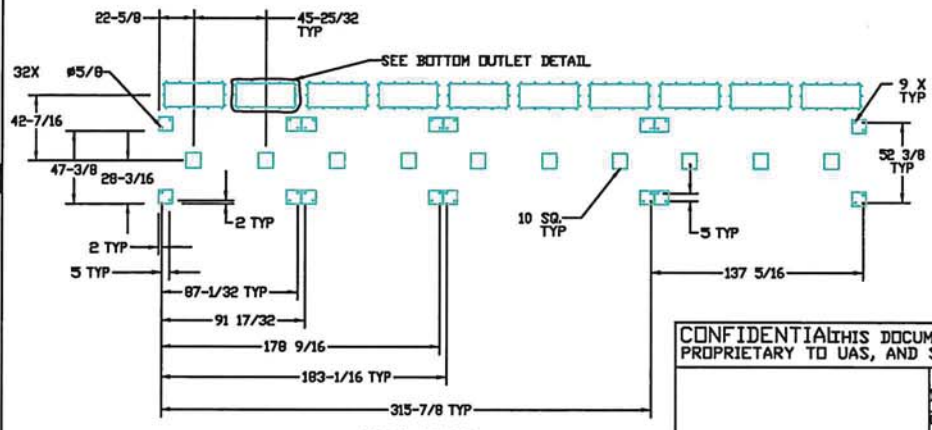


FRONT VIEW

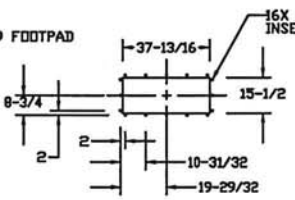


SIDE VIEW

R.A.L. DETAILS
SCALE 0.025



PLAN DETAIL



BOTTOM OUTLET DETAIL

NOTES:

1.) SBD UNITS MUST BE ATTACHED TO IN-PLANT COMPRESSED AIR SUPPLY FOR CLEANING MECHANISM TO FUNCTION. (90 -110 psig CLEAN DRY AIR)
2.) VALVES AND CONTROL TIMER SYSTEM OPERATE ON 120v, 50-60 Hz POWER.
3.) CABINET CONSTRUCTION, 10 Ga MILD STEEL.
4.) SOLID STATE PULSE CONTROL TIMER IN NEMA 4 ENCLOSURE (ORDERED SEPARATELY).

SPECIFICATIONS

TOTAL FILTER AREA	49600 SQ. FEET
TOTAL VALVES	80
TOTAL CARTRIDGES	AT160 1/16" DIA. X 28" Lg.
TOTAL UNIT WEIGHT	28,000 LBS.
SEISMIC ZONE	ZONE 4, 100 MPH
COMPRESSED AIR	100 psig 11 CF PER PULSE (66.0 CFM NOMINAL)

DESCRIPTION: SBD 160-4 CUSTOM, EV, ABR INLETS, SCREW

SIGNATURES		REV:	-
DRAWN: TLH		C	PART NUMBER: 05-10073-0001
CHECKED: TLH		SIZE: B	
MATERIAL:	WEIGHT: -	SCALE: 0.015	SHEET 1 OF 1

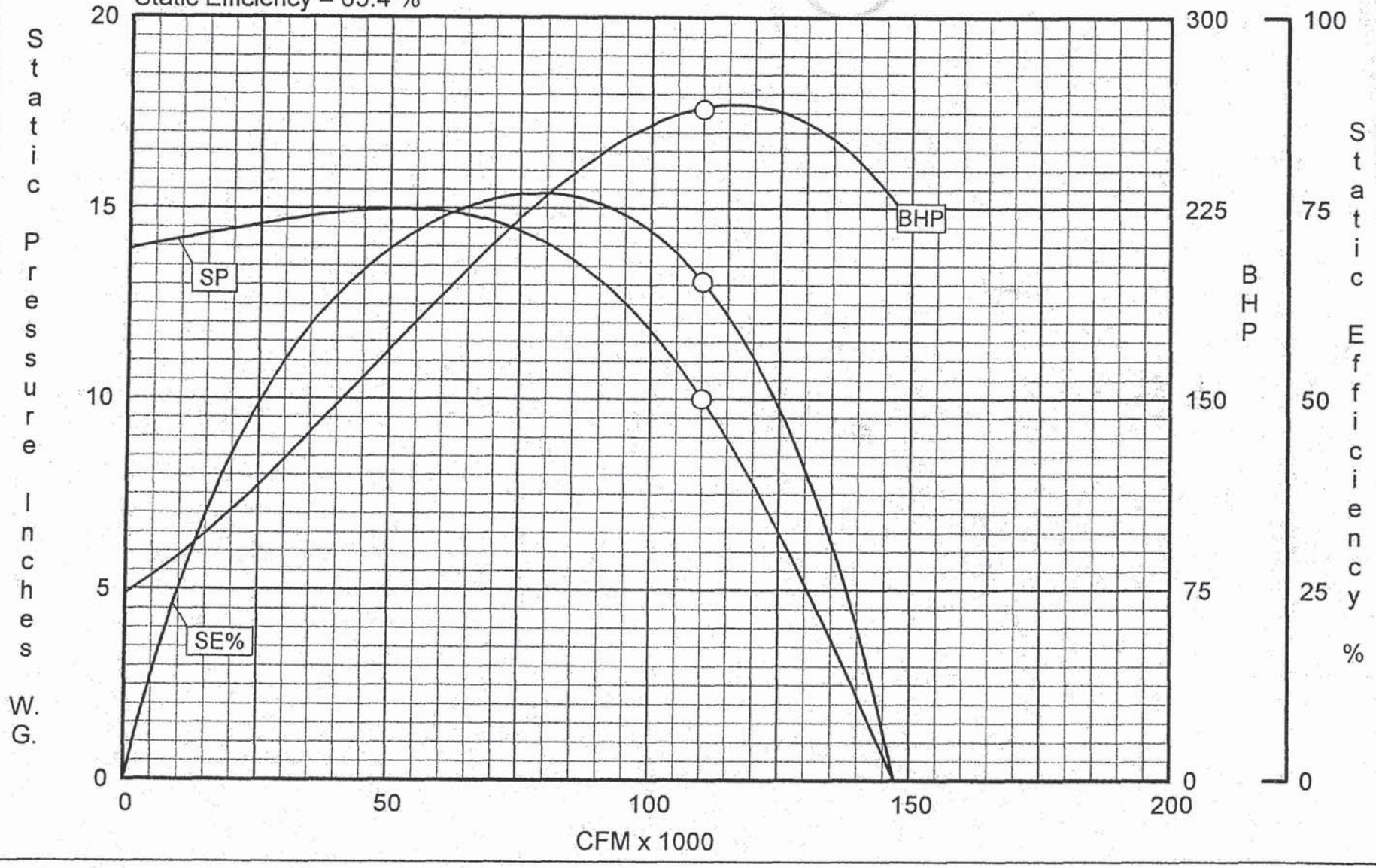
UNITED AIR SPECIALISTS, INC. a CLARCOR company

3D GENERATED DRAWING

Model 10 BCS

Impeller Diameter = 60 Inches
RPM = 1143 Capacity = 1
Inlet Density = 0.0634 lb./cu. ft.
Volume = 110000 Cu Ft / Min
Static Pressure = 10 In. W.G.
Power = 264 BHP
Static Efficiency = 65.4 %

Fan Equipment Co., Inc.



Donaldson®
Torit®

TORIT® POWERCORE® DUST COLLECTORS

CP SERIES

PowerCore®

Smart Collector

SMALLER. SMARTER COLLECTORS.

Torit® PowerCore® dust collection technology from Donaldson® Torit® outperforms traditional baghouse collectors and does so in less space. In one extremely small and powerful package, the Torit PowerCore dust collector handles high airflow, high grain loading, challenging particulate and fits into the smallest places. The filter changeout is remarkably quick, easy and clean compared to the process for traditional bag filters.

Innovative Torit PowerCore dust collectors combine award-winning PowerCore filter packs with a new proprietary compact pulse cleaning system. This proprietary combination delivers high filtration efficiencies not usually found in baghouse filtration.

TORIT POWERCORE

- **SMALLER**
- **SMARTER**
- **CLEANER**
- **EASIER**
- **COST EFFECTIVE**

UP TO **50%** SMALLER THAN TRADITIONAL BAGHOUSE COLLECTORS

Torit PowerCore CPC-12
vs.
Traditional (81) 8-ft. Filter Baghouse
5000 cfm (8493 m³/h) collectors

DONALDSON'S INDUSTRIAL FILTRATION SERVICES

Now available with Donaldson's Industrial Filtration Services, an IoT enabled service designed to prompt timely maintenance, helping improve production uptime and reduce operating costs.

OUTPERFORMS TRADITIONAL BAGHOUSE COLLECTORS

Today's streamlined and lean manufacturing facilities demand peak performance even within the smallest spaces. Torit PowerCore space-saving dust collectors are available as stand-alone models that can be ducted to many different applications, as well as bin vent models used on applications like silos, conveyor transfer points, conveyor discharges, blenders and mixers.

Compared to traditional baghouse collectors with similar airflow capacities, Torit PowerCore CPC dust collectors (as shown on previous page) are up to 50% shorter. The comparison to traditional bag-style bin vents is even more dramatic. CPV bin vent collectors are almost 70% shorter than other bag-style bin vents and effectively address the frequent challenge of tight space limitations.

SMALLER

Bin vents fit into the tightest spaces

CLEANER

PowerCore filter packs with Ultra-Web® technology provide higher efficiency for cleaner air. Plus, replacing PowerCore filter packs is a remarkably clean process

EASIER

Clean-side filter access and fewer, lighter filters means faster, easier filter changes without tools or filter cages

SMARTER

An optimized airflow management system delivers optimal pulse cleaning while minimizing airflow restriction

COST EFFECTIVE

Innovative PowerCore filtration technology means reduced freight and installation costs, fewer filter changeouts, lower maintenance costs, and no entry requirements for filter changes

UP TO 70% SMALLER THAN TRADITIONAL BIN VENT COLLECTORS

Torit PowerCore CPV-3
vs.
Traditional Bin Vent
1500 cfm (2548 m^3/h) collectors

SMALLER. SMARTER FILTERS.

POWERCORE FILTER PACK—NOT A BAG, NOT A CARTRIDGE

An entirely new approach to dust collectors, the PowerCore filter pack is small, lightweight, and easily handled by one person. Donaldson's PowerCore technology allows more effective filter area to be packaged in a smaller space: one 7" x 22" (178 x 559 millimeters) PowerCore filter pack contains as much filtering area as 6 eight-foot-long (2.4 meters) traditional filter bags. And the filter media inside PowerCore filter packs is our well-proven Ultra-Web advanced fine fiber technology.

POWERCORE FILTER PACK

- Changeout from the clean side of the collector — only 1 person required
- Self-centering with a handle for easy changes without tools
- Integrated gasket ensures a good seal with every change
- At only 7" tall, bridging is not a problem

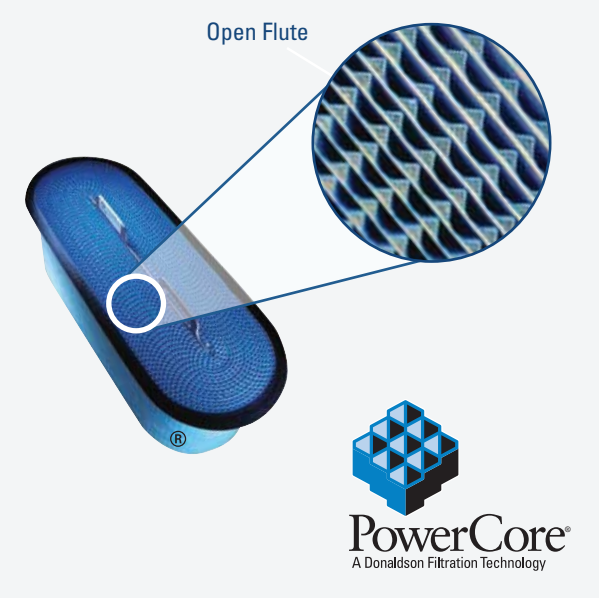
PowerCore®

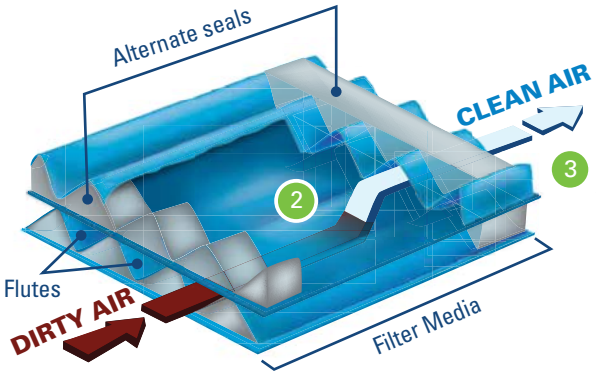
ONE 7" POWERCORE FILTER PACK | *replaces* **SIX 8' BAG FILTERS**

INNOVATIVE MEDIA TECHNOLOGY

LEADING THE WAY WITH POWERCORE

At the Core is PowerCore. PowerCore filter packs combine proprietary Ultra-Web fine fiber technology with Donaldson's media configuration expertise. The result is a revolutionary filtration technology unlike anything else in the industrial filtration market.





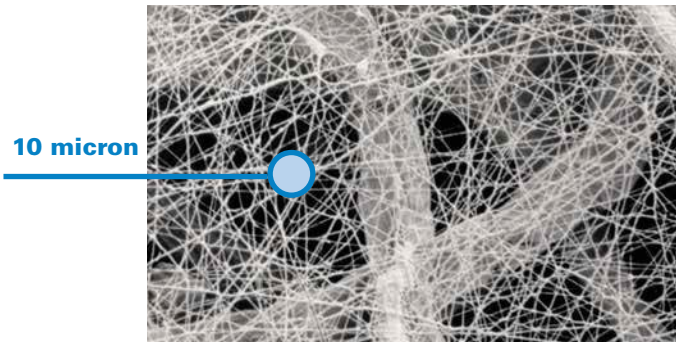
3 The now filtered air exits the filter pack through a flute that is open on the clean air side of the filter pack.

1 Dirty air enters an open flute on the dirty air side of the filter pack.

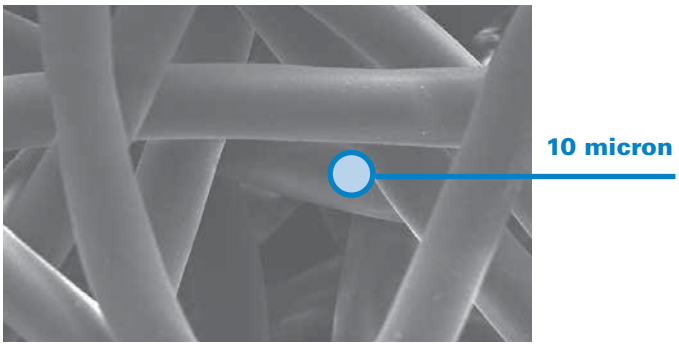
2 Because the flute is sealed on the opposite end, air is forced to pass through the filter media into an adjacent flute.

HIGH PERFORMANCE FILTER MEDIA

In a dramatic departure from the traditional filter bag, the PowerCore filter pack contains Ultra-Web media, which traps more dust on the surface of the fluted channels as compared to conventional bag filter materials like depth-loading 16 oz. (453.6 g) polyester. Surface loading greatly promotes filter cleaning. Better pulse cleaning lowers operational pressure drop and energy use.



Ultra-Web Fine Fiber Technology (600x)



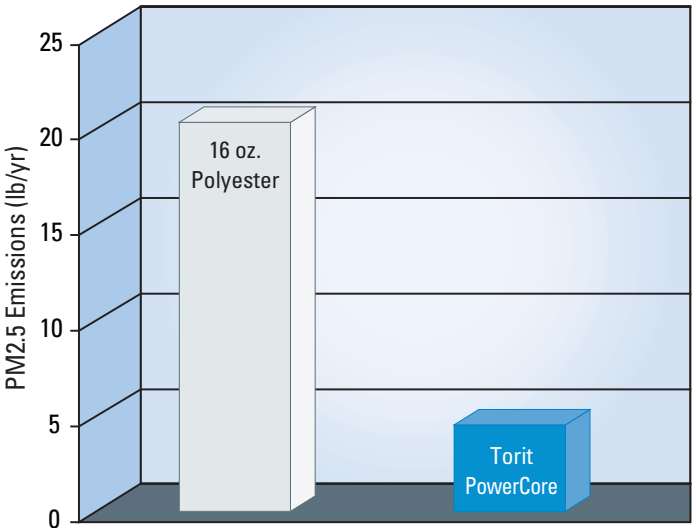
16 oz. (453.6 g) Polyester (600x)

POWERCORE FILTER PACKS – ENGINEERED TO PERFORM

TECHNOLOGY THAT PERFORMS FOR OVER 25 YEARS

Donaldson Torit Ultra-Web technology has delivered high efficiency filters that last. PowerCore filter packs with Ultra-Web are engineered to perform, balancing high efficiencies with long filter life.

Lower Emissions with PowerCore Filter Packs



Independent lab results obtained using ASTM D6830-02 per EPA PM 2.5 performance verification. Annual emissions calculated assuming 14,400 cfm (24,461 m3/h) airflow rate, 265 working days per year, and two shifts per day. Field measurements may vary due to differences in dust contaminant and sensitivity of measurement equipment.

OUTSTANDING PERFORMANCE

Independent laboratory testing conducted on PowerCore CP filter packs with Ultra-Web media have a Minimum Efficiency Reporting Value (MERV) up to 15 based on ASHRAE 52.2 test standard.

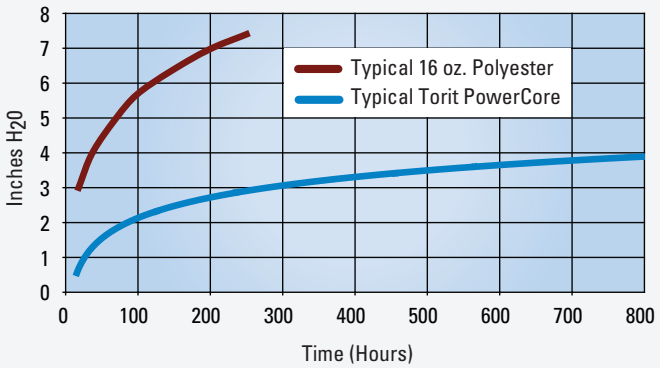
78% FEWER EMISSIONS

EASY ON THE BUDGET

The surface-loading technology of Ultra-Web is proven to provide lower operating pressure drop over a longer period of time, and energy costs can be dramatically reduced. Pressure drop starts high and rises quickly with traditional depth-loading bag filters, resulting most often in excessive energy use.

For proven technology that delivers savings in energy, maintenance, space, and filter changes, the smartest solution is Torit PowerCore.

Surface Loading Allows Downsizing



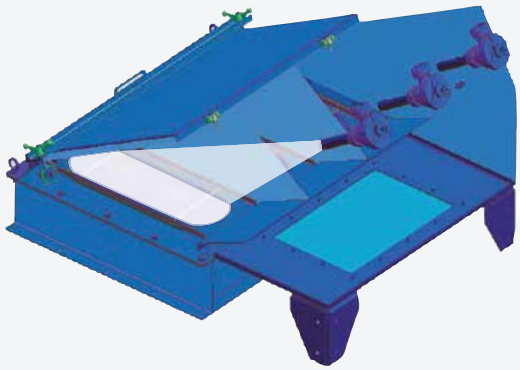
The results from accelerated lab and field tests show that Torit PowerCore can provide lower pressure drop in baghouse applications.

OPTIMIZED AS A SYSTEM

SMARTER FILTER CLEANING

Torit PowerCore collectors include a new proprietary compact pulse cleaning system designed to match the pulse energy to the obround shape of the PowerCore filter pack. The resulting pulse flow effectively covers the entire media pack. It easily pulses the dust out of the fluted channels, keeping the pressure drop low and prolonging filter life.

Compact Pulse Cleaning System CPV-1



Compact Oblique Pulse Cleaning System
CPV-2 through CPV-12

SOPHISTICATED MODELING

Providing optimized pulse cleaning, the pulse accumulator design is based on Donaldson Torit's commitment to technical research and development. FLUENT®* Airflow Modeling Software was used to determine the shape of the pulse accumulators to optimize the pulse energy without restricting the airflow or wasting energy. The pulse accumulators also serve as a filter retention mechanism, securing the filter pack in place and ensuring optimum gasket compression.

Pulse Accumulator
Optimizes Pulse & Seals Filter Pack

* FLUENT is a registered trademark of Fluent, Inc.

MAKING MAINTENANCE EASIER

SMALLER, BETTER, SMARTER

Torit PowerCore can reduce your cost of dust collection resulting in significant operational savings. An application previously requiring (81) 8-foot (2.4 meter) bag filters now needs only (12) 7-inch-tall (177.8 mm) PowerCore filter packs. Fewer filters mean lower filter changeout costs and faster changeouts. The smaller collector means lower installation costs and less factory floor or bin space consumption.

	# of Filters in Collector	Time to Replace*	Labor Cost	Time Savings*	Labor Savings*
PowerCore Filter Packs	12	**ONLY 24 minutes**	$18	**13.1 hours**	**$590 SAVED**
Traditional Bag Filters	81	13.5 hours	$608	0	0

* Savings are based on one changeout. Calculations assume bags and PowerCore filter packs show equal life span; one person replacing one traditional bag filter in 10 minutes; one person changing PowerCore in 2 minutes; labor rates equal $45/hr.

EASY MAINTENANCE

Replacing PowerCore filter packs is as easy as 1-2-3. Contrary to many traditional baghouse collectors, PowerCore filter packs are lightweight and accessed from the clean side of the collector.

POWERCORE FILTER PACK REPLACEMENT — EASY. FAST. CLEAN. NO TOOLS OR CAGES REQUIRED.

1. Lift up filter access door. (Clean side of the system)

2. Loosen the captive hardware and remove the pulse accumulator.

3. Lift out the filter pack for easy replacement.

NO ENTRY REQUIRED

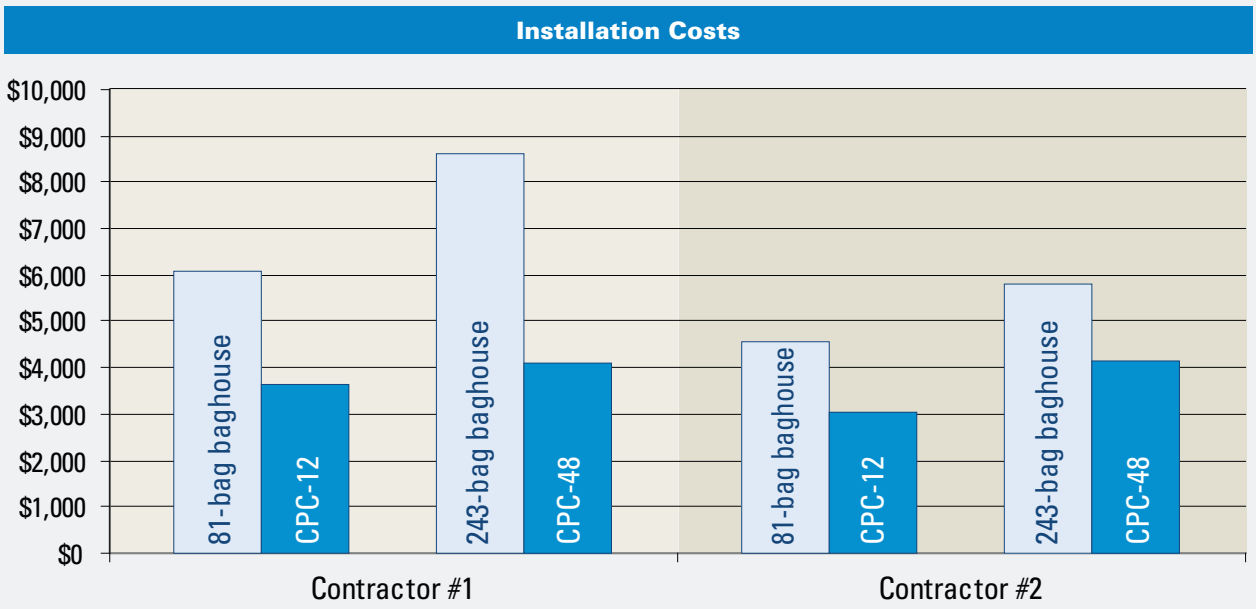
HOW SMALLER MEANS SMARTER OPERATION

SMART RESULTS IN MANY WAYS

- Collectors weigh less, so shipping costs are lower
- There are no bag filters or cages to ship and install separately
- Easier filter pack changeouts save time and money
- Airflow design prevents dust bridging between filter packs, creating less maintenance required
- Airflow patterns minimize abrasion, preventing leaks and maintenance common with abrasive dust

A CPV-2 is 70% smaller than a traditional bin vent making shipping easy and reducing freight costs.

UP TO 50% LOWER INSTALLATION COSTS



The Torit PowerCore system arrives mostly assembled, so installation is faster and easier. Installation costs are reduced 30-50% due to lighter weight, less crane time, and pre-assembly. The filter packs come pre-installed in the collector, so there are no bags or cages to install separately.

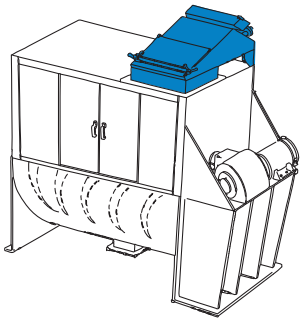
THE OPTIMIZED SOLUTION FOR MATERIAL HANDLING

SMARTER SOURCE FILTRATION

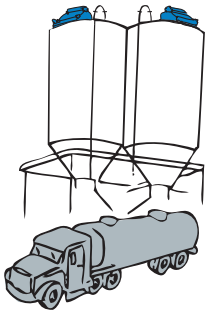
Torit PowerCore CPV bin vent collectors are easily integrated into a variety of material-handling applications—even in tight spaces—providing source filtration that saves money and energy.

SOURCE COLLECTION WITH TORIT POWERCORE CAN PROVIDE:

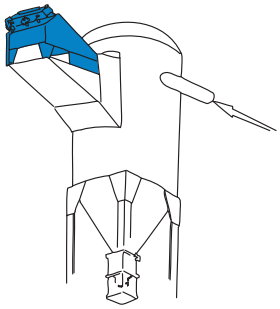
- Lower initial costs: freight, installation, and ducting are all reduced
- Reduced energy consumption as air and dust aren't moved unnecessarily through long ducting runs
- Product will stay in the process, eliminating waste streams and costly recycle systems



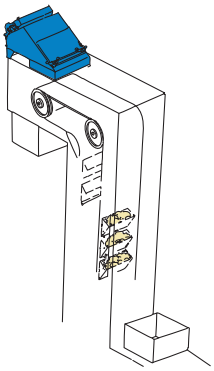
Blender/Mixer



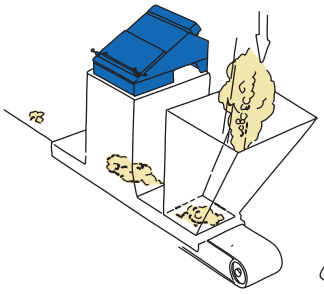
Silo/Bin Vent



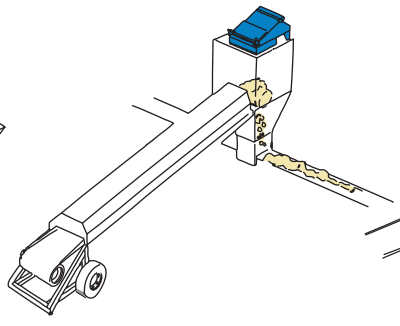
Pneumatic Receiver



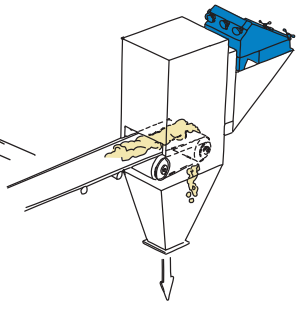
Bucket Elevator



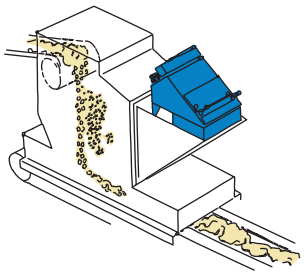
Chute-to-Belt



Tripper Conveyor



Conveyor Discharge

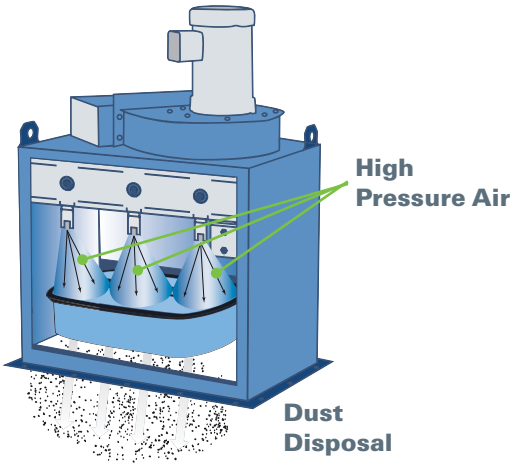


Conveyor Transfer

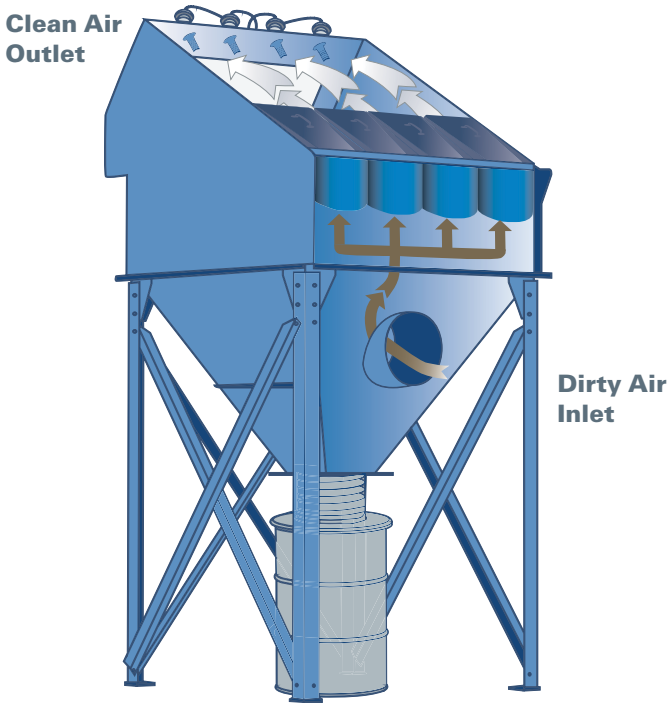
HOW THE CP SERIES WORKS

- Dust-laden air enters the collector through the dirty air inlet and is directed upward through the filter packs
- Heavier particulate falls directly into the hopper or bin below
- Air is filtered through the filter packs and directed out the clean air outlet
- When pressure drop exceeds a pre-set point, the compact pulse system sends a pulse of cleaning air back through the filter packs and thoroughly cleans the media flutes

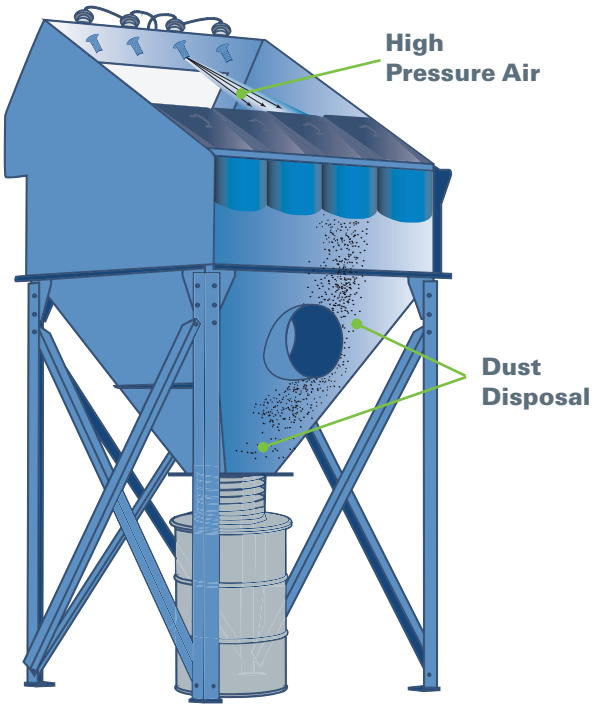
NORMAL OPERATION
FOR CPV-1 MODEL



FILTER CLEANING OPERATION
FOR CPV-1 MODEL



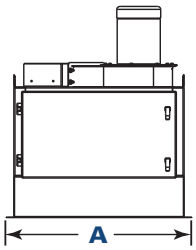
NORMAL OPERATION
FOR CPC-3 THROUGH CPC-48 MODELS



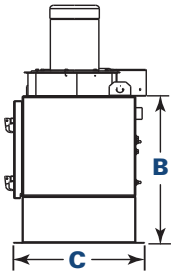
FILTER CLEANING OPERATION
FOR CPC-3 THROUGH CPC-48 MODELS

DIMENSIONS & SPECIFICATIONS

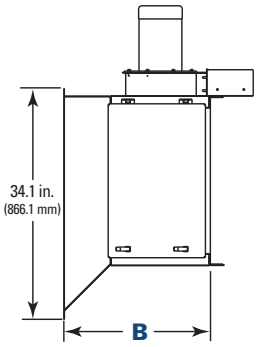
MODELS CPV-1



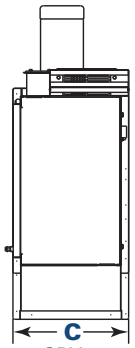
CPV-1
Front View



CPV-1
Side View

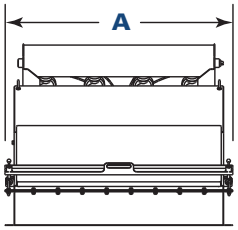


CPV-1
Vertical Front View

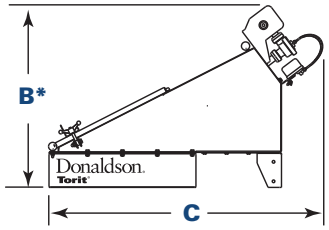


CPV-1
Vertical Side View

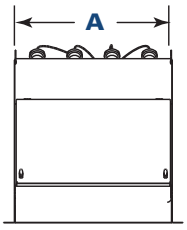
MODELS CPV-2 TO CPV-12



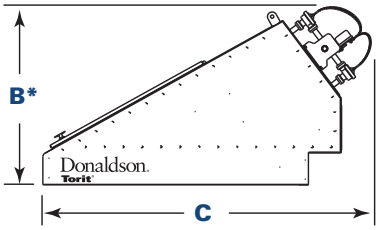
CPV-2, -3, -4
Front View



CPV-2, -3, -4
Side View



CPV-6, -8, -12
Front View



CPV-6, -8, -12
Side View

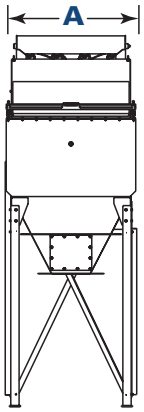
Model	Nominal Airflow Range**		No. of Filter Packs	PowerCore Filter Area		No. of Valves	Shipping Weight		Housing Rating ("wg)	Dimensions					
	cfm	m^3/h		ft^2	m^2		lb	kg		A		B*		C	
										in	mm	in	mm	in	mm
CPV-1	up to 700	up to 1189	1	63	5.9	3	120†	54.4†	-12	28.0	711.2	22.3	566.4	17.6	447.0
CPV-2	450 - 1,400	764 - 2,378	2	126	11.7	2	290	131.5	-20	26.8	680.7	37.2	944.9	47.7	1,211.6
CPV-3	700 - 2,000	1,189 - 3,397	3	189	17.6	3	375	170.1	-20	36.8	934.7	37.2	944.9	47.7	1,211.6
CPV-4	1,400 - 2,700	2,378 - 4,586	4	252	23.4	4	460	208.7	-20	46.8	1,188.7	37.2	944.9	47.7	1,211.6
CPV-6	2,100 - 4,100	3,567 - 6,964	6	378	35.1	6	715	324.3	-20	38.0	965.2	46.1	1,170.9	83.6	2,123.4
CPV-8	2,800 - 5,400	4,756 - 9,173	8	504	46.8	8	800	362.9	-20	48.0	1,219.2	46.1	1,170.9	83.6	2,123.4
CPV-12	4,200 - 8,200	7,134 - 13,929	12	756	70.2	12	1290	585.1	-20	70.0	1,778.0	46.1	1,170.9	83.6	2,123.4

* For opening access door, allow a minimum of 2.5" (63.5 mm) above unit for models 2, 3, 4, and a minimum of 20.5" (520.7 mm) for models 6, 8, 12.
** Based on clean filters.
† Shipping weight with integral fan is 160 lbs. (72.6 kg)

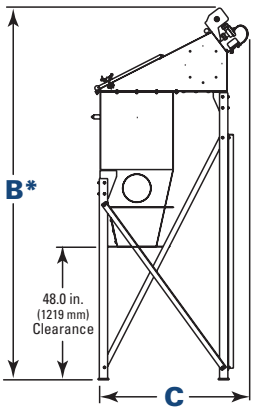
OPERATING CONDITIONS FOR CP SERIES COLLECTORS

Seismic Spectral Acceleration (at grade)	S_s +1.5 & S_1= 0.6	Compressed Air Required (psi/bar)	90-100/6.2-6.9
Wind Load Rating (mph/kph)	90/145	Operating Temperature	150°F/66 °C

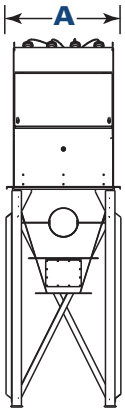
MODELS CPC-3 TO CPC-48



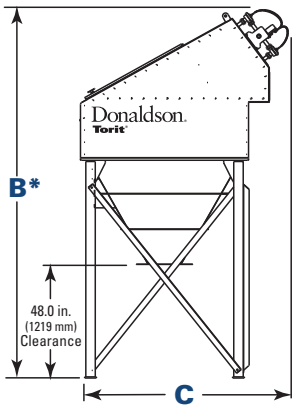
CPC-3, -4
Front View



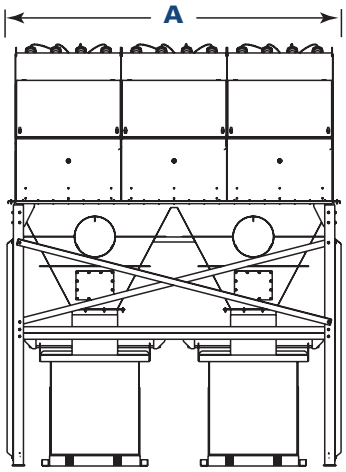
CPC-3, -4
Side View



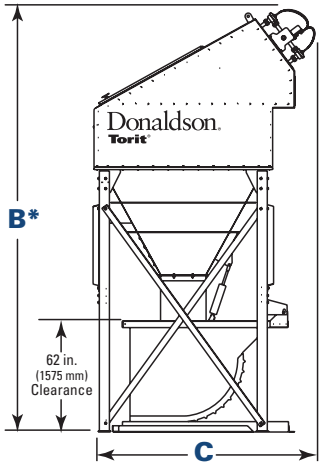
CPC-6, -8, -12, -16
Front View



CPC-6, -8, -12, -16
Side View



CPC-24 with optional dumpster hopper**
Front View



CPC-24 with optional dumpster hopper
Side View

Model	Nominal Airflow Range†		No. of Filter Packs	PowerCore Filter Area		No. of Valves	Shipping Weight		Housing Rating ("wg)	Dimensions					
										A		B*		C***	
	cfm	m^3/h		ft^2	m^2		lb	kg		in	mm	in	mm	in	mm
CPC-3	700 - 2,000	1,189 - 3,397	3	189	17.6	3	800	362.9	-20	36.8	934.7	118.4	3,007.4	55.5	1,409.7
CPC-4	1,400 - 2,700	2,378 - 4,586	4	252	23.4	4	1020	462.7	-20	46.8	1,188.7	134.2	3,408.7	55.5	1,409.7
CPC-6	2,100 - 4,100	3,567 - 6,964	6	378	35.1	6	1600	725.7	-20	38.6	980.4	154.2	3,916.7	85.0	2,159.0
CPC-8	2,800 - 5,400	4,756 - 9,173	8	504	46.8	8	1685	764.3	-20	48.5	1,231.9	154.2	3,916.7	85.0	2,159.0
CPC-12	4,200 - 8,200	7,134 - 13,929	12	756	70.2	12	2100	952.5	-20	70.0	1,778.0	154.2	3,916.7	85.0	2,159.0
CPC-16	5,600 - 11,000	9,512 - 18,685	16	1008	93.6	16	2915	1,322.2	-20	90.0	2,286.0	169.2	4,297.7	85.0	2,159.0
CPC-24	8,400 - 16,500	14,269 - 28,028	24	1512	140.5	24	3880	1,759.9	-20	132.0	3,352.8	152.2	3,865.9	85.0	2,159.0
CPC-32	11,200 - 22,000	19,025 - 37,370	32	2016	187.3	32	5310	2,408.6	-20	174.0	4,419.6	169.2	4,297.7	85.0	2,159.0
CPC-40	14,000 - 27,000	23,781 - 45,864	40	2520	234.1	40	6210	2,816.8	-20	216.0	5,486.4	154.7	3,929.4	85.0	2,159.0
CPC-48	16,800 - 33,000	28,537 - 56,055	48	3024	280.9	48	7760	3,519.9	-20	258.0	6,553.2	169.2	4,297.7	85.0	2,159.0

* For opening access door, allow a minimum of 2.5" (63.5 mm) above unit for models 3, 4, and a minimum of 20.5" (520.7 mm) for models 6, 8, 12, 16, 24, 32, 40, 48.

** CPC-24 through CPC-48 are available with optional pyramid hoppers, trough hoppers, or dumpster hoppers.

*** Standard hoppers. † Based on clean filters.

SMARTER PERFORMANCE ON MANY TYPES OF DUST

CPV-2 - Weigh belt feeder with limestone dust
800 cfm (1,359 m³/h)

CPC-24 - Paper tissue manufacturing
7,600 cfm (12,910 m³/h)

CPV-6 - Direct bin venting distributor head
2,400 cfm (4,077 m³/h)

CPV-2 - Day bin with porcelain dust
800 cfm (1,359 m³/h)

CPC-12 on Wood Dust at furniture manufacturer
7,000 cfm (11,891 m³/h)

CPV-12 - Cement silo bin vent conveyor
3,700 cfm (6,285 m³/h)

CPC-3 - Powdered milk dust in cheese factory
1,200 cfm (2,038 m³/h)

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STANDARD FEATURES & AVAILABLE OPTIONS

COLLECTOR DESIGN - POWERCORE CPC	STD	OPT
Mild Steel Construction	X	
Clean-Side Filter Pack Removal	X	
Tool-Free Filter Removal	X	
Hopper Access Panel	X	
Sprinkler Taps	X	
Mountable Fan Package (CPC-3 through CPC-24)		X
Stainless Steel Construction		X
FILTER PACKS		
PowerCore Ultra-Web® (MERV 13)	X	
PowerCore Ultra-Web® (MERV 15)		X
PowerCore Ultra-Web SB (Spunbond) (MERV 13)		X
PowerCore Ultra-Web AS (Anti-Static) (MERV 13)		X
PAINT SYSTEM		
Textured Multi-Coat Paint Finish with 2,000-Hour Salt Spray Performance	X	
Premium Duty Finish		X
Custom Colors, Materials, and Finishes		X
PYRAMID HOPPER DISCHARGE OPTIONS		
Pyramid Hopper	X	
Trough Hopper with High Inlet (CPC-16 through CPC-48)		X
Dumpster Hopper (CPC-16 through CPC-48)		X
HOPPER DISCHARGE		
Slide Gate Pack		X
55-Gallon (208.2-Liter) Drum Covers		X
Transitions for Rotary Valves		X
SUPPORT STRUCTURE †		
48" (1219.2 mm) Clearance Beneath Hopper	X	
Leg Extensions		X
ELECTRICAL CONTROLS, GAUGES & ENCLOSURES		
Control Box NEMA Type 4 with Timer	X	
Solenoid Enclosure NEMA Type 4	X	
Magnehelic®* Gauge	X	
Delta P Control NEMA Type 4 with Timer		X
Delta P Plus Control NEMA Type 4 with Timer		X
Delta P Control (no timer)		X
Solenoid Enclosure NEMA Type 9		X
Heated Solenoid Pack		X
Heavy Duty Cold Climate Kit		X
Photohelic®* Gauge		X
Custom Control Panels		X
Donaldson's Industrial Filtration Services		X
SAFETY FEATURES		
Explosion Vents		X
Sprinkler Pack		X
Electrical Grounding and Bonding		X
WARRANTY		
10-Year Warranty	X	

COLLECTOR DESIGN - POWERCORE CPV	STD	OPT
Mild Steel Construction	X	
Clean-Side Filter Pack Removal	X	
Tool-Free Filter Removal	X	
Mountable Fan Package		X
Outlet Weatherhood		X
Stainless Steel Construction		X
Vertical Orientation		X
FILTER PACKS		
PowerCore Ultra-Web® (MERV 13)	X	
PowerCore Ultra-Web® (MERV 15)		X
PowerCore Ultra-Web SB (Spunbond) (MERV 13)		X
PowerCore Ultra-Web AS (Anti-Static) (MERV 13)		X
PAINT SYSTEM		
Textured Multi-Coat Paint Finish with 2,000-Hour Salt Spray Performance	X	
Premium Duty Finish		X
Custom Colors, Materials, and Finishes		X
SAFETY FEATURES		
Electrical Grounding & Bonding		X
ELECTRICAL CONTROLS, GAUGES & ENCLOSURES		
Control Box NEMA Type 4 with Timer	X	
Solenoid Enclosure NEMA Type 4	X	
Magnehelic®* Gauge	X	
Delta P Control NEMA Type 4 with Timer		X
Delta P Plus Control NEMA Type 4 with Timer		X
Delta P Control (no timer)		X
Solenoid Enclosure NEMA Type 9		X
Heated Solenoid Pack		X
Heavy Duty Cold Climate Kit		X
Photohelic®* Gauge		X
Custom Control Panels		X
Donaldson's Industrial Filtration Services		X
WARRANTY		
10-Year Warranty	X	

* Magnehelic and Photohelic are registered trademarks of Dwyer Instruments, Inc.

† Donaldson Torit equipment is designed to IBC guidelines for specific wind speed exposure and seismic spectral acceleration at grade level. Contact your Donaldson Torit representative for detailed information available on the equipment's Spec Control drawings. Equipment may be customized to meet unique, customer-specified site requirements.

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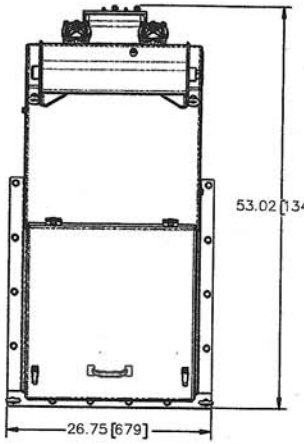
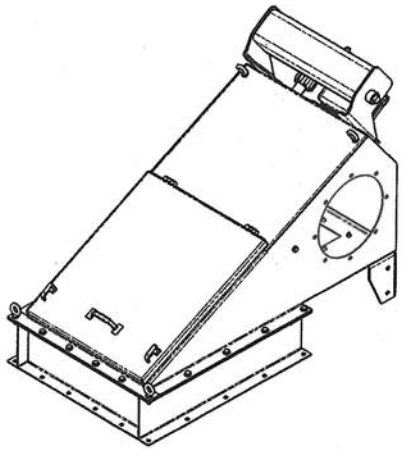
REVISIONS		
REV	DESCRIPTION	DWN/DATE
7	REVISE SPECIFICATIONS 202305129	BEK 4/28/2023

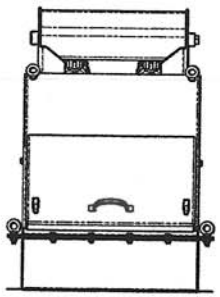


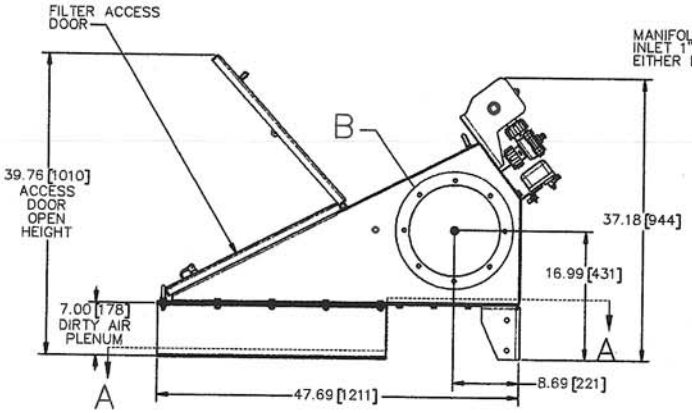


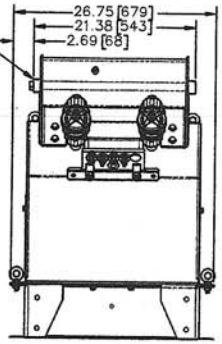
SPECIFICATIONS	CPV-2
NUMBER OF FILTERS	2
FILTER DIMENSIONS	7.56 X 22.38 X 7 HIGH [192 X 568 X 178]
NUMBER OF VALVES	2
COMPRESSED AIR REQUIRED	90-100 PSI [6-7 mmwg]
AIR CONSUMPTION	10 scfm [17M³/hr]
HOUSING RATING	-20" WG [508 mmwg]
OPERATING TEMP	150°F [66°C] MAX
FINISH	BLUE
APPROXIMATE WEIGHT	290 LBS

IBC 2021 SPECIFICATIONS:
RISK CATEGORY 2
BASIC WIND SPEED & EXPOSURE: 115 MPH, [185km/hr] EXPOSURE C, 3 SEC GUST
SEISMIC SPECTRAL ACCELERATION, Ss=1.5 & S1=0.6, SITE CLASS D
GROUND SNOW LOAD, Pg=40 PSF [195 Kg/M²]
ROOF LIVE LOAD, Lr: 20 PSF [98 Kg/M²]
COLLECTOR BASE AT GRADE

NOTE:
1. DO NOT INSTALL OR OPERATE THIS EQUIPMENT UNTIL YOU HAVE READ AND UNDERSTOOD THE INSTRUCTIONS AND WARNINGS IN THE INSTALLATION AND OPERATION MANUAL. FOR A REPLACEMENT MANUAL, CONTACT DONALDSON COMPANY INC. (800-365-1331).
2. WIRING DIAGRAMS: NEMA 4 & 9: 3EA AD3839201
3. CLEAN AIR OUTLET CAN BE LOCATED ON RIGHT SIDE, LEFT SIDE, OR BOTTOM OF UNIT.
4. DIMENSIONS ARE IN INCHES AND [MILLIMETERS].







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MATERIAL	RELEASE NO. ORA7031	TITLE DUST COLLECTOR CPV-2	Donaldson.
	DATE 3/4/2008		
	EXP DATE		
	DWN B KANNEL	NUMBER CPV AD3834301	
REFERENCE	DATE 10/24/2022		
	CHK C MCCUMBER		
	DATE 10/24/2022	SCALE NONE SHEET 1 OF 4 REVISION	
PREVIOUS DRAWING NO.	APVD J SWANSON	C/C SW/CADD 7	
DO NOT SCALE	DATE 10/24/2022	SECTIONAL SIZE OUTLINE SIZE	IAF
TOLERANCES UNLESS OTHERWISE SPECIFIED 2 PL ± 3 PL ± ANGLES ± °	THIRD ANGLE PROJECTION	DESIGN CONTROL A0014 DWG LOCATION A101 VERSION A	
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TORIT CPV-2

AD3834301_A_SECT.SLDDRW Tuesday, June 13, 2023 2:38:10 PM

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Donaldson Company, Inc. Emissions Statement for Industrial Dust Collectors with Ultra-Web® Filter Media

Donaldson Company, Inc. offers an extensive variety of dust collectors and filter media designs to the market to address the wide variety of dust control applications and project needs.

Because dust control projects sometimes demand unique collector selection or location strategies or may involve complex filter media performance considerations it is difficult to make general statements of emission performance. However, Donaldson generally expects total (filterable) particulate emissions from Continuous-Duty Cartridge Collectors using Donaldson Ultra-Web filter media to be capable of achieving average emission levels of no more than 0.002 grains per dry standard cubic foot. This level of performance expectation excludes any contributions to emissions from condensable materials (*which will pass through filter media in a vapor state*), and it assumes filters are installed properly and are operated and maintained in accordance with industry best practice and in accordance with the manufacturer's Installation, Operation, and Maintenance manuals for the collector.

Factors which may contribute to unexpected collector emissions include: misuse, accident, abuse, modification, improper installation or operation, inadequate maintenance, and operation beyond recommended selection/sizing guidance or useful life. Emissions may also occur as a result of damage to collectors or filters due to accidents, fires, corrosion, abrasion, or other physical abuse.

Emission performance is also influenced by the style or size of collector selected, by the selection of filter media, and by choices in accessories or features for collectors.

Important Notice: Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the Donaldson products to determine whether the product is fit for the particular purpose and suitable for the user's application. This Emissions Statement shall not be construed as or relied upon as a health and safety statement. Donaldson does not require or recommend exhausting emissions into the indoor environment without consultation with a qualified professional to evaluate and address all attendant health and safety risks. It shall be the end user's continued and sole responsibility to provide a safe and healthful environment for its employees.

Donaldson's terms and conditions of sale, as stated in our current quotation, contain the sole obligation and exclusive remedy for any issues that arise regarding information that Donaldson provides in this statement.

8.0 Emission Calculations

The emission calculation spreadsheets are provided on the following pages.

Melting & Refining Emissions

Scrap Preheating Sitewide Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	PM	PM10	PM2.5
										Control Efficiency (not used in calculations)			Emissions Factor[1] (lb/ton metal)		
EQUI1	EU001	Scrap Preheat Oven 1	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147
EQUI2	EU002	Scrap Preheat Oven 2	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147
COMG1	GP001	Melting													

1 Emission factors based on 2023 Stack Test. Emissions controlled during test; therefore, control efficiency is not used in calculation

2 Combined annual emissions for EQUI1 and EQUI2 are capped based on the combined sitewide annual melt limit.

Limited emissions based on bottleneck from combined furnace capacity

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Metal Melting

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	Lead	PM	PM10
										Control Efficiency (TREA XXX)				Emission Facto	
EQUI3	EU003	Electric Induction Furnace 1	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
EQUI4	EU004	Electric Induction Furnace 2	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
EQUI5	EU005	Electric Induction Furnace 3	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
COMG1	GP001	Melting													

1 Emission factor from AP-42, Table 12.10-3. Because of the high temperatures involved, assumed high fraction of condensibles, assumed all PM = PM10 = PM2.5

2 CERP Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico (1999), Table 5.16 - Lead (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

3 Combined annual emissions for EQUI3-5 are capped based on the combined sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Inoculation

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	Lead	PM	PM10
										Control Efficiency (TREA XXX)				Emission Facto	
EQUI39	EU028	Inoculation	12.5	ton/hr	4.5	ton/hr	12,750	100%	TREA47	99%	93%	93%	93%	0.4	0.4

1 Emission factor from AP-42, Table 12.10-7. Assumed all PM = PM10 = PM2.5. The Emitted to Atmosphere factor is used because it emissions are released into a building, where the enclosure limits emissions, before being routed to the control device. Therefore, it is appropriate to consider reductions due to both (1) fallout of material and (2) control efficiency.

Note 1: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). Individual HAPs were not identified in this document so a lead emission factor calculated as follows:

(Total HAP emission factor)x(%PB of MHAPtotal). The %PB of MHAPtotal of 26.2% was obtained from CERP Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf).

Annual throughput assumes 85% of melted metal is inoculated for actual emission calculations.

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*						Limited *(hourly @ bottlenecked capacity; annual @ sitewide melt limit)*						Actual *(projected throughput)*		
PM		PM10		PM2.5		PM		PM10		PM2.5		PM	PM10	PM2.5
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
							0.1985		0.2538		0.1985			

		Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*							
PM2.5	Lead[2]	PM		PM10		PM2.5		Lead		PM		PM10		PM2.5		Lead	
r[1] (lb/ton metal)		Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)
0.9	0.00558	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026
0.9	0.00558	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026
0.9	0.00558	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026
											0.0591		0.4139		0.4139		0.0026

		Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*							
PM2.5	Lead[2]	PM		PM10		PM2.5		Lead		PM		PM10		PM2.5		Lead	
r[1] (lb/ton metal)		Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.4	0.0130869	5.00	21.90	5.00	21.90	5.00	21.90	0.1636	0.7165	0.0180	0.0540	0.1260	0.3780	0.1260	0.3780	0.0041	0.0124

Actual *(projected throughput)*			
PM	PM10	PM2.5	Lead
Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0225	0.1575	0.1575	0.0010
0.0225	0.1575	0.1575	0.0010
0.0225	0.1575	0.1575	0.0010

Actual			
PM	PM10	PM2.5	Lead
Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0255	0.1785	0.1785	0.0058

Pouring & Cooling Emissions

Pouring & Cooling Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	Lead	PM	PM10	PM2.5	Lead
										Control Efficiency				Emission Factor[1] (lb/ton metal)			
EQUI12	EU015	DISA Line Pouring & Cooling	5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	93%	0.4234	0.5267	0.3857	0.00134
EQUI13	EU016	30^2 Line Pouring & Cooling	10	ton/hr	4.5	ton/hr	7,500	100%	TREA46	99%	93%	93%	93%	0.4234	0.5267	0.3857	0.00134
COMG3	GP003	Pouring/Cooling															

1 Emission factors based on 2023 Stack Test

Annual tput assumes 15,000 tons metal melted per year for actual emission calculations.

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*								Actual *(projected throughput)*			
PM		PM10		PM2.5		Lead		PM		PM10		PM2.5		Lead		PM	PM10	PM2.5	Lead
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
2.1170	9.2725	2.6335	11.5347	1.9285	8.4468	0.0067	0.0293	0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0004	0.0013	0.0159	0.1383	0.1012	0.0004
4.2340	18.5449	5.2670	23.0695	3.8570	16.8937	0.0134	0.0585	0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0004	0.0013	0.0159	0.1383	0.1012	0.0004

Metal Finishing Emissions

Shot Blast Booths Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Shot Capacity (shot TPUT)		Bottlenecked Shot Capacity		Site Rated Metal Melt Capacity		Annual TPUT - Shot (ton/yr)[4]	Annual TPUT - Metal (ton/yr)[4]	Capture (%)	Primary Control ID Number	Primary Control E PM	Primary Control E PM10
EQUI58	EU020	BCT Drumblast Machine	64,000	lb/hr	64,000	lb/hr	4.5	ton/hr	64,000	5,000	100%	TREA37/21	99.97%	99.97%
EQUI16	EU021	Tableblast	32,000	lb/hr	32,000	lb/hr	4.5	ton/hr	32,000	5,000	100%	TREA29/19	99.97%	99.97%
EQUI51	na	Tumblemill	200	lb/hr	200	lb/hr	4.5	ton/hr	200	5,000	100%	TREA29/19	99.97%	99.97%

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 5,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1999, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to lead emissions.

5 Limited annual lead emissions are limited to the sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

Finishing Operations

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual TPUT - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control PM	Primary Control PM10	Primary Control PM2.5	Primary Control Lead	Secondary Control ID Number
										Control Efficiency				
EQUI17	EU029	South Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA40/39	99.97%	99.97%	99.97%	99.97%	TREA47
EQUI18	EU030	East Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47
EQUI20	EU032	West Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47
EQUI23	EU035	Double Belt Sander	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI117	EU035	NE Finishing Grinder	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI24	EU036	SW Bench Grinder	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI28	EU040	NE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI29	EU041	SE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI100	n.a	SW Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48
EQUI30	EU042	North Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA41/42	99.97%	99.97%	99.97%	99.97%	TREA47
EQUI41	n.a	Snag Grinder 2	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47
EQUI42	n.a	Snag Grinder 3	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47
COMG5	GP005	Grinding/Cutting Operations												

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)] The document is included as an attachment to these calculations. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to lead emissions.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

		Secondary Control									Potential *(hourly @ rated capacity; annual = ma*				
PM2.5	Lead	Secondary Control ID Number	PM	PM10	PM2.5	Lead	PM	PM10	PM2.5[3]	Lead[4]	PM		PM10		PM
Efficiency			Control Efficiency				Emission Factor[2] (lb/lb - PM/10/2.5; lb/ton metal - Lead)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)
99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	256	1,121.28	217.60	953.09	108.80
99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	128	560.64	108.80	476.54	54.40
99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	0.8	3.50	0.68	2.98	0.34

Secondary Control								Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*							
PM	PM10	PM2.5	Lead	PM	PM10	PM2.5	Lead[2]	PM		PM10		PM2.5		Lead	
Control Efficiency				Emission Factor[1] (lb/ton metal)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.6	7.01	0.16	0.7008	0.16	0.7008	0.0003	0.0013
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.8	0.16	0.08	0.3504	0.08	0.04	0.0002	0.0007
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013

ax hourly X 8,760 hr/yr)			Limited *(hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)*								Actual *(projected throughput)*			
2.5	Lead		PM		PM10		PM2.5		Lead		PM	PM10	PM2.5	Lead
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
476.54	0.0032	0.0138	7.68E-04	3.36E-03	4.57E-03	2.00E-02	2.28E-03	1.00E-02	9.45E-07	2.83E-06	3.84E-07	2.28E-06	1.14E-06	5.25E-07
238.27	0.0032	0.0138	3.84E-04	1.68E-03	2.28E-03	1.00E-02	1.14E-03	5.00E-03	9.45E-07	2.83E-06	1.92E-07	1.14E-06	5.71E-07	5.25E-07
1.49	0.0032	0.0138	2.40E-06	1.05E-05	1.43E-05	6.25E-05	7.14E-06	3.13E-05	9.45E-07	2.83E-06	1.20E-09	7.14E-09	3.57E-09	5.25E-07

Limited *(hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)*								Actual *(projected throughput)*			
PM		PM10		PM2.5		Lead		PM	PM10	PM2.5	Lead
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	0.0020	0.0014	0.0014	2.63E-06
0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	0.0020	0.0014	0.0014	2.63E-06
0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	0.0020	0.0014	0.0014	2.63E-06
0.0008	0.0035	0.0006	0.0025	0.0006	0.0025	1.05E-06	4.60E-06	0.0020	0.0014	0.0014	2.63E-06
0.0008	0.0035	0.0006	0.0025	0.0006	0.0025	1.05E-06	4.60E-06	0.0020	0.0014	0.0014	2.63E-06
0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	0.0020	0.0014	0.0014	2.63E-06
0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	0.0020	0.0014	0.0014	2.63E-06
0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	0.0020	0.0014	0.0014	2.63E-06
0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	0.0020	0.0014	0.0014	2.63E-06
0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	0.0020	0.0014	0.0014	2.63E-06
0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	0.0020	0.0014	0.0014	2.63E-06
0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	0.0020	0.0014	0.0014	2.63E-06

Machine Shop

Double Disc Sander and Shot Blast Machine

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control: PM Control Efficiency	Primary Control: PM10 Control Efficiency	Primary Control: PM2.5 Control Efficiency	Primary Control: Lead Control Efficiency	Secondary Control ID Number
EQUI118	n.a	Machine Shop Double Disc Sander	0.1	ton/hr	0.1	ton/hr	876	80%	TREA45	99.97%	99.97%	99.97%	99.97%	TREA48

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)]. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to lead emissions. These grinding and shot blast emissoins factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus primary control is included.

Shot Blast Booths

EQUI	EU	Unit Desc	Rated Capacity (shot TPUT)		Bottlenecked Capacity		Site Rated Metal Melt Capacity		Annual Throughput - Shot[1] (ton/yr)	Annual Throughput - Metal[1] (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control: PM Control E	Primary Control: PM10 Control E
EQUI119	n.a	Machine Shop Blast Machine	40	lb/hr	40	lb/hr	4.5	ton/hr	40	1,500	100%	TREA44	99.97%	99.97%

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 10% of 15,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1999, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calculations conservatively assume that total HAP emissions are equal to lead emissions. These grinding and shot blast emissoins factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus reductions due to the primary control are included.

Secondary Control								Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*							
PM	PM10	PM2.5	Lead	PM	PM10	PM2.5	Lead[2]	PM		PM10		PM2.5		Lead	
Control Efficiency				Emission Factor[1] (lb/ton metal)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.160	0.701	0.016	0.070	0.016	0.070	3.00E-05	1.31E-04

l						Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(bottl*	
PM2.5	Lead	PM	PM10	PM2.5[3]	Lead[4]	PM		PM10		PM2.5		Lead		PM	
:fficiency		Emission Factor[2] (lb/lb - PM/10/2.5; lb/ton metal - Lead)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
99.97%	99.97%	0.004	0.0034	0.0017	0.0007	0.160	0.701	0.136	0.596	0.068	0.298	3.15E-03	1.38E-02	4.80E-05	2.10E-04

Limited *(captured portion to 1st + 2nd controls, uncaptured to 2nd control only)*								Actual *(same as Limited)*			
PM		PM10		PM2.5		Lead		PM	PM10	PM2.5	Lead
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
3.20E-04	1.40E-03	2.24E-04	9.82E-04	2.24E-04	9.82E-04	4.21E-07	1.84E-06	1.40E-03	9.82E-04	9.82E-04	1.84E-06

enecked capacity to control; annual = max hourly X 8,760 hr/yr)						Actual *(projected throughput shot/metal)*			
PM10		PM2.5		Lead		PM	PM10	PM2.5	Lead
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
4.08E-05	1.79E-04	2.04E-05	8.94E-05	9.45E-07	2.83E-06	2.40E-08	2.04E-08	1.02E-08	1.57E-07

Shakeout Emissions

Shakeout Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control PM	Primary Control PM10	Primary Control PM2.5	Primary Control Lead	Secondary Control ID Number	Secondary Control PM	Secondary Control PM10	Secondary Control PM2.5	Secondary Control Lead
										Primary Control Control Efficiency					Secondary Control Control Efficiency			
DISA Line																		
EQUI80	EU017	DISA #1 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%
EQUI81	EU017	DISA #2 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI82	EU017	DISA #3 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI83	EU017	DISA Didion	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI84	EU017	DISA #5 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%
30^2 Line																		
EQUI63	EU018	30^2 Unit 10	10	ton/hr	4.5	ton/hr	9,000	80%	TREA23	99%	95%	95%	95%	TREA46	99%	93%	93%	93%
EQUI65	EU018	30^2 Unit 11	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%
EQUI66	EU018	30^2 Unit 12	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%
COMG4	GP004	Shakeout																

1 Emissions factor source: AP42 table 12.10-7. Emissions factor is for shakeout process as a whole so factor divided be number of components in process (DISA-5; 30^2-3)

2 PM10 and PM2.5 factors based on Shakeout EF multiplied by AP 42 table 12.10-8 shakeout cumulative mass % of total PM (PM10:70%; PM2.5:42%)

3 CERP Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico (1999), Table 6.1 - Lead (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

DISA Line captured emissions controlled by TREA2. Uncaptured emissions controlled by TREA47

30^2 Line captured emissions controlled by TREA23. Uncaptured emissions controlled by TREA46

				Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(captured to both controls, uncaptured to 2nd only; annual by sitewide limit)*							
PM	PM10[2]	PM2.5[2]	Lead[3]	PM		PM10		PM2.5		Lead		PM		PM10		PM2.5		Lead	
Emission Factor[1] (lb/ton metal)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.640	0.448	0.269	7.29E-05	3.200	14.016	2.240	9.811	1.344	5.887	3.65E-04	1.60E-03	0.029	0.086	0.141	0.423	0.085	0.254	2.30E-05	6.89E-05
0.640	0.448	0.269	7.29E-05	3.200	14.016	2.240	9.811	1.344	5.887	3.65E-04	1.60E-03	0.029	0.086	0.109	0.327	0.065	0.196	5.51E-06	5.31E-05
0.640	0.448	0.269	7.29E-05	3.200	14.016	2.240	9.811	1.344	5.887	3.65E-04	1.60E-03	0.029	0.086	0.109	0.327	0.065	0.196	5.51E-06	5.31E-05
0.640	0.448	0.269	7.29E-05	3.200	14.016	2.240	9.811	1.344	5.887	3.65E-04	1.60E-03	0.029	0.086	0.109	0.327	0.065	0.196	5.51E-06	5.31E-05
0.640	0.448	0.269	7.29E-05	3.200	14.016	2.240	9.811	1.344	5.887	3.65E-04	1.60E-03	0.029	0.086	0.141	0.423	0.085	0.254	2.30E-05	6.89E-05
1.067	0.747	0.448	7.29E-05	10.667	46.720	7.467	32.704	4.480	19.622	7.29E-04	3.19E-03	0.048	0.144	0.181	0.544	0.109	0.327	5.51E-06	5.31E-05
1.067	0.747	0.448	7.29E-05	10.667	46.720	7.467	32.704	4.480	19.622	7.29E-04	3.19E-03	0.048	0.144	0.235	0.706	0.141	0.423	2.30E-05	6.89E-05
1.067	0.747	0.448	7.29E-05	10.667	46.720	7.467	32.704	4.480	19.622	7.29E-04	3.19E-03	0.048	0.144	0.235	0.706	0.141	0.423	2.30E-05	6.89E-05

Actual *(same as Limited)*			
PM	PM10	PM2.5	Lead
Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.017	0.085	0.051	1.38E-05
0.017	0.065	0.039	1.06E-05
0.017	0.065	0.039	1.06E-05
0.017	0.065	0.039	1.06E-05
0.017	0.085	0.051	1.38E-05
0.048	0.181	0.109	1.77E-05
0.048	0.235	0.141	2.30E-05
0.048	0.235	0.141	2.30E-05

Nobake Cores

Emissions from the Nobake Core making come from mixing sand and resin together. Emission factors are from AP-42. Binder mixing emission factors are calculated from "Form R Reporting of binder chemicals used in Foundries" and SDS of binders used. Calculations are made using the conservative assumption that 2.0% of the core mix is binder.
VOCs, individual HAPs, and total HAPs are limited under COMG7. Sand throughputs are restricted by COMG2.
EQUI52 and EQUI53 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	VOC	PM^2	PM10	$PM2.5^2$	VOC
										Control Efficiency				Emission Factor[1] (lb/ton sand)			
EQUI52	EU010	Disco Core Machine	0.5	tons/hr	0.5	ton/hr	1,000	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.008
EQUI53	EU010	ABC6 Core Machine	0.4125	tons/hr	0.4125	ton/hr	825	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.008
COMG7	GP007	Primary VOC/HAP Sources															

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Note 1: Binder Emissions

The following tables are taken from "Form R Reporting of Binder Chemicals Used in Foundries" Fourth Edition, available online at https://afsinc.s3.amazonaws.com/Documents/EHS/airquality/1.5%20-%20AFS_CISA%20Guidance.pdf.
Worst case pollutant rates calculated following instructions provided in "Form R Reporting of Binder Chemicals Used in Foundries" and the SDS for binders used at Northern Iron and Machine.

Furan Nobake Binder					
Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Resin					
Phenol (108-95-2)	98	0	2	0	0
Formaldehyde (50-00-0)	98	2	0	1	0.0002
Methyl Alcohol (67-56-1)	0	50	50	3	0.015
Catalyst					
Methyl Alcohol (67-56-1)	0	50	50	0	0
Sulfuric Acid (8774-93-9)	100	0	0	3	0

Phenolic Urethane Nobake Binder					
Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Phenol (108-95-2)	98	0	2	10	0
Formaldehyde (50-00-0)	98	2	0	0.1	2.00E-03
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethyl Benzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0
Part II					
Methylene Phenylene Isocyante(1)	99.99	0	0.01	0	0
Polymeric diphenylmethane	99.99	0	0.01	50	0
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethylbenzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(bottlenecked capacity to control; annual = max hourly X 8,760 hr/yr)*								Actual *(projected throughput)*			
PM		PM10		PM2.5		VOC		PM		PM10		PM2.5		VOC		PM	PM10	PM2.5	VOC
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.318	1.391	0.270	1.183	0.095	0.417	0.004	0.018	0.003	0.014	0.019	0.083	0.007	0.029	0.004	0.018	0.003	0.019	0.007	0.004
0.262	1.148	0.223	0.976	0.079	0.344	0.003	0.015	0.003	0.011	0.016	0.068	0.006	0.024	0.003	0.015	0.003	0.016	0.006	0.003

Phenolic Urethane Coldbox Binder					
Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Formaldehyde (50-00-0)	98	2	0	0	0
Phenol (108-95-2)	98	0	2	5	0
Xylene (1330-20-7)	0	3.25	96.75	0	0
Cumene (98-82-8)	0	3.25	96.75	0	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
1,2,4 Trimethylbenzene (95-63-6)	0	3.25	96.75	0	0
Part II					
Methylene Phenylene Isocyanate (101-	99.99	0	0.01	0	0
Polymeric Diphenylmethane	99.99	0	0.01	10	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
Xylene (1330-20-7)	0	3.25	96.75	0	0
Biphenyl (95-52-4)	0	3.25	96.75	0	0

Comparison of Core Binders					
Binder content in core mix	0.02				
Material	lb/lb Furan Nobake binder used	lb/lb Phenolic Urethane Nobake Binder	lb/ lb Phenolic Urethane Coldbox Binder	worst case lb/lb binder	Worst case lb/ton core mix
Phenol	0	0	0	0	0
Formaldehyde	2.00E-04	0.002	0	2.00E-03	8.00E-04
Methyl Alcohol	1.50E-02	0	0	1.50E-02	6.00E-03
Naphthalene	0	3.51E-03	1.95E-03	3.51E-03	1.40E-03
1,2,4 Trimethyl Benzene	0	0	0	0	0
Cumene	0	0	0	0	0
Xylene	0	0	0	0	0
Methylene Phenylene Isocyante	0	0	0	0	0
Polymeric diphenylmethane	0	0	0	0	0
Biphenyl	0	0	0	0	0

Worst case pollutant rates calculated from tables in "Form R Reporting of Binder Chemicals used in Foundries" and the SDS for binders used at Northern Iron and Machine. Per Northern Iron and Machine, max amount of binder in cores is 2.75%.

Shell Cores

Higher tensile strength cores use premixed sand/resin and are heat treated during the curing process. Emissions from this operation are from sand handling and combustion. Combustion emissions for these units are included in summary page. Sand throughput is limited under COMG2

EQUI54, EQUI55, and EQUI56 are controlled by HEPA filters exhausting internally and ultimately to STRU12

									Primary Control			Secondary Control					
EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	PM	PM10	PM2.5	PM	PM10	PM2.5	PM^2	PM10	$PM2.5^2$
									Control Efficiency			Control Efficiency			Emission Factor[1] (lb/ton sand)		
EQUI55	EU013	East CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191
EQUI54	EU013	West CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191
EQUI56	EU013	CR-22	1.1	tons/hr	1.1	tons/hr	2,200	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Core Wash

Cores sent to tunnel oven go through a core wash. Core wash density and rate provided by Northern Iron. VOC emissions are limited under COMG7. Operations are uncontrolled.

					Potential		Limited		Actual
					VOC				
EQUI	EU	Unit Desc	Capacity	Annual Throughput	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
EQUI11	EU014	Core Wash	15 gal/day	757.143 gal/yr	3.50	15.33	3.50	15.33	2.12

Core Wash capacity, max rate, and wash density provided by Northern Iron

Capacity:	15 gallons
Rate:	1 Container per day
Wash density:	5.6 lb/gal
Emission factor:	1 lb VOC emitted/lb VOC used
	5.6 lb VOC/gallon

Potential *(hourly @ rated capacity; annual = hourly X 8,760 hr/yr)*						Limited *(captured to both controls, uncaptured to 2nd only)*						Actual *(projected throughput)*		
PM		PM10		PM2.5		PM		PM10		PM2.5		PM	PM10	PM2.5
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.210	0.918	0.178	0.781	0.063	0.275	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	4.20E-04	2.50E-03	8.82E-04
0.210	0.918	0.178	0.781	0.063	0.275	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	4.20E-04	2.50E-03	8.82E-04
0.699	3.061	0.594	2.602	0.210	0.918	1.40E-03	6.13E-03	8.33E-03	3.65E-02	2.94E-03	1.29E-02	1.40E-03	8.33E-03	2.94E-03

Sand Handling Emissions

Sand handling is composed of the DISA and 30^2 mold lines. Mold and core sand is reclaimed during the mold making process and shakeout. Reclaimed sand is stored in the muller tank to be used again in new molds. Both lines and the core making operations are limited to a single sand throughput limit at COMG2. PTE for COMG2 is the line with the highest emissions operating at the sand handling limit.

Shakeout Annual 30^2 Line Sand Limit: 270,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Sand (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control PM Control Efficiency	Primary Control PM10 Control Efficiency	Primary Control PM2.5 Control Efficiency	Secondary Control ID Number	Secondary Control PM Control Efficiency	Secondary Control PM10 Control Efficiency	Secondary Control PM2.5 Control Efficiency	PM Emission Factor[1] (lb/ton sand)	PM10[2] Emission Factor[1] (lb/ton sand)	PM2.5[2] Emission Factor[1] (lb/ton sand)
DISA Line																			
EQUI96	EU008	DISA Bond Day Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI72	EU008	DISA Line Muller	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191
EQUI73	EU008	DISA Muller Discharge Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI74	EU008	DISA Muller Distribution Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI95	EU008	DISA Prepared Sand Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI75	EU008	DISA Feed Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI102	EU008	DISA Aerator	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI97	EU008	DISA Mold Machine	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI78	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI105	EU008	DISA Bond Transport	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI110	EU008	DISA Outdoor Bond Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI79	EU008	DISA Cross Spill	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI76	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI77	EU008	DISA Spill Pan	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI85	EU008	DISA Mag Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI86	EU008	DISA Return Sand Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI87	EU008	DISA 125 Ton Sand Bin	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI88	EU008	DISA 125 Ton Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI89	EU008	DISA New/Old Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI90	EU008	DISA New/Old Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI91	EU008	DISA Muller Storage Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI115	EU008	DISA Hopper	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
30^2 Line																			
EQUI104	EU009	30^2 Muller	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191
EQUI92	EU009	30^2 Discharge Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI94	EU009	30^2 Distribution belt conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI98	EU009	30^2 Mold Making	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI93	EU009	30^2 Cross Belt Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI60	EU009	30^2 Machine Belt Sand	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI109	EU009	30^2 Prepared Sand Tank	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI61	EU009	30^2 Sprue Belt	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI62	EU009	30^2 Machine Incline	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI64	EU009	30^2 Mag Belt	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI69	EU009	30^2 Incline to Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI70	EU009	30^2 Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI68	EU009	30^2 Aerator	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI71	EU009	30^2 Sand Cooler	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	2.00E+00	1.58E+00	9.00E-01
EQUI67	EU009	30^2 Return Sand Elevator	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI106	EU009	30^2 Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI107	EU009	30^2 Bond Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI108	EU009	30^2 Sand Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI116	EU009	30^2 Bond Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI103	EU009	30^2 Return Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03

Potential *(hourly @ rated capacity; annual = hourly X 8,760 hr/yr)*						Limited *(bottlenecked capacity to control; annual = hourly X 8,760 hr/yr)*						Actual *(projected throughput)*		
PM		PM10		PM2.5		PM		PM10		PM2.5		PM	PM10	PM2.5
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
16.518	72.347	14.040	61.495	4.955	21.704	0.165	0.858	0.702	1.286	0.248	1.085	0.0683	0.2903	0.1024
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.008	0.036	0.003	0.013	7.92E-04	0.0034	0.0012
0.192	0.839	0.163	0.713	0.057	0.252	0.192	0.839	0.163	0.713	0.057	0.252	7.92E-02	0.0673	0.0238
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
28.588	125.216	24.300	106.434	8.576	37.565	0.286	0.858	1.215	3.645	0.429	1.878	0.1350	0.5738	0.2025
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
90.000	394.200	71.100	311.418	40.500	177.390	0.900	2.700	3.555	10.665	2.025	8.870	0.4250	1.6788	0.9563
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023

		Core Making																	
EQUI111	EU010	ABC6 Sand Tank	0.5	ton/hr	0.5	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI112	EU010	Disco Sand Tank	0.4125	ton/hr	0.4125	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI113	EU010	Sand Loading (CR16 and CR22)	1.76	ton/hr	1.76	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03
COMG2	GP002	Sand Handling																	

1 Emissions factor for sand handling is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by the MPCA. See supporting documentation in the Sand Handling EF tab. Muller factor: AP42, Tbl. 12.13-2. Sand Cooler factor: AP42, Tbl. 11.19.1-1. The Mueller and Sand Cooler Factors are reported as PM10 and have been divided by the EPA PM Augmentation too value of 85% to determine the PM emission factor. The PM2.5 emission factor for the Muller and Sand Cooler is calculated as 30% of the PM emission factor (based on data in the EPA PM Augmentation tool)

2 PM10 and PM2.5 calculated based on the PM Augmentation for the respective SCC. The PM Augmentation Calculator Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

DISA Line EQUI 72, 85, 86, 87, 88, 89, 90, 105 and 115 are controlled by TREA 2. Fugitives from these operations are contained within the building and routed to dust collector TREA47

30^2 Line EQUI 108, 107, 106, 104, 103, 71 ,67, 64 are controlled by TREA 23. Fugitives from these operations are contained within the building and routed to dust collectors TREA46 and TREA47

Core Making EQUI 111, 112, 113 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47

0.004	0.016	0.003	0.014	0.001	0.005	3.68E-05	9.95E-03	2.19E-04	5.92E-02	7.74E-05	3.39E-04	8.44E-06	5.02E-05	1.77E-05
0.003	0.013	0.003	0.011	0.001	0.004	3.04E-05	9.95E-03	1.81E-04	5.92E-02	6.38E-05	2.80E-04	8.44E-06	5.02E-05	1.77E-05
0.013	0.057	0.011	0.048	0.004	0.017	1.30E-04	9.95E-03	7.72E-04	5.92E-02	2.72E-04	1.19E-03	8.44E-06	5.02E-05	1.77E-05

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	PM		PM10		PM2.5		Lead		NO
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
EQUI1	EU001	Scrap Preheat Oven 1	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565
EQUI2	EU002	Scrap Preheat Oven 2	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565
EQUI9	EU012	Core Tunnel Oven	0.8	0.006	0.027	0.006	0.027	0.006	0.027	3.92E-07	1.72E-06	0.113
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042
EQUI56	EU013	CR-22	0.9	0.007	0.030	0.007	0.030	0.007	0.030	4.41E-07	1.93E-06	0.127
EQUI36	EU025	Large Heat Treat Oven	1.6	0.012	0.053	0.012	0.053	0.012	0.053	7.84E-07	3.44E-06	0.226
EQUI37	EU026	Small Heat Treat Oven	4	0.030	0.133	0.030	0.133	0.030	0.133	1.96E-06	8.59E-06	0.565
EQUI46	na	East MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855
EQUI47	na	West MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855
EQUI48	na	North MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466
EQUI49	na	South MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466
EQUI114	na	Furnace Basement MUA	0.3591	0.003	0.012	0.003	0.012	0.003	0.012	1.76E-07	7.71E-07	0.051
EQUI50	na	Finishing MUA	2.25	0.017	0.075	0.017	0.075	0.017	0.075	1.10E-06	4.83E-06	0.318
EQUI120	na	Machine Shop MUA	1.1	0.008	0.037	0.008	0.037	0.008	0.037	5.39E-07	2.36E-06	0.155

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Limited *(hourly @ rated capacity with controls; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	Control ID Number	Control Efficiency				PM		PM10	
					PM	PM10	PM2.5	Lead	lb/hr	tpy	lb/hr	tpy
EQUI1	EU001	Scrap Preheat Oven 1	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EQUI2	EU002	Scrap Preheat Oven 2	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EQUI9	EU012	Core Tunnel Oven	0.8	TREA47	99%	93%	93%	93%	6.09E-05	2.67E-04	4.26E-04	1.87E-03
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04
EQUI56	EU013	CR-22	0.9	TREA2	99%	93%	93%	93%	6.85E-05	3.00E-04	4.79E-04	2.10E-03
EQUI36	EU025	Large Heat Treat Oven	1.6	TREA48	99%	93%	93%	93%	1.22E-04	5.33E-04	8.52E-04	3.73E-03
EQUI37	EU026	Small Heat Treat Oven	4	TREA48	99%	93%	93%	93%	3.04E-04	1.33E-03	2.13E-03	9.33E-03
EQUI46	na	East MUA	6.05	TREA47	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02
EQUI47	na	West MUA	6.05	TREA46	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02
EQUI48	na	North MUA	3.3	TREA46	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03
EQUI49	na	South MUA	3.3	TREA47	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03
EQUI114	na	Furnace Basement MUA	0.3591	TREA47	99%	93%	93%	93%	2.73E-05	1.20E-04	1.91E-04	8.38E-04
EQUI50	na	Finishing MUA	2.25	TREA48	99%	93%	93%	93%	1.71E-04	7.50E-04	1.20E-03	5.25E-03
EQUI120	na	Machine Shop MUA	1.1	TREA48	99%	93%	93%	93%	8.37E-05	3.67E-04	5.86E-04	2.57E-03

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Actuals conservatively assumed as equal to limited TPY

Ox	CO		SO2		VOC	
tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
0.495	0.066	0.289	4.71E-04	2.06E-03	0.009	0.038
0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
0.557	0.074	0.325	5.29E-04	2.32E-03	0.010	0.043
0.990	0.132	0.577	9.41E-04	4.12E-03	0.017	0.076
2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
0.222	0.030	0.130	2.11E-04	9.25E-04	0.004	0.017
1.393	0.185	0.812	1.32E-03	5.80E-03	0.024	0.107
0.681	0.091	0.397	6.47E-04	2.83E-03	0.012	0.052

PM2.5		Lead		NOx		CO		SO2		VOC	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
0.00E+00	0.00E+00	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
0.00E+00	0.00E+00	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
4.26E-04	1.87E-03	2.75E-08	1.20E-07	0.113	0.495	0.066	0.289	4.71E-04	2.06E-03	0.009	0.038
1.60E-04	7.00E-04	1.03E-08	4.51E-08	0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
1.60E-04	7.00E-04	1.03E-08	4.51E-08	0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
4.79E-04	2.10E-03	3.09E-08	1.35E-07	0.127	0.557	0.074	0.325	5.29E-04	2.32E-03	0.010	0.043
8.52E-04	3.73E-03	5.49E-08	2.40E-07	0.226	0.990	0.132	0.577	9.41E-04	4.12E-03	0.017	0.076
2.13E-03	9.33E-03	1.37E-07	6.01E-07	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
3.22E-03	1.41E-02	2.08E-07	9.09E-07	0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
3.22E-03	1.41E-02	2.08E-07	9.09E-07	0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
1.76E-03	7.70E-03	1.13E-07	4.96E-07	0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
1.76E-03	7.70E-03	1.13E-07	4.96E-07	0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
1.91E-04	8.38E-04	1.23E-08	5.40E-08	0.051	0.222	0.030	0.130	2.11E-04	9.25E-04	0.004	0.017
1.20E-03	5.25E-03	7.72E-08	3.38E-07	0.318	1.393	0.185	0.812	1.32E-03	5.80E-03	0.024	0.107
5.86E-04	2.57E-03	3.77E-08	1.65E-07	0.155	0.681	0.091	0.397	6.47E-04	2.83E-03	0.012	0.052

Combustion Emission Factors

1020 MMBtu/MMscf HHV natural gas

0.092 MMBtu/gal HHV comercial grade propane

Natural Gas (<100 MMBtu/hr)

	Natural Gas		Propane		Worst Case
Pollutant	lb/MMSCF	lb/MMBtu	lb/gal	lb/MMBtu	lb/MMBtu
PM	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
PM_{10}	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
$PM_{2.5}$	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
NO_x	100	9.80E-02	1.30E-02	1.41E-01	1.41E-01
SO_2	0.6	5.88E-04	2.00E-06	2.17E-05	5.88E-04
CO	84	8.24E-02	7.50E-03	8.15E-02	8.24E-02
VOC	5.5	5.39E-03	1.00E-03	1.09E-02	1.09E-02
Lead	5.00E-04	4.90E-07	0.00E+00	0.00E+00	4.90E-07
CO_2	1.20E+05	1.18E+02	1.25E+01	1.36E+02	1.36E+02
N_2O	6.40E-01	6.27E-04	9.00E-04	9.78E-03	9.78E-03
Arsenic	2.00E-04	1.96E-07	1.79E-08	1.95E-07	1.96E-07
Beryllium	1.20E-05	1.18E-08	1.08E-09	1.17E-08	1.18E-08
Cadmium	1.10E-03	1.08E-06	9.87E-08	1.07E-06	1.08E-06
Chromium	1.40E-03	1.37E-06	1.26E-07	1.37E-06	1.37E-06
Cobalt	8.40E-05	8.24E-08	7.54E-09	8.19E-08	8.24E-08
Manganese	3.80E-04	3.73E-07	3.41E-08	3.71E-07	3.73E-07
Mercury	2.60E-04	2.55E-07	2.33E-08	2.54E-07	2.55E-07
Nickel	2.10E-03	2.06E-06	1.88E-07	2.05E-06	2.06E-06
Selenium	2.40E-05	2.35E-08	2.15E-09	2.34E-08	2.35E-08
CH_4	2.30E+00	2.25E-03	2.00E-04	2.17E-03	2.25E-03
2-Methylnphthalene	2.40E-05	2.35E-08	8.83E-10	9.59E-09	2.35E-08
3-Methylcholanthrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	5.88E-10	6.40E-09	1.57E-08
Acenaphthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Acenapthylene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Anthracene	2.40E-06	2.35E-09	8.83E-11	9.59E-10	2.35E-09
Benz(a)anthracene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzene	2.10E-03	2.06E-06	7.72E-08	8.39E-07	2.06E-06
Benzo(a)pyrene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(b)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(k)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Chrysene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Dichlorobenzene	1.20E-03	1.18E-06	4.41E-08	4.80E-07	1.18E-06
Fluoranthene	3.00E-06	2.94E-09	1.10E-10	1.20E-09	2.94E-09
Fluorene	2.80E-06	2.75E-09	1.03E-10	1.12E-09	2.75E-09
Formaldehyde	7.50E-02	7.35E-05	2.76E-06	3.00E-05	7.35E-05
Hexane	1.80E+00	1.76E-03	6.62E-05	7.20E-04	1.76E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Naphthalene	6.10E-04	5.98E-07	2.24E-08	2.44E-07	5.98E-07
Phenanathrene	1.70E-05	1.67E-08	6.25E-10	6.80E-09	1.67E-08
Pyrene	5.00E-06	4.90E-09	1.84E-10	2.00E-09	4.90E-09
Toluene	3.40E-03	3.33E-06	1.25E-07	1.36E-06	3.33E-06

Natural Gas emission factors obtained from EPA AP-42, Volume I, Chapter 1.4, Table 1.4-1 small boilers (NOx & CO), Table 1.4-2 (PM, SO2, Lead, VOC, Methane, N20, & CO2), table 1.4-3 (Organic HAPs), and table 1.4-4 (Metal HAPs).

Propane emission factors from AP-42, "Liquified Petroleum Gas Combustion", Table 1.5-1 (07/08).

Northern Iron of St Paul LLC

Pattern Shop Units insignificant pursuant to Minn. R. 7007.0500, Subp.2(D)(5)

IA Number	Unit Desc	Limited Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10				
								Emission Factor (lb/capacity unit)	Reference[1]	lb/hr	Unrestricted tpy	Limited tpy
IA-02	Woodworking Saw #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-03	Woodworking Saw #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-04	Woodworking Saw #3	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-05	Woodworking Saw #4	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-06	Woodworking Sander #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-07	Woodworking Sander #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01
IA-08	Drill Press	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
IA-09	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
IA-10	Bridgeport #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
IA-11	Bridgeport #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
IA-12	Bridgeport #3	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
Pattern Shop											Total	0.04

1 The emission factor for sawing and sanding operations is the sawing emission factor listed in the EPA Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" dated May 8, 2014. This memo can be found at the following link: https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

Lab Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(D)

IA Number	Unit Desc	Rated Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10				
								Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-13	Sander	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04
IA-14	Grinder	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04
IA-15	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04
IA-16	Polisher #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04
IA-17	Polisher #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04
IA-18	Miscellaneous sand testing equipment	0.0055	tons/hour	TREA47	100%	99%	93%	0.013	AP-42 Table 11.19.1-1	7.15859E-07	3.14E-04	3.14E-06
Lab											Total	5.51E-04

PM2.5				
Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
			Total	0.02

PM2.5				
Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
0.1	42, Table 12.1	0.000	0.011	1.10E-04
0.1	42, Table 12.1	0.000	0.011	1.10E-04
0.1	42, Table 12.1	0.000	0.011	1.10E-04
0.1	42, Table 12.1	0.000	0.011	1.10E-04
0.1	42, Table 12.1	0.000	0.011	1.10E-04
0.013	42 Table 11.19	7.16E-07	3.14E-04	3.14E-06
			Total	5.51E-04

Machine Shop Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(F)

8 oil based casting finishing machines - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

4 Lathes - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

IA Number	Unit Desc	Rated Capacity		VOC				
				VOC content	Reference	Controlled lb/hr	Unrestricted tpy	Limited tpy
IA-19		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-20		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-21		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-22		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-23		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-24		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-25		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-26		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-27		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-28		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-29		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-30		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
						0.72	3.15	3.15

Sand Handling Emissions Factor

From US EPA AP-42, 13.2.4.3 (available online at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.4_aggregate_handling_and_storage_piles.pdf)

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

Aerodynamic Particle Size Multiplier (k)

PM	PM10	PM2.5
0.74	0.35	0.053

Prepared/Watered Sand

M= 3 %

U= 3 MPH

	PM	PM10	PM2.5
E=	6.910E-04	3.268E-04	4.949E-05

MPCA provided EF Documentation:

$SHef_{pm10}$ = 0.013/(M/2)^1.4, and with a minimum content of 3%, $SHef_{pm10}$ = 0.013/(3/2)^1.4 = 0.0074 lb PM_{10}/ton throughput. This equates to 0.00037% of throughput. In previous submittals, for sand handling, PM_{10} = $PM_{2.5}$, however I'd imagine $Pm_{2.5}$ is only a fraction of PM10. Here I am open to justification as to what ratio $PM_{2.5}$ should be to PM_{10}.

Note that the 0.013 term above was taken from AP-42 Table 11.19.1-1 and it applies to total PM. The factor in AP-42 was increased by a factor of 10 to account for uncontrolled emissions (since a wet scrubber has an assumed control efficiency of 90%).

The proposed PM10 & PM2.5 Ratios are from EPA PM Augmentation Tool for Sand Handling (SCC 30400350). See table below for mass percentages

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_ UNCONTROLLED	PMCALC_PM10FIL_ UNCONTROLLED	PMCALC_PM25FIL_ UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico

Emissions Measurement Team Casting Emission Reduction Program

McClellan Air Force Base, California

January 19, 1999

https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

Species	Lb/ton	MHAP
Aluminum	2.09E-02	
Antimony	0	Y
Arsenic	0	Y
Barium	0	
Beryllium	0	Y
Cadmium	1.02E-04	Y
Chromium	7.40E-04	Y
Cobalt	0	Y
Copper	8.52E-04	
Iron	1.40E-01	
Lead	5.58E-03	Y
Manganese	1.40E-02	Y
Mercury	0.00E+00	Y
Nickel	8.97E-04	Y
Selenium	0.00E+00	Y
Silver	6.01E-05	
Zinc	4.61E-02	
$MHAP_{total}$	0.021319	

%Pb of $MHAP_{total}$ 26.2%

Table 5.16. Metal Emissions from Metal Melting Operations

	Line 3
	Stack 27
Species	**lb/ton metal melted**
Aluminum	2.09E-02
Antimony	0.00E+00
Arsenic	0.00E+00
Barium	0.00E+00
Beryllium	0.00E+00
Cadmium	1.02E-04
Chromium	7.40E-04
Cobalt	0.00E+00
Copper	8.52E-04
Iron	1.40E-01
Lead	5.58E-03
Manganese	1.40E-02
Mercury	0.00E+00
Nickel	8.97E-04
Selenium	0.00E+00
Silver	6.01E-05
Zinc	4.61E-02

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North
St. Paul, MN 55155-4194

SEP 16 2024

SCP-01: Submittal cover page

Permit application/notification/ determination request fee submittal

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 5.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

3) Submittal is (choose from the following options and then complete the remainder of item 3 as directed):

- ☐ The final certified (or recertified) version of a previously-submitted permit application. **Complete Section 3A.**
- ☒ Additional or supplemental information requested by permit staff during the permit-writing process. **Complete Section 3A.**
- ☐ A request that the Minnesota Pollution Control Agency (MPCA) make an applicability determination. **Complete Section 3A.**
- ☐ An application for a new Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for reissuance of an Individual Part 70 or State Permit. **Complete Section 3B.**

Note: Applications for reissuance must be submitted using the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Applications outside of the e-services website will only be accepted if there is a request for confidentiality.

- ☐ An application for an amendment to an existing Individual Part 70 or State Permit. **Complete Section 3B.**
- ☐ An application for a Registration Permit, Capped Permit, or General Permit. **Complete Section 3C.**
- ☐ An application for an administrative change to an existing Registration, Capped, or General Permit. **Complete Section 3C.**

Note: Once the e-Service is available, registration, Capped, and General permit holders can electronically apply for an administrative change to their permit through MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. At some point, permit holders will be required to use e-Services for administrative permit changes. After that, paper change requests submitted will be denied. Check the MPCA website for the current status.

- ☐ A notification required under Minn. R. 7007.1150(C); Minn. R. 7007.1250, subp. 4; Minn. R. 7007.1350; Minn. R. 7007.0800, subp. 10, item B. **Complete Section 3D.**
- ☐ A notification from a hot mix asphalt plant holding a Registration Permit of the intent to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt. **Complete Section 3D.**

Section 3A – Request for applicability determination, recertification of a previously-submitted permit application, or supplement to a previously-submitted permit application

Use this section only if your submittal is one of the following:

- The final version of a previously submitted permit application, incorporating changes negotiated through the permitting process, or
- Submittal of additional or supplemental information requested by permit staff during the permit-writing process, or
- A request for the MPCA to make an applicability determination.

For final versions and supplemental information, enter the "tracking number" which can be obtained from the MPCA permit staff working on the permit.

Check one of the boxes below. Do not complete Sections 3B, 3C, or 3D. Continue with item 4 of the form.

Choose one of the following:		Quantity	Points	Total points
☐ Recertification of a previously-submitted permit application – tracking number:		NA	NA	NA
☒ Supplement to a previously-submitted permit application – tracking number:	7645	NA	NA	NA
☐ An Applicability Determination Request			x 10 =	

Section 3B – Application for an Individual Part 70 or State Permit, reissuance of an Individual Part 70 or State Permit, or amendment of an Individual Part 70 or State Permit

Choose one of the following:

- ☐ This is the original application or replacement for a denied or withdrawn application. Complete the table below.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	**Quantity**	**Points**	**Total points**
☐ Application for an Individual Part 70 Permit		x 75 =	
☐ Application for an Individual State Permit		x 50 =	
☐ Application for reissuance of an expiring Individual Part 70 or State Permit (does not include modifications to a permit that require an amendment) **Note:** Applications outside of the e-services website will only be accepted if there is a request for confidentiality.			
Expiration date: _____ *(mm/dd/yyyy)* Application due date (180 days prior to expiration): _____ *(mm/dd/yyyy)*	NA	NA	NA
☐ Application for a major amendment to an Individual State or Part 70 Permit ☐ Includes reconstruction or modification of a New Source Performance Standards (NSPS) Affected Facility not subject to New Source Review		x 25 =	
☐ Application for a moderate amendment to an Individual State or Part 70 Permit		x 15 =	
☐ Application for a minor amendment to an Individual State or Part 70 Permit		x 4 =	
☐ Application for an administrative amendment to an Individual State or Part 70 Permit. For administrative amendments to individual permits, use the MPCA's e-Services website at https://www.pca.state.mn.us/data/e-services. Administrative amendment applications outside of the e-services website will only be accepted if there is a request for confidentiality.		x 1 =	

Additional information (check all that apply):

- ☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review). The tracking number associated with the preapplication work is: _____

Date preapplication work was submitted: _____

- ☐ Permit will replace an existing permit of a different type (e.g., replacing a Capped Permit with an Individual State Permit, or replacing a Part 70 General Permit with an Individual Part 70 Permit).
- ☐ Permit is for construction of a new facility.
- ☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- ☐ Project is subject to Prevention of Significant Deterioration (PSD) (40 CFR § 52.21). Send a complete copy of the application to U.S. Environmental Protection Agency (EPA) Region V (see instructions).
- ☐ Permit is required because of installation or modification of a Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or a Part 60 NSPS Affected Facility at a Stationary Source with Potential-to-Emit below all permit thresholds (Minn. R. 7007.0500, subp. 2.C.(1)).

Section 3C – Application for a Registration, Capped, or General Permit

Choose one of the following:

- ☐ This is the original application or replacement for a denied or withdrawn application. Complete the table below.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is exactly the same as in the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. A new fee is not required, so completion of the table below is not necessary.
- ☐ This is the replacement for an application returned as incomplete (not denied) **and** the scope is different than the incomplete application. Enter the tracking number of the incomplete application being replaced: _____. Complete the table below.

If your submittal includes notifications that do not require a permit application, also complete Section 3D.

Choose one of the following:	Quantity	Points	Total points
☐ Application for a Registration Permit ☐ Option A ☐ Option B ☐ Option C ☐ Option D		x 2 =	
☐ Application for a Capped Permit ☐ Option 1 ☐ Option 2		x 4 =	
☐ Application for a Part 70 General Permit ☐ Manufacturing General Permit		x 4 =	
☐ Application for a State General Permit ☐ Nonmetallic Mineral Processing General Permit		x 3 =	
☐ Application for an administrative change to an existing Registration, Capped, or General Permit (e.g., change of facility ownership)		x 1 =	

Additional information (check all that apply):

- ☐ Permit will replace an existing permit of a different type (e.g., replacing a Registration Permit with a Capped Permit; replacing an Option B Registration Permit with an Option D Registration Permit; etc.)
- ☐ Permit is required for construction of a new facility.
- ☐ Permit is required because of a modification to an existing facility, making the facility subject for the first time for the requirement for an Air Emission Permit.
- ☐ Permit is required because of a modification or change making the facility ineligible for its existing Air Emission Permit.
- ☐ Submittal was preceded by pre-application work with the MPCA (for example: dispersion modeling or modeling protocol review, Air Emission Risk Analysis (AERA) review, environmental review or the facility was notified of a petition for Environmental Review). The tracking number associated with the preapplication work is:

Section 3D – Notifications

If your submittal also includes a permit application, then also complete Section 3A, 3B, or 3C as applicable. Check all applicable boxes below, then continue with item 4 of the form.

- ☐ A notification of accumulated insignificant activities (Minn. R .7007.1250, subp. 4)
- ☐ A notification of installation of pollution control equipment (Minn. R. 7007.1150, item C)
- ☐ A notification of replacement of a unit (Minn. R. 7007.1150, item C)
- ☐ A notification of replacement of controls with listed controls (Minn. R. 7007.1150, item C)
- ☐ A notification of changes that contravene a permit term (Minn. R .7007.1350)
- ☐ A notification from a hot mix asphalt plant including a request to incorporate ground tear-off shingles and/or manufacturer scrap shingles in the hot mix asphalt (applies to Registration Permits) Minn. R. 7011.0913, subp. 3)

4) Total points ("total points" from Section 3A, 3B, or 3C) NA

5) Total application fee

NA (total points from item 4) x $285 = $ NA (fee amount)

The application fee amount is $285 per point, payable to the MPCA. Send your payment ("fee amount") with your submittal. The fee is not refundable, per Minn. R. 7002.0016, subp. 1. There may be additional fees assessed during processing of your request, as required by Minn. R. ch. 7002.

Note: If an application is resubmitted for a different type of amendment or permit, the original fee is not refundable nor transferable. The resubmitted application fee must be paid in full.

6a) Confidentiality statement

- ☒ This application does not contain material claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Skip item 6b, go to item 7.
- ☐ This application contains material which is claimed to be confidential under Minn. Stat. §§ 13.37, subd. 1(b) and 116.075. Complete Item 6b. Your submittal must include both Confidential and Public versions of your application.

Registration Permit applicants may not claim any portion of their application as confidential. If applying for a Registration Permit or an administrative change to a Registration Permit, you must check the first box above ("This application does not contain…..").

☐ Confidential copy of application attached ☐ Public copy of application attached

6b) Confidentiality certification

To certify data for the confidential use of the MPCA, a responsible official must read the following, certify to its truth by filling in the signature block on the following page, and provide the stated attachments.

☐ I certify that the enclosed permit application(s) and all attachments have been reviewed by me and do contain confidential material. I understand that only specific data can be considered confidential and not the entire application or permit. I certify that I have enclosed the following to comply with the proper procedure for confidential material:

- ☐ I have enclosed a statement identifying which data contained in my application I consider confidential, and I have explained why I believe the information qualifies for confidential (or non-public) treatment under Minnesota Statutes.
- ☐ I have explained why the data for which I am seeking confidential treatment should not be considered "emissions data" which the MPCA is required to make available to the public under federal law.
- ☐ I have enclosed an application containing all pertinent information to allow for completion and issuance of my permit. This document has been clearly marked "confidential".
- ☐ I have enclosed a second copy of my application with the confidential data redacted (blacked out, not omitted or deleted entirely). It is evident from this copy that information was there, but that it is not for public review. This document has been clearly marked "public copy".

Owner responsible official:

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable):

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Check applicable: ☐ Owner ☐ Operator.

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

7) Submittal certification

I certify under penalty of law that the enclosed documents 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 also certify, in accordance with Minn. R. 7007.0500, subp. 2 (K)(2) and subp. 2 (K)(3), that I have reviewed the procedures implemented by my facility to maintain compliance and that those procedures are, to the best of my knowledge and belief, reasonable to maintain compliance with all applicable requirements, including those that will become applicable during the term of the permit.

I also certify, in accordance with Minn. R. 7007.1450, subp. 4(D), that if this application requests the use of the minor or moderate permit amendment procedures, the proposed change is not part of a larger project which, taken as a whole, would not qualify for treatment as a minor or moderate permit amendment.

Choose one of the following:

☐ I certify that no construction is associated with the permit action sought by this permit application.

☐ I certify that my project includes construction, but construction has not yet been started except as allowed under Minn. R. 7007.1110, subp. 10 or Minn. R. 7007.1250, subp. 4, and will not begin until the permit is issued except as allowed under Minn. R. 7007.1110, subp. 12; Minn. R. 7007.1142, subp. 2; Minn. R. 7007.1150, item C; or Minn. R. 7007.1450, subp. 7.

☒ My project includes construction, and construction other than what is allowed under Minnesota Rules has been started.

Choose one of the following:

☒ I certify that my Facility is or will be located **outside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection).

☐ I certify that my Facility is or will be located **inside** of the cumulative levels and effects (CL&E) statute area in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28th Street intersection). I understand that the CL&E process applies before a permit can be issued.

Owner responsible official

Print name: Tierney Grutza

Title: CAO

Signature: [signature]

Date (mm/dd/yyyy): 9/16/2024

Operator responsible official (if applicable)

Print name: _____

Title: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

Additional owner/operator responsible official (if applicable)

Print name: _____

Title: _____

Organization: _____

Signature: _____

Date (mm/dd/yyyy): _____

8) Package submittal

Applications, notifications, and/or requests that are submitted without authorized signature(s) (under submittal certification for all applications and under confidentiality certification if you are seeking confidential treatment of any information in the application); without required forms, and/or without the required application fee, will be returned. You must submit at least one SCP-01 that bears the original signature(s) (i.e., is not a photocopy of the signed signature page). Please make your check out to the Minnesota Pollution Control Agency. Send the complete application package and check to:

Fiscal Services – 6th Floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

You may choose to submit your application as a "pdf" file on an electronic media, such as a compact disc (CD) or USB drive. If you choose this option, you must still include a paper copy of any form that requires a signature.

Instructions for submittal cover page

1a) AQ Facility ID number -- Fill in your Air Quality (AQ) Facility Identification (ID) number. This is the first eight digits of the permit number for all permits issued under the operating permit program. If your facility has never been issued a permit under this program, leave this line blank.

1b) Agency Interest ID number -- Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you have never had an air quality permit or don't know this number, leave this line blank.

2) Facility name -- Enter your facility name.

3) This submittal is for -- Check the appropriate box describing what you are submitting. Then proceed to the section indicated (Section 3A, 3B, 3C, or 3D) and follow the applicable instructions.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-04b

Determination of increases at minor sources

Air Quality Permit Program

Doc Type: Permit Application

Instructions on page 4.

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Use this form to calculate emissions increases at existing sources, which are minor New Source Review (NSR) sources. If the facility is an existing major source under NSR, use form *CH-04a*.

3) [Reserved]

4) Use Table 1 to document the potential emissions of the individual units, tanks, or fugitive sources affected by the proposed modification. See instructions for calculating emissions increases. Make additional copies of Table 1 if more than four units are affected. Transfer the total increases (total potential emissions) for each pollutant from the "Total" column in Table 1 to column B in Table 2. Refer to the Minnesota Pollution Control Agency (MPCA) Greenhouse Gas (GHG) Emissions website at https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations for guidance in calculating carbon dioxide equivalents (CO_2e) emissions. Attach your calculations in both an editable spreadsheet format and a hardcopy printout.

Table 1 (acronyms described on page 5)

SI IDs:					
Pollutant	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Potential emissions (tpy)**	**Total (tpy)**
PM	*See attached supplemental Table 1				
PM_{10} (including condensables)					
$PM_{2.5}$ (including condensables)					
NO_x					
SO_2					
CO					
VOCs					
Lead					
Fluorides					
Sulfuric acid mist					
H_2S					
Total reduced sulfur including H_2S					
Total reduced sulfur compounds including H_2S					
MWC organics					
MWC acid gas					
MSW landfill gas					
CO_2e					

Table 2 – Summary (acronyms described on page 5)

Column A	Column B	Column C	Column D	Column E
	Emissions from all units affected by the modification (from Table 1)	Thresholds for minor sources ("No" to CH-04 question 5 or 6 or "No" to GI-09C question C4 or C5) (tpy)		Thresholds for major sources
Pollutant	(tpy)	Answered "Yes" to CH-04 question 3 or GI-09C Section A	Answered "No" to CH-04 question 3 or GI-09C Section A	Significant emission rates for major sources (tpy)
PM	7.45	100	250	25 [7]
PM_{10} (including condensables)	25.74	100	250	15
$PM_{2.5}$ (including condensables)	18.20	100	250	10
NO_x	23.71	100	250	40
SO_2	0.10	100	250	40
CO	138.89	100	250	100
VOCs [1]	29.62	100	250	40
Lead	0.02	100	250	0.6
Fluorides		100	250	3
Sulfuric acid mist		100	250	7
H_2S		100	250	10
Total reduced sulfur including H_2S		100	250	10
Total reduced sulfur compounds including H_2S		100	250	10
MWC organics [2]		100	250	10
MWC acid gas [3]		100	250	0.0000035
MWC metals [4]		100	250	40
MSW landfill gas [5]		100	250	15
CO_2e [6]	23,326	NA	NA	75,000 [8]

Note 1: VOC emissions are an ozone precursor. When VOC emissions exceed the Prevention of Significant Deterioration Program (PSD) major source threshold, ozone is subject to PSD permitting. (Direct ozone emissions are not included in the determination of PSD applicability.) Also, when another pollutant listed here (except for CO_2e) exceeds the minor source threshold and VOC emissions exceed the significant emission rate for major sources, ozone is subject to PSD permitting.

Note 2: MWC organics means Municipal waste combustor organics. These are defined as total tetra-thro-octa-chlorinated dibenzo-para-dioxins and dibenzofurans.

Note 3: MWC acid gases are measured as the sum of sulfur dioxide and hydrochloric acid.

Note 4: MWC Metals are measured as particulate matter.

Note 5: MSW landfill gas is measured as nonmethane organic compounds.

Note 6: CO_2e is calculated as a weighted aggregate of carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, using the gases' global warming potentials. (Refer to the MPCA website at https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations for instructions on calculating greenhouse gas emissions.)

Note 7: On July 31, 1987, the National Ambient Air Quality Standard for TSP (PM) was repealed and replaced with a standard for particulate matter less than 10 µm in size (PM_{10}). The significant levels in this table are as they appear in the Code of Federal Regulations, March 1994. A source may not be required to comply with Nonattainment NSR for TSP increases above 25 tons per year (tpy), but may be for PM_{10} above 15 tpy.

Note 8: On June 23, 2014, the U.S. Supreme Court decided (in Utility Air Regulatory Group (UARG) v. U.S. Environmental Protection Agency) that a project is not subject to regulation by virtue of GHG emissions alone. However, projects subject to regulation for other NSR-regulated pollutants are still subject to regulation for GHG.

5) Referring to Table 2, do the total emissions from new, modified, debottlenecked, and replacement units exceed the appropriate threshold for minor sources (Column C or D, depending on response on *CH-04* or *GI-09c*), for any pollutant?

☒ No. Done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "No" to the question of whether the proposed change or modification is subject to NSR.

☐ Yes. Go to question 6.

6) In Table 3, list each pollutant for which the minor source threshold is exceeded in Table 2. Then go to question 7.

Table 3 – Pollutant status vs. minor source thresholds

Pollutants exceeding the minor source threshold in Table 2:	

7) Will you propose and accept a limit on every pollutant, in Table 3 such that no minor source thresholds are exceeded? (Refer to the MPCA website at https://www.pca.state.mn.us/air/synthetic-minor-permit-limits for information on how to determine and propose limits.) See instructions for situations when CO_2e emissions are above the applicable threshold.

☐ Yes. Go to question 8.

☐ No. The emissions of at least one pollutant exceed the threshold for minor sources. Go to question 10.

8) Briefly describe the limit(s) you are proposing to keep the emissions of all pollutants listed in Table 3 below its associated minor source threshold. Also include the limit(s) on form *CD-01*, with your proposed method of demonstrating compliance. Then go to question 9.

9) You are done with this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "No" to the question of whether the proposed change or modification is subject to NSR.

10) The project is major for at least one pollutant.

Review Table 2. In Table 4, list each pollutant, including CO_2e, for which the total emissions from new, modified, debottlenecked, and replacement units exceed the associated major source significant emission rate threshold for major sources. Then go to question 11.

Table 4 – Pollutant status vs. major modification thresholds

Pollutants exceeding the major source significant emission rate in Table 2	

11) Will you propose and accept a limit on any pollutant in Table 4 such that it does not exceed its major source significant emission rate? If you propose limits to restrict the emissions of all pollutants listed in Table 4 except for CO_2e such that only emissions of CO_2e are above the applicable threshold, then the proposed change or modification is not subject to NSR. If this is the case, answer "yes" to this question. (Refer to the MPCA website at https://www.pca.state.mn.us/air/synthetic-minor-permit-limits for information on determining and proposing limits.)

☐ Yes. Go to question 12.

☐ No. The project is major for each pollutant listed in Table 4. Go to question 13.

12) Briefly describe the limit(s) you are proposing to keep the emissions of any pollutant listed in Table 4 below their significant emission rates. Also include the limit(s) on form *CD-01* with your proposed method of demonstrating compliance. Go to question 13.

13) In Table 5, list all pollutants that you have determined to be subject to Prevention of Significant Deterioration Program (PSD). This will include each pollutant in Table 3 and in Table 4 for which you did not limit emissions below the major source threshold in Table 2 (the significant emission rate).

Table 5 – Pollutants subject to PSD

14) You have now completed this form. Attach all calculations and required documentation (as described within this form). If you were sent to this from form *GI-09C*, go back to that form and answer "Yes" to the question of whether the proposed change or modification is subject to NSR. Also complete *CH-04e* to identify the information needed for a PSD permit application.

Instructions for form CH-04b

Complete *CH-04b* only if directed on form *CH-04* or *GI-09C*.

1a) **AQ Facility ID number --** Fill in your Air Quality (AQ) Facility identification (ID) number. This is the first eight digits of the permit number for all new permits issued under the operating permit program. If you don't know this number, leave this line blank.

1b) **Agency Interest ID number --** Fill in your Agency Interest ID number. This is an ID number assigned to your facility through the Tempo database. If you don't know this number, leave this line blank.

2) **Facility name --** Enter your facility name.

3) [Reserved]

4) At the top of each column in Table 1, enter or select "EQUI" (for emission units and tanks), or "FUGI" (for fugitive sources) and enter the number as it exists in your current Air Quality Permit. If your Air Quality Permit has not been issued in Tempo, enter or select "EU" (emissions unit), "TK" (tank), "FS" (fugitive source) instead. In calculating the emissions increase from a proposed change or modification at an existing minor stationary source, you must calculate the potential emissions of the new, modified, or debottlenecked unit(s) (this might be an emission unit, a tank, or a fugitive source). If the potential emissions of the new or modified units are greater than or equal to the applicable threshold, the proposed modification is potentially subject to NSR. Potential to emit (PTE) is the capability at maximum design capacity to emit a pollutant, except as constrained by federally-enforceable conditions (which include the effect of installed air pollution control equipment and restrictions on the hours of operation, or the type or amount of material combusted, stored or processed). Do not take air pollution control equipment into account except as allowed by Minn. R. 7007.1200, subp. 2. You may not take credit for proposed or non federally-enforceable pollution control equipment. You may not take credit from emissions reductions made at existing emission unit, tanks or fugitive sources. Note that potential emissions are used for an emissions increase because this is for a minor NSR source (40 CFR 52.21(a)(2)(iv)(d), 40 CFR 52.21(b)(1)(i)(c), 40 CFR 52.21(b)(48)(iii)).

   In the last column of Table 1, enter the total emissions, in tpy, of each pollutant. (This will be used again in Table 2.)

   Transfer the total potential emissions for each pollutant to Table 2. Compare the total emissions from the new, modified, debottlenecked, and replacement units for each pollutant to the appropriate threshold for minor sources (for all regulated pollutants except CO_2e, 100 tpy if you answered "Yes" to question 3 of form *CH-04* or Section A of *GI-09C*, or 250 tpy if you answered "No" to question 3 of form *CH-04* or Section A of form *GI-09C*; there is no minor source threshold for CO_2e emissions. In addition, if either nitrogen oxides (NO_X) or sulfur dioxide (SO_2) emissions are above the thresholds, then the proposed project may also considered to be major for Particulate Matter less than 2.5 micrometers ($PM_{2.5}$), since NO_X and SO_2 are assumed precursors to $PM_{2.5}$.

5) If the total emissions from the proposed change or modification do not exceed the thresholds in Table 2, you are done with this form and the NSR analysis. If you are applying for an amendment to an existing permit, return to forms *CH-02* and *CH-03* to

CH-04B Supplement
AQ Facility ID Number: 12300088
Facility Name: Northern Iron LLC

Affected Units

SI ID:	EQUI1	EQUI2	EQUI3	EQUI4	EQUI5	EQUI9	EQUI11	EQUI12	EQUI13
Pollutant	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
PM	0.20	0.20	0.06	0.06	0.06	0.00	0.00	0.06	0.06
PM_{10}	0.25	0.25	0.41	0.41	0.41	0.00	0.00	0.50	0.50
$PM_{2.5}$	0.20	0.20	0.41	0.41	0.41	0.00	0.00	0.36	0.36
NO_X	2.48	2.48	0.00	0.00	0.00	0.50	0.00	0.00	0.00
SO_2	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO	1.44	1.44	0.00	0.00	0.00	0.29	0.00	37.19	37.19
VOC	0.19	0.19	0.00	0.00	0.00	0.04	15.33	0.00	0.00
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2e	2,435.59	2,435.59				487.12			

Net Potential Emissions Change	
Pollutant	**Total (tpy)**
PM	**7.45**
PM_{10}	**25.74**
$PM_{2.5}$	**18.20**
NO_X	**23.71**
SO_2	**0.10**
CO	**138.89**
VOC	**29.62**
Lead	**0.02**
CO2e	**23,326.28**

EQUI16	EQUI17	EQUI18	EQUI20	EQUI23	EQUI24	EQUI28	EQUI29	EQUI30	EQUI36
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.00
0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00
									0.99
									0.00
									0.58
									0.08
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
									974.23

EQUI37	EQUI39	EQUI41	EQUI42	EQUI46	EQUI47	EQUI48	EQUI49	EQUI50	EQUI51
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.00	0.05	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.38	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
0.01	0.38	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
2.48	0.00			3.74	3.74	2.04	2.04	1.39	
0.01	0.00			0.02	0.02	0.01	0.01	0.01	
1.44	0.00			2.18	2.18	1.19	1.19	0.81	
0.19	0.00			0.29	0.29	0.16	0.16	0.11	
0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,435.59				3,683.82	3,683.82	2,009.36	2,009.36	1,370.02	

EQUI52	EQUI53	EQUI54	EQUI55	EQUI56	EQUI58	EQUI60	EQUI61	EQUI62	EQUI63
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.14
0.08	0.07	0.01	0.01	0.04	0.02	0.06	0.06	0.06	0.54
0.03	0.02	0.00	0.00	0.01	0.01	0.03	0.03	0.03	0.33
0.00	0.00	0.19	0.19	0.56		0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
0.00	0.00	0.11	0.11	0.32		0.00	0.00	0.00	6.34
1.80	1.48	0.01	0.01	0.04		0.00	0.00	0.00	3.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		182.67	182.67	548.01					

EQUI64	EQUI65	EQUI66	EQUI67	EQUI68	EQUI69	EQUI70	EQUI71	EQUI72	EQUI73
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.01	0.14	0.14	0.01	0.01	0.01	0.01	2.70	0.86	0.01
0.05	0.71	0.71	0.05	0.06	0.06	0.06	10.67	1.29	0.05
0.02	0.42	0.42	0.02	0.03	0.03	0.03	8.87	1.09	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	6.34	6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	--	--	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EQUI74	EQUI75	EQUI76	EQUI77	EQUI78	EQUI79	EQUI80	EQUI81	EQUI82	EQUI83
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.01	0.01	0.01	0.01	0.01	0.01	0.09	0.09	0.09	0.09
0.05	0.05	0.05	0.05	0.05	0.05	0.42	0.33	0.33	0.33
0.02	0.02	0.02	0.02	0.02	0.02	0.25	0.20	0.20	0.20
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	6.34	6.34	6.34	6.34
0.00	0.00	0.00	0.00	0.00	0.00	3.02	--	--	--
0.00	0.00	0.00	0.00	0.00	0.00	0.00	--	--	--

EQUI84	EQUI85	EQUI86	EQUI87	EQUI88	EQUI89	EQUI90	EQUI91	EQUI92	EQUI93
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.09	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.42	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.06	0.06
0.25	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
--	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EQUI93	EQUI94	EQUI95	EQUI96	EQUI97	EQUI98	EQUI100	EQUI102	EQUI103	EQUI104
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.86
0.06	0.06	0.05	0.05	0.05	0.06	0.01	0.05	0.04	3.65
0.03	0.03	0.02	0.02	0.02	0.03	0.01	0.02	0.02	1.88
0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EQUI105	EQUI106	EQUI107	EQUI108	EQUI109	EQUI110	EQUI111	EQUI112	EQUI113	EQUI114
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**
0.01	0.01	0.01	0.01	0.01	0.84	0.01	0.01	0.01	0.00
0.04	0.04	0.04	0.04	0.06	0.71	0.06	0.06	0.06	0.00
0.01	0.02	0.02	0.02	0.03	0.25	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
									218.65

EQUI115	EQUI116	EQUI117	EQUI118	EQUI119	EQUI120	IA-02 - IA-30	
Potential Emissions (tpy)	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Potential Emissions (tpy)**	**Total (tpy)**
0.01	0.01	0.00	0.00	0.00	0.00	0.04	7.45
0.04	0.04	0.00	0.00	0.00	0.00	0.04	25.74
0.01	0.02	0.00	0.00	0.00	0.00	0.02	18.20
0.00	0.00		0.00	0.00	0.68	0.00	23.71
0.00	0.00		0.00	0.00	0.00	0.00	0.10
0.00	0.00		0.00	0.00	0.40	0.00	138.89
0.00	0.00		0.00	0.00	0.05	3.15	29.62
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
					669.79	0.00	23326.28

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

CH-11

Crossing Permit Thresholds

Air Quality Permit Program

Doc Type: Permit Application

Instructions on Page 3

1a) AQ Facility ID number: 12300088 **1b)** AQ File number: 3518

2) Facility name: Northern Iron LLC

Use this form to determine if the proposed changes cause the facility to become subject for the first time to the requirement to obtain either a State or a Part 70 permit. Please attach your documentation.

3) Does the facility currently hold a Part 70 permit and after the proposed change the facility PTE will remain above the Part 70 threshold?

☐ Yes – done with this form.
☒ No – Proceed to question 4. Include calculations supporting the facility PTE and permit status after the change.

4) Table 1 – Total facility Potential-to-Emit (PTE) after proposed change

☐ This project does not increase emissions; therefore there is no need to complete the table in item 4.

Pollutant	PM_{10} tpy	$PM_{2.5}$ tpy	SO_2 tpy	NO_x tpy	CO tpy	VOC tpy	Lead tpy	Single HAP tpy	Total HAPs tpy	CO_2e tpy
Total facility PTE after change	25.74	18.20	0.10	23.71	138.89	29.62	0.02	4.63	14.07	23,326

☒ Calculations supporting Table 1 are attached. Proceed to question 5.

5) Table 2 – Facility permit status before and after proposed change

Total facility PTE and permit status before change	Total facility PTE and permit status after change	Action required
☐ Below all permit thresholds	Remains below all permit thresholds and the change does not cause the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61)	No permit action required
☐ Below all permit thresholds	Remains below all permit thresholds but the change causes the source or any part to become subject to an NSPS (40 CFR pt. 60) or a Part 61 NESHAP (40 CFR pt. 61).	Apply for and receive a permit only for those sources subject to that regulation. Check applicability of registration permit and general permit.
☐ Below all permit thresholds	Exceeds a threshold for a State permit but not for a Part 70 permit.	Apply for and receive a permit to construct before beginning actual construction of the change. Apply for a state operating permit within 180 days after beginning operation of the change.
☐ Below all permit thresholds ☐ Above a state permit threshold but below all Part 70 thresholds and facility holds a state operating permit	Exceeds a threshold for a Part 70 permit	Apply for and receive a permit to construct before beginning actual construction of the change. Apply for a Part 70 permit within 365 days after beginning operation of the change.
☒ Above a state permit threshold but below all Part 70 thresholds and facility holds a state operating permit	Remains above a State permit threshold but below all Part 70 thresholds	Apply for an amendment to your existing state operating permit.
☐ Above a state or Part 70 permit threshold but facility does not hold a state or Part 70 operating permit	Remains above Part 70 Threshold	Apply for and receive a Part 70 operating permit before beginning actual construction of the change.
☐ Above a state permit threshold and below all Part 70 thresholds but facility does not hold a state operating permit ☐ Above state and Part 70 permit thresholds but facility does not hold a state or Part 70 operating permit	Remains above a State permit threshold but below all Part 70 thresholds	Apply for and receive a state operating permit before beginning actual construction of the change.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions Summary Table

4a)	4b)	4c) Potential (tons/year)		4d) Actual
Pollutant Name	Potential (lbs/hr)	Unrestricted	Limited	tons/year
PM	2.60	2,627.67	7.45	1.30
PM10	8.77	2,188.29	25.74	5.10
PM2.5	4.73	1,127.61	18.20	3.07
NOx	5.41	23.71	23.71	23.71
CO	44.85	307.88	138.89	47.15
SO2	0.02	0.10	0.10	0.10
VOC	7.40	38.27	29.62	9.46
Lead	0.01	0.99	0.02	0.01
Total HAPs	4.11	29.87	14.07	7.86
Max Single HAP	1.06	4.63	4.63	4.63
1,3-Dimethylnaphthalene	0.01	0.08	0.03	0.01
1,4-Dimethylnaphthalene	0.00	0.03	0.01	0.00
1,8-Dimethylnaphthalene	0.01	0.07	0.03	0.01
1-Methylnaphthalene	0.04	0.29	0.12	0.03
2,3,5-Trimethylnaphthalene	0.01	0.05	0.02	0.01
2,3-Dimethylnaphthalene	0.01	0.05	0.02	0.01
2,6-Dimethylnaphthalene	0.01	0.04	0.02	0.00
2,7-Dimethylnaphthalene	0.00	0.03	0.01	0.00
2-Methylnaphthalene	0.06	0.42	0.17	0.05
3-Methylcholanthrene	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	0.00	0.00	0.00	0.00
Acenaphthalene/1,2- Dimethylnaphthalene	0.00	0.02	0.01	0.00
Acenaphthene	0.00	0.00	0.00	0.00
Acenapthylene	0.00	0.00	0.00	0.00
Acetaldehyde	0.55	4.03	1.65	0.44
Acetophenone	0.01	0.07	0.03	0.01
Anthracene	0.00	0.00	0.00	0.00

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Arsenic	0.00	0.00	0.00	0.00
Benz(a)anthracene	0.00	0.00	0.00	0.00
Benzene	0.58	4.20	1.73	0.47
Benzo(a)pyrene	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	0.00	0.00	0.00	0.00
Beryllium	0.00	0.00	0.00	0.00
Cadmium	0.00	0.08	0.00	0.00
Chromium	0.00	0.21	0.00	0.00
Chrysene	0.00	0.00	0.00	0.00
Cobalt	0.00	0.07	0.00	0.00
Cumene	0.00	0.03	0.01	0.00
Dibenzo(a,h)anthracene	0.00	0.00	0.00	0.00
Dibenzofuran	0.00	0.02	0.01	0.00
Dichlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	0.32	0.13	0.04
Fluoranthene	0.00	0.00	0.00	0.00
Fluorene	0.00	0.00	0.00	0.00
Formaldehyde	0.39	2.44	1.37	0.83
Hexane	0.07	0.30	0.30	0.30
Indeno(1,2,3-cd)pyrene	0.00	0.00	0.00	0.00
Manganese	0.02	2.25	0.05	0.02
Mercury	0.00	0.00	0.00	0.00
Methyl Alcohol	1.06	4.63	4.63	4.63
Naphthalene	0.10	0.72	0.30	0.08
Nickel	0.00	0.20	0.00	0.00
o-Cresol	0.13	0.98	0.40	0.11
Phenanathrene	0.00	0.00	0.00	0.00
Phenol	0.30	2.22	0.91	0.24

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Pyrene	0.00	0.00	0.00	0.00
Selenium	0.00	0.00	0.00	0.00
Styrene	0.05	0.35	0.14	0.04
Toluene	0.38	2.76	1.14	0.31
Xylenes	0.27	1.96	0.80	0.22
CO2	5,211.79	22,827.66	22,827.66	22,827.66
CH4	0.09	0.38	0.38	0.38
N2O	0.37	1.64	1.64	1.64
CO2e	5,325.63	23,326.28	23,326.28	23,326.28

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI1				EQUI2				EQUI3				EQUI4			
3b) Delta ID No.:																	
3c)	3d)	3e) Potential			3f)	3e) Potential			3f)	3e) Potential			3f)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.07	0.80	0.20	0.06	0.07	0.80	0.20	0.06	0.01	5.91	0.06	0.02	0.01	5.91	0.06	0.02
PM10		0.08	1.03	0.25	0.07	0.08	1.03	0.25	0.07	0.09	5.91	0.41	0.16	0.09	5.91	0.41	0.16
PM2.5		0.07	0.80	0.20	0.06	0.07	0.80	0.20	0.06	0.09	5.91	0.41	0.16	0.09	5.91	0.41	0.16
NOx		0.57	2.48	2.48	2.48	0.57	2.48	2.48	2.48								
CO		0.33	1.44	1.44	1.44	0.33	1.44	1.44	1.44								
SO2		0.00	0.01	0.01	0.01	0.00	0.01	0.01	0.01								
VOC		0.04	0.19	0.19	0.19	0.04	0.19	0.19	0.19								
Lead	7439-92-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.86E-04	0.04	2.57E-03	9.76E-04	5.86E-04	0.04	2.57E-03	9.76E-04
Total HAPs		0.01	0.03	0.03	0.03	0.01	0.03	0.03	0.03	2.24E-03	0.14	9.80E-03	3.73E-03	2.24E-03	0.14	9.80E-03	3.73E-03
1,3-Dimethylnaphthalene	575-41-7																
1,4-Dimethylnaphthalene	571-58-4																
1,8-Dimethylnaphthalene	569-41-5																
1-Methylnaphthalene	90-12-0																
2,3,5-Trimethylnaphthalene	2245-38-7																
2,3-Dimethylnaphthalene	581-40-8																
2,6-Dimethylnaphthalene	581-42-0																
2,7-Dimethylnaphthalene	582-16-1																
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8																
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Acetaldehyde	75-07-0																
Acetophenone	98-86-2																
Anthracene	120-12-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benzene	71-43-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07E-05	6.70E-04	4.69E-05	1.79E-05	1.07E-05	6.70E-04	4.69E-05	1.79E-05
Chromium	7440-47-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.77E-05	4.86E-03	3.40E-04	1.30E-04	7.77E-05	4.86E-03	3.40E-04	1.30E-04
Chrysene	218-01-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Cumene	98-82-8																
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Dibenzofuran	132-64-9																
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Ethylbenzene	100-41-4																
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Fluorene	86-73-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Hexane	110-54-3	0.01	0.03	0.03	0.03	0.01	0.03	0.03	0.03								
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Manganese	7439-96-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.47E-03	0.09	0.01	2.45E-03	1.47E-03	0.09	0.01	2.45E-03
Mercury	7439-97-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Methyl Alcohol	67-56-1																
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Nickel	7440-02-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.42E-05	0.01	4.13E-04	1.57E-04	9.42E-05	0.01	4.13E-04	1.57E-04
o-Cresol	95-48-7																
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Phenol	108-95-2																
Pyrene	129-00-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Selenium	7782-49-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Styrene	100-42-5																
Toluene	108-88-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00								
Xylenes	1330-20-7																
CO2		544.18	2,383.52	2,383.52	2,383.52	544.18	2,383.52	2,383.52	2,383.52								
CH4		0.01	0.04	0.04	0.04	0.01	0.04	0.04	0.04								
N2O		0.04	0.17	0.17	0.17	0.04	0.17	0.17	0.17								
CO2e		556.07	2,435.59	2,435.59	2,435.59	556.07	2,435.59	2,435.59	2,435.59								

3a) Tempo SI ID number:		EQUI5				EQUI9				EQUI11				EQUI12			
3b) Delta ID No.:																	
3c)	3d)	3e) Potential			3f)	3e) Potential			3f)	3e) Potential			3f)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.01	5.91	0.06	0.02	0.00	0.03	0.00	0.00					0.02	9.27	0.06	0.02
PM10		0.09	5.91	0.41	0.16	0.00	0.03	0.00	0.00					0.17	11.53	0.50	0.14
PM2.5		0.09	5.91	0.41	0.16	0.00	0.03	0.00	0.00					0.12	8.45	0.36	0.10
NOx						0.11	0.50	0.50	0.50								
CO						0.07	0.29	0.29	0.29					12.40	60.33	37.19	10.33
SO2						0.00	0.00	0.00	0.00								
VOC						0.01	0.04	0.04	0.04	3.50	15.33	15.33	2.12				
Lead	7439-92-1	0.00	0.04	0.00	0.001	0.00	0.00	0.00	0.00					4.21E-04	0.03	1.26E-03	3.51E-04
Total HAPs		2.24E-03	0.14	9.80E-03	3.73E-03	0.00	0.01	0.01	0.01					4.01E-01	2.01	1.20E+00	3.34E-01
1,3-Dimethylnaphthalene	575-41-7													5.32E-04	2.59E-03	1.60E-03	4.44E-04
1,4-Dimethylnaphthalene	571-58-4													1.13E-04	5.50E-04	3.39E-04	9.41E-05
1,8-Dimethylnaphthalene	569-41-5													2.39E-05	1.17E-04	7.18E-05	2.00E-05
1-Methylnaphthalene	90-12-0													4.41E-03	0.02	1.32E-02	3.68E-03
2,3,5-Trimethylnaphthalene	2245-38-7																
2,3-Dimethylnaphthalene	581-40-8													4.29E-04	2.09E-03	1.29E-03	3.57E-04
2,6-Dimethylnaphthalene	581-42-0													5.09E-05	2.47E-04	1.53E-04	4.24E-05
2,7-Dimethylnaphthalene	582-16-1													1.18E-04	5.73E-04	3.53E-04	9.81E-05
2-Methylnaphthalene	91-57-6					0.00	0.00	0.00	0.00					5.04E-03	0.02	1.51E-02	4.20E-03
3-Methylcholanthrene	56-49-5					0.00	0.00	0.00	0.00								
7,12-Dimethylbenz(a)anthracene	57-97-6					0.00	0.00	0.00	0.00								
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8													1.10E-04	0.00	3.31E-04	9.19E-05
Acenaphthene	83-32-9					0.00	0.00	0.00	0.00								
Acenapthylene	208-96-8					0.00	0.00	0.00	0.00								
Acetaldehyde	75-07-0													1.57E-02	0.08	4.72E-02	1.31E-02
Acetophenone	98-86-2													8.91E-04	0.00	2.67E-03	7.43E-04
Anthracene	120-12-7					0.00	0.00	0.00	0.00								
Arsenic	7440-38-2					0.00	0.00	0.00	0.00								
Benz(a)anthracene	56-55-3					0.00	0.00	0.00	0.00								
Benzene	71-43-2					0.00	0.00	0.00	0.00					1.67E-01	0.81	5.01E-01	1.39E-01
Benzo(a)pyrene	50-32-8					0.00	0.00	0.00	0.00								
Benzo(b)fluoranthene	205-99-2					0.00	0.00	0.00	0.00								
Benzo(g,h,i)perylene	191-24-2					0.00	0.00	0.00	0.00								
Benzo(k)fluoranthene	207-08-9					0.00	0.00	0.00	0.00								
Beryllium	7440-41-7					0.00	0.00	0.00	0.00								
Cadmium	7440-43-9	1.07E-05	6.70E-04	4.69E-05	1.79E-05	0.00	0.00	0.00	0.00					7.83E-06	0.00	2.35E-05	6.52E-06
Chromium	7440-47-3	7.77E-05	4.86E-03	3.40E-04	1.30E-04	0.00	0.00	0.00	0.00					8.60E-05	0.01	2.84E-04	7.34E-05
Chrysene	218-01-9					0.00	0.00	0.00	0.00								
Cobalt	7440-48-4					0.00	0.00	0.00	0.00								
Cumene	98-82-8													5.72E-04	0.00	1.71E-03	4.76E-04
Dibenzo(a,h)anthracene	53-70-3					0.00	0.00	0.00	0.00								
Dibenzofuran	132-64-9													7.34E-05	0.00	2.20E-04	6.11E-05
Dichlorobenzene	95-50-1					0.00	0.00	0.00	0.00								
Ethylbenzene	100-41-4													8.87E-03	0.04	2.66E-02	7.39E-03
Fluoranthene	206-44-0					0.00	0.00	0.00	0.00								
Fluorene	86-73-7					0.00	0.00	0.00	0.00								
Formaldehyde	50-00-0					0.00	0.00	0.00	0.00					8.41E-03	0.04	2.52E-02	7.01E-03
Hexane	110-54-3					0.00	0.01	0.01	0.01								
Indeno(1,2,3-cd)pyrene	193-39-5					0.00	0.00	0.00	0.00								
Manganese	7439-96-5	1.47E-03	0.09	0.01	2.45E-03	0.00	0.00	0.00	0.00					4.28E-04	0.03	1.28E-03	3.56E-04
Mercury	7439-97-6					0.00	0.00	0.00	0.00								
Methyl Alcohol	67-56-1																
Naphthalene	91-20-3					0.00	0.00	0.00	0.00					1.17E-02	0.06	3.50E-02	9.72E-03
Nickel	7440-02-0	9.42E-05	0.01	4.13E-04	1.57E-04	0.00	0.00	0.00	0.00								
o-Cresol	95-48-7													4.18E-03	0.02	1.25E-02	3.48E-03
Phenanathrene	85-01-8					0.00	0.00	0.00	0.00								
Phenol	108-95-2													2.59E-02	0.13	7.78E-02	2.16E-02
Pyrene	129-00-0					0.00	0.00	0.00	0.00								
Selenium	7782-49-2					0.00	0.00	0.00	0.00					1.29E-06	0.00	3.87E-06	1.08E-06
Styrene	100-42-5													2.20E-03	0.01	6.59E-03	1.83E-03
Toluene	108-88-3					0.00	0.00	0.00	0.00					8.98E-02	0.44	2.69E-01	7.48E-02
Xylenes	1330-20-7													5.41E-02	0.26	1.62E-01	4.50E-02
CO2						108.84	476.70	476.70	476.70								
CH4						0.00	0.01	0.01	0.01								
N2O						0.01	0.03	0.03	0.03								
CO2e						111.21	487.12	487.12	487.12								

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI13				3a) Tempo SI ID number:		EQUI16				3a) Tempo SI ID number:		EQUI17			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.02	18.54	0.06	0.02	PM		3.84E-04	560.64	1.68E-03	1.92E-03	PM		9.82E-03	7.01	1.40E-02	2.00E-03
PM10		0.17	23.07	0.50	0.14	PM10		2.28E-03	476.54	0.01	1.14E-06	PM10		9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		0.12	16.89	0.36	0.10	PM2.5		1.84E-05	238.27	0.01	5.71E-07	PM2.5		1.84E-05	0.70	9.82E-03	1.40E-03
NOx						NOx						NOx					
CO		12.40	120.67	37.19	10.33	CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1	0.00	0.06	0.001	0.0004	Lead	7439-92-1	6.61E-08	0.01	1.98E-07	3.67E-08	Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		4.01E-01	4.03	1.20E+00	3.34E-01	Total HAPs		3.97E-07	0.08	1.19E-06	2.20E-07	Total HAPs		2.03E-04	0.01	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7	5.32E-04	0.01	1.60E-03	4.44E-04	1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4	1.13E-04	1.10E-03	3.39E-04	9.41E-05	1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5	2.39E-05	2.30E-04	7.18E-05	2.00E-05	1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0	4.41E-03	0.04	0.01	3.68E-03	1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	4.29E-04	4.17E-03	1.29E-03	3.57E-04	2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0	5.09E-05	4.95E-04	1.53E-04	4.24E-05	2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1	1.18E-04	1.15E-03	3.53E-04	9.81E-05	2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.01	0.05	0.02	0.00	2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	1.10E-04	0.00	3.31E-04	9.19E-05	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	0.02	0.15	0.05	0.01	Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2	8.91E-04	0.01	0.00	7.43E-04	Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.17	1.62	0.50	0.14	Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	7.83E-06	1.00E-03	2.35E-05	6.52E-06	Cadmium	7440-43-9	6.61E-08	0.01	1.98E-07	3.67E-08	Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	8.60E-05	0.01	2.64E-04	7.34E-05	Chromium	7440-47-3	6.61E-08	0.01	1.98E-07	3.67E-08	Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4	6.61E-08	0.01	1.98E-07	3.67E-08	Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8	5.72E-04	0.01	1.71E-03	4.76E-04	Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	7.34E-03	7.14E-04	2.20E-04	6.11E-05	Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.09	0.03	0.01	Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	0.01	0.08	0.03	0.01	Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.28E-04	0.06	1.28E-03	3.56E-04	Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08	Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.01	0.11	0.03	0.01	Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0	6.61E-08	0.01	1.98E-07	3.67E-08	Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7	0.03	0.04	0.01	0.00	o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2	0.03	0.25	0.08	0.02	Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2	1.29E-06	1.80E-04	3.87E-06	1.08E-06	Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	2.20E-03	0.02	0.01	1.83E-03	Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	0.09	0.87	0.27	0.07	Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7	0.05	0.53	0.16	0.05	Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI18				3a) Tempo SI ID number:		EQUI20				3a) Tempo SI ID number:		EQUI23			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		4.91E-03	3.50	7.02E-03	2.00E-03	PM		4.91E-03	3.50	7.02E-03	2.00E-03	PM		2.46E-02	0.16	3.51E-03	2.00E-03
PM10		4.91E-03	0.35	4.91E-03	1.40E-03	PM10		4.91E-03	0.35	4.91E-03	1.40E-03	PM10		2.46E-03	0.18	3.48E-03	1.40E-03
PM2.5		9.21E-06	0.35	4.91E-03	1.40E-03	PM2.5		9.21E-06	0.35	4.91E-03	1.40E-03	PM2.5		4.60E-06	0.01	2.46E-03	1.40E-03
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06	Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06	Lead		4.60E-06	3.29E-04	4.60E-06	2.63E-06
Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05	Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05	Total HAPs		5.00E-05	1.97E-03	2.76E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cadmium	7440-43-9	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Chromium	7440-47-3	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cobalt	7440-48-4	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Manganese	7439-96-5	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06	Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06	Nickel	7440-02-0	2.76E-05	3.29E-04	4.60E-06	2.63E-06
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI24				3a) Tempo SI ID number:		EQUI28			
3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		4.91E-03	0.16	7.02E-03	2.00E-03	PM		7.37E-03	0.16	1.05E-02	2.00E-03
PM10		4.91E-03	0.35	4.91E-03	1.40E-03	PM10		7.37E-03	0.53	7.37E-03	1.40E-03
PM2.5		9.21E-06	0.04	4.91E-03	1.40E-03	PM2.5		1.38E-05	0.09	7.37E-03	1.40E-03
NOx						NOx					
CO						CO					
SO2						SO2					
VOC						VOC					
Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06	Lead		1.38E-05	9.86E-04	1.38E-05	2.63E-06
Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05	Total HAPs		1.52E-04	5.91E-03	8.29E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cadmium	7440-43-9	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Chromium	7440-47-3	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cobalt	7440-48-4	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Manganese	7439-96-5	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06	Nickel	7440-02-0	8.29E-05	9.86E-04	1.38E-05	2.63E-06
o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2					
CH4						CH4					
N2O						N2O					
CO2e						CO2e					

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

l to provide emissions information for more emissions units, add more sets

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application
1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518
Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.
Emissions by Source Table

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application
1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.
Emissions by Source Table

3c) Pollutant Name	3d) CAS #	EQUI29 3e) Pounds (lbs) per hour	EQUI29 3e) tons per year un-restricted	EQUI29 3e) tons per year limited	EQUI29 3f) Actual tons per year	EQUI30 3e) Pounds (lbs) per hour	EQUI30 3e) tons per year un-restricted	EQUI30 3e) tons per year limited	EQUI30 3f) Actual tons per year
3a) Tempo SI ID number:		EQUI29				EQUI30			
3b) Delta ID No.:									
PM		7.37E-03	0.16	1.05E-02	2.00E-03	9.82E-03	0.16	1.40E-02	2.00E-03
PM10		7.37E-03	0.53	7.37E-03	1.40E-03	9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		1.38E-05	0.09	7.37E-03	1.40E-03	1.84E-05	0.16	9.82E-03	1.40E-03
NOx									
CO									
SO2									
VOC									
Lead		1.38E-05	9.86E-04	1.38E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		1.52E-04	5.91E-03	8.29E-05	1.58E-05	2.03E-04	7.88E-03	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7								
1,4-Dimethylnaphthalene	571-58-4								
1,8-Dimethylnaphthalene	569-41-5								
1-Methylnaphthalene	90-12-0								
2,3,5-Trimethylnaphthalene	2245-38-7								
2,3-Dimethylnaphthalene	581-40-8								
2,6-Dimethylnaphthalene	581-42-0								
2,7-Dimethylnaphthalene	582-16-1								
2-Methylnaphthalene	91-57-6								
3-Methylcholanthrene	56-49-5								
7,12-Dimethylbenz(a)anthracene	57-97-6								
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8								
Acenaphthene	83-32-9								
Acenapthylene	208-96-8								
Acetaldehyde	75-07-0								
Acetophenone	98-86-2								
Anthracene	120-12-7								
Arsenic	7440-38-2								
Benz(a)anthracene	56-55-3								
Benzene	71-43-2								
Benzo(a)pyrene	50-32-8								
Benzo(b)fluoranthene	205-99-2								
Benzo(g,h,i)perylene	191-24-2								
Benzo(k)fluoranthene	207-08-9								
Beryllium	7440-41-7								
Cadmium	7440-43-9	1.38E-05	9.86E-04	1.38E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	1.38E-05	9.86E-04	1.38E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9								
Cobalt	7440-48-4	1.38E-05	9.86E-04	1.38E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8								
Dibenzo(a,h)anthracene	53-70-3								
Dibenzofuran	132-64-9								
Dichlorobenzene	95-50-1								
Ethylbenzene	100-41-4								
Fluoranthene	206-44-0								
Fluorene	86-73-7								
Formaldehyde	50-00-0								
Hexane	110-54-3								
Indeno(1,2,3-cd)pyrene	193-39-5								
Manganese	7439-96-5	1.38E-05	9.86E-04	1.38E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6								
Methyl Alcohol	67-56-1								
Naphthalene	91-20-3								
Nickel	7440-02-0	8.29E-05	9.86E-04	1.38E-05	2.63E-06	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7								
Phenanathrene	85-01-8								
Phenol	108-95-2								
Pyrene	129-00-0								
Selenium	7782-49-2								
Styrene	100-42-5								
Toluene	108-88-3								
Xylenes	1330-20-7								
CO2									
CH4									
N2O									
CO2e									

3c) Pollutant Name	3d) CAS #	EQUI36 3e) Pounds (lbs) per hour	EQUI36 3e) tons per year un-restricted	EQUI36 3e) tons per year limited	EQUI36 3f) Actual tons per year	EQUI37 3e) Pounds (lbs) per hour	EQUI37 3e) tons per year un-restricted	EQUI37 3e) tons per year limited	EQUI37 3f) Actual tons per year
3a) Tempo SI ID number:		EQUI36				EQUI37			
3b) Delta ID No.:									
PM		0.00	0.05	0.00	0.00	0.00	0.13	0.00	0.00
PM10		0.00	0.05	0.00	0.00	0.00	0.13	0.01	0.01
PM2.5		0.00	0.05	0.00	0.00	0.00	0.13	0.01	0.01
NOx		0.23	0.99	0.99	0.99	0.57	2.48	2.48	2.48
CO		0.13	0.58	0.58	0.58	0.33	1.44	1.44	1.44
SO2		0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01
VOC		0.02	0.08	0.08	0.08	0.04	0.19	0.19	0.19
Lead	7439-92-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total HAPs		0.00	0.01	0.01	0.01	0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7								
1,4-Dimethylnaphthalene	571-58-4								
1,8-Dimethylnaphthalene	569-41-5								
1-Methylnaphthalene	90-12-0								
2,3,5-Trimethylnaphthalene	2245-38-7								
2,3-Dimethylnaphthalene	581-40-8								
2,6-Dimethylnaphthalene	581-42-0								
2,7-Dimethylnaphthalene	582-16-1								
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8								
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0								
Acetophenone	98-86-2								
Anthracene	120-12-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cumene	98-82-8								
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9								
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4								
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.00	0.01	0.01	0.01	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1								
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o-Cresol	95-48-7								
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phenol	108-95-2								
Pyrene	129-00-0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	100-42-5								
Toluene	108-88-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Xylenes	1330-20-7								
CO2		217.67	953.41	953.41	953.41	544.18	2,383.52	2,383.52	2,383.52
CH4		0.00	0.02	0.02	0.02	0.01	0.04	0.04	0.04
N2O		0.02	0.07	0.07	0.07	0.04	0.17	0.17	0.17
CO2e		222.43	974.23	974.23	974.23	556.07	2,435.59	2,435.59	2,435.59

3c) Pollutant Name	3d) CAS #	EQUI41 3e) Pounds (lbs) per hour	EQUI41 3e) tons per year un-restricted	EQUI41 3e) tons per year limited	EQUI41 3f) Actual tons per year	EQUI42 3e) Pounds (lbs) per hour	EQUI42 3e) tons per year un-restricted	EQUI42 3e) tons per year limited	EQUI42 3f) Actual tons per year
3a) Tempo SI ID number:		EQUI41				EQUI42			
3b) Delta ID No.:									
PM		9.82E-03	0.16	1.40E-02	2.00E-03	9.82E-03	0.16	1.40E-02	2.00E-03
PM10		9.82E-03	0.70	9.82E-03	1.40E-03	9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		1.84E-05	0.16	9.82E-03	1.40E-03	1.84E-05	0.16	9.82E-03	1.40E-03
NOx									
CO									
SO2									
VOC									
Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		2.03E-04	7.88E-03	1.11E-04	1.58E-05	2.03E-04	7.88E-03	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7								
1,4-Dimethylnaphthalene	571-58-4								
1,8-Dimethylnaphthalene	569-41-5								
1-Methylnaphthalene	90-12-0								
2,3,5-Trimethylnaphthalene	2245-38-7								
2,3-Dimethylnaphthalene	581-40-8								
2,6-Dimethylnaphthalene	581-42-0								
2,7-Dimethylnaphthalene	582-16-1								
2-Methylnaphthalene	91-57-6								
3-Methylcholanthrene	56-49-5								
7,12-Dimethylbenz(a)anthracene	57-97-6								
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8								
Acenaphthene	83-32-9								
Acenapthylene	208-96-8								
Acetaldehyde	75-07-0								
Acetophenone	98-86-2								
Anthracene	120-12-7								
Arsenic	7440-38-2								
Benz(a)anthracene	56-55-3								
Benzene	71-43-2								
Benzo(a)pyrene	50-32-8								
Benzo(b)fluoranthene	205-99-2								
Benzo(g,h,i)perylene	191-24-2								
Benzo(k)fluoranthene	207-08-9								
Beryllium	7440-41-7								
Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9								
Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8								
Dibenzo(a,h)anthracene	53-70-3								
Dibenzofuran	132-64-9								
Dichlorobenzene	95-50-1								
Ethylbenzene	100-41-4								
Fluoranthene	206-44-0								
Fluorene	86-73-7								
Formaldehyde	50-00-0								
Hexane	110-54-3								
Indeno(1,2,3-cd)pyrene	193-39-5								
Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6								
Methyl Alcohol	67-56-1								
Naphthalene	91-20-3								
Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7								
Phenanathrene	85-01-8								
Phenol	108-95-2								
Pyrene	129-00-0								
Selenium	7782-49-2								
Styrene	100-42-5								
Toluene	108-88-3								
Xylenes	1330-20-7								
CO2									
CH4									
N2O									
CO2e									

3c) Pollutant Name	3d) CAS #	EQUI39 3e) Pounds (lbs) per hour	EQUI39 3e) tons per year un-restricted	EQUI39 3e) tons per year limited	EQUI39 3f) Actual tons per year	EQUI46 3e) Pounds (lbs) per hour	EQUI46 3e) tons per year un-restricted	EQUI46 3e) tons per year limited	EQUI46 3f) Actual tons per year
3a) Tempo SI ID number:		EQUI39				EQUI46			
3b) Delta ID No.:									
PM		0.02	21.90	0.05	0.03	0.00	0.20	0.00	0.00
PM10		0.13	21.90	0.38	0.18	0.00	0.20	0.01	0.01
PM2.5		0.13	21.90	0.38	0.18	0.00	0.20	0.01	0.01
NOx						0.85	3.74	3.74	3.74
CO						0.50	2.18	2.18	2.18
SO2						0.00	0.02	0.02	0.02
VOC						0.07	0.29	0.29	0.29
Lead	7439-92-1	0.00	0.72	0.01	0.01	0.00	0.00	0.00	0.00
Total HAPs		0.02	2.74	0.05	0.02	0.01	0.05	0.05	0.05
1,3-Dimethylnaphthalene	575-41-7								
1,4-Dimethylnaphthalene	571-58-4								
1,8-Dimethylnaphthalene	569-41-5								
1-Methylnaphthalene	90-12-0								
2,3,5-Trimethylnaphthalene	2245-38-7								
2,3-Dimethylnaphthalene	581-40-8								
2,6-Dimethylnaphthalene	581-42-0								
2,7-Dimethylnaphthalene	582-16-1								
2-Methylnaphthalene	91-57-6					0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5					0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6					0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8								
Acenaphthene	83-32-9					0.00	0.00	0.00	0.00
Acenapthylene	208-96-8					0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0								
Acetophenone	98-86-2								
Anthracene	120-12-7					0.00	0.00	0.00	0.00
Arsenic	7440-38-2					0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3					0.00	0.00	0.00	0.00
Benzene	71-43-2					0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8					0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2					0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2					0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9					0.00	0.00	0.00	0.00
Beryllium	7440-41-7					0.00	0.00	0.00	0.00
Cadmium	7440-43-9	7.54E-05	0.01	2.26E-04	1.07E-04	0.00	0.00	0.00	0.00
Chromium	7440-47-3	5.47E-04	0.10	1.64E-03	7.74E-04	0.00	0.00	0.00	0.00
Chrysene	218-01-9					0.00	0.00	0.00	0.00
Cobalt	7440-48-4					0.00	0.00	0.00	0.00
Cumene	98-82-8								
Dibenzo(a,h)anthracene	53-70-3					0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9								
Dichlorobenzene	95-50-1					0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4								
Fluoranthene	206-44-0					0.00	0.00	0.00	0.00
Fluorene	86-73-7					0.00	0.00	0.00	0.00
Formaldehyde	50-00-0					0.00	0.00	0.00	0.00
Hexane	110-54-3					0.01	0.05	0.05	0.05
Indeno(1,2,3-cd)pyrene	193-39-5					0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.01	1.80	0.03	0.01	0.00	0.00	0.00	0.00
Mercury	7439-97-6					0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1								
Naphthalene	91-20-3					0.00	0.00	0.00	0.00
Nickel	7440-02-0	6.63E-04	0.12	1.99E-03	9.39E-04	0.00	0.00	0.00	0.00
o-Cresol	95-48-7								
Phenanathrene	85-01-8					0.00	0.00	0.00	0.00
Phenol	108-95-2								
Pyrene	129-00-0					0.00	0.00	0.00	0.00
Selenium	7782-49-2					0.00	0.00	0.00	0.00
Styrene	100-42-5								
Toluene	108-88-3					0.00	0.00	0.00	0.00
Xylenes	1330-20-7								
CO2						823.08	3,605.08	3,605.08	3,605.08
CH4						0.01	0.06	0.06	0.06
N2O						0.06	0.26	0.26	0.26
CO2e						841.06	3,683.82	3,683.82	3,683.82

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1b) Agency Interest ID number: 3518

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:	EQUI47				EQUI48				EQUI49				EQUI50				EQUI51				EQUI52				EQUI53				EQUI54			
3b) Delta ID No.:																																
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.20	0.00	0.00	PM		0.00	0.11	0.00	0.00	PM		0.00	0.11	0.00	0.00	PM		0.00	0.07	0.00	0.00	PM		2.40E-06	3.50	1.05E-05	1.20E-05	PM		0.02	1.39	0.01	0.00
PM10		0.00	0.20	0.01	0.01	PM10		0.00	0.11	0.01	0.01	PM10		0.00	0.07	0.01	0.01	PM10		1.43E-05	2.08	0.00	7.14E-05	PM10		0.27	1.18	0.08	0.02	PM10		0.02	0.98	0.07	0.02
PM2.5		0.00	0.20	0.01	0.01	PM2.5		0.00	0.11	0.01	0.01	PM2.5		0.00	0.07	0.01	0.01	PM2.5		7.14E-06	1.49	0.00	3.57E-05	PM2.5		0.10	0.42	0.03	0.01	PM2.5		0.01	0.34	0.02	0.01
NOx		0.85	3.74	3.74	3.74	NOx		0.47	2.04	2.04	2.04	NOx		0.32	1.39	1.39	1.39	NOx						NOx						NOx					
CO		0.50	2.18	2.18	2.18	CO		0.27	1.19	1.19	1.19	CO		0.19	0.81	0.81	0.81	CO						CO						NOx		0.04	0.19	0.19	0.19
SO2		0.00	0.02	0.02	0.02	SO2		0.00	0.01	0.01	0.01	SO2		0.00	0.01	0.01	0.01	SO2						SO2						CO		0.02	0.11	0.11	0.11
VOC		0.07	0.29	0.29	0.29	VOC		0.04	0.16	0.16	0.16	VOC		0.02	0.11	0.11	0.11	VOC						VOC		0.41	1.80	1.80	0.41	SO2		0.00	0.01	0.01	0.01
Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	6.61E-08	0.01	1.98E-07	3.67E-08	Lead	7439-92-1					VOC		0.34	1.48	1.48	0.34
Total HAPs		0.01	0.05	0.05	0.05	Total HAPs		0.01	0.03	0.03	0.03	Total HAPs		0.00	0.02	0.02	0.02	Total HAPs		3.97E-07	0.08	1.19E-06	2.20E-07	Total HAPs						Lead	7439-92-1				
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					Total HAPs					
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,3-Dimethylnaphthalene	575-41-7				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,4-Dimethylnaphthalene	571-58-4				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1,8-Dimethylnaphthalene	569-41-5				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					1-Methylnaphthalene	90-12-0				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3,5-Trimethylnaphthalene	2245-38-7				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,3-Dimethylnaphthalene	581-40-8				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,6-Dimethylnaphthalene	581-42-0				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2,7-Dimethylnaphthalene	582-16-1				
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
7,12-Dimethylbenz[a]anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz[a]anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz[a]anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz[a]anthracene	57-97-6					7,12-Dimethylbenz[a]anthracene	57-97-6					3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					7,12-Dimethylbenz[a]anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetaldehyde	75-07-0				
Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7					Anthracene	120-12-7					Acetophenone	98-86-2				
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2					Arsenic	7440-38-2					Anthracene	120-12-7	0.00	0.00	0.00	0.00
Benz[a]anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz[a]anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz[a]anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz[a]anthracene	56-55-3					Benz[a]anthracene	56-55-3					Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2					Benzene	71-43-2					Benz[a]anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7					Beryllium	7440-41-7					Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	6.61E-08	0.01	1.98E-07	3.67E-08	Cadmium	7440-43-9					Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	6.61E-08	0.01	1.98E-07	3.67E-08	Chromium	7440-47-3					Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9					Chrysene	218-01-9					Chromium	7440-47-3	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	6.61E-08	0.01	1.98E-07	3.67E-08	Cobalt	7440-48-4					Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cobalt	7440-48-4				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Cumene	98-82-8				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dibenzofuran	132-64-9				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0					Fluoranthene	206-44-0					Ethylbenzene	100-41-4				
Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7					Fluorene	86-73-7					Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0					Formaldehyde	50-00-0					Fluorene	86-73-7	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.05	0.05	0.05	Hexane	110-54-3	0.01	0.03	0.03	0.03	Hexane	110-54-3	0.01	0.03	0.03	0.03	Hexane	110-54-3					Hexane	110-54-3					Formaldehyde	50-00-0	0.03	0.12	0.12	0.12
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Hexane	110-54-3	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08	Manganese	7439-96-5					Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6					Mercury	7439-97-6					Manganese	7439-96-5	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Mercury	7439-97-6	0.00	0.00	0.00	0.00
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3					Naphthalene	91-20-3					Methyl Alcohol	67-56-1	0.20	0.87	0.87	0.87
Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	6.61E-08	0.01	1.98E-07	3.67E-08	Nickel	7440-02-0					Naphthalene	91-20-3	0.00	0.00	0.00	0.00
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					Nickel	7440-02-0	0.00	0.00	0.00	0.00
Phenanthrene	85-01-8	0.00	0.00	0.00	0.00	Phenanthrene	85-01-8	0.00	0.00	0.00	0.00	Phenanthrene	85-01-8	0.00	0.00	0.00	0.00	Phenanthrene	85-01-8					Phenanthrene	85-01-8					o-Cresol	95-48-7				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenanthrene	85-01-8	0.00	0.00	0.00	0.00
Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0					Pyrene	129-00-0					Phenol	108-95-2				
Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2					Selenium	7782-49-2					Pyrene	129-00-0	0.00	0.00	0.00	0.00
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Selenium	7782-49-2	0.00	0.00	0.00	0.00
Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3					Toluene	108-88-3					Styrene	100-42-5				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Toluene	108-88-3	0.00	0.00	0.00	0.00
CO2		823.08	3,605.08	3,605.08	3,605.08	CO2		448.95	1,966.41	1,966.41	1,966.41	CO2		306.10	1,340.73	1,340.73	1,340.73	CO2						CO2						Xylenes	1330-20-7				
CH4		0.01	0.06	0.06	0.06	CH4		0.01	0.03	0.03	0.03	CH4		0.01	0.02	0.02	0.02	CH4						CH4						CO2		43.81	178.76	178.76	178.76
N2O		0.06	0.26	0.26	0.26	N2O		0.03	0.14	0.14	0.14	N2O		0.03	0.10	0.10	0.10	N2O						N2O						CH4		0.00	0.00	0.00	0.00
CO2e		841.06	3,683.82	3,683.82	3,683.82	CO2e		458.76	2,009.36	2,009.36	2,009.36	CO2e		312.79	1,370.02	1,370.02	1,370.02	CO2e						N2O						N2O		0.00	0.01	0.01	0.01
																								CO2e						CO2e		43.91	182.67	182.67	182.67

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:	EQU55					3a) Tempo SI ID number:	EQU56					3a) Tempo SI ID number:	EQU58				
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.93	0.00	0.00	PM		0.01	3.00	0.01	0.00	PM		7.67E-04	1,121.28	3.36E-03	3.84E-07
PM10		0.00	0.79	0.01	0.00	PM10		0.02	2.63	0.04	0.01	PM10		4.57E-03	953.09	0.02	2.28E-06
PM2.5		0.00	0.29	0.00	0.00	PM2.5		0.01	0.95	0.01	0.01	PM2.5		2.28E-03	476.54	0.01	1.14E-06
NOx		0.04	0.19	0.19	0.19	NOx		0.13	0.56	0.56	0.56	NOx					
CO		0.02	0.11	0.11	0.11	CO		0.07	0.32	0.32	0.32	CO					
SO2		0.00	0.00	0.00	0.00	SO2		0.00	0.00	0.00	0.00	SO2					
VOC		0.00	0.01	0.01	0.01	VOC		0.01	0.04	0.04	0.04	VOC					
Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	6.61E-06	0.01	1.98E-07	3.67E-08
Total HAPs		0.22	0.99	0.99	0.99	Total HAPs		0.75	3.28	3.28	3.28	Total HAPs		3.97E-07	0.00	1.19E-06	2.20E-07
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9				
Acenaphylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7				
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2				
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	6.61E-06	0.01	1.98E-07	3.67E-08
Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	6.61E-06	0.01	1.98E-07	3.67E-08
Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9				
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	6.61E-06	0.01	1.98E-07	3.67E-08
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0				
Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7				
Formaldehyde	50-00-0	0.03	0.12	0.12	0.12	Formaldehyde	50-00-0	0.09	0.39	0.39	0.39	Formaldehyde	50-00-0				
Hexane	110-54-3	0.00	0.00	0.00	0.00	Hexane	110-54-3	0.00	0.01	0.01	0.01	Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08
Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6				
Methyl Alcohol	67-56-1	0.20	0.87	0.87	0.87	Methyl Alcohol	67-56-1	0.66	2.89	2.89	2.89	Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3				
Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0				
Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2		40.81	178.76	178.76	178.76	CO2		122.44	536.29	536.29	536.29	CO2					
CH4		0.00	0.00	0.00	0.00	CH4		0.00	0.01	0.01	0.01	CH4					
N2O		0.00	0.01	0.01	0.01	N2O		0.01	0.04	0.04	0.04	N2O					
CO2e		41.71	182.67	182.67	182.67	CO2e		125.12	548.01	548.01	548.01	CO2e					

3a) Tempo SI ID number:	EQU60					3a) Tempo SI ID number:	EQU61					3a) Tempo SI ID number:	EQU62				
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00	PM2.5		0.10	0.44	0.03	0.00	PM2.5		0.01	0.44	0.03	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphylene	208-96-8					Acenaphylene	208-96-8					Acenaphylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:	EQU63					3a) Tempo SI ID number:	EQU64				
3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.05	46.72	0.14	0.05	PM		0.00	1.45	0.01	0.00
PM10		0.18	32.70	0.54	0.18	PM10		0.02	1.23	0.05	0.01
PM2.5		0.11	19.62	0.33	0.11	PM2.5		0.01	0.44	0.02	0.00
NOx						NOx					
CO		2.11	20.56	6.34	2.11	CO					
SO2						SO2					
VOC		1.01	9.79	3.02	1.01	VOC					
Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1				
Total HAPs		1.01	9.82	3.02	1.01	Total HAPs					
1,3-Dimethylnaphthalene	575-41-7	0.00	0.05	0.01	0.00	1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4	0.00	0.02	0.01	0.00	1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5	0.00	0.05	0.01	0.00	1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0	0.02	0.15	0.05	0.02	1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7	0.00	0.03	0.01	0.00	2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	0.00	0.03	0.01	0.00	2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0	0.00	0.02	0.01	0.00	2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1	0.00	0.02	0.01	0.00	2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.02	0.23	0.07	0.02	2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	0.00	0.01	0.00	0.00	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphylene	208-96-8					Acenaphylene	208-96-8				
Acetaldehyde	75-07-0	0.26	2.53	0.78	0.26	Acetaldehyde	75-07-0				
Acetophenone	98-86-2	0.00	0.03	0.01	0.00	Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.12	1.17	0.36	0.12	Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9				
Chromium	7440-47-3	0.00	0.01	0.00	0.00	Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8	0.00	0.02	0.01	0.00	Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	0.00	0.01	0.00	0.00	Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.13	0.04	0.01	Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	0.12	1.13	0.35	0.12	Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.01	0.00	0.00	Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.04	0.37	0.11	0.04	Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7	0.06	0.61	0.19	0.06	o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2	0.13	1.23	0.38	0.13	Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	0.02	0.21	0.06	0.02	Styrene	100-42-5				
Toluene	108-88-3	0.10	0.97	0.30	0.10	Toluene	108-88-3				
Xylenes	1330-20-7	0.08	0.75	0.24	0.08	Xylenes	1330-20-7				
CO2						CO2					
CH4						CH4					
N2O						N2O					
CO2e						CO2e					

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

I to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:	EQU65					3a) Tempo SI ID number:	EQU66					3a) Tempo SI ID number:	EQU67					3a) Tempo SI ID number:	EQU68				
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.05	46.72	0.14	0.05	PM		0.05	46.72	0.14	0.05	PM		0.00	1.45	0.01	0.00	PM		0.02	1.23	0.06	0.01
PM10		0.24	32.70	0.71	0.24	PM10		0.24	32.70	0.71	0.24	PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01
PM2.5		0.14	19.62	0.42	0.14	PM2.5		0.14	19.62	0.42	0.14	PM2.5		0.01	0.44	0.02	0.00	PM2.5		0.01	0.44	0.03	0.00
NOx						NOx						NOx						NOx					
CO		2.11	20.56	6.34	2.11	CO		2.11	20.56	6.34	2.11	CO						CO					
SO2						SO2						SO2						SO2					
VOC		--	--	--	--	VOC		--	--	--	--	VOC						VOC					
Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1					Lead	7439-92-1				
Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2						CO2					
CH4						CH4						CH4						CH4					
N2O						N2O						N2O						N2O					
CO2e						CO2e						CO2e						CO2e					

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:	EQU69					3a) Tempo SI ID number:	EQU70					3a) Tempo SI ID number:	EQU71					3a) Tempo SI ID number:	EQU72				
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		0.99	394.20	2.70	0.43	PM		0.17	72.35	0.86	0.07
PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01	PM10		3.56	311.42	10.67	1.68	PM10		0.70	61.50	1.29	0.29
PM2.5		0.01	0.44	0.03	0.00	PM2.5		0.01	0.44	0.03	0.00	PM2.5		2.03	177.39	8.87	0.96	PM2.5		0.25	21.70	1.09	0.10
NOx						NOx						NOx						NOx					
CO						CO						CO						CO					
SO2						SO2						SO2						SO2					
VOC						VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2						CO2					
CH4						CH4						CH4						CH4					
N2O						N2O						N2O						N2O					
CO2e						CO2e						CO2e						CO2e					

GI-07 Spreadsheet

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

GI-07 Spreadsheet

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1b) Agency Interest ID number: 3518

Emissions by Source Table

3a) Tempo SI ID number:		EQUI73			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI74			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI75			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI76			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI77			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI78			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI79			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI80			
3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.03	14.02	0.09	0.02
PM10		0.14	9.81	0.42	0.08
PM2.5		0.08	5.89	0.25	0.05
NOx					
CO		2.11	10.28	6.34	1.27
SO2					
VOC		1.01	4.90	3.02	0.60
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		1.01	4.91	3.02	0.60
1,3-Dimethylnaphthalene	575-41-7	0.00	0.02	0.01	0.00
1,4-Dimethylnaphthalene	571-58-4	0.00	0.01	0.01	0.00
1,8-Dimethylnaphthalene	569-41-5	0.00	0.02	0.01	0.00
1-Methylnaphthalene	90-12-0	0.02	0.07	0.05	0.01
2,3,5-Trimethylnaphthalene	2245-38-7	0.00	0.02	0.01	0.00
2,3-Dimethylnaphthalene	581-40-8	0.00	0.01	0.01	0.00
2,6-Dimethylnaphthalene	581-42-0	0.00	0.01	0.01	0.00
2,7-Dimethylnaphthalene	582-16-1	0.00	0.01	0.01	0.00
2-Methylnaphthalene	91-57-6	0.02	0.11	0.07	0.01
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	0.00	0.00	0.00	0.00
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0	0.26	1.27	0.78	0.16
Acetophenone	98-86-2	0.00	0.02	0.01	0.00
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.12	0.59	0.36	0.07
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	0.00	0.01	0.01	0.00
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	0.00	0.01	0.00	0.00
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.06	0.04	0.01
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	0.12	0.58	0.35	0.07
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.01	0.00	0.00
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.04	0.18	0.11	0.02
Nickel	7440-02-0				
o-Cresol	95-48-7	0.06	0.31	0.19	0.04
Phenanathrene	85-01-8				
Phenol	108-95-2	0.13	0.61	0.38	0.08
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5	0.02	0.11	0.06	0.01
Toluene	108-88-3	0.10	0.48	0.30	0.06
Xylenes	1330-20-7	0.08	0.39	0.24	0.05
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI81				3a) Tempo SI ID number:		EQUI82				3a) Tempo SI ID number:		EQUI83			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.03	14.02	0.09	0.02	PM		0.03	14.02	0.09	0.02	PM		0.03	14.02	0.09	0.02
PM10		0.19	9.81	0.33	0.07	PM10		0.19	9.81	0.33	0.07	PM10		0.14	9.81	0.42	0.08
PM2.5		0.07	5.89	0.20	0.04	PM2.5		0.07	5.89	0.20	0.04	PM2.5		0.06	5.89	0.25	0.05
NOx						NOx						NOx					
CO		2.11	10.28	6.34	1.27	CO		2.11	10.28	6.34	1.27	CO		2.11	10.28	6.34	1.27
SO2						SO2						SO2					
VOC		--	--	--	--	VOC		--	--	--	--	VOC		--	--	--	--
Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--
Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs		--	--	--	--
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--
1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--
2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--
Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--
Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--
Phenanthrene	85-01-8					Phenanthrene	85-01-8					Phenanthrene	85-01-8				
Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--
Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--
Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI84				3a) Tempo SI ID number:		EQUI85				3a) Tempo SI ID number:		EQUI86			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.03	14.02	0.09	0.02	PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00
PM10		0.14	9.81	0.42	0.08	PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.04	0.00
PM2.5		0.06	5.89	0.25	0.05	PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.01	0.00
NOx						NOx						NOx					
CO		2.11	10.28	6.34	1.27	CO						CO					
SO2						SO2						SO2					
VOC		--	--	--	--	VOC		--	--	--	--	VOC		--	--	--	--
Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--
Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs		--	--	--	--
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0				
Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9				
Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7				
Phenanthrene	85-01-8					Phenanthrene	85-01-8					Phenanthrene	85-01-8				
Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5				
Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3				
Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI87				3a) Tempo SI ID number:		EQUI88			
3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.01	0.00
NOx						NOx					
CO						CO					
SO2						SO2					
VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanthrene	85-01-8					Phenanthrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2					
CH4						CH4					
N2O						N2O					
CO2e						CO2e					

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY, 520 Lafayette Road North, St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY, 520 Lafayette Road North, St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

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Emissions by Source Table

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY, 520 Lafayette Road North, St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI89 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.01	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI90 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.64	0.01	0.00
PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.01	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI91 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI92 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI93 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	
PM10		0.02	1.23	0.06	
PM2.5		0.01	0.44	0.03	
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI93 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI94 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI95 — 3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

GI-07 Spreadsheet

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1b) Agency Interest ID number: 3518

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:	EQU96					EQU97					EQU98					EQU100					EQU102					EQU103					EQU104					EQU105				
3b) Delta ID No.:																																							
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00						0.00	1.45	0.01	0.00		7.37E-03	0.16	1.05E-02	2.00E-03		0.00	0.84	0.01	0.00		0.00	1.45	0.01	0.00		0.29	125.22	0.66	0.14		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00						0.02	1.23	0.06	0.01		7.37E-03	0.53	7.37E-03	1.40E-03		0.01	0.71	0.05	0.00		0.01	1.23	0.04	0.01		1.22	106.43	3.65	0.57		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.02	0.00						0.01	0.44	0.03	0.00		1.38E-05	0.09	7.37E-03	1.40E-03		0.00	0.25	0.02	0.00		0.00	0.44	0.02	0.00		0.43	37.56	1.88	0.29		0.00	0.25	0.01	0.00
NOx																																							
CO																																							
SO2																																							
VOC																																							
Lead	7439-92-1															1.38E-05	9.86E-04	1.38E-05	2.63E-06																					
Total HAPs																1.52E-04	5.91E-03	8.29E-05	1.58E-05																					
1,3-Dimethylnaphthalene	575-41-7																																							
1,4-Dimethylnaphthalene	571-58-4																																							
1,8-Dimethylnaphthalene	569-41-5																																							
1-Methylnaphthalene	90-12-0																																							
2,3,5-Trimethylnaphthalene	2245-38-7																																							
2,3-Dimethylnaphthalene	581-40-8																																							
2,6-Dimethylnaphthalene	581-42-0																																							
2,7-Dimethylnaphthalene	582-16-1																																							
2-Methylnaphthalene	91-57-6																																							
3-Methylcholanthrene	56-49-5																																							
7,12-Dimethylbenz(a)anthracene	57-97-6																																							
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8																																							
Acenaphthene	83-32-9																																							
Acenaphthylene	208-96-8																																							
Acetaldehyde	75-07-0																																							
Acetophenone	98-86-2																																							
Anthracene	120-12-7																																							
Arsenic	7440-38-2																																							
Benz(a)anthracene	56-55-3																																							
Benzene	71-43-2																																							
Benzo(a)pyrene	50-32-8																																							
Benzo(b)fluoranthene	205-99-2																																							
Benzo(g,h,i)perylene	191-24-2																																							
Benzo(k)fluoranthene	207-08-9																																							
Beryllium	7440-41-7																																							
Cadmium	7440-43-9															1.38E-05	9.86E-04	1.38E-05	2.63E-06																					
Chromium	7440-47-3															1.38E-05	9.86E-04	1.38E-05	2.63E-06																					
Chrysene	218-01-9																																							
Cobalt	7440-48-4															1.38E-05	9.86E-04	1.38E-05	2.63E-06																					
Cumene	98-82-8																																							
Dibenzo(a,h)anthracene	53-70-3																																							
Dibenzofuran	132-64-9																																							
Dichlorobenzene	95-50-1																																							
Ethylbenzene	100-41-4																																							
Fluoranthene	206-44-0																																							
Fluorene	86-73-7																																							
Formaldehyde	50-00-0																																							
Hexane	110-54-3																																							
Indeno(1,2,3-cd)pyrene	193-39-5																																							
Manganese	7439-96-5															1.38E-05	9.86E-04	1.38E-05	2.63E-06																					
Mercury	7439-97-6																																							
Methyl Alcohol	67-56-1																																							
Naphthalene	91-20-3																																							
Nickel	7440-02-0															8.29E-05	9.86E-04	1.38E-05	2.63E-06																					
o-Cresol	95-48-7																																							
Phenanthrene	85-01-8																																							
Phenol	108-95-2																																							
Pyrene	129-00-0																																							
Selenium	7782-49-2																																							
Styrene	100-42-5																																							
Toluene	108-88-3																																							
Xylenes	1330-20-7																																							
CO2																																							
CH4																																							
N2O																																							
CO2e																																							

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI106				3a) Tempo SI ID number:		EQUI107				3a) Tempo SI ID number:		EQUI108			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00
PM10		0.01	1.23	0.04	0.01	PM10		0.01	1.23	0.04	0.01	PM10		0.01	1.23	0.04	0.01
PM2.5		0.00	0.44	0.02	0.00	PM2.5		0.00	0.44	0.02	0.00	PM2.5		0.01	0.44	0.02	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI109				3a) Tempo SI ID number:		EQUI110				3a) Tempo SI ID number:		EQUI111			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.19	0.84	0.84	0.08	PM		0.00	0.02	0.01	0.00
PM10		0.02	1.23	0.06	0.01	PM10		0.16	0.71	0.71	0.07	PM10		0.00	0.01	0.00	0.00
PM2.5		0.01	0.44	0.02	0.00	PM2.5		0.06	0.25	0.25	0.02	PM2.5		0.00	0.00	0.00	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI112				3a) Tempo SI ID number:		EQUI113			
3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.01	0.01	0.00	PM		0.00	0.06	0.01	0.00
PM10		0.00	0.01	0.06	0.00	PM10		0.00	0.05	0.06	0.00
PM2.5		0.00	0.00	0.00	0.00	PM2.5		0.00	0.02	0.00	0.00
NOx						NOx					
CO						CO					
SO2						SO2					
VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2					
CH4						CH4					
N2O						N2O					
CO2e						CO2e					

GI-07 Spreadsheet — MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North, St. Paul, MN 55155-4194

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

2) Facility name: Northern Iron LLC

1b) Agency Interest ID number: 3518

I to provide emissions information for more emissions units, add more sets of columns (3a

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3l) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI114				3a) Tempo SI ID number:		EQUI115				3a) Tempo SI ID number:		EQUI116				3a) Tempo SI ID number:		EQUI117			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.01	0.00	0.00	PM		0.00	0.04	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		2.46E-03	0.16	3.51E-03	2.00E-03
PM10		0.00	0.01	0.00	0.00	PM10		0.01	0.71	0.04	0.00	PM10		0.01	1.23	0.04	0.01	PM10		2.46E-03	0.18	2.46E-03	1.40E-03
PM2.5		0.00	0.01	0.00	0.00	PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.44	0.02	0.00	PM2.5		4.60E-06	0.01	2.46E-03	1.40E-03
NOx		0.05	0.22	0.22	0.22	NOx						NOx						NOx					
CO		0.03	0.13	0.13	0.13	CO						CO						CO					
SO2		0.00	0.00	0.00	0.00	SO2						SO2						SO2					
VOC		0.00	0.02	0.02	0.02	VOC						VOC						VOC					
Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Total HAPs		0.00	0.00	0.00	0.00	Total HAPs						Total HAPs						Total HAPs		5.06E-05	1.97E-03	2.76E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3	0.00	0.00	0.00	0.00	Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0	2.76E-05	3.29E-04	4.60E-06	2.63E-06
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2		48.85	213.98	213.98	213.98	CO2						CO2						CO2					
CH4		0.00	0.00	0.00	0.00	CH4						CH4						CH4					
N2O		0.02	0.02	0.02	0.02	N2O						N2O						N2O					
CO2e		49.92	218.65	218.65	218.65	CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI118				3a) Tempo SI ID number:		EQUI119				3a) Tempo SI ID number:		EQUI120				3a) Tempo SI ID number:		IA-02 - IA-30			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		3.20E-04	0.79	1.40E-03	1.40E-03	PM		4.80E-05	0.70	2.10E-04	2.40E-06	PM		0.00	0.04	0.00	0.00	PM		0.01	0.57	0.04	0.04
PM10		2.24E-04	0.87	9.82E-04	9.82E-04	PM10		4.06E-05	0.60	1.78E-04	2.04E-06	PM10		0.00	0.04	0.00	0.00	PM10		0.01	0.57	0.04	0.04
PM2.5		2.24E-04	0.87	9.82E-04	9.82E-04	PM2.5		2.04E-05	0.30	8.94E-05	1.02E-06	PM2.5		0.00	0.04	0.00	0.00	PM2.5		0.00	0.24	0.02	0.02
NOx						NOx						NOx		0.16	0.68	0.68	0.68	NOx					
CO						CO						CO		0.09	0.40	0.40	0.40	CO					
SO2						SO2						SO2		0.00	0.00	0.00	0.00	SO2					
VOC						VOC						VOC		0.01	0.05	0.05	0.05	VOC		0.72	3.15	3.15	3.15
Lead	7439-92-1	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Lead	7439-92-1	3.15E-03	1.38E-02	2.83E-06	1.57E-07	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1				
Total HAPs		2.52E-06	7.88E-04	1.11E-05	1.11E-05	Total HAPs		3.15E-03	8.28E-02	1.76E-05	9.45E-07	Total HAPs		0.00	0.01	0.01	0.01	Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7				
Cadmium	7440-43-9	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Cadmium	7440-43-9	9.45E-07	1.38E-02	2.83E-06	1.57E-07	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9				
Chromium	7440-47-3	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Chromium	7440-47-3	9.45E-07	1.38E-02	2.83E-06	1.57E-07	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9				
Cobalt	7440-48-4	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Cobalt	7440-48-4	9.45E-07	1.38E-02	2.83E-06	1.57E-07	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3	0.00	0.00	0.01	0.01	Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Manganese	7439-96-5	9.45E-07	1.38E-02	2.83E-06	1.57E-07	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3				
Nickel	7440-02-0	4.21E-07	1.31E-04	1.84E-06	1.84E-06	Nickel	7440-02-0	9.45E-07	1.38E-02	2.83E-06	1.57E-07	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2		149.65	655.47	655.47	655.47	CO2					
CH4						CH4						CH4		0.00	0.01	0.01	0.01	CH4					
N2O						N2O						N2O		0.01	0.05	0.05	0.05	N2O					
CO2e						CO2e						CO2e		152.92	669.79	669.79	669.79	CO2e					

Melting & Refining Emissions

Scrap Preheating Sitewide Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	PM	PM10	PM2.5	Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*						Limited *(hourly @ bottlenecked capacity; annual @ sitewide melt limit)*						Actual *(projected throughput)*		
										Control Efficiency (not used in calculations)			Emissions Factor[1] (lb/ton metal)			PM		PM10		PM2.5		PM		PM10		PM2.5		PM	PM10	PM2.5
																Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
EQUI1	EU001	Scrap Preheat Oven 1	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147	0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
EQUI2	EU002	Scrap Preheat Oven 2	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147	0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
COMG1	GP001	Melting																					0.1985		0.2538		0.1985			

1 Emission factors based on 2023 Stack Test. Emissions controlled during test; therefore, control efficiency is not used in calculation

2 Combined annual emissions for EQUI1 and EQUI2 are capped based on the combined sitewide annual melt limit.

Limited emissions based on bottleneck from combined furnace capacity

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Metal Melting

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	HAP	PM	PM10	PM2.5	HAPs[2] Lead	Cadmium	Chromium	Manganese	Nickel	Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)* PM		PM10		PM2.5		Lead		Cadmium		Chromium	
										Control Efficiency				Emission Factor[1] (lb/ton metal)								Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
EQUI3	EU003	Electric Induction Furnace 1	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9	0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049
EQUI4	EU004	Electric Induction Furnace 2	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9	0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049
EQUI5	EU005	Electric Induction Furnace 3	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9	0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049
COMG1	GP001	Melting																															

1 Emission factor from AP-42, Table 12.10-3, Because of the high temperatures involved, assumed high fraction of condensibles, assumed all PM = PM10 = PM2.5

2 CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive
Foundries in Mexico (1999), Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

3 Combined annual emissions for EQUI3-5 are capped based on the combined sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Inoculation

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	HAP	PM	PM10	PM2.5	HAPs[2] Lead	Cadmium	Chromium	Manganese	Nickel	Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)* PM		PM10		PM2.5		Lead		Cadmium		Chromium	
										Control Efficiency				Emission Factor[1] (lb/ton metal)								Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
EQUI39	EU028	Inoculation	12.5	ton/hr	4.5	ton/hr	12,750	100%	TREA47	99%	93%	93%	93%	0.4	0.4	0.4	0.0130869	0.0002392	0.0017355	0.0328346	0.00210376	5.00	21.90	5.00	21.90	5.00	21.90	0.1636	0.7165	0.0030	0.0131	0.0217	0.0950

1 Emission factor from AP-42, Table 12.10-7, Assumed all PM = PM10 = PM2.5. The Emitted to Atmosphere factor is used because it emissions are released into a building, where the enclosure limits emissions, before being routed to the control device. Therefore, it is appropriate to consider reductions due to both (1) fallout of material and (2) control efficiency.

Note 1: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). Individual HAPs were not identified in this document so individual HAP emission factors are calculated as follows (lead shown for example):

(Total HAP emission factor)x(%PB of MHAPtotal). The %PB of MHAPtotal of 26.2% was obtained from CERP Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf).

Annual throughput assumes 85% of melted metal is inoculated for actual emission calculations.

						Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*																		Actual *(projected throughput)*								
Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0210	0.0920	0.0013	0.0059	0.0320	0.1401	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
0.0210	0.0920	0.0013	0.0059	0.0320	0.1401	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
0.0210	0.0920	0.0013	0.0059	0.0320	0.1401	0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
							0.0591		0.4139		0.4139		0.0026		0.0000		0.0003		0.0064		0.0004		0.0098									

						Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*																		Actual								
Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.4104	1.7977	0.0263	0.1152	0.6250	2.7375	0.0180	0.0540	0.1260	0.3780	0.1260	0.3780	0.0041	0.0124	0.0001	0.0002	0.0005	0.0016	0.0103	0.0310	0.0007	0.0020	0.0158	0.0473	0.0255	0.1785	0.1785	0.0058	0.0001	0.0008	0.0147	0.0009	0.0223

Pouring & Cooling Emissions

Pouring & Cooling Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM Control Efficiency	PM10	PM2.5	PM[1]	PM10[1]	PM2.5[1]	SOX[2]	NOX[2]	VOC[2]	CO[3]
													Emission Factor[1] (lb/ton metal)						
EQUI12	EU015	GISA Line Pouring & Cooling	5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.4234	0.5267	0.3857	0.02	0.01	0.14	2.75
EQUI13	EU016	30*2 Line Pouring & Cooling	10	ton/hr	4.5	ton/hr	7,500	100%	TREA46	99%	93%	93%	0.4234	0.5267	0.3857	0.02	0.01	0.14	2.75
COMG3	GP003	Pouring/Cooling																	

Potential (hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)																			
PM		PM10		PM2.5		SOX		NOX		VOC		CO							
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)						
2.1170	9.2725	2.6335	11.5347	1.9265	8.4468	0.1000	0.4380	0.0500	0.2190	0.7000	3.0660	13.7746	60.3328						
4.2340	18.5449	5.2670	23.0695	3.8570	16.8937	0.2000	0.8760	0.1000	0.4380	1.4000	6.1320	27.5492	120.6655						

Limited (based on lesser of capacity X 8,760 hr/yr or annual melt limit)																			
PM		PM10		PM2.5		SOX		NOX		VOC		CO							
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)						
0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	12.3971	37.1914						
0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	12.3971	37.1914						

Actual (projected throughput)							
PM	PM10	PM2.5	SOX	NOX	VOC	CO	
Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	
0.0159	0.1383	0.1012	0.0750	0.0375	0.5259	10.3310	
0.0159	0.1383	0.1012	0.0750	0.0375	0.5259	10.3310	

[1] Emission factors based on 2023 Stack Test

2 Source: WebFire - SCC 30400114

[3] Emission factors are from EPA's WebFire database

Annual limit assumes 15,000 tons metal melted per year for actual emission calculations

Note 3: CO Emission Factor calculated from "Foundary Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976

Information from article used for calculation

2.5 Liter exhaust/lb metal casting	Page 339 of AIGAJ 37:6, 1976
23.40% Max CO % in exhaust pouring/casting/cooling	Table 1, page 336 of AIGAJ 37:6, 1976
1350 ppmV CO from pouring/cooling	Table II, page 343 of AIGAJ 37:6, 1976
230 ppmV CO from shakeout	Table II, page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28 g/mol	CO molecular weight
22.4 Liter/mol	Assuming ideal gas molar volume at stp
453.59 g/lb	Conversion Factor

Emission factor for pouring/cooling

1.38E-03 lb CO/lb metal casting

2.75 lb CO/ton metal casting

Emission factor for pouring/cooling

2.35E-04 lb CO/lb metal casting

0.47 lb CO/ton metal casting

Pouring & Cooling HAP Emissions

			EQUI12; EU 15					EQUI13; EU 16				
			Potential		Limited		Actual	Potential		Limited		Actual
Pollutant[1]	Emission Factor (lb/ton metal)	HAP Control[1]	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(tpy)
Lead[2]	1.34E-03	93%	0.0067	0.0293	0.0004	0.0013	0.0004	0.0134	0.0585	0.0004	0.0013	0.0004
Cadmium	2.49E-05	93%	0.0001	0.0005	0.0000	0.0000	0.0000	0.0002	0.0011	0.0000	0.0000	0.0000
Chromium	2.80E-04	93%	0.0014	0.0061	0.0001	0.0003	0.0001	0.0028	0.0122	0.0001	0.0003	0.0001
Manganese	1.36E-03	93%	0.0068	0.0297	0.0004	0.0013	0.0004	0.0136	0.0595	0.0004	0.0013	0.0004
Selenium	4.10E-06	93%	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000
Acetaldehyde	3.49E-03	0%	0.0175	0.0765	0.0157	0.0472	0.0131	0.0349	0.1530	0.0157	0.0472	0.0131
Acetophenone	1.98E-04	0%	0.0010	0.0043	0.0009	0.0027	0.0007	0.0020	0.0087	0.0009	0.0027	0.0007
Benzene	3.71E-02	0%	0.1855	0.8123	0.1669	0.5007	0.1391	0.3709	1.6245	0.1669	0.5007	0.1391
o-Cresol	9.29E-04	0%	0.0046	0.0203	0.0042	0.0125	0.0035	0.0093	0.0407	0.0042	0.0125	0.0035
Cumene	1.27E-04	0%	0.0006	0.0028	0.0006	0.0017	0.0005	0.0013	0.0056	0.0006	0.0017	0.0005
Dibenzofuran	1.63E-05	0%	0.0001	0.0004	0.0001	0.0002	0.0001	0.0002	0.0007	0.0001	0.0002	0.0001
Ethylbenzene	1.97E-03	0%	0.0099	0.0432	0.0089	0.0266	0.0074	0.0197	0.0863	0.0089	0.0266	0.0074
Formaldehyde	1.87E-03	0%	0.0093	0.0409	0.0084	0.0252	0.0070	0.0187	0.0818	0.0084	0.0252	0.0070
Naphthalene	2.59E-03	0%	0.0130	0.0567	0.0117	0.0350	0.0097	0.0259	0.1135	0.0117	0.0350	0.0097
Nitrobenzene	5.03E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	0.0002	0.0000	0.0001	0.0000
Phenol	5.77E-03	0%	0.0288	0.1263	0.0259	0.0778	0.0216	0.0577	0.2526	0.0259	0.0778	0.0216
POMs	5.00E-03	0%	0.0250	0.1094	0.0225	0.0674	0.0187	0.0500	0.2188	0.0225	0.0674	0.0187
1,3-Dimethylnaphthalene	1.18E-04	0%	0.0006	0.0026	0.0005	0.0016	0.0004	0.0012	0.0052	0.0005	0.0016	0.0004
1,4-Dimethylnaphthalene	2.51E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0001	0.0003	0.0011	0.0001	0.0003	0.0001
1,6-Dimethylnaphthalene	5.32E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	0.0002	0.0000	0.0001	0.0000
1-Methylnaphthalene	9.81E-04	0%	0.0049	0.0215	0.0044	0.0132	0.0037	0.0098	0.0430	0.0044	0.0132	0.0037
2,3-Dimethylnaphthalene	9.53E-05	0%	0.0005	0.0021	0.0004	0.0013	0.0004	0.0010	0.0042	0.0004	0.0013	0.0004
2,6-Dimethylnaphthalene	1.13E-05	0%	0.0001	0.0002	0.0001	0.0002	0.0000	0.0001	0.0005	0.0001	0.0002	0.0000
2,7-Dimethylnaphthalene	2.62E-05	0%	0.0001	0.0006	0.0001	0.0004	0.0001	0.0003	0.0011	0.0001	0.0004	0.0001
2-Methylnaphthalene	1.12E-03	0%	0.0056	0.0245	0.0050	0.0151	0.0042	0.0112	0.0491	0.0050	0.0151	0.0042
Acenaphthalene/1,2- Dimethylnaphthalene	2.45E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0001	0.0002	0.0011	0.0001	0.0003	0.0001
Styrene	4.88E-04	0%	0.0024	0.0107	0.0022	0.0066	0.0018	0.0049	0.0214	0.0022	0.0066	0.0018
Toluene	2.00E-02	0%	0.0998	0.4369	0.0898	0.2693	0.0748	0.1995	0.8738	0.0898	0.2693	0.0748
Xylenes	1.20E-02	0%	0.0601	0.2631	0.0541	0.1622	0.0450	0.1201	0.5261	0.0541	0.1622	0.0450
		Total VOC	0.4446	1.9472	0.4001	1.2003	0.3334	0.8891	3.8944	0.4001	1.2003	0.3334
		Total HAPS	0.4596	2.0129	0.4011	1.2032	0.3342	0.9192	4.0259	0.4011	1.2032	0.3342

[1] **Only particulate** HAP emissions are controlled by TREA47.

[2] Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

[3] Unless Otherwise Noted, HAP emission factors are from CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive Foundries in Mexico (1999), Table 6 I (found at https://gaftp.epa.gov/air/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

[4] Emission factors base on 2023 Stack Testing

Metal Finishing Emissions

Shot Blast Booths

Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Shot Capacity (shot TPUT)		Bottlenecked Shot Capacity		Site Rated Metal Melt Capacity		Annual TPUT - Shot (ton/yr)[4]	Annual TPUT - Metal (ton/yr)[4]	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	Primary Control Efficiency PM10	Primary Control Efficiency PM2.5	Primary Control Efficiency HAP	Secondary Control ID Number	Secondary Control Efficiency PM	Secondary Control Efficiency PM10	Secondary Control Efficiency PM2.5[3]	Secondary Control Efficiency HAP	Emission Factor[2] (lb/lb - PM/10/2.5; lb/ton metal - HAPs) PM	PM10	PM2.5	HAP[4] Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Potential PM Emission Rate (lb/hr)	Potential PM Emission Rate (ton/yr)	Potential PM10 Emission Rate (lb/hr)	Potential PM10 Emission Rate (ton/yr)	Potential PM2.5 Emission Rate (lb/hr)	Potential PM2.5 Emission Rate (ton/yr)	Potential Lead Emission Rate (lb/hr)	Potential Lead Emission Rate (ton/yr)
EQUI58	EU020	BCT Drumblast Machine	64,000	lb/hr	64,000	lb/hr	4.5	ton/hr	64,000	5,000	100%	TREA37/21	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	256	1,121.28	217.60	953.09	108.80	476.54	0.0032	0.0138
EQUI16	EU021	Tableblast	32,000	lb/hr	32,000	lb/hr	4.5	ton/hr	32,000	5,000	100%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	128	560.64	108.80	476.54	54.40	238.27	0.0032	0.0138
EQUI51	na	Tumblemill	200	lb/hr	200	lb/hr	4.5	ton/hr	200	5,000	100%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.8	3.50	0.68	2.98	0.34	1.49	0.0032	0.0138

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 5,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1999, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions.

5 Limited annual HAP emissions are limited to the sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

Finishing Operations

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual TPUT - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	Primary Control Efficiency PM10	Primary Control Efficiency PM2.5	Primary Control Efficiency HAP	Secondary Control ID Number	Secondary Control Efficiency PM	Secondary Control Efficiency PM10	Secondary Control Efficiency PM2.5	Secondary Control Efficiency HAP	Emission Factor[1] (lb/ton metal) PM	PM10	PM2.5	HAP[3] Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Potential PM Emission Rate (lb/hr)	Potential PM Emission Rate (ton/yr)	Potential PM10 Emission Rate (lb/hr)	Potential PM10 Emission Rate (ton/yr)	Potential PM2.5 Emission Rate (lb/hr)	Potential PM2.5 Emission Rate (ton/yr)	Potential Lead Emission Rate (lb/hr)	Potential Lead Emission Rate (ton/yr)	Potential Cadmium Emission Rate (lb/hr)	Potential Cadmium Emission Rate (ton/yr)	Potential Chromium Emission Rate (lb/hr)
EQUI17	EU029	South Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA40/39	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	7.01	0.16	0.7008	0.16	0.7008	0.0003	0.0013	0.0003	0.0013	0.0003
EQUI18	EU030	East Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007	0.0002	0.0007	0.0002
EQUI20	EU032	West Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007	0.0002	0.0007	0.0002
EQUI23	EU035	Double Belt Sander	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003	0.0001	0.0003	0.0001
EQUI117	EU035	NE Finishing Grinder	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003	0.0001	0.0003	0.0001
EQUI24	EU036	SW Bench Grinder	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	0.16	0.08	0.3504	0.08	0.04	0.0002	0.0007	0.0002	0.0007	0.0002
EQUI28	EU040	NE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010	0.0002	0.0010	0.0002
EQUI29	EU041	SE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010	0.0002	0.0010	0.0002
EQUI100	n.a	SW Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010	0.0002	0.0010	0.0002
EQUI30	EU042	North Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA41/42	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013	0.0003	0.0013	0.0003
EQUI41	n.a	Snag Grinder 2	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013	0.0003	0.0013	0.0003
EQUI42	n.a	Snag Grinder 3	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013	0.0003	0.0013	0.0003
COMG5	GP005	Grinding/Cutting Operations																																					

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)] The document is included as an attachment to these calculations. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

Machine Shop

Double Disc Sander and Shot Blast Machine

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	Primary Control Efficiency PM10	Primary Control Efficiency PM2.5	Primary Control Efficiency HAP	Secondary Control ID Number	Secondary Control Efficiency PM	Secondary Control Efficiency PM10	Secondary Control Efficiency PM2.5	Secondary Control Efficiency HAP	Emission Factor[1] (lb/ton metal) PM	PM10	PM2.5	HAP[2] Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Potential PM Emission Rate (lb/hr)	Potential PM Emission Rate (ton/yr)	Potential PM10 Emission Rate (lb/hr)	Potential PM10 Emission Rate (ton/yr)	Potential PM2.5 Emission Rate (lb/hr)	Potential PM2.5 Emission Rate (ton/yr)	Potential Lead Emission Rate (lb/hr)	Potential Lead Emission Rate (ton/yr)	Potential Cadmium Emission Rate (lb/hr)	Potential Cadmium Emission Rate (ton/yr)	Potential Chromium Emission Rate (lb/hr)
EQUI118	n.a	Machine Shop Double Disc Sander	0.1	ton/hr	0.1	ton/hr	876	80%	TREA45	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.160	0.701	0.016	0.070	0.016	0.070	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)]. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions. These grinding and shot blast emissoins factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus primary control is included.

Shot Blast Booths

EQUI	EU	Unit Desc	Rated Capacity (shot TPUT)		Bottlenecked Capacity		Site Rated Metal Melt Capacity		Annual Throughput - Shot[1] (ton/yr)	Annual Throughput - Metal[1] (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	Primary Control Efficiency PM10	Primary Control Efficiency PM2.5	Primary Control Efficiency HAP	Emission Factor[2] (lb/lb - PM/10/2.5; lb/ton metal - HAP) PM	PM10	PM2.5[3]	HAP[4] Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Potential PM Emission Rate (lb/hr)	Potential PM Emission Rate (ton/yr)	Potential PM10 Emission Rate (lb/hr)	Potential PM10 Emission Rate (ton/yr)	Potential PM2.5 Emission Rate (lb/hr)	Potential PM2.5 Emission Rate (ton/yr)	Potential Lead Emission Rate (lb/hr)	Potential Lead Emission Rate (ton/yr)	Potential Cadmium Emission Rate (lb/hr)	Potential Cadmium Emission Rate (ton/yr)	Potential Chromium Emission Rate (lb/hr)	Potential Chromium Emission Rate (ton/yr)	Potential Cobalt Emission Rate (lb/hr)
EQUI119	n.a	Machine Shop Blast Machine	40	lb/hr	40	lb/hr	4.5	ton/hr	40	1,500	100%	TREA44	99.97%	99.97%	99.97%	99.97%	0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.160	0.701	0.136	0.596	0.068	0.298	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 10% of 15,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1999, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions. These grinding and shot blast emissoins factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus reductions due to the primary control are included.

(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)												**Limited** (hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)																				**Actual** (projected throughput)									
Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	7.68E-04	3.36E-03	4.57E-03	2.00E-02	2.28E-03	1.00E-02	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	3.84E-07	2.28E-06	1.14E-06	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07
0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	3.84E-04	1.68E-03	2.28E-03	1.00E-02	1.14E-03	5.00E-03	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	1.92E-07	1.14E-06	5.71E-07	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07
0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	2.40E-06	1.05E-05	1.43E-05	6.25E-05	7.14E-06	3.13E-05	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	1.20E-09	7.14E-09	3.57E-09	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07

ax hourly X 8,760 hr/yr)									**Limited** (hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)																				**Actual** (projected throughput)									
nium	Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0005	0.0020	0.0008	0.0035	0.0006	0.0025	0.0006	0.0025	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	6.31E-06	2.76E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0005	0.0020	0.0008	0.0035	0.0006	0.0025	0.0006	0.0025	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	6.31E-06	2.76E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011	0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0014	0.0059	0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0014	0.0059	0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0014	0.0059	0.0024	0.0105	0.0017	0.0074	0.0017	0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022	0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05

ax hourly X 8,760 hr/yr)									**Limited** (captured portion to 1st + 2nd controls, uncaptured to 2nd control only)																				**Actual** (same as Limited)									
nium	Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	0.0002	0.0008	3.20E-04	1.40E-03	2.24E-04	9.82E-04	2.24E-04	9.82E-04	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	2.52E-06	1.11E-05	1.40E-03	9.82E-04	9.82E-04	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.11E-05

							Limited (bottlenecked capacity to control; annual = max hourly X 8,760 hr/yr)																				**Actual** (projected throughput shot/metal)									
balt	Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	0.0189	0.0828	4.80E-05	2.10E-04	4.08E-05	1.79E-04	2.04E-05	8.94E-05	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	5.67E-06	1.70E-05	2.40E-08	2.04E-08	1.02E-08	1.57E-07	1.57E-07	1.57E-07	1.57E-07	1.57E-07	1.57E-07	9.45E-07

Shakeout Emissions

Shakeout Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	PM10	PM2.5	HAP	Secondary Control ID Number	Secondary Control Efficiency PM	PM10	PM2.5	HAP	Emission Factor[1] (lb/ton metal) PM	PM10[2]	PM2.5[2]	CO
DISA Line																						
EQUI80	EU017	DISA #1 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%	0.640	0.448	0.269	0.469
EQUI81	EU017	DISA #2 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%	0.640	0.448	0.269	0.469
EQUI82	EU017	DISA #3 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%	0.640	0.448	0.269	0.469
EQUI83	EU017	DISA Didion	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%	0.640	0.448	0.269	0.469
EQUI84	EU017	DISA #5 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%	0.640	0.448	0.269	0.469
30^2 Line																						
EQUI63	EU018	30^2 Unit 10	10	ton/hr	4.5	ton/hr	9,000	80%	TREA23	99%	95%	95%	95%	TREA46	99%	93%	93%	93%	1.067	0.747	0.448	0.469
EQUI65	EU018	30^2 Unit 11	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%	1.067	0.747	0.448	0.469
EQUI66	EU018	30^2 Unit 12	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%	1.067	0.747	0.448	0.469
COMG4	**GP004**	**Shakeout**																				

	Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*								Limited *(captured to both controls, uncaptured to 2nd only; annual by sitewide limit)*								Actual *(same as Limited)*			
	PM		PM10		PM2.5		CO		PM		PM10		PM2.5		CO		PM	PM10	PM2.5	CO
EQUI	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
EQUI80	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.141	0.423	0.085	0.254	2.112	6.336	0.017	0.085	0.051	1.267
EQUI81	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI82	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI83	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI84	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.141	0.423	0.085	0.254	2.112	6.336	0.017	0.085	0.051	1.267
EQUI63	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.181	0.544	0.109	0.327	2.112	6.336	0.048	0.181	0.109	2.112
EQUI65	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.235	0.706	0.141	0.423	2.112	6.336	0.048	0.235	0.141	2.112
EQUI66	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.235	0.706	0.141	0.423	2.112	6.336	0.048	0.235	0.141	2.112

1 Emissions factor source: AP42 table 12.10-7. Emissions factor is for shakeout process as a whole so factor divided be number of components in process (DISA-5; 30^2-3)

2 PM10 and PM2.5 factors based on Shakeout EF multiplied by AP 42 table 12.10-8 shakeout cumulative mass % of total PM (PM10:70%; PM2.5:42%)

3 CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive
Foundries in Mexico (1999), Table 6.1 - Lead (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

DISA Line captured emissions controlled by TREA2. Uncaptured emissions controlled by TREA47

30^2 Line captured emissions controlled by TREA23. Uncaptured emissions controlled by TREA46

Note 3: CO Emission Factor calculated from "Foundary Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976

Information from article used for calculation

2.5 Liter exhaust/lb metal casting	Page 339 of AIGAJ 37:6, 1976
23.40% Max CO % in exhaust pouring/casting/c	Table 1, page 336 of AIGAJ 37:6, 1976
1350 ppmV CO from pouring/cooling	Table II, page 343 of AIGAJ 37:6, 1976
230 ppmV CO from shakeout	Table II, page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28 g/mol	CO molecular weight
22.4 Liter/mol	Assuming ideal gas molar volume at stp
453.59 g/lb	Conversion Factor

Emission factor for pouring/cooling
1.38E-03 lb CO/lb metal casting
2.75 lb CO/ton metal casting

Emission factor for pouring/cooling
2.35E-04 lb CO/lb metal casting
0.47 lb CO/ton metal casting

Shakeout HAP Emissions

Pollutant[1]	Emission Factor[2] (lb/ton metal)	HAP Control [3]	Disa Line (EQUI80 - EQUI84) Potential (lb/hr)	Potential (tpy)	Limited (lb/hr)	Limited (tpy)	Actual (tpy)	30^2 Line (EQUI 63, 65, 66) Potential (lb/hr)	Potential (tpy)	Limited (lb/hr)	Limited (tpy)	Actual (tpy)
Lead	7.29E-05	See Table Above	0.0004	0.0016	2.30E-05	6.89E-05	1.38E-05	0.0007	0.0032	2.30E-05	6.89E-05	2.30E-05
Cadmium	1.67E-05	See Table Above	0.0001	0.0004	5.26E-06	1.58E-05	3.16E-06	0.0002	0.0007	5.26E-06	1.58E-05	5.26E-06
Chromium	1.71E-04	See Table Above	0.0009	0.0037	5.39E-05	1.62E-04	3.23E-05	0.0017	0.0075	5.39E-05	1.62E-04	5.39E-05
Manganese	3.39E-04	See Table Above	0.0017	0.0074	1.07E-04	3.20E-04	6.41E-05	0.0034	0.0148	1.07E-04	3.20E-04	1.07E-04
Acetaldehyde	5.78E-02	0%	0.2890	1.2658	0.2601	0.7803	0.1561	0.5780	2.5316	0.2601	0.7803	0.2601
Acetophenone	7.92E-04	0%	0.0040	0.0173	0.0036	0.0107	0.0021	0.0079	0.0347	0.0036	0.0107	0.0036
Benzene	2.68E-02	0%	0.1340	0.5869	0.1206	0.3618	0.0724	0.2680	1.1738	0.1206	0.3618	0.1206
o-Cresol	1.40E-02	0%	0.0700	0.3066	0.0630	0.1890	0.0378	0.1400	0.6132	0.0630	0.1890	0.0630
Cumene	3.82E-04	0%	0.0019	0.0084	0.0017	0.0052	0.0010	0.0038	0.0167	0.0017	0.0052	0.0017
Dibenzofuran	3.34E-04	0%	0.0017	0.0073	0.0015	0.0045	0.0009	0.0033	0.0146	0.0015	0.0045	0.0015
Ethylbenzene	2.91E-03	0%	0.0146	0.0637	0.0131	0.0393	0.0079	0.0291	0.1275	0.0131	0.0393	0.0131
Formaldehyde	2.57E-02	0%	0.1285	0.5628	0.1157	0.3470	0.0694	0.2570	1.1257	0.1157	0.3470	0.1157
Naphthalene	8.37E-03	0%	0.0419	0.1833	0.0377	0.1130	0.0226	0.0837	0.3666	0.0377	0.1130	0.0377
Phenol	2.80E-02	0%	0.1400	0.6132	0.1260	0.3780	0.0756	0.2800	1.2264	0.1260	0.3780	0.1260
POMs	2.21E-02	0%	0.1105	0.4840	0.0995	0.2984	0.0597	0.2210	0.9680	0.0995	0.2984	0.0995
1,3-Dimethylnaphthalene	1.03E-03	0%	0.0052	0.0226	0.0046	0.0139	0.0028	0.0103	0.0451	0.0046	0.0139	0.0046
1,4-Dimethylnaphthalene	4.64E-04	0%	0.0023	0.0102	0.0021	0.0063	0.0013	0.0046	0.0203	0.0021	0.0063	0.0021
1,8-Dimethylnaphthalene	1.06E-03	0%	0.0053	0.0232	0.0048	0.0143	0.0029	0.0106	0.0464	0.0048	0.0143	0.0048
1-Methylnaphthalene	3.41E-03	0%	0.0171	0.0747	0.0153	0.0460	0.0092	0.0341	0.1494	0.0153	0.0460	0.0153
2,3,5-Trimethylnaphthalene	7.14E-04	0%	0.0036	0.0156	0.0032	0.0096	0.0019	0.0071	0.0313	0.0032	0.0096	0.0032
2,3-Dimethylnaphthalene	6.50E-04	0%	0.0033	0.0142	0.0029	0.0088	0.0018	0.0065	0.0285	0.0029	0.0088	0.0029
2,6-Dimethylnaphthalene	5.68E-04	0%	0.0028	0.0124	0.0026	0.0077	0.0015	0.0057	0.0249	0.0026	0.0077	0.0026
2,7-Dimethylnaphthalene	4.10E-04	0%	0.0021	0.0090	0.0018	0.0055	0.0011	0.0041	0.0180	0.0018	0.0055	0.0018
2-Methylnaphthalene	5.22E-03	0%	0.0261	0.1143	0.0235	0.0705	0.0141	0.0522	0.2286	0.0235	0.0705	0.0235
Acenaphthalene/1,2- Dimethylnaphthalene	2.20E-04	0%	0.0011	0.0048	0.0010	0.0030	0.0006	0.0022	0.0096	0.0010	0.0030	0.0010
Styrene	4.81E-03	0%	0.0241	0.1053	0.0216	0.0649	0.0130	0.0481	0.2107	0.0216	0.0649	0.0216
Toluene	2.21E-02	0%	0.1105	0.4840	0.0995	0.2984	0.0597	0.2210	0.9680	0.0995	0.2984	0.0995
Xylenes	1.78E-02	0%	0.0890	0.3898	0.0801	0.2403	0.0481	0.1780	0.7796	0.0801	0.2403	0.0801
		Total VOC	1.1177	4.8956	1.0059	3.0178	0.6036	2.2354	9.7912	1.0059	3.0178	1.0059
		Total HAPS	1.1207	4.9087	1.0061	3.0184	0.6037	2.2414	9.8175	1.0061	3.0184	1.0061

[1] Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

[2] HAP emission factors are from CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive Foundries in Mexico (1999), Table 6.1 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

[3] HAP emissions assume only secondary control (no primary control)

Nobake Cores

Emissions from the Nobake Core making come from mixing sand and resin together. Emission factors are from AP-42. Binder mixing emission factors are calculated from "Form R Reporting of Binder chemicals used in Foundries" and SDS of binders used. Calculations are made using the conservative assumption that 2.0% of the core mix is binder.
VOCs, individual HAPs, and total HAPs are limited under COMG7. Sand throughputs are restricted by COMG2.
EQU52 and EQU53 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47.

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	Control Efficiency PM	Control Efficiency PM10	Control Efficiency PM2.5	Control Efficiency VOC	Emission Factor[1] (lb/ton sand) PM[2]	Emission Factor PM10	Emission Factor PM2.5[2]	Emission Factor VOC
EQU52	EU010	Disco Core Machine	0.5	tons/hr	0.5	tons/hr	1,000	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.820
EQU53	EU010	ABC6 Core Machine	0.4125	tons/hr	0.4125	tons/hr	825	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.820
COMG7	GP007	Primary VOC/HAP Sources															

EQUI	Potential (hourly @ rated capacity; annual = max hourly X 8,760 hr/yr) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)
EQU52	0.318	1.391	0.270	1.183	0.095	0.417	0.410	1.797
EQU53	0.262	1.148	0.223	0.976	0.079	0.344	0.338	1.482

EQUI	Limited (bottlenecked capacity to control; annual = max hourly X 8,760 hr/yr) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)	Actual (projected throughput) PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (ton/yr)
EQU52	0.003	0.014	0.019	0.083	0.007	0.029	0.410	1.797	0.003	0.019	0.007	0.410
EQU53	0.003	0.011	0.016	0.068	0.006	0.024	0.338	1.482	0.003	0.016	0.006	0.338

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip

Note 1: Binder Emissions

The following tables are taken from "Form R Reporting of Binder Chemicals Used in Foundries" Fourth Edition, available online at https://afsinc.s3.amazonaws.com/Documents/EHS/inquality/1.5%20-%20AFS_CISA%20Guidance.pdf
Worst case pollutant rates calculated following instructions provided in "Form R Reporting of Binder Chemicals Used in Foundries" and the SDS for binders used at Northern Iron and Machine.

Furan Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Resin					
Phenol (108-95-2)	98	0	2	0	0
Formaldehyde (50-00-0)	98	2	0	1	0.0002
Methyl Alcohol (67-56-1)	0	50	50	3	0.015
Catalyst					
Methyl Alcohol (67-56-1)	0	50	50	0	0
Sulfuric Acid (8774-93-9)	100	0	0	3	0

Phenolic Urethane Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Phenol (108-95-2)	98	0	2	10	0
Formaldehyde (50-00-0)	98	2	0	0.1	2.00E-03
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethyl Benzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0
Part II					
Methylene Phenylene Isocyante(1) (101-68-8)	99.99	0	0.01	0	0
Polymeric diphenylmethane Diisocyanate (9016-87-9)	99.99	0	0.01	50	0
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethylbenzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0

Phenolic Urethane Coldbox Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Formaldehyde (50-00-0)	98	2	0	0	0
Phenol (108-95-2)	98	0	2	5	0
Xylene (1330-20-7)	0	3.25	96.75	0	0
Cumene (98-82-8)	0	3.25	96.75	0	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
1,2,4 Trimethylbenzene (95-63-6)	0	3.25	96.75	0	0
Part II					
Methylene Phenylene Isocyanate (101-68-8)(1)	99.99	0	0.01	0	0
Polymeric Diphenylmethane Diisocyanate (9016-87-9)	99.99	0	0.01	10	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
Xylene (1330-20-7)	0	3.25	96.75	0	0
Biphenyl (95-52-4)	0	3.25	96.75	0	0

Comparison of Core Binders

Material	lb/lb Furan Nobake binder used	lb/lb Phenolic Urethane Nobake Binder	lb/ lb Phenolic Urethane Coldbox Binder	worst case lb/lb binder	Worst case lb/ton core mix
Binder content in core mix	0.02				
Phenol	0	0	0	0	0
Formaldehyde	2.00E-04	0.002	0	2.00E-03	8.00E-02
Methyl Alcohol	1.50E-02	0	0	1.50E-02	6.00E-01
Naphthalene	0	3.51E-03	1.95E-03	3.51E-03	1.40E-01
1,2,4 Trimethyl Benzene	0	0	0	0	0
Cumene	0	0	0	0	0
Xylene	0	0	0	0	0
Methylene Phenylene Isocyanate	0	0	0	0	0
Polymeric diphenylmethane Diisocyanate	0	0	0	0	0
Biphenyl	0	0	0	0	0

Worst case pollutant rates calculated from tables in "Form R Reporting of Binder Chemicals used in Foundries" and the SDS for binders used at Northern Iron and Machine. Per Northern Iron and Machine, max amount of binder in cores is 2.75%.

Shell Cores

Higher tensile strength cores use premixed sand/resin and are heat treated during the curing process. Emissions from this operation are from sand handling and combustion. Combustion emissions for these units are included in summary page. Sand throughput is limited under COMG2.
EQU54, EQU55, and EQU56 are controlled by HEPA filters exhausting internally and ultimately to STRU12.

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Primary Control Efficiency PM	PM10	PM2.5	Secondary Control Efficiency PM	PM10	PM2.5	Emission Factor[1] (lb/ton sand) PM[2]	PM10	PM2.5[2]	HAPs Formaldehyde	Methyl Alcohol	Naphthalene
EQU55	EU013	East CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140
EQU54	EU013	West CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140
EQU56	EU013	CR-22	1.1	tons/hr	1.1	tons/hr	2,200	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140

EQUI	Potential (hourly @ rated capacity; annual = hourly X 8,760 hr/yr) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (lb/hr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (lb/hr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (lb/hr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (lb/hr)	Total HAP Emission Rate (ton/yr)
EQU55	0.210	0.918	0.178	0.781	0.063	0.275	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQU54	0.210	0.918	0.178	0.781	0.063	0.275	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQU56	0.699	3.061	0.594	2.602	0.210	0.918	0.088	0.385	0.660	2.891	0.154	0.676	0.902	3.953

EQUI	Limited (captured to both controls, uncaptured to 2nd only) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (lb/hr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (lb/hr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (lb/hr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (lb/hr)	Total HAP Emission Rate (ton/yr)
EQU55	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQU54	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQU56	1.40E-03	6.13E-03	8.33E-03	3.65E-02	2.94E-03	1.29E-02	0.088	0.385	0.660	2.891	0.154	0.676	0.902	3.953

EQUI	Actual (projected throughput) PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (ton/yr)
EQU55	4.20E-04	2.50E-03	8.82E-04	0.026	0.198	0.046	0.271
EQU54	4.20E-04	2.50E-03	8.82E-04	0.026	0.198	0.046	0.271
EQU56	1.40E-03	8.33E-03	2.94E-03	0.088	0.660	0.154	0.902

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip

Core Wash

Cores sent to tunnel oven go through a core wash. Core wash density and rate provided by Northern Iron. VOC emissions are limited under COMG7. Operations are uncontrolled.

EQUI	EU	Unit Desc	Capacity	Annual Throughput	Potential VOC Emission Rate (lb/hr)	Potential VOC Emission Rate (ton/yr)	Limited VOC Emission Rate (lb/hr)	Limited VOC Emission Rate (ton/yr)	Actual VOC Emission Rate (ton/yr)
EQU11	EU014	Core Wash	15 gal/day	757,143 gal/yr	3.50	15.33	3.50	15.33	2.12

Core Wash capacity, max rate, and wash density provided by Northern Iron

Capacity:	15 gallons
Rate	1 Container per day
Wash density:	5.6 lb/gal
Emission factor:	1 lb VOC emitted/lb VOC used
	5.6 lb VOC/gallon

Sand Handling Emissions

Sand handling is composed of the DISA and 30^2 mold lines. Mold and core sand is reclaimed during the mold making process and shakeout. Reclaimed sand is stored in the muller tank to be used again in new molds. Both lines and the core making operations are limited to a single sand throughput limit at COMG2. PTE for COMG2 is the line with the highest emissions operating at the sand handling limit.

Shakeout Annual 30^2 Line Sand Limit: 270,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Sand (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	Primary Control Efficiency PM10	Primary Control Efficiency PM2.5	Secondary Control ID Number	Secondary Control Efficiency PM	Secondary Control Efficiency PM10	Secondary Control Efficiency PM2.5	Emission Factor[1] (lb/ton sand) PM	Emission Factor[1] (lb/ton sand) PM10[2]	Emission Factor[1] (lb/ton sand) PM2.5[2]	Potential *(hourly @ rated capacity; annual = hourly X 8,760 hr/yr)* PM Emission Rate (lb/hr)	Potential PM Emission Rate (ton/yr)	Potential PM10 Emission Rate (lb/hr)	Potential PM10 Emission Rate (ton/yr)	Potential PM2.5 Emission Rate (lb/hr)	Potential PM2.5 Emission Rate (ton/yr)	Limited *(bottlenecked capacity to control; annual = hourly X 8,760 hr/yr)* PM Emission Rate (lb/hr)	Limited PM Emission Rate (ton/yr)	Limited PM10 Emission Rate (lb/hr)	Limited PM10 Emission Rate (ton/yr)	Limited PM2.5 Emission Rate (lb/hr)	Limited PM2.5 Emission Rate (ton/yr)	Actual *(projected throughput)* PM Emission Rate (ton/yr)	Actual PM10 Emission Rate (ton/yr)	Actual PM2.5 Emission Rate (ton/yr)
DISA Line																																			
EQUI96	EU008	DISA Bond Day Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI72	EU008	DISA Line Muller	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191	16.518	72.347	14.040	61.495	4.955	21.704	0.165	0.858	0.702	1.286	0.248	1.085	0.0683	0.2903	0.1024
EQUI73	EU008	DISA Muller Discharge Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI74	EU008	DISA Muller Distribution Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI95	EU008	DISA Prepared Sand Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI75	EU008	DISA Feed Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI102	EU008	DISA Aerator	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI97	EU008	DISA Mold Machine	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI78	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI105	EU008	DISA Bond Transport	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.008	0.036	0.003	0.013	7.92E-04	0.0034	0.0012
EQUI110	EU008	DISA Outdoor Bond Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.192	0.839	0.163	0.713	0.057	0.252	7.92E-02	0.0673	0.0238
EQUI79	EU008	DISA Cross Spill	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI76	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI77	EU008	DISA Spill Pan	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI85	EU008	DISA Mag Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI86	EU008	DISA Return Sand Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI87	EU008	DISA 125 Ton Sand Bin	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI88	EU008	DISA 125 Ton Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI89	EU008	DISA New/Old Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI90	EU008	DISA New/Old Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI91	EU008	DISA Muller Storage Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI115	EU008	DISA Hopper	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
30^2 Line																																			
EQUI104	EU009	30^2 Muller	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191	28.588	125.216	24.300	106.434	8.576	37.565	0.286	0.858	1.215	3.645	0.429	1.878	0.1350	0.5738	0.2025
EQUI92	EU009	30^2 Discharge Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI94	EU009	30^2 Distribution belt conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI98	EU009	30^2 Mold Making	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI93	EU009	30^2 Cross Belt Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI60	EU009	30^2 Machine Belt Sand	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI109	EU009	30^2 Prepared Sand Tank	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI61	EU009	30^2 Sprue Belt	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI62	EU009	30^2 Machine Incline	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI64	EU009	30^2 Mag Belt	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI69	EU009	30^2 Incline to Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
EQUI70	EU009	30^2 Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI68	EU009	30^2 Aerator	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI71	EU009	30^2 Sand Cooler	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	2.00E+00	1.58E+00	9.00E-01	90.000	394.200	71.100	311.418	40.500	177.390	0.900	2.700	3.555	10.665	2.025	8.870	0.4250	1.6788	0.9563
EQUI67	EU009	30^2 Return Sand Elevator	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
EQUI106	EU009	30^2 Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI107	EU009	30^2 Bond Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI108	EU009	30^2 Sand Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI116	EU009	30^2 Bond Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI103	EU009	30^2 Return Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
Core Making																																			
EQUI111	EU010	ABC6 Sand Tank	0.5	ton/hr	0.5	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.004	0.016	0.003	0.014	0.001	0.005	3.68E-05	9.95E-03	2.19E-04	5.92E-02	7.74E-05	3.39E-04	8.44E-06	5.02E-05	1.77E-05
EQUI112	EU010	Disco Sand Tank	0.4125	ton/hr	0.4125	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.003	0.013	0.003	0.011	0.001	0.004	3.04E-05	9.95E-03	1.81E-04	5.92E-02	6.38E-05	2.80E-04	8.44E-06	5.02E-05	1.77E-05
EQUI113	EU010	Sand Loading (CR16 and CR22)	1.76	ton/hr	1.76	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.013	0.057	0.011	0.048	0.004	0.017	1.30E-04	9.95E-03	7.72E-04	5.92E-02	2.72E-04	1.19E-03	8.44E-06	5.02E-05	1.77E-05
COMG2	**GP002**	**Sand Handling**																																	

1 Emissions factor for sand handling is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by the MPCA. See supporting documentation in the Sand Handling EF tab. Muller factor: AP42, Tbl. 12.13-2. Sand Cooler factor: AP42, Tbl. 11.19.1-1. The Mueller and Sand Cooler Factors are reported as PM10 and have been divided by the EPA PM Augmentation too value of 85% to determine the PM emission factor. The PM2.5 emission factor for the Muller and Sand Cooler is calculated as 30% of the PM emission factor (based on data in the EPA PM Augmentation tool)

2 PM10 and PM2.5 calculated based on the PM Augmentation for the respective SCC. The PM Augmentation Calculator Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

DISA Line EQUI 72, 85, 86, 87, 88, 89, 90, 105 and 115 are controlled by TREA 2. Fugitives from these operations are contained within the building and routed to dust collector TREA47

30^2 Line EQUI 108, 107, 106, 104, 103, 71 ,67, 64 are controlled by TREA 23. Fugitives from these operations are contained within the building and routed to dust collectors TREA46 and TREA47

Core Making EQUI 111, 112, 113 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	PM		PM10		PM2.5		Lead		NOx		CO		SO2		VOC	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EQUI1	EU001	Scrap Preheat Oven 1	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
EQUI2	EU002	Scrap Preheat Oven 2	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
EQUI9	EU012	Core Tunnel Oven	0.8	0.006	0.027	0.006	0.027	0.006	0.027	3.92E-07	1.72E-06	0.113	0.495	0.066	0.289	4.71E-04	2.06E-03	0.009	0.038
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014
EQUI56	EU013	CR-22	0.9	0.007	0.030	0.007	0.030	0.007	0.030	4.41E-07	1.93E-06	0.127	0.557	0.074	0.325	5.29E-04	2.32E-03	0.010	0.043
EQUI36	EU025	Large Heat Treat Oven	1.6	0.012	0.053	0.012	0.053	0.012	0.053	7.84E-07	3.44E-06	0.226	0.990	0.132	0.577	9.41E-04	4.12E-03	0.017	0.076
EQUI37	EU026	Small Heat Treat Oven	4	0.030	0.133	0.030	0.133	0.030	0.133	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190
EQUI46	na	East MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
EQUI47	na	West MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288
EQUI48	na	North MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
EQUI49	na	South MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157
EQUI114	na	Furnace Basement MUA	0.3591	0.003	0.012	0.003	0.012	0.003	0.012	1.76E-07	7.71E-07	0.051	0.222	0.030	0.130	2.11E-04	9.25E-04	0.004	0.017
EQUI50	na	Finishing MUA	2.25	0.017	0.075	0.017	0.075	0.017	0.075	1.10E-06	4.83E-06	0.318	1.393	0.185	0.812	1.32E-03	5.80E-03	0.024	0.107
EQUI120	na	Machine Shop MUA	1.1	0.008	0.037	0.008	0.037	0.008	0.037	5.39E-07	2.36E-06	0.155	0.681	0.091	0.397	6.47E-04	2.83E-03	0.012	0.052

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Limited *(hourly @ rated capacity with controls; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	Control ID Number	Control Efficiency				PM		PM10		PM2.5		Lead		NOx		C
					PM	PM10	PM2.5	HAP1	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
EQUI1	EU001	Scrap Preheat Oven 1	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-07	6.01E-07	0.565	2.476	0.329
EQUI2	EU002	Scrap Preheat Oven 2	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-07	6.01E-07	0.565	2.476	0.329
EQUI9	EU012	Core Tunnel Oven	0.8	TREA47	99%	93%	93%	93%	6.09E-05	2.67E-04	4.26E-04	1.87E-03	4.26E-04	1.87E-03	2.75E-08	1.20E-07	0.113	0.495	0.066
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04	1.60E-04	7.00E-04	1.03E-08	4.51E-08	0.042	0.186	0.025
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04	1.60E-04	7.00E-04	1.03E-08	4.51E-08	0.042	0.186	0.025
EQUI56	EU013	CR-22	0.9	TREA2	99%	93%	93%	93%	6.85E-05	3.00E-04	4.79E-04	2.10E-03	4.79E-04	2.10E-03	3.09E-08	1.35E-07	0.127	0.557	0.074
EQUI36	EU025	Large Heat Treat Oven	1.6	TREA48	99%	93%	93%	93%	1.22E-04	5.33E-04	8.52E-04	3.73E-03	8.52E-04	3.73E-03	5.49E-08	2.40E-07	0.226	0.990	0.132
EQUI37	EU026	Small Heat Treat Oven	4	TREA48	99%	93%	93%	93%	3.04E-04	1.33E-03	2.13E-03	9.33E-03	2.13E-03	9.33E-03	1.37E-07	6.01E-07	0.565	2.476	0.329
EQUI46	na	East MUA	6.05	TREA47	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02	3.22E-03	1.41E-02	2.08E-07	9.09E-07	0.855	3.744	0.498
EQUI47	na	West MUA	6.05	TREA46	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02	3.22E-03	1.41E-02	2.08E-07	9.09E-07	0.855	3.744	0.498
EQUI48	na	North MUA	3.3	TREA46	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03	1.76E-03	7.70E-03	1.13E-07	4.96E-07	0.466	2.042	0.272
EQUI49	na	South MUA	3.3	TREA47	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03	1.76E-03	7.70E-03	1.13E-07	4.96E-07	0.466	2.042	0.272
EQUI114	na	Furnace Basement MUA	0.3591	TREA47	99%	93%	93%	93%	2.73E-05	1.20E-04	1.91E-04	8.38E-04	1.91E-04	8.38E-04	1.23E-08	5.40E-08	0.051	0.222	0.030
EQUI50	na	Finishing MUA	2.25	TREA48	99%	93%	93%	93%	1.71E-04	7.50E-04	1.20E-03	5.25E-03	1.20E-03	5.25E-03	7.72E-08	3.38E-07	0.318	1.393	0.185
EQUI120	na	Machine Shop MUA	1.1	TREA48	99%	93%	93%	93%	8.37E-05	3.67E-04	5.86E-04	2.57E-03	5.86E-04	2.57E-03	3.77E-08	1.65E-07	0.155	0.681	0.091

[1] HAP controls are only applied to particulate HAPs.

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Actuals conservatively assumed as equal to limited TPY

CO2		N2O		Arsenic		Beryllium		Cadmium		Chromium		Cobalt		Manganese		Mercury		Nickel		Selenium		CH4		CO2e	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03	3.95E-02	556.07	2,435.59
544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03	3.95E-02	556.07	2,435.59
108.84	476.70	0.008	0.034	1.57E-07	6.87E-07	9.41E-09	4.12E-08	8.63E-07	3.78E-06	1.10E-06	4.81E-06	6.59E-08	2.89E-07	2.98E-07	1.31E-06	2.04E-07	8.93E-07	1.65E-06	7.21E-06	1.88E-08	8.24E-08	1.80E-03	7.90E-03	111.21	487.12
40.81	178.76	0.003	0.013	5.88E-08	2.58E-07	3.53E-09	1.55E-08	3.24E-07	1.42E-06	4.12E-07	1.80E-06	2.47E-08	1.08E-07	1.12E-07	4.90E-07	7.65E-08	3.35E-07	6.18E-07	2.71E-06	7.06E-09	3.09E-08	6.76E-04	2.96E-03	41.71	182.67
40.81	178.76	0.003	0.013	5.88E-08	2.58E-07	3.53E-09	1.55E-08	3.24E-07	1.42E-06	4.12E-07	1.80E-06	2.47E-08	1.08E-07	1.12E-07	4.90E-07	7.65E-08	3.35E-07	6.18E-07	2.71E-06	7.06E-09	3.09E-08	6.76E-04	2.96E-03	41.71	182.67
122.44	536.29	0.009	0.039	1.76E-07	7.73E-07	1.06E-08	4.64E-08	9.71E-07	4.25E-06	1.24E-06	5.41E-06	7.41E-08	3.25E-07	3.35E-07	1.47E-06	2.29E-07	1.00E-06	1.85E-06	8.12E-06	2.12E-08	9.28E-08	2.03E-03	8.89E-03	125.12	548.01
217.67	953.41	0.016	0.069	3.14E-07	1.37E-06	1.88E-08	8.24E-08	1.73E-06	7.56E-06	2.20E-06	9.62E-06	1.32E-07	5.77E-07	5.96E-07	2.61E-06	4.08E-07	1.79E-06	3.29E-06	1.44E-05	3.76E-08	1.65E-07	3.61E-03	1.58E-02	222.43	974.23
544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03	3.95E-02	556.07	2,435.59
823.08	3,605.08	0.059	0.259	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05	8.30E-06	3.64E-05	4.98E-07	2.18E-06	2.25E-06	9.87E-06	1.54E-06	6.75E-06	1.25E-05	5.46E-05	1.42E-07	6.24E-07	1.36E-02	5.98E-02	841.06	3,683.82
823.08	3,605.08	0.059	0.259	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05	8.30E-06	3.64E-05	4.98E-07	2.18E-06	2.25E-06	9.87E-06	1.54E-06	6.75E-06	1.25E-05	5.46E-05	1.42E-07	6.24E-07	1.36E-02	5.98E-02	841.06	3,683.82
448.95	1,966.41	0.032	0.141	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05	4.53E-06	1.98E-05	2.72E-07	1.19E-06	1.23E-06	5.38E-06	8.41E-07	3.68E-06	6.79E-06	2.98E-05	7.76E-08	3.40E-07	7.44E-03	3.26E-02	458.76	2,009.36
448.95	1,966.41	0.032	0.141	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05	4.53E-06	1.98E-05	2.72E-07	1.19E-06	1.23E-06	5.38E-06	8.41E-07	3.68E-06	6.79E-06	2.98E-05	7.76E-08	3.40E-07	7.44E-03	3.26E-02	458.76	2,009.36
48.85	213.98	0.004	0.015	7.04E-08	3.08E-07	4.22E-09	1.85E-08	3.87E-07	1.70E-06	4.93E-07	2.16E-06	2.96E-08	1.30E-07	1.34E-07	5.86E-07	9.15E-08	4.01E-07	7.39E-07	3.24E-06	8.45E-09	3.70E-08	8.10E-04	3.55E-03	49.92	218.65
306.10	1,340.73	0.022	0.096	4.41E-07	1.93E-06	2.65E-08	1.16E-07	2.43E-06	1.06E-05	3.09E-06	1.35E-05	1.85E-07	8.12E-07	8.38E-07	3.67E-06	5.74E-07	2.51E-06	4.63E-06	2.03E-05	5.29E-08	2.32E-07	5.07E-03	2.22E-02	312.79	1,370.02
149.65	655.47	0.011	0.047	2.16E-07	9.45E-07	1.29E-08	5.67E-08	1.19E-06	5.20E-06	1.51E-06	6.61E-06	9.06E-08	3.97E-07	4.10E-07	1.79E-06	2.80E-07	1.23E-06	2.26E-06	9.92E-06	2.59E-08	1.13E-07	2.48E-03	1.09E-02	152.92	669.79

O		SO2		VOC		CO2		N2O		Arsenic		Beryllium		Cadmium		Chromium		Cobalt		Manganese		Mercury		Nickel		Selei
tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07	5.76E-07	2.52E-06	6.59E-09
1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07	5.76E-07	2.52E-06	6.59E-09
0.289	4.71E-04	2.06E-03	0.009	0.038	108.84	476.70	0.008	0.034	1.10E-08	4.81E-08	6.59E-10	2.89E-09	6.04E-08	2.65E-07	7.69E-08	3.37E-07	4.61E-09	2.02E-08	2.09E-08	9.14E-08	1.43E-08	6.25E-08	1.15E-07	5.05E-07	1.32E-09
0.108	1.76E-04	7.73E-04	0.003	0.014	40.81	178.76	0.003	0.013	4.12E-09	1.80E-08	2.47E-10	1.08E-09	2.26E-08	9.92E-08	2.88E-08	1.26E-07	1.73E-09	7.57E-09	7.82E-09	3.43E-08	5.35E-09	2.34E-08	4.32E-08	1.89E-07	4.94E-10
0.108	1.76E-04	7.73E-04	0.003	0.014	40.81	178.76	0.003	0.013	4.12E-09	1.80E-08	2.47E-10	1.08E-09	2.26E-08	9.92E-08	2.88E-08	1.26E-07	1.73E-09	7.57E-09	7.82E-09	3.43E-08	5.35E-09	2.34E-08	4.32E-08	1.89E-07	4.94E-10
0.325	5.29E-04	2.32E-03	0.010	0.043	122.44	536.29	0.009	0.039	1.24E-08	5.41E-08	7.41E-10	3.25E-09	6.79E-08	2.98E-07	8.65E-08	3.79E-07	5.19E-09	2.27E-08	2.35E-08	1.03E-07	1.61E-08	7.03E-08	1.30E-07	5.68E-07	1.48E-09
0.577	9.41E-04	4.12E-03	0.017	0.076	217.67	953.41	0.016	0.069	2.20E-08	9.62E-08	1.32E-09	5.77E-09	1.21E-07	5.29E-07	1.54E-07	6.73E-07	9.22E-09	4.04E-08	4.17E-08	1.83E-07	2.85E-08	1.25E-07	2.31E-07	1.01E-06	2.64E-09
1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07	5.76E-07	2.52E-06	6.59E-09
2.182	3.56E-03	1.56E-02	0.066	0.288	823.08	3,605.08	0.059	0.259	8.30E-08	3.64E-07	4.98E-09	2.18E-08	4.57E-07	2.00E-06	5.81E-07	2.55E-06	3.49E-08	1.53E-07	1.58E-07	6.91E-07	1.08E-07	4.73E-07	8.72E-07	3.82E-06	9.96E-09
2.182	3.56E-03	1.56E-02	0.066	0.288	823.08	3,605.08	0.059	0.259	8.30E-08	3.64E-07	4.98E-09	2.18E-08	4.57E-07	2.00E-06	5.81E-07	2.55E-06	3.49E-08	1.53E-07	1.58E-07	6.91E-07	1.08E-07	4.73E-07	8.72E-07	3.82E-06	9.96E-09
1.190	1.94E-03	8.50E-03	0.036	0.157	448.95	1,966.41	0.032	0.141	4.53E-08	1.98E-07	2.72E-09	1.19E-08	2.49E-07	1.09E-06	3.17E-07	1.39E-06	1.90E-08	8.33E-08	8.61E-08	3.77E-07	5.89E-08	2.58E-07	4.76E-07	2.08E-06	5.44E-09
1.190	1.94E-03	8.50E-03	0.036	0.157	448.95	1,966.41	0.032	0.141	4.53E-08	1.98E-07	2.72E-09	1.19E-08	2.49E-07	1.09E-06	3.17E-07	1.39E-06	1.90E-08	8.33E-08	8.61E-08	3.77E-07	5.89E-08	2.58E-07	4.76E-07	2.08E-06	5.44E-09
0.130	2.11E-04	9.25E-04	0.004	0.017	48.85	213.98	0.004	0.015	4.93E-09	2.16E-08	2.96E-10	1.30E-09	2.71E-08	1.19E-07	3.45E-08	1.51E-07	2.07E-09	9.07E-09	9.36E-09	4.10E-08	6.41E-09	2.81E-08	5.18E-08	2.27E-07	5.91E-10
0.812	1.32E-03	5.80E-03	0.024	0.107	306.10	1,340.73	0.022	0.096	3.09E-08	1.35E-07	1.85E-09	8.12E-09	1.70E-07	7.44E-07	2.16E-07	9.47E-07	1.30E-08	5.68E-08	5.87E-08	2.57E-07	4.01E-08	1.76E-07	3.24E-07	1.42E-06	3.71E-09
0.397	6.47E-04	2.83E-03	0.012	0.052	149.65	655.47	0.011	0.047	1.51E-08	6.61E-08	9.06E-10	3.97E-09	8.30E-08	3.64E-07	1.06E-07	4.63E-07	6.34E-09	2.78E-08	2.87E-08	1.26E-07	1.96E-08	8.60E-08	1.59E-07	6.94E-07	1.81E-09

2-Methylnaphthalene		3-Methylcholanthrene		Dimethylbenz(a)anthracen		Acenaphthene		Acenapthylene		Anthracene		Benz(a)anthracene		Benzene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)fluoranthene		Chrysene	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08
9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08
1.88E-08	8.24E-08	1.41E-09	6.18E-09	1.25E-08	5.50E-08	1.41E-09	6.18E-09	1.41E-09	6.18E-09	1.88E-09	8.24E-09	1.41E-09	6.18E-09	1.65E-06	7.21E-06	9.41E-10	4.12E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09	1.41E-09	6.18E-09	1.41E-09	6.18E-09
7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09
7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09
2.12E-08	9.28E-08	1.59E-09	6.96E-09	1.41E-08	6.18E-08	1.59E-09	6.96E-09	1.59E-09	6.96E-09	2.12E-09	9.28E-09	1.59E-09	6.96E-09	1.85E-06	8.12E-06	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.59E-09	6.96E-09
3.76E-08	1.65E-07	2.82E-09	1.24E-08	2.51E-08	1.10E-07	2.82E-09	1.24E-08	2.82E-09	1.24E-08	3.76E-09	1.65E-08	2.82E-09	1.24E-08	3.29E-06	1.44E-05	1.88E-09	8.24E-09	2.82E-09	1.24E-08	1.88E-09	8.24E-09	2.82E-09	1.24E-08	2.82E-09	1.24E-08
9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08
1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08
1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08
7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08
7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08
8.45E-09	3.70E-08	6.34E-10	2.78E-09	5.63E-09	2.47E-08	6.34E-10	2.78E-09	6.34E-10	2.78E-09	8.45E-10	3.70E-09	6.34E-10	2.78E-09	7.39E-07	3.24E-06	4.22E-10	1.85E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09	6.34E-10	2.78E-09	6.34E-10	2.78E-09
5.29E-08	2.32E-07	3.97E-09	1.74E-08	3.53E-08	1.55E-07	3.97E-09	1.74E-08	3.97E-09	1.74E-08	5.29E-09	2.32E-08	3.97E-09	1.74E-08	4.63E-06	2.03E-05	2.65E-09	1.16E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08	3.97E-09	1.74E-08	3.97E-09	1.74E-08
2.59E-08	1.13E-07	1.94E-09	8.50E-09	1.73E-08	7.56E-08	1.94E-09	8.50E-09	1.94E-09	8.50E-09	2.59E-09	1.13E-08	1.94E-09	8.50E-09	2.26E-06	9.92E-06	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.94E-09	8.50E-09

ıium		CH4		CO2e		2-Methylnaphthalene		3-Methylcholanthrene		Dimethylbenz(a)anthracen		Acenaphthene		Acenapthylene		Anthracene		Benz(a)anthracene		Benzene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,
tpy		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
2.89E-08		9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09
2.89E-08		9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09
5.77E-09		1.80E-03	7.90E-03	111.21	487.12	1.88E-08	8.24E-08	1.41E-09	6.18E-09	1.25E-08	5.50E-08	1.41E-09	6.18E-09	1.41E-09	6.18E-09	1.88E-09	8.24E-09	1.41E-09	6.18E-09	1.65E-06	7.21E-06	9.41E-10	4.12E-09	1.41E-09	6.18E-09	9.41E-10
2.16E-09		6.76E-04	2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10
2.16E-09		6.76E-04	2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10
6.49E-09		2.03E-03	8.89E-03	125.12	548.01	2.12E-08	9.28E-08	1.59E-09	6.96E-09	1.41E-08	6.18E-08	1.59E-09	6.96E-09	1.59E-09	6.96E-09	2.12E-09	9.28E-09	1.59E-09	6.96E-09	1.85E-06	8.12E-06	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.06E-09
1.15E-08		3.61E-03	1.58E-02	222.43	974.23	3.76E-08	1.65E-07	2.82E-09	1.24E-08	2.51E-08	1.10E-07	2.82E-09	1.24E-08	2.82E-09	1.24E-08	3.76E-09	1.65E-08	2.82E-09	1.24E-08	3.29E-06	1.44E-05	1.88E-09	8.24E-09	2.82E-09	1.24E-08	1.88E-09
2.89E-08		9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09
4.36E-08		1.36E-02	5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09
4.36E-08		1.36E-02	5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09
2.38E-08		7.44E-03	3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09
2.38E-08		7.44E-03	3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09
2.59E-09		8.10E-04	3.55E-03	49.92	218.65	8.45E-09	3.70E-08	6.34E-10	2.78E-09	5.63E-09	2.47E-08	6.34E-10	2.78E-09	6.34E-10	2.78E-09	8.45E-10	3.70E-09	6.34E-10	2.78E-09	7.39E-07	3.24E-06	4.22E-10	1.85E-09	6.34E-10	2.78E-09	4.22E-10
1.62E-08		5.07E-03	2.22E-02	312.79	1,370.02	5.29E-08	2.32E-07	3.97E-09	1.74E-08	3.53E-08	1.55E-07	3.97E-09	1.74E-08	3.97E-09	1.74E-08	5.29E-09	2.32E-08	3.97E-09	1.74E-08	4.63E-06	2.03E-05	2.65E-09	1.16E-08	3.97E-09	1.74E-08	2.65E-09
7.94E-09		2.48E-03	1.09E-02	152.92	669.79	2.59E-08	1.13E-07	1.94E-09	8.50E-09	1.73E-08	7.56E-08	1.94E-09	8.50E-09	1.94E-09	8.50E-09	2.59E-09	1.13E-08	1.94E-09	8.50E-09	2.26E-06	9.92E-06	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.29E-09

Dibenzo(a,h)anthracene		Dichlorobenzene		Fluoranthene		Fluorene		Formaldehyde		Hexane		cd)pyrene		Naphthalene		Phenanathrene		Pyrene		Toluene	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
9.41E-10	4.12E-09	9.41E-07	4.12E-06	2.35E-09	1.03E-08	2.20E-09	9.62E-09	5.88E-05	2.58E-04	1.41E-03	6.18E-03	1.41E-09	6.18E-09	4.78E-07	2.10E-06	1.33E-08	5.84E-08	3.92E-09	1.72E-08	2.67E-06	1.17E-05
3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
1.06E-09	4.64E-09	1.06E-06	4.64E-06	2.65E-09	1.16E-08	2.47E-09	1.08E-08	6.62E-05	2.90E-04	1.59E-03	6.96E-03	1.59E-09	6.96E-09	5.38E-07	2.36E-06	1.50E-08	6.57E-08	4.41E-09	1.93E-08	3.00E-06	1.31E-05
1.88E-09	8.24E-09	1.88E-06	8.24E-06	4.71E-09	2.06E-08	4.39E-09	1.92E-08	1.18E-04	5.15E-04	2.82E-03	1.24E-02	2.82E-09	1.24E-08	9.57E-07	4.19E-06	2.67E-08	1.17E-07	7.84E-09	3.44E-08	5.33E-06	2.34E-05
4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
4.22E-10	1.85E-09	4.22E-07	1.85E-06	1.06E-09	4.63E-09	9.86E-10	4.32E-09	2.64E-05	1.16E-04	6.34E-04	2.78E-03	6.34E-10	2.78E-09	2.15E-07	9.41E-07	5.99E-09	2.62E-08	1.76E-09	7.71E-09	1.20E-06	5.24E-06
2.65E-09	1.16E-08	2.65E-06	1.16E-05	6.62E-09	2.90E-08	6.18E-09	2.71E-08	1.65E-04	7.25E-04	3.97E-03	1.74E-02	3.97E-09	1.74E-08	1.35E-06	5.89E-06	3.75E-08	1.64E-07	1.10E-08	4.83E-08	7.50E-06	3.29E-05
1.29E-09	5.67E-09	1.29E-06	5.67E-06	3.24E-09	1.42E-08	3.02E-09	1.32E-08	8.09E-05	3.54E-04	1.94E-03	8.50E-03	1.94E-09	8.50E-09	6.58E-07	2.88E-06	1.83E-08	8.03E-08	5.39E-09	2.36E-08	3.67E-06	1.61E-05

,i)perylene	Benzo(k)fluoranthene		Chrysene		Dibenzo(a,h)anthracene		Dichlorobenzene		Fluoranthene		Fluorene		Formaldehyde		Hexane		cd)pyrene		Naphthalene		Phenanathrene		Pyrene		Toluene	
tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
4.12E-09	1.41E-09	6.18E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09	9.41E-07	4.12E-06	2.35E-09	1.03E-08	2.20E-09	9.62E-09	5.88E-05	2.58E-04	1.41E-03	6.18E-03	1.41E-09	6.18E-09	4.78E-07	2.10E-06	1.33E-08	5.84E-08	3.92E-09	1.72E-08	2.67E-06	1.17E-05
1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
4.64E-09	1.59E-09	6.96E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09	1.06E-06	4.64E-06	2.65E-09	1.16E-08	2.47E-09	1.08E-08	6.62E-05	2.90E-04	1.59E-03	6.96E-03	1.59E-09	6.96E-09	5.38E-07	2.36E-06	1.50E-08	6.57E-08	4.41E-09	1.93E-08	3.00E-06	1.31E-05
8.24E-09	2.82E-09	1.24E-08	2.82E-09	1.24E-08	1.88E-09	8.24E-09	1.88E-06	8.24E-06	4.71E-09	2.06E-08	4.39E-09	1.92E-08	1.18E-04	5.15E-04	2.82E-03	1.24E-02	2.82E-09	1.24E-08	9.57E-07	4.19E-06	2.67E-08	1.17E-07	7.84E-09	3.44E-08	5.33E-06	2.34E-05
2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
1.85E-09	6.34E-10	2.78E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09	4.22E-07	1.85E-06	1.06E-09	4.63E-09	9.86E-10	4.32E-09	2.64E-05	1.16E-04	6.34E-04	2.78E-03	6.34E-10	2.78E-09	2.15E-07	9.41E-07	5.99E-09	2.62E-08	1.76E-09	7.71E-09	1.20E-06	5.24E-06
1.16E-08	3.97E-09	1.74E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08	2.65E-06	1.16E-05	6.62E-09	2.90E-08	6.18E-09	2.71E-08	1.65E-04	7.25E-04	3.97E-03	1.74E-02	3.97E-09	1.74E-08	1.35E-06	5.89E-06	3.75E-08	1.64E-07	1.10E-08	4.83E-08	7.50E-06	3.29E-05
5.67E-09	1.94E-09	8.50E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09	1.29E-06	5.67E-06	3.24E-09	1.42E-08	3.02E-09	1.32E-08	8.09E-05	3.54E-04	1.94E-03	8.50E-03	1.94E-09	8.50E-09	6.58E-07	2.88E-06	1.83E-08	8.03E-08	5.39E-09	2.36E-08	3.67E-06	1.61E-05

Combustion Emission Factors

1020 MMBtu/MMscf HHV natural gas

0.092 MMBtu/gal HHV comercial grade propane

Natural Gas (<100 MMBtu/hr)

	Natural Gas		Propane		Worst Case
Pollutant	lb/MMSCF	lb/MMBtu	lb/gal	lb/MMBtu	lb/MMBtu
PM	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
PM_{10}	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
$PM_{2.5}$	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
NO_x	100	9.80E-02	1.30E-02	1.41E-01	1.41E-01
SO_2	0.6	5.88E-04	2.00E-06	2.17E-05	5.88E-04
CO	84	8.24E-02	7.50E-03	8.15E-02	8.24E-02
VOC	5.5	5.39E-03	1.00E-03	1.09E-02	1.09E-02
Lead	5.00E-04	4.90E-07	0.00E+00	0.00E+00	4.90E-07
CO_2	1.20E+05	1.18E+02	1.25E+01	1.36E+02	1.36E+02
N_2O	6.40E-01	6.27E-04	9.00E-04	9.78E-03	9.78E-03
Arsenic	2.00E-04	1.96E-07	1.79E-08	1.95E-07	1.96E-07
Beryllium	1.20E-05	1.18E-08	1.08E-09	1.17E-08	1.18E-08
Cadmium	1.10E-03	1.08E-06	9.87E-08	1.07E-06	1.08E-06
Chromium	1.40E-03	1.37E-06	1.26E-07	1.37E-06	1.37E-06
Cobalt	8.40E-05	8.24E-08	7.54E-09	8.19E-08	8.24E-08
Manganese	3.80E-04	3.73E-07	3.41E-08	3.71E-07	3.73E-07
Mercury	2.60E-04	2.55E-07	2.33E-08	2.54E-07	2.55E-07
Nickel	2.10E-03	2.06E-06	1.88E-07	2.05E-06	2.06E-06
Selenium	2.40E-05	2.35E-08	2.15E-09	2.34E-08	2.35E-08
CH_4	2.30E+00	2.25E-03	2.00E-04	2.17E-03	2.25E-03
2-Methylnaphthalene	2.40E-05	2.35E-08	8.83E-10	9.59E-09	2.35E-08
3-Methylcholanthrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	5.88E-10	6.40E-09	1.57E-08
Acenaphthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Acenapthylene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Anthracene	2.40E-06	2.35E-09	8.83E-11	9.59E-10	2.35E-09
Benz(a)anthracene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzene	2.10E-03	2.06E-06	7.72E-08	8.39E-07	2.06E-06
Benzo(a)pyrene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(b)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(k)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Chrysene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Dichlorobenzene	1.20E-03	1.18E-06	4.41E-08	4.80E-07	1.18E-06
Fluoranthene	3.00E-06	2.94E-09	1.10E-10	1.20E-09	2.94E-09
Fluorene	2.80E-06	2.75E-09	1.03E-10	1.12E-09	2.75E-09
Formaldehyde	7.50E-02	7.35E-05	2.76E-06	3.00E-05	7.35E-05
Hexane	1.80E+00	1.76E-03	6.62E-05	7.20E-04	1.76E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Naphthalene	6.10E-04	5.98E-07	2.24E-08	2.44E-07	5.98E-07
Phenanathrene	1.70E-05	1.67E-08	6.25E-10	6.80E-09	1.67E-08
Pyrene	5.00E-06	4.90E-09	1.84E-10	2.00E-09	4.90E-09
Toluene	3.40E-03	3.33E-06	1.25E-07	1.36E-06	3.33E-06

Natural Gas emission factors obtained from EPA AP-42, Volume I, Chapter 1.4, Table 1.4-1 small boilers (NOx & CO), Table 1.4-2 (PM, SO2, Lead, VOC, Methane, N20, & CO2), table 1.4-3 (Organic HAPs), and table 1.4-4 (Metal HAPs).

Propane emission factors from AP-42, "Liquified Petroleum Gas Combustion", Table 1.5-1 (07/08).

1,3-Dimethylnaphthalene	1,3-Dimethylnaphthalene
1,4-Dimethylnaphthalene	1,4-Dimethylnaphthalene
1,8-Dimethylnaphthalene	1,8-Dimethylnaphthalene
1-Methylnaphthalene	1-Methylnaphthalene
2,3,5-Trimethylnaphthalene	2,3,5-Trimethylnaphthalene
2,3-Dimethylnaphthalene	2,3-Dimethylnaphthalene
2,6-Dimethylnaphthalene	2,6-Dimethylnaphthalene
2,7-Dimethylnaphthalene	2,7-Dimethylnaphthalene
2-Methylnaphthalene	2-Methylnaphthalene
2-Methylnphthalene	2-Methylnphthalene
3-Methylcholanthrene	3-Methylcholanthrene
7,12-Dimethylbenz(a)anthracene	7,12-Dimethylbenz(a)anthracene
Acenaphthalene/1,2-Dimethylnaphthalene	Acenaphthalene/1,2- Dimethylnaphthalene

Acenaphthene			Acenaphthene
Acenapthylene			Acenapthylene
Acetaldehyde			Acetaldehyde
Acetophenone			Acetophenone
Anthracene			Anthracene
Arsenic			Arsenic
Benz(a)anthracene			Benz(a)anthracene
Benzene			Benzene
Benzene			Benzo(a)pyrene
Benzo(a)pyrene			Benzo(b)fluoranthene
Benzo(b)fluoranthene			Benzo(g,h,i)perylene
Benzo(g,h,i)perylene			Benzo(k)fluoranthene
Benzo(k)fluoranthene			Beryllium
Beryllium			Cadmium
Cadmium			Chromium
Cadmium			Chrysene
Chromium			Cobalt
Chromium			Cumene
Chrysene			Dibenzo(a,h)anthracene
Cobalt			Dibenzofuran
Cumene			Dichlorobenzene
Dibenzo(a,h)anthracene			Ethylbenzene
Dibenzofuran			Fluoranthene
Dichlorobenzene			Fluorene
Ethylbenzene			Formaldehyde
Fluoranthene			Hexane
Fluorene			Indeno(1,2,3-cd)pyrene
Formaldehyde			Lead
Formaldehyde			Manganese
Hexane			Mercury
Indeno(1,2,3-cd)pyrene			Naphthalene
Lead			Nickel
Manganese			o-Cresol
Manganese			Phenanathrene
Mercury			Phenol
Naphthalene			POMs
Naphthalene			Pyrene
Nickel			Selenium
o-Cresol			Styrene
o-Cresol			Toluene
Phenanathrene			Xylenes
Phenol			0
POMs			
Pyrene			
Selenium			
Styrene			
Toluene			

Toluene		
Xylenes		

Northern Iron of St Paul LLC

Pattern Shop Units insignificant pursuant to Minn. R. 7007.0500, Subp.2(D)(5)

IA Number	Unit Desc	Limited Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10					PM2.5				
								Emission Factor (lb/capacity unit)	Reference[1]	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-02	Woodworking Saw #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-03	Woodworking Saw #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-04	Woodworking Saw #3	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-05	Woodworking Saw #4	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-06	Woodworking Sander #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-07	Woodworking Sander #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Sawı	6.13E-04	0.038	2.68E-03
IA-08	Drill Press	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-09	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-10	Bridgeport #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-11	Bridgeport #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-12	Bridgeport #3	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
Pattern Shop											Total	0.04				Total	0.02

1 The emission factor for sawing and sanding operations is the sawing emission factor listed in the EPA Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" dated May 8, 2014. This memo can be found at the following link:
https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

Lab Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(D)

IA Number	Unit Desc	Rated Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10					PM2.5				
								Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-13	Sander	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-14	Grinder	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-15	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-16	Polisher #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-17	Polisher #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-18	Miscellaneous sand testing equipment	0.0055	tons/hour	TREA47	100%	99%	93%	0.013	AP-42 Table 11.19.1-1	7.15859E-07	3.14E-04	3.14E-06	0.013	42 Table 11.19	7.16E-07	3.14E-04	3.14E-06
Lab											Total	5.51E-04				Total	5.51E-04

Machine Shop Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(F)

8 oil based casting finishing machines - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal
4 Lathes - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

IA Number	Unit Desc	Rated Capacity		VOC				
				VOC content	Reference	Controlled lb/hr	Unrestricted tpy	Limited tpy
IA-19		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-20		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-21		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-22		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-23		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-24		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-25		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-26		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-27		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-28		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-29		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-30		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
						0.72	3.15	3.15

Sand Handling Emissions Factor

From US EPA AP-42, 13.2.4.3 (available online at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.4_aggregate_handling_and_storage_piles.pdf)

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

Aerodynamic Particle Size Multiplier (k)

PM	PM10	PM2.5
0.74	0.35	0.053

Prepared/Watered Sand

M= 3 %
U= 3 MPH

	PM	PM10	PM2.5
E=	6.910E-04	3.268E-04	4.949E-05

MPCA provided EF Documentation:

$SH_{ef_{PM10}}$ = 0.013/(M/2)^1.4, and with a minimum content of 3%, $SH_{ef_{PM10}}$ = 0.013/(3/2)^1.4 = **0.0074 lb PM_{10}/ton throughput.** This equates to 0.00037% of throughput. In previous submittals, for sand handling, PM_{10} = $PM_{2.5}$, however I'd imagine $PM_{2.5}$ is only a fraction of PM10. Here I am open to justification as to what ratio $PM_{2.5}$ should be to PM_{10}.

Note that the 0.013 term above was taken from AP-42 Table 11.19.1-1 and it applies to total PM. The factor in AP-42 was increased by a factor of 10 to account for uncontrolled emissions (since a wet scrubber has an assumed control efficiency of 90%).

The proposed PM10 & PM2.5 Ratios are from EPA PM Augmentation Tool for Sand Handling (SCC 30400350). See table below for mass percentages

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_ UNCONTROLLED	PMCALC_PM10FIL_ UNCONTROLLED	PMCALC_PM25FIL_ UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico

Emissions Measurement Team Casting Emission Reduction Program

McClellan Air Force Base, California

January 19, 1999

https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

Species	Lb/ton	MHAP
Aluminum	2.09E-02	
Antimony	0	Y
Arsenic	0	Y
Barium	0	
Beryllium	0	Y
Cadmium	1.02E-04	Y
Chromium	7.40E-04	Y
Cobalt	0	Y
Copper	8.52E-04	
Iron	1.40E-01	
Lead	5.58E-03	Y
Manganese	1.40E-02	Y
Mercury	0.00E+00	Y
Nickel	8.97E-04	Y
Selenium	0.00E+00	Y
Silver	6.01E-05	
Zinc	4.61E-02	
$MHAP_{total}$	0.021319	

%Cadmium of $MHAP_{total}$	0.5%
%Chrimium of $MHAP_{total}$	3.5%
%Lead of $MHAP_{total}$	26.2%
%Manganese of $MHAP_{total}$	65.7%
%Nickel of $MHAP_{total}$	4.2%

Table 5.16. Metal Emissions from Metal Melting Operations

	Line 3
	Stack 27
Species	lb/ton metal melted
Aluminum	2.09E-02
Antimony	0.00E+00
Arsenic	0.00E+00
Barium	0.00E+00
Beryllium	0.00E+00
Cadmium	1.02E-04
Chromium	7.40E-04
Cobalt	0.00E+00
Copper	8.52E-04
Iron	1.40E-01
Lead	5.58E-03
Manganese	1.40E-02
Mercury	0.00E+00
Nickel	8.97E-04
Selenium	0.00E+00
Silver	6.01E-05
Zinc	4.61E-02

Table 6.1

Analyte	Pouring1	Cooling1	Shakeout 2	Totals	Pouring & Cooling Total
Acetaldehyde	2.94E-04	3.20E-03	5.78E-02	6.13E-02	3.49E-03
Acetophenone	ND	1.98E-04	7.92E-04	9.90E-04	1.98E-04
Benzene	2.19E-03	3.49E-02	2.68E-02	6.39E-02	3.71E-02
Cadmium	4.55E-06	2.03E-05	1.67E-05	4.16E-05	2.49E-05
Chromium	4.85E-05	2.31E-04	1.71E-04	4.51E-04	2.80E-04
Copper	5.71E-05	1.87E-04	1.36E-04	3.80E-04	2.44E-04
Cumene	6.00E-06	1.21E-04	3.82E-04	5.09E-04	1.27E-04
Dibenzofuran	ND	1.63E-05	3.34E-04	3.50E-04	1.63E-05
Ethylbenzene	1.01E-04	1.87E-03	2.91E-03	4.88E-03	1.97E-03
Formaldehyde	1.38E-04	1.73E-03	2.57E-02	2.76E-02	1.87E-03
Lead	1.79E-04	2.22E-04	7.29E-05	4.74E-04	4.01E-04
m,p-Xylene	4.22E-04	7.61E-03	1.25E-02	2.05E-02	8.03E-03
Manganese	8.37E-04	5.21E-04	3.39E-04	1.70E-03	1.36E-03
Naphthalene	1.81E-04	2.41E-03	8.37E-03	1.10E-02	2.59E-03
Nitrobenzene	ND	5.03E-06	ND	5.03E-06	5.03E-06
o-Cresol	1.65E-06	9.27E-04	1.40E-02	1.49E-02	9.29E-04
o-Xylene	1.90E-04	3.82E-03	5.32E-03	9.33E-03	4.01E-03
Phenol	2.86E-04	5.48E-03	2.80E-02	3.38E-02	5.77E-03
POMs	3.56E-04	4.64E-03	2.21E-02	2.71E-02	5.00E-03

1,3-Dimethylnaphthalene	4.33E-06	1.14E-04	1.03E-03	1.15E-03	1.18E-04
1,4-Dimethylnaphthalene	ND	2.51E-05	4.64E-04	4.89E-04	2.51E-05
1,6-Dimethylnaphthalene	ND	ND	ND	ND	0.00E+00
1,8-Dimethylnaphthalene	ND	5.32E-06	1.06E-03	1.07E-03	5.32E-06
1-Methylnaphthalene	7.69E-05	9.04E-04	3.41E-03	4.39E-03	9.81E-04
2,3,5-Trimethylnaphthalene	ND	ND	7.14E-04	7.14E-04	0.00E+00
2,3-Dimethylnaphthalene	ND	9.53E-05	6.50E-04	7.45E-04	9.53E-05
2,6-Dimethylnaphthalene	ND	1.13E-05	5.68E-04	5.79E-04	1.13E-05
2,7-Dimethylnaphthalene	1.27E-06	2.49E-05	4.10E-04	4.36E-04	2.62E-05
2-Methylnaphthalene	9.10E-05	1.03E-03	5.22E-03	6.34E-03	1.12E-03
Acenaphthalene/ 1,2-Dimethylnaphthalene	1.51E-06	2.30E-05	2.20E-04	2.45E-04	2.45E-05
Naphthalene	1.81E-04	2.41E-03	8.37E-03	1.10E-02	2.59E-03
Propanal	ND	3.71E-05	5.70E-03	5.74E-03	3.71E-05
Selenium	ND	4.10E-06	ND	4.10E-06	4.10E-06
Styrene	5.31E-05	4.35E-04	4.81E-03	5.30E-03	4.88E-04
Toluene	1.05E-03	1.89E-02	2.21E-02	4.21E-02	2.00E-02
Xylenes	6.12E-04	1.14E-02	1.78E-02	2.99E-02	1.20E-02

DORSEY

DORSEY+WHITNEY LLP

SEP 16 2024

BRIAN B. BELL
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(612) 492-6178
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bell.brian@dorsey.com

September 16, 2024

Re: ***Northern Iron LLC v. Katrina Kessler, in her official capacity as Commissioner of the Minnesota Pollution Control Agency*, Case No. 62-CV-24-3170**

To Whom it May Concern:

Pursuant to the Minnesota Pollution Control Agency's ("MPCA") August 29, 2024 correspondence, please find attached the CD-05 Compliance Plan for Control Equipment.

Sincerely,

DORSEY & WHITNEY LLP

Brian B. Bell
Partner; Local Department Head, Regulatory Affairs

MINNESOTA POLLUTION CONTROL AGENCY

520 Lafayette Road North
St. Paul, MN 55155-4194

CD-05

Compliance plan for control equipment

Air Quality Permit Program

Doc Type: Permit Application

Facility information

1a) **AQ Facility ID number:** 12300088 1b) **Agency Interest ID number:** 3518

2) **Facility name:** Northern Iron LLC

3) **Electrostatic precipitators (includes wet electrostatic precipitators) (control codes 010, 011, 012, 146)**

Complete the following information for each electrostatic precipitator not already included in an existing individual permit. For changes to parameters of electrostatic precipitators already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Voltage (kVolts)	Secondary current (mA)	Total power (kW)	Minimum fields online	Using conditioning agent?	Conditioning agent flow rate, if applicable	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes					☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

CAM = Compliance Assurance Monitoring
PSEU = Pollutant specific emission unit

4) Fabric filters (control codes 016, 017, 018)

Complete the following information for each fabric filter not already included in an existing individual permit. For changes to parameters for fabric filters already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on Form GI-05A)	Using control equipment rule?	Minimum pressure drop (in. of water column)	Maximum pressure drop (in. of water column)	Bag leak detector in use?	Subject to CAM?	For a "Large" or "Other" PSEU?
TREA46	Building is total enclosure. Controls uncaptured and controlled emissions released indoors for units in proximity to inlets	☐ No ☒ Yes	0.5	10	☒ Yes ☐ No	☐ Yes ☒ No	☐ Large ☐ Other ☒ NA
TREA47	Building is total enclosure. Controls uncaptured and controlled emissions released indoors for units in proximity to inlets	☐ No ☒ Yes	0.5	10	☒ Yes ☐ No	☐ Yes ☒ No	☐ Large ☐ Other ☒ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

5) Panel/Wall filters (including high efficiency particulate air [HEPA] filters) (control codes 058, 101), Mechanically aided separators (control codes 056, 113)

Complete the following information for each wall or panel filter not already included in an existing individual permit. For changes to parameters for filters already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

6) **Cyclones/Multiclones (control codes 007, 008, 009, 075, 076, 077)**

Complete the following information for each cyclone or multiclone not already included in an existing individual permit. For changes to parameters for cyclones or multiclones already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 007, 008, 009, and 076.

7) **Wet cyclone separator (control codes 057, 085)**

Complete the following information for each wet cyclone separator not already included in an existing individual permit. For changes to parameters for wet cyclone separators already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Water pressure (psi)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

8) Wet scrubber (control codes 001, 002, 003), Spray tower (control code 052), Venturi scrubber (control code 053), or Impingement plate scrubber (control code 055)

Complete the following information for each wet scrubber not already included in an existing individual permit. For changes to parameters for wet scrubbers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Minimum pressure drop (inches of water column)	Maximum pressure drop (inches of water column)	Minimum liquid flow rate (gal/min)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 052, 053, and 055.

9) Injection systems (control codes 028, 031, 032, 041, 042, 067, 068, 069, 070, 071, 206, 207)

Complete the following information for each injection system not already included in an existing individual permit. For changes to parameters for injection systems already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Minimum injection rate	Min. rate units (gal./hr or lbs/hr)	Maximum injection rate	Max. rate units (gal./hr or lbs/hr)	Material injected**	Subject to CAM?	For a "Large" or "Other" PSEU?
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
							☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

**Use one of the following for material injected: air; ammonia (anhydrous); calcium bromide; carbon; chlorine flux; limestone, dry; limestone, wet; mercury additive; mercury reagent; molten sulfur; other; perlite; reactive flux; reagent; sorbent, dry; steam or water; trona

10) Thermal oxidation (control codes 021, 022, 131, 133)

Complete the following information for each thermal oxidizer not already included in an existing individual permit. For changes to parameters for thermal oxidizers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?	Combustion temperature (degrees F)	Inlet and Outlet temperatures (degrees F)	Residence time (seconds)	Burner capacity (MMBtu/hr)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____			☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

11) Catalytic oxidation (control codes 019, 020, 039, 109)

Complete the following information for each catalytic oxidizer not already included in an existing individual permit. For changes to parameters for catalytic oxidizers already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Catalyst bed reactivity (kat)	Inlet and Outlet temperatures (degrees F)	Burner capacity (MMBtu/hr)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		Inlet: _____ Outlet: _____		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can only be used for control codes 019, 020, and 109.

12) Vapor recovery systems (including condensers) (control codes 047, 072, 073, 074)

Complete the following information for each vapor recovery system not already included in an existing individual permit. For changes to parameters for vapor recovery systems already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Temperature range (degrees F)	Condenser pressure drop range (inches of water column)	Filter pressure drop range (inches of water column)	Subject to CAM?	For a "Large" or "Other" PSEU?
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
					☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

13) Oxidation catalyst (control codes 203, 312)

Complete the following information for each oxidation catalyst not already included in an existing individual permit. For changes to parameters for oxidation catalyst already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Inlet temperature (degrees F)	Outlet temperature (degrees F)	Subject to CAM?	For a "Large" or "Other" PSEU?
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
				☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

14) Other controls (control codes 004, 005, 006, 013, 014, 015, 023, 024, 025, 026, 027, 029, 030, 033, 034, 035, 036, 037, 038, 040, 043, 044, 045, 046, 048, 049, 050, 051, 054, 059, 060, 061, 062, 063, 064, 065, 066, 078, 080, 081, 082, 083, 084, 086, 099, 106, 107, 139, 159, 201, 204, 205, 302, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910)

Complete the following information for each control device not described above and not already included in an existing individual permit. For changes to parameters for any other control devices that are already included in an existing permit, attach a copy of the relevant permit page with proposed changes clearly marked.

CE number:	Control efficiency basis (for control and capture efficiencies listed on form *GI-05A*)	Using control equipment rule?*	Operating parameters (describe)	Subject to CAM?	For a "Large" or "Other" PSEU?
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA
		☐ No ☐ Yes		☐ Yes ☐ No	☐ Large ☐ Other ☐ NA

* Control equipment rule can be used only for control codes 023 and 086.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
1b) Agency Interest ID number: 3518
2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions Summary Table

4a)	**4b)**	**4c)** Potential (tons/year)		**4d)** Actual
Pollutant Name	Potential (lbs/hr)	Unrestricted	Limited	tons/year
PM	2.60	2,627.67	7.45	1.30
PM10	8.77	2,188.29	25.74	5.10
PM2.5	4.73	1,127.61	18.20	3.07
NOx	5.41	23.71	23.71	23.71
CO	44.85	307.88	138.89	47.15
SO2	0.02	0.10	0.10	0.10
VOC	7.40	38.27	29.62	9.46
Lead	0.01	0.99	0.02	0.01
Total HAPs	4.11	29.87	14.07	7.86
Max Single HAP	1.06	4.63	4.63	4.63
1,3-Dimethylnaphthalene	0.01	0.08	0.03	0.01
1,4-Dimethylnaphthalene	0.00	0.03	0.01	0.00
1,8-Dimethylnaphthalene	0.01	0.07	0.03	0.01
1-Methylnaphthalene	0.04	0.29	0.12	0.03
2,3,5-Trimethylnaphthalene	0.01	0.05	0.02	0.01
2,3-Dimethylnaphthalene	0.01	0.05	0.02	0.01
2,6-Dimethylnaphthalene	0.01	0.04	0.02	0.00
2,7-Dimethylnaphthalene	0.00	0.03	0.01	0.00
2-Methylnaphthalene	0.06	0.42	0.17	0.05
3-Methylcholanthrene	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	0.00	0.00	0.00	0.00
Acenaphthalene/1,2- Dimethylnaphthalene	0.00	0.02	0.01	0.00
Acenaphthene	0.00	0.00	0.00	0.00
Acenapthylene	0.00	0.00	0.00	0.00
Acetaldehyde	0.55	4.03	1.65	0.44
Acetophenone	0.01	0.07	0.03	0.01
Anthracene	0.00	0.00	0.00	0.00
Arsenic	0.00	0.00	0.00	0.00
Benz(a)anthracene	0.00	0.00	0.00	0.00
Benzene	0.58	4.20	1.73	0.47
Benzo(a)pyrene	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	0.00	0.00	0.00	0.00
Beryllium	0.00	0.00	0.00	0.00
Cadmium	0.00	0.08	0.00	0.00
Chromium	0.00	0.21	0.00	0.00
Chrysene	0.00	0.00	0.00	0.00
Cobalt	0.00	0.07	0.00	0.00
Cumene	0.00	0.03	0.01	0.00
Dibenzo(a,h)anthracene	0.00	0.00	0.00	0.00
Dibenzofuran	0.00	0.02	0.01	0.00
Dichlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	0.04	0.32	0.13	0.04
Fluoranthene	0.00	0.00	0.00	0.00
Fluorene	0.00	0.00	0.00	0.00
Formaldehyde	0.39	2.44	1.37	0.83
Hexane	0.07	0.30	0.30	0.30
Indeno(1,2,3-cd)pyrene	0.00	0.00	0.00	0.00
Manganese	0.02	2.25	0.05	0.02
Mercury	0.00	0.00	0.00	0.00
Methyl Alcohol	1.06	4.63	4.63	4.63
Naphthalene	0.10	0.72	0.30	0.08
Nickel	0.00	0.20	0.00	0.00
o-Cresol	0.13	0.98	0.40	0.11
Phenanathrene	0.00	0.00	0.00	0.00
Phenol	0.30	2.22	0.91	0.24
Pyrene	0.00	0.00	0.00	0.00
Selenium	0.00	0.00	0.00	0.00
Styrene	0.05	0.35	0.14	0.04
Toluene	0.38	2.76	1.14	0.31
Xylenes	0.27	1.96	0.80	0.22
CO2	5,211.79	22,827.66	22,827.66	22,827.66
CH4	0.09	0.38	0.38	0.38
N2O	0.37	1.64	1.64	1.64
CO2e	5,325.63	23,326.28	23,326.28	23,326.28

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI1			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.07	0.80	0.20	0.06
PM10		0.08	1.03	0.25	0.07
PM2.5		0.07	0.80	0.20	0.06
NOx		0.57	2.48	2.48	2.48
CO		0.33	1.44	1.44	1.44
SO2		0.00	0.01	0.01	0.01
VOC		0.04	0.19	0.19	0.19
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		544.18	2,383.52	2,383.52	2,383.52
CH4		0.01	0.04	0.04	0.04
N2O		0.04	0.17	0.17	0.17
CO2e		556.07	2,435.59	2,435.59	2,435.59

3a) Tempo SI ID number:		EQUI2			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.07	0.80	0.20	0.06
PM10		0.08	1.03	0.25	0.07
PM2.5		0.07	0.80	0.20	0.06
NOx		0.57	2.48	2.48	2.48
CO		0.33	1.44	1.44	1.44
SO2		0.00	0.01	0.01	0.01
VOC		0.04	0.19	0.19	0.19
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		544.18	2,383.52	2,383.52	2,383.52
CH4		0.01	0.04	0.04	0.04
N2O		0.04	0.17	0.17	0.17
CO2e		556.07	2,435.59	2,435.59	2,435.59

3a) Tempo SI ID number:		EQUI3			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.01	5.91	0.06	0.02
PM10		0.09	5.91	0.41	0.16
PM2.5		0.09	5.91	0.41	0.16
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	5.86E-04	0.04	2.57E-03	9.76E-04
Total HAPs		2.24E-03	0.14	9.80E-03	3.73E-03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.07E-05	6.70E-04	4.69E-05	1.79E-05
Chromium	7440-47-3	7.77E-05	4.86E-03	3.40E-04	1.30E-04
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Oichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.47E-03	0.09	0.01	2.45E-03
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	9.42E-05	0.01	4.13E-04	1.57E-04
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088 1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQU4

3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.01	5.91	0.06	0.02
PM10		0.09	5.91	0.41	0.16
PM2.5		0.09	5.91	0.41	0.16
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	5.86E-04	0.04	2.57E-03	9.76E-04
Total HAPs		2.24E-03	0.14	9.80E-03	3.73E-03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.07E-05	6.70E-04	4.69E-05	1.79E-05
Chromium	7440-47-3	7.77E-05	4.86E-03	3.40E-04	1.30E-04
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.47E-03	0.09	0.01	2.45E-03
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	9.42E-05	0.01	4.13E-04	1.57E-04
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQU5

3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.01	5.91	0.06	0.02
PM10		0.09	5.91	0.41	0.16
PM2.5		0.09	5.91	0.41	0.16
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	0.00	0.04	0.00	0.001
Total HAPs		2.24E-03	0.14	9.80E-03	3.73E-03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.07E-05	6.70E-04	4.69E-05	1.79E-05
Chromium	7440-47-3	7.77E-05	4.86E-03	3.40E-04	1.30E-04
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.47E-03	0.09	0.01	2.45E-03
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	9.42E-05	0.01	4.13E-04	1.57E-04
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQU9

3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.03	0.00	0.00
PM10		0.00	0.03	0.00	0.00
PM2.5		0.00	0.03	0.00	0.00
NOx		0.11	0.50	0.50	0.50
CO		0.07	0.29	0.29	0.29
SO2		0.00	0.00	0.00	0.00
VOC		0.01	0.04	0.04	0.04
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.00	0.01	0.01	0.01
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.00	0.01	0.01	0.01
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		108.84	476.70	476.70	476.70
CH4		0.00	0.01	0.01	0.01
N2O		0.01	0.03	0.03	0.03
CO2e		111.21	487.12	487.12	487.12

3a) Tempo SI ID number: EQU11

3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM					
PM10					
PM2.5					
NOx					
CO					
SO2					
VOC		3.50	15.33	15.33	2.12
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQU12

3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.02	9.27	0.06	0.02
PM10		0.17	11.53	0.50	0.14
PM2.5		0.12	8.45	0.36	0.10
NOx					
CO		12.40	60.33	37.19	10.33
SO2					
VOC					
Lead	7439-92-1	4.21E-04	0.03	1.26E-03	3.51E-04
Total HAPs		4.01E-01	2.01	1.20E+00	3.34E-01
1,3-Dimethylnaphthalene	575-41-7	5.32E-04	2.59E-03	1.60E-03	4.44E-04
1,4-Dimethylnaphthalene	571-58-4	1.13E-04	5.50E-04	3.39E-04	9.41E-05
1,8-Dimethylnaphthalene	569-41-5	2.39E-05	1.17E-04	7.18E-05	2.00E-05
1-Methylnaphthalene	90-12-0	4.41E-03	0.02	1.32E-02	3.68E-03
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	4.29E-04	2.09E-03	1.29E-03	3.57E-04
2,6-Dimethylnaphthalene	581-42-0	5.09E-05	2.47E-04	1.53E-04	4.24E-05
2,7-Dimethylnaphthalene	582-16-1	1.18E-04	5.73E-04	3.53E-04	9.81E-05
2-Methylnaphthalene	91-57-6	5.04E-03	0.02	1.51E-02	4.20E-03
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	1.10E-04	0.00	3.31E-04	9.19E-05
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	1.57E-02	0.08	4.72E-02	1.31E-02
Acetophenone	98-86-2	8.91E-04	0.00	2.67E-03	7.43E-04
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	1.67E-01	0.81	5.01E-01	1.39E-01
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	7.83E-06	0.00	2.35E-05	6.52E-06
Chromium	7440-47-3	8.80E-05	0.01	2.64E-04	7.34E-05
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	5.72E-04	0.00	1.71E-03	4.76E-04
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	7.34E-05	0.00	2.20E-04	6.11E-05
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	8.87E-03	0.04	2.66E-02	7.39E-03
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	8.41E-03	0.04	2.52E-02	7.01E-03
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.28E-04	0.03	1.28E-03	3.56E-04
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	1.17E-02	0.06	3.50E-02	9.72E-03
Nickel	7440-02-0				
o-Cresol	95-48-7	4.18E-03	0.02	1.25E-02	3.48E-03
Phenanathrene	85-01-8				
Phenol	108-95-2	2.59E-02	0.13	7.78E-02	2.16E-02
Pyrene	129-00-0				
Selenium	7782-49-2	1.29E-06	0.00	3.87E-06	1.08E-06
Styrene	100-42-5	2.20E-03	0.01	6.59E-03	1.83E-03
Toluene	108-88-3	8.98E-02	0.44	2.69E-01	7.48E-02
Xylenes	1330-20-7	5.41E-02	0.26	1.62E-01	4.50E-02
CO2					
CH4					
N2O					
CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI13			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.02	18.54	0.06	0.02
PM10		0.17	23.07	0.50	0.14
PM2.5		0.12	16.89	0.36	0.10
NOx					
CO		12.40	120.67	37.19	10.33
SO2					
VOC					
Lead	7439-92-1	0.00	0.06	0.001	0.0004
Total HAPs		4.01E-01	4.03	1.20E+00	3.34E-01
1,3-Dimethylnaphthalene	575-41-7	5.32E-04	0.01	1.60E-03	4.44E-04
1,4-Dimethylnaphthalene	571-58-4	1.13E-04	1.10E-03	3.39E-04	9.41E-05
1,8-Dimethylnaphthalene	569-41-5	2.39E-05	2.33E-04	7.18E-05	2.00E-05
1-Methylnaphthalene	90-12-0	4.41E-03	0.04	0.01	3.68E-03
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	4.29E-04	4.17E-03	1.29E-03	3.57E-04
2,6-Dimethylnaphthalene	581-42-0	5.09E-05	4.95E-04	1.53E-04	4.24E-05
2,7-Dimethylnaphthalene	582-16-1	1.18E-04	1.15E-03	3.53E-04	9.81E-05
2-Methylnaphthalene	91-57-6	0.01	0.05	0.02	0.00
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	1.10E-04	0.00	3.31E-04	9.19E-05
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	0.02	0.15	0.05	0.01
Acetophenone	98-86-2	8.91E-04	0.01	0.00	7.43E-04
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.17	1.62	0.50	0.14
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	7.83E-06	1.09E-03	2.35E-05	6.52E-06
Chromium	7440-47-3	8.80E-05	0.01	2.64E-04	7.34E-05
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	5.72E-04	0.01	1.71E-03	4.76E-04
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	7.34E-05	7.14E-04	2.20E-04	6.11E-05
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.09	0.03	0.01
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	0.01	0.08	0.03	0.01
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.28E-04	0.06	1.28E-03	3.56E-04
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.01	0.11	0.03	0.01
Nickel	7440-02-0				
o-Cresol	95-48-7	0.00	0.04	0.01	0.00
Phenanathrene	85-01-8				
Phenol	108-95-2	0.03	0.25	0.08	0.02
Pyrene	129-00-0				
Selenium	7782-49-2	1.29E-06	1.80E-04	3.87E-06	1.08E-06
Styrene	100-42-5	2.20E-03	0.02	0.01	1.83E-03
Toluene	108-88-3	0.09	0.87	0.27	0.07
Xylenes	1330-20-7	0.05	0.53	0.16	0.05
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI16			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		3.84E-04	560.64	1.68E-03	1.92E-07
PM10		2.28E-03	476.54	0.01	1.14E-06
PM2.5		1.14E-03	238.27	0.01	5.71E-07
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	6.61E-08	0.01	1.98E-07	3.67E-08
Total HAPs		3.97E-07	0.08	1.19E-06	2.20E-07
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	6.61E-08	0.01	1.98E-07	3.67E-08
Chromium	7440-47-3	6.61E-08	0.01	1.98E-07	3.67E-08
Chrysene	218-01-9				
Cobalt	7440-48-4	6.61E-08	0.01	1.98E-07	3.67E-08
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	6.61E-08	0.01	1.98E-07	3.67E-08
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI17			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		9.82E-03	7.01	1.40E-02	2.00E-03
PM10		9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		1.84E-05	0.70	9.82E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		2.03E-04	0.01	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI18			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		4.91E-03	3.50	7.02E-03	2.00E-03
PM10		4.91E-03	0.35	4.91E-03	1.40E-03
PM2.5		9.21E-06	0.35	4.91E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06
Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI20			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		4.91E-03	3.50	7.02E-03	2.00E-03
PM10		4.91E-03	0.35	4.91E-03	1.40E-03
PM2.5		9.21E-06	0.35	4.91E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06
Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI23			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		2.46E-03	0.16	3.51E-03	2.00E-03
PM10		2.46E-03	0.18	2.46E-03	1.40E-03
PM2.5		4.60E-06	0.01	2.46E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		4.60E-06	3.29E-04	4.60E-06	2.63E-06
Total HAPs		5.06E-05	1.97E-03	2.76E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chromium	7440-47-3	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	2.76E-05	3.29E-04	4.60E-06	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

Emissions by Source Table

3a) Tempo SI ID number:		EQUI24				3a) Tempo SI ID number:		EQUI28				3a) Tempo SI ID number:		EQUI29			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		4.91E-03	0.16	7.02E-03	2.00E-03	PM		7.37E-03	0.16	1.05E-02	2.00E-03	PM		7.37E-03	0.16	1.05E-02	2.00E-03
PM10		4.91E-03	0.35	4.91E-03	1.40E-03	PM10		7.37E-03	0.53	7.37E-03	1.40E-03	PM10		7.37E-03	0.53	7.37E-03	1.40E-03
PM2.5		9.21E-06	0.04	4.91E-03	1.40E-03	PM2.5		1.38E-05	0.09	7.37E-03	1.40E-03	PM2.5		1.38E-05	0.09	7.37E-03	1.40E-03
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead		9.21E-06	6.57E-04	9.21E-06	2.63E-06	Lead		1.38E-05	9.86E-04	1.38E-05	2.63E-06	Lead		1.38E-05	9.86E-04	1.38E-05	2.63E-06
Total HAPs		1.01E-04	3.94E-03	5.53E-05	1.58E-05	Total HAPs		1.52E-04	5.91E-03	8.29E-05	1.58E-05	Total HAPs		1.52E-04	5.91E-03	8.29E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cadmium	7440-43-9	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Cadmium	7440-43-9	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Chromium	7440-47-3	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Chromium	7440-47-3	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Chromium	7440-47-3	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Cobalt	7440-48-4	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Cobalt	7440-48-4	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.21E-06	6.57E-04	9.21E-06	2.63E-06	Manganese	7439-96-5	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Manganese	7439-96-5	1.38E-05	9.86E-04	1.38E-05	2.63E-06
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0	5.53E-05	6.57E-04	9.21E-06	2.63E-06	Nickel	7440-02-0	8.29E-05	9.86E-04	1.38E-05	2.63E-06	Nickel	7440-02-0	8.29E-05	9.86E-04	1.38E-05	2.63E-06
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

3a) Tempo SI ID number:		EQUI30				3a) Tempo SI ID number:		EQUI36				3a) Tempo SI ID number:		EQUI37			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year	3c) Pollutant Name	3d) CAS #	3e) Potential Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		9.82E-03	0.16	1.40E-02	2.00E-03	PM		0.00	0.05	0.00	0.00	PM		0.00	0.13	0.00	0.00
PM10		9.82E-03	0.70	9.82E-03	1.40E-03	PM10		0.00	0.05	0.00	0.00	PM10		0.00	0.13	0.01	0.01
PM2.5		1.84E-05	0.16	9.82E-03	1.40E-03	PM2.5		0.00	0.05	0.00	0.00	PM2.5		0.00	0.13	0.01	0.01
NOx						NOx		0.23	0.99	0.99	0.99	NOx		0.57	2.48	2.48	2.48
CO						CO		0.13	0.58	0.58	0.58	CO		0.33	1.44	1.44	1.44
SO2						SO2		0.00	0.00	0.00	0.00	SO2		0.00	0.01	0.01	0.01
VOC						VOC		0.02	0.08	0.08	0.08	VOC		0.04	0.19	0.19	0.19
Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		2.03E-04	7.88E-03	1.11E-04	1.58E-05	Total HAPs		0.00	0.01	0.01	0.01	Total HAPs		0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2					Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2					Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7					Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9					Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7					Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0					Formaldehyde	50-00-0	0.00	0.00	0.00	0.00	Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3					Hexane	110-54-3	0.00	0.01	0.01	0.01	Hexane	110-54-3	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6					Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2					Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2		217.67	953.41	953.41	953.41	CO2		544.18	2,383.52	2,383.52	2,383.52
CH4						CH4		0.00	0.02	0.02	0.02	CH4		0.01	0.04	0.04	0.04
N2O						N2O		0.02	0.07	0.07	0.07	N2O		0.04	0.17	0.17	0.17
CO2e						CO2e		222.43	974.23	974.23	974.23	CO2e		556.07	2,435.59	2,435.59	2,435.59

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI39
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.02	21.90	0.05	0.03
PM10		0.13	21.90	0.38	0.18
PM2.5		0.13	21.90	0.38	0.18
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	0.00	0.72	0.01	0.01
Total HAPs		0.02	2.74	0.05	0.02
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	7.54E-05	0.01	2.26E-04	1.07E-04
Chromium	7440-47-3	5.47E-04	0.10	1.64E-03	7.74E-04
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.01	1.80	0.03	0.01
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	6.63E-04	0.12	1.99E-03	9.39E-04
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI41
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		9.82E-03	0.16	1.40E-02	2.00E-03
PM10		9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		1.84E-05	0.16	9.82E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		2.03E-04	7.88E-03	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI42
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		9.82E-03	0.16	1.40E-02	2.00E-03
PM10		9.82E-03	0.70	9.82E-03	1.40E-03
PM2.5		1.84E-05	0.16	9.82E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead		1.84E-05	1.31E-03	1.84E-05	2.63E-06
Total HAPs		2.03E-04	7.88E-03	1.11E-04	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chromium	7440-47-3	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	1.84E-05	1.31E-03	1.84E-05	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	1.11E-04	1.31E-03	1.84E-05	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI46
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.20	0.00	0.00
PM10		0.00	0.20	0.01	0.01
PM2.5		0.00	0.20	0.01	0.01
NOx		0.85	3.74	3.74	3.74
CO		0.50	2.18	2.18	2.18
SO2		0.00	0.02	0.02	0.02
VOC		0.07	0.29	0.29	0.29
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.05	0.05	0.05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.05	0.05	0.05
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		823.08	3,605.08	3,605.08	3,605.08
CH4		0.01	0.06	0.06	0.06
N2O		0.06	0.26	0.26	0.26
CO2e		841.06	3,683.82	3,683.82	3,683.82

3a) Tempo SI ID number: EQUI47
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.20	0.00	0.00
PM10		0.00	0.20	0.01	0.01
PM2.5		0.00	0.20	0.01	0.01
NOx		0.85	3.74	3.74	3.74
CO		0.50	2.18	2.18	2.18
SO2		0.00	0.02	0.02	0.02
VOC		0.07	0.29	0.29	0.29
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.05	0.05	0.05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.05	0.05	0.05
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		823.08	3,605.08	3,605.08	3,605.08
CH4		0.01	0.06	0.06	0.06
N2O		0.06	0.26	0.26	0.26
CO2e		841.06	3,683.82	3,683.82	3,683.82

3a) Tempo SI ID number: EQUI48
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.11	0.00	0.00
PM10		0.00	0.11	0.01	0.01
PM2.5		0.00	0.11	0.01	0.01
NOx		0.47	2.04	2.04	2.04
CO		0.27	1.19	1.19	1.19
SO2		0.00	0.01	0.01	0.01
VOC		0.04	0.16	0.16	0.16
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		448.95	1,966.41	1,966.41	1,966.41
CH4		0.01	0.03	0.03	0.03
N2O		0.03	0.14	0.14	0.14
CO2e		458.76	2,009.36	2,009.36	2,009.36

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI49
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.11	0.00	0.00
PM10		0.00	0.11	0.01	0.01
PM2.5		0.00	0.11	0.01	0.01
NOx		0.47	2.04	2.04	2.04
CO		0.27	1.19	1.19	1.19
SO2		0.00	0.01	0.01	0.01
VOC		0.04	0.16	0.16	0.16
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.01	0.03	0.03	0.03
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.01	0.03	0.03	0.03
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		448.95	1,966.41	1,966.41	1,966.41
CH4		0.01	0.03	0.03	0.03
N2O		0.03	0.14	0.14	0.14
CO2e		458.76	2,009.36	2,009.36	2,009.36

3a) Tempo SI ID number: EQUI50
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.07	0.00	0.00
PM10		0.00	0.07	0.01	0.01
PM2.5		0.00	0.07	0.01	0.01
NOx		0.32	1.39	1.39	1.39
CO		0.19	0.81	0.81	0.81
SO2		0.00	0.01	0.01	0.01
VOC		0.02	0.11	0.11	0.11
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.00	0.02	0.02	0.02
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.00	0.02	0.02	0.02
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		306.10	1,340.73	1,340.73	1,340.73
CH4		0.01	0.02	0.02	0.02
N2O		0.02	0.10	0.10	0.10
CO2e		312.79	1,370.02	1,370.02	1,370.02

3a) Tempo SI ID number: EQUI51
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		2.40E-06	3.50	1.05E-05	1.20E-09
PM10		1.43E-05	2.98	0.00	7.14E-09
PM2.5		7.14E-06	1.49	0.00	3.57E-09
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	6.61E-08	0.01	1.98E-07	3.67E-08
Total HAPs		3.97E-07	0.08	1.19E-06	2.20E-07
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	6.61E-08	0.01	1.98E-07	3.67E-08
Chromium	7440-47-3	6.61E-08	0.01	1.98E-07	3.67E-08
Chrysene	218-01-9				
Cobalt	7440-48-4	6.61E-08	0.01	1.98E-07	3.67E-08
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	6.61E-08	0.01	1.98E-07	3.67E-08
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI52
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.32	1.39	0.01	0.00
PM10		0.27	1.18	0.08	0.02
PM2.5		0.10	0.42	0.03	0.01
NOx					
CO					
SO2					
VOC		0.41	1.80	1.80	0.41
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI53
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.01	1.15	0.01	0.00
PM10		0.02	0.98	0.07	0.02
PM2.5		0.01	0.34	0.02	0.01
NOx					
CO					
SO2					
VOC		0.34	1.48	1.48	0.34
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI54
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	3f) Actual tons per year
PM		0.00	0.93	0.00	0.00
PM10		0.00	0.79	0.01	0.00
PM2.5		0.00	0.29	0.00	0.00
NOx		0.04	0.19	0.19	0.19
CO		0.02	0.11	0.11	0.11
SO2		0.00	0.00	0.00	0.00
VOC		0.00	0.01	0.01	0.01
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.22	0.99	0.99	0.99
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.03	0.12	0.12	0.12
Hexane	110-54-3	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1	0.20	0.87	0.87	0.87
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		40.81	178.76	178.76	178.76
CH4		0.00	0.00	0.00	0.00
N2O		0.00	0.01	0.01	0.01
CO2e		41.71	182.67	182.67	182.67

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI55				**3a)** Tempo SI ID number:		EQUI56				**3a)** Tempo SI ID number:		EQUI58			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.93	0.00	0.00	PM		0.01	3.09	0.01	0.00	PM		7.68E-04	1,121.28	3.36E-03	3.84E-07
PM10		0.00	0.79	0.01	0.00	PM10		0.02	2.63	0.04	0.01	PM10		4.57E-03	953.09	0.02	2.28E-06
PM2.5		0.00	0.29	0.00	0.00	PM2.5		0.01	0.95	0.01	0.01	PM2.5		2.28E-03	476.54	0.01	1.14E-06
NOx		0.04	0.19	0.19	0.19	NOx		0.13	0.56	0.56	0.56	NOx					
CO		0.02	0.11	0.11	0.11	CO		0.07	0.32	0.32	0.32	CO					
SO2		0.00	0.00	0.00	0.00	SO2		0.00	0.00	0.00	0.00	SO2					
VOC		0.00	0.01	0.01	0.01	VOC		0.01	0.04	0.04	0.04	VOC					
Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	0.00	0.00	0.00	0.00	Lead	7439-92-1	6.61E-08	0.01	1.98E-07	3.67E-08
Total HAPs		0.22	0.99	0.99	0.99	Total HAPs		0.75	3.28	3.28	3.28	Total HAPs		3.97E-07	0.08	1.19E-06	2.20E-07
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00	2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00	3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00	7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9	0.00	0.00	0.00	0.00	Acenaphthene	83-32-9				
Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8	0.00	0.00	0.00	0.00	Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7	0.00	0.00	0.00	0.00	Anthracene	120-12-7				
Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2	0.00	0.00	0.00	0.00	Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00	Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2	0.00	0.00	0.00	0.00	Benzene	71-43-2				
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00	Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00	Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00	Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00	Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7	0.00	0.00	0.00	0.00	Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	0.00	0.00	0.00	0.00	Cadmium	7440-43-9	6.61E-08	0.01	1.98E-07	3.67E-08
Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	0.00	0.00	0.00	0.00	Chromium	7440-47-3	6.61E-08	0.01	1.98E-07	3.67E-08
Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9	0.00	0.00	0.00	0.00	Chrysene	218-01-9				
Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	0.00	0.00	0.00	0.00	Cobalt	7440-48-4	6.61E-08	0.01	1.98E-07	3.67E-08
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00	Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00	Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0	0.00	0.00	0.00	0.00	Fluoranthene	206-44-0				
Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7	0.00	0.00	0.00	0.00	Fluorene	86-73-7				
Formaldehyde	50-00-0	0.03	0.12	0.12	0.12	Formaldehyde	50-00-0	0.09	0.39	0.39	0.39	Formaldehyde	50-00-0				
Hexane	110-54-3	0.00	0.00	0.00	0.00	Hexane	110-54-3	0.00	0.01	0.01	0.01	Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00	Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	0.00	0.00	0.00	0.00	Manganese	7439-96-5	6.61E-08	0.01	1.98E-07	3.67E-08
Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6	0.00	0.00	0.00	0.00	Mercury	7439-97-6				
Methyl Alcohol	67-56-1	0.20	0.87	0.87	0.87	Methyl Alcohol	67-56-1	0.66	2.89	2.89	2.89	Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3	0.00	0.00	0.00	0.00	Naphthalene	91-20-3				
Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	0.00	0.00	0.00	0.00	Nickel	7440-02-0	6.61E-08	0.01	1.98E-07	3.67E-08
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8	0.00	0.00	0.00	0.00	Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0	0.00	0.00	0.00	0.00	Pyrene	129-00-0				
Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2	0.00	0.00	0.00	0.00	Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3	0.00	0.00	0.00	0.00	Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2		40.81	178.76	178.76	178.76	CO2		122.44	536.29	536.29	536.29	CO2					
CH4		0.00	0.00	0.00	0.00	CH4		0.00	0.01	0.01	0.01	CH4					
N2O		0.00	0.01	0.01	0.01	N2O		0.01	0.04	0.04	0.04	N2O					
CO2e		41.71	182.67	182.67	182.67	CO2e		125.12	548.01	548.01	548.01	CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI60				**3a)** Tempo SI ID number:		EQUI61				**3a)** Tempo SI ID number:		EQUI62			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00	PM2.5		0.10	0.44	0.03	0.00	PM2.5		0.01	0.44	0.03	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI63			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.05	46.72	0.14	0.05
PM10		0.18	32.70	0.54	0.18
PM2.5		0.11	19.62	0.33	0.11
NOx					
CO		2.11	20.56	6.34	2.11
SO2					
VOC		1.01	9.79	3.02	1.01
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		1.01	9.82	3.02	1.01
1,3-Dimethylnaphthalene	575-41-7	0.00	0.05	0.01	0.00
1,4-Dimethylnaphthalene	571-58-4	0.00	0.02	0.01	0.00
1,8-Dimethylnaphthalene	569-41-5	0.00	0.05	0.01	0.00
1-Methylnaphthalene	90-12-0	0.02	0.15	0.05	0.02
2,3,5-Trimethylnaphthalene	2245-38-7	0.00	0.03	0.01	0.00
2,3-Dimethylnaphthalene	581-40-8	0.00	0.03	0.01	0.00
2,6-Dimethylnaphthalene	581-42-0	0.00	0.02	0.01	0.00
2,7-Dimethylnaphthalene	582-16-1	0.00	0.02	0.01	0.00
2-Methylnaphthalene	91-57-6	0.02	0.23	0.07	0.02
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	0.00	0.01	0.00	0.00
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	0.26	2.53	0.78	0.26
Acetophenone	98-86-2	0.00	0.03	0.01	0.00
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.12	1.17	0.36	0.12
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.01	0.00	0.00
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	0.00	0.02	0.01	0.00
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	0.00	0.01	0.00	0.00
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.13	0.04	0.01
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	0.12	1.13	0.35	0.12
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.01	0.00	0.00
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.04	0.37	0.11	0.04
Nickel	7440-02-0				
o-Cresol	95-48-7	0.06	0.61	0.19	0.06
Phenanathrene	85-01-8				
Phenol	108-95-2	0.13	1.23	0.38	0.13
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5	0.02	0.21	0.06	0.02
Toluene	108-88-3	0.10	0.97	0.30	0.10
Xylenes	1330-20-7	0.08	0.78	0.24	0.08
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI64			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.05	0.01
PM2.5		0.01	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI65			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.05	46.72	0.14	0.05
PM10		0.24	32.70	0.71	0.24
PM2.5		0.14	19.62	0.42	0.14
NOx					
CO		2.11	20.56	6.34	2.11
SO2					
VOC		--	--	--	--
Lead	7439-92-1	--	--	--	--
Total HAPs		--	--	--	--
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--
1-Methylnaphthalene	90-12-0	--	--	--	--
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--
2-Methylnaphthalene	91-57-6	--	--	--	--
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--
Acetophenone	98-86-2	--	--	--	--
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--
Chromium	7440-47-3	--	--	--	--
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--
Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--
Phenanathrene	85-01-8				
Phenol	108-95-2	--	--	--	--
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--
Toluene	108-88-3	--	--	--	--
Xylenes	1330-20-7	--	--	--	--
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI66			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.05	46.72	0.14	0.05
PM10		0.24	32.70	0.71	0.24
PM2.5		0.14	19.62	0.42	0.14
NOx					
CO		2.11	20.56	6.34	2.11
SO2					
VOC		--	--	--	--
Lead	7439-92-1	--	--	--	--
Total HAPs		--	--	--	--
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--
1-Methylnaphthalene	90-12-0	--	--	--	--
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--
2-Methylnaphthalene	91-57-6	--	--	--	--
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--
Acetophenone	98-86-2	--	--	--	--
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--
Chromium	7440-47-3	--	--	--	--
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--
Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--
Phenanathrene	85-01-8				
Phenol	108-95-2	--	--	--	--
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--
Toluene	108-88-3	--	--	--	--
Xylenes	1330-20-7	--	--	--	--
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI67			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.05	0.01
PM2.5		0.01	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI68			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI69				**3a)** Tempo SI ID number:		EQUI70				**3a)** Tempo SI ID number:		EQUI71				**3a)** Tempo SI ID number:		EQUI72				**3a)** Tempo SI ID number:		EQUI73				**3a)** Tempo SI ID number:		EQUI74			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.00	1.45	0.01	0.00	PM		0.90	394.20	2.70	0.43	PM		0.17	72.35	0.86	0.07	PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00
PM10		0.02	1.23	0.06	0.01	PM10		0.02	1.23	0.06	0.01	PM10		3.56	311.42	10.67	1.68	PM10		0.70	61.50	1.29	0.29	PM10		0.01	0.71	0.05	0.00	PM10		0.01	0.71	0.05	0.00
PM2.5		0.01	0.44	0.03	0.00	PM2.5		0.01	0.44	0.03	0.00	PM2.5		2.03	177.39	8.87	0.96	PM2.5		0.25	21.70	1.09	0.10	PM2.5		0.00	0.25	0.02	0.00	PM2.5		0.00	0.25	0.02	0.00
NOx						NOx						NOx						NOx						NOx						NOx					
CO						CO						CO						CO						CO						CO					
SO2						SO2						SO2						SO2						SO2						SO2					
VOC						VOC						VOC						VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs						Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benzene	71-43-2					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benz(a)pyrene	50-32-8					Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benz(a)pyrene	50-32-8					Benzo(b)fluoranthene	205-99-2					Benz(a)pyrene	50-32-8					Benz(a)pyrene	50-32-8					Benz(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(g,h,i)perylene	191-24-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(k)fluoranthene	207-08-9					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Beryllium	7440-41-7					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Cadmium	7440-43-9					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Chromium	7440-47-3					Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chrysene	218-01-9					Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Cobalt	7440-48-4					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cumene	98-82-8					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Dibenzo(a,h)anthracene	53-70-3					Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzofuran	132-64-9					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dichlorobenzene	95-50-1					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Ethylbenzene	100-41-4					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Fluoranthene	206-44-0					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluorene	86-73-7					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Formaldehyde	50-00-0					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Hexane	110-54-3					Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Indeno(1,2,3-cd)pyrene	193-39-5					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Manganese	7439-96-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Mercury	7439-97-6					Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Methyl Alcohol	67-56-1					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Naphthalene	91-20-3					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Nickel	7440-02-0					Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					o-Cresol	95-48-7					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					Phenanathrene	85-01-8					o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenol	108-95-2					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Pyrene	129-00-0					Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Selenium	7782-49-2					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Styrene	100-42-5					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Toluene	108-88-3					Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Xylenes	1330-20-7					Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					CO2						Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CH4						CO2						CO2						CO2					
CH4						CH4						N2O						CH4						CH4						CH4					
N2O						N2O						CO2e						N2O						N2O						N2O					
CO2e						CO2e												CO2e						CO2e						CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI75			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI76			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI77			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI78			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI79			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI80			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.03	14.02	0.09	0.02
PM10		0.14	9.81	0.42	0.08
PM2.5		0.08	5.89	0.25	0.05
NOx					
CO		2.11	10.28	6.34	1.27
SO2					
VOC		1.01	4.90	3.02	0.60
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		1.01	4.91	3.02	0.60
1,3-Dimethylnaphthalene	575-41-7	0.00	0.02	0.01	0.00
1,4-Dimethylnaphthalene	571-58-4	0.00	0.01	0.01	0.00
1,8-Dimethylnaphthalene	569-41-5	0.00	0.02	0.01	0.00
1-Methylnaphthalene	90-12-0	0.02	0.07	0.05	0.01
2,3,5-Trimethylnaphthalene	2245-38-7	0.00	0.02	0.01	0.00
2,3-Dimethylnaphthalene	581-40-8	0.00	0.01	0.01	0.00
2,6-Dimethylnaphthalene	581-42-0	0.00	0.01	0.01	0.00
2,7-Dimethylnaphthalene	582-16-1	0.00	0.01	0.01	0.00
2-Methylnaphthalene	91-57-6	0.02	0.11	0.07	0.01
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	0.00	0.00	0.00	0.00
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	0.26	1.27	0.78	0.16
Acetophenone	98-86-2	0.00	0.02	0.01	0.00
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2	0.12	0.59	0.36	0.07
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8	0.00	0.01	0.01	0.00
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	0.00	0.01	0.00	0.00
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	0.01	0.06	0.04	0.01
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0	0.12	0.56	0.35	0.07
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	0.00	0.01	0.00	0.00
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.04	0.18	0.11	0.02
Nickel	7440-02-0				
o-Cresol	95-48-7	0.06	0.31	0.19	0.04
Phenanathrene	85-01-8				
Phenol	108-95-2	0.13	0.61	0.38	0.08
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5	0.02	0.11	0.06	0.01
Toluene	108-88-3	0.10	0.48	0.30	0.06
Xylenes	1330-20-7	0.08	0.39	0.24	0.05
CO2					
CH4					
N2O					
CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI81				**3a)** Tempo SI ID number:		EQUI82				**3a)** Tempo SI ID number:		EQUI83				**3a)** Tempo SI ID number:		EQUI84				**3a)** Tempo SI ID number:		EQUI85				**3a)** Tempo SI ID number:		EQUI86			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.03	14.02	0.09	0.02	PM		0.03	14.02	0.09	0.02	PM		0.03	14.02	0.09	0.02	PM		0.03	14.02	0.09	0.02	PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00
PM10		0.11	9.81	0.33	0.07	PM10		0.11	9.81	0.33	0.07	PM10		0.11	9.81	0.33	0.07	PM10		0.14	9.81	0.42	0.08	PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.04	0.00
PM2.5		0.07	5.89	0.20	0.04	PM2.5		0.07	5.89	0.20	0.04	PM2.5		0.07	5.89	0.20	0.04	PM2.5		0.08	5.89	0.25	0.05	PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.01	0.00
NOx						NOx						NOx						NOx						NOx						NOx					
CO		2.11	10.28	6.34	1.27	CO		2.11	10.28	6.34	1.27	CO		2.11	10.28	6.34	1.27	CO		2.11	10.28	6.34	1.27	CO						CO					
SO2						SO2						SO2						SO2						SO2						SO2					
VOC		--	--	--	--	VOC		--	--	--	--	VOC		--	--	--	--	VOC		--	--	--	--	VOC						VOC					
Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1	--	--	--	--	Lead	7439-92-1					Lead	7439-92-1				
Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs		--	--	--	--	Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7	--	--	--	--	1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4	--	--	--	--	1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5	--	--	--	--	1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0	--	--	--	--	1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7	--	--	--	--	2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8	--	--	--	--	2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0	--	--	--	--	2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1	--	--	--	--	2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6	--	--	--	--	2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8	--	--	--	--	Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8					Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0	--	--	--	--	Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2	--	--	--	--	Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2	--	--	--	--	Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9	--	--	--	--	Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3	--	--	--	--	Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8	--	--	--	--	Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9	--	--	--	--	Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4	--	--	--	--	Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0	--	--	--	--	Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5	--	--	--	--	Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3	--	--	--	--	Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7	--	--	--	--	o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2	--	--	--	--	Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5	--	--	--	--	Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3	--	--	--	--	Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7	--	--	--	--	Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2						CO2						CO2						CO2					
CH4						CH4						CH4						CH4						CH4						CH4					
N2O						N2O						N2O						N2O						N2O						N2O					
CO2e						CO2e						CO2e						CO2e						CO2e						CO2e					

1a) AQ Facility ID number: 12300088
1b) Agency Interest ID number: 3518
2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI87				**3a)** Tempo SI ID number:		EQUI88				**3a)** Tempo SI ID number:		EQUI89			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.01	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
1b) Agency Interest ID number: 3518
2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI90				**3a)** Tempo SI ID number:		EQUI91				**3a)** Tempo SI ID number:		EQUI92			
3b) Delta ID No.:						**3b)** Delta ID No.:						**3b)** Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**	**3c)**	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00	PM		0.00	0.84	0.01	0.00	PM		0.00	1.45	0.01	0.00
PM10		0.01	0.71	0.04	0.00	PM10		0.01	0.71	0.05	0.00	PM10		0.02	1.23	0.06	0.01
PM2.5		0.00	0.25	0.01	0.00	PM2.5		0.00	0.25	0.02	0.00	PM2.5		0.01	0.44	0.03	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI93			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	
PM10		0.02	1.23	0.06	
PM2.5		0.01	0.44	0.03	
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI93			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI94			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI95			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI96			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI97			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.05	0.00
PM2.5		0.00	0.25	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI98				3a) Tempo SI ID number:		EQUI100				3a) Tempo SI ID number:		EQUI102			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		7.37E-03	0.16	1.05E-02	2.00E-03	PM		0.00	0.84	0.01	0.00
PM10		0.02	1.23	0.06	0.01	PM10		7.37E-03	0.53	7.37E-03	1.40E-03	PM10		0.01	0.71	0.05	0.00
PM2.5		0.01	0.44	0.03	0.00	PM2.5		1.38E-05	0.09	7.37E-03	1.40E-03	PM2.5		0.00	0.25	0.02	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Lead	7439-92-1				
Total HAPs						Total HAPs		1.52E-04	5.91E-03	8.29E-05	1.58E-05	Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5	1.38E-05	9.86E-04	1.38E-05	2.63E-06	Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0	8.29E-05	9.86E-04	1.38E-05	2.63E-06	Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet

Facility Emissions Summary

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number: 12300088

1b) Agency Interest ID number: 3518

2) Facility name: Northern Iron LLC

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI103				3a) Tempo SI ID number:		EQUI104				3a) Tempo SI ID number:		EQUI105			
3b) Delta ID No.:						3b) Delta ID No.:						3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)	3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year	Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00	PM		0.29	125.22	0.86	0.14	PM		0.00	0.84	0.01	0.00
PM10		0.01	1.23	0.04	0.01	PM10		1.22	106.43	3.65	0.57	PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.44	0.02	0.00	PM2.5		0.43	37.56	1.88	0.20	PM2.5		0.00	0.25	0.01	0.00
NOx						NOx						NOx					
CO						CO						CO					
SO2						SO2						SO2					
VOC						VOC						VOC					
Lead	7439-92-1					Lead	7439-92-1					Lead	7439-92-1				
Total HAPs						Total HAPs						Total HAPs					
1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7					1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4					1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5					1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0					1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7					2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8					2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0					2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1					2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6					2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5					3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6					7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8					Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9					Acenaphthene	83-32-9					Acenaphthene	83-32-9				
Acenapthylene	208-96-8					Acenapthylene	208-96-8					Acenapthylene	208-96-8				
Acetaldehyde	75-07-0					Acetaldehyde	75-07-0					Acetaldehyde	75-07-0				
Acetophenone	98-86-2					Acetophenone	98-86-2					Acetophenone	98-86-2				
Anthracene	120-12-7					Anthracene	120-12-7					Anthracene	120-12-7				
Arsenic	7440-38-2					Arsenic	7440-38-2					Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3					Benz(a)anthracene	56-55-3				
Benzene	71-43-2					Benzene	71-43-2					Benzene	71-43-2				
Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8					Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2					Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2					Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9					Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7					Beryllium	7440-41-7					Beryllium	7440-41-7				
Cadmium	7440-43-9					Cadmium	7440-43-9					Cadmium	7440-43-9				
Chromium	7440-47-3					Chromium	7440-47-3					Chromium	7440-47-3				
Chrysene	218-01-9					Chrysene	218-01-9					Chrysene	218-01-9				
Cobalt	7440-48-4					Cobalt	7440-48-4					Cobalt	7440-48-4				
Cumene	98-82-8					Cumene	98-82-8					Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3					Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9					Dibenzofuran	132-64-9					Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1					Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4					Ethylbenzene	100-41-4					Ethylbenzene	100-41-4				
Fluoranthene	206-44-0					Fluoranthene	206-44-0					Fluoranthene	206-44-0				
Fluorene	86-73-7					Fluorene	86-73-7					Fluorene	86-73-7				
Formaldehyde	50-00-0					Formaldehyde	50-00-0					Formaldehyde	50-00-0				
Hexane	110-54-3					Hexane	110-54-3					Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5					Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5					Manganese	7439-96-5					Manganese	7439-96-5				
Mercury	7439-97-6					Mercury	7439-97-6					Mercury	7439-97-6				
Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1					Methyl Alcohol	67-56-1				
Naphthalene	91-20-3					Naphthalene	91-20-3					Naphthalene	91-20-3				
Nickel	7440-02-0					Nickel	7440-02-0					Nickel	7440-02-0				
o-Cresol	95-48-7					o-Cresol	95-48-7					o-Cresol	95-48-7				
Phenanathrene	85-01-8					Phenanathrene	85-01-8					Phenanathrene	85-01-8				
Phenol	108-95-2					Phenol	108-95-2					Phenol	108-95-2				
Pyrene	129-00-0					Pyrene	129-00-0					Pyrene	129-00-0				
Selenium	7782-49-2					Selenium	7782-49-2					Selenium	7782-49-2				
Styrene	100-42-5					Styrene	100-42-5					Styrene	100-42-5				
Toluene	108-88-3					Toluene	108-88-3					Toluene	108-88-3				
Xylenes	1330-20-7					Xylenes	1330-20-7					Xylenes	1330-20-7				
CO2						CO2						CO2					
CH4						CH4						CH4					
N2O						N2O						N2O					
CO2e						CO2e						CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI106			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.01	1.23	0.04	0.01
PM2.5		0.00	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI107			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.01	1.23	0.04	0.01
PM2.5		0.00	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI108			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.01	1.23	0.04	0.01
PM2.5		0.00	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI109			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.02	1.23	0.06	0.01
PM2.5		0.01	0.44	0.03	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI110			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.19	0.84	0.84	0.08
PM10		0.16	0.71	0.71	0.07
PM2.5		0.06	0.25	0.25	0.02
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI111			
3b) Delta ID No.:					
3c)	3d)	3e) Potential			3f)
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.02	0.01	0.00
PM10		0.00	0.01	0.06	0.00
PM2.5		0.00	0.00	0.00	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenaphthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI112
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.01	0.01	0.00
PM10		0.00	0.01	0.06	0.00
PM2.5		0.00	0.00	0.00	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI113
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.06	0.01	0.00
PM10		0.00	0.05	0.06	0.00
PM2.5		0.00	0.02	0.00	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI114
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.01	0.00	0.00
PM10		0.00	0.01	0.00	0.00
PM2.5		0.00	0.01	0.00	0.00
NOx		0.05	0.22	0.22	0.22
CO		0.03	0.13	0.13	0.13
SO2		0.00	0.00	0.00	0.00
VOC		0.00	0.02	0.02	0.02
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.00	0.00	0.00	0.00
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.00	0.00	0.00	0.00
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		48.85	213.98	213.98	213.98
CH4		0.00	0.00	0.00	0.00
N2O		0.00	0.02	0.02	0.02
CO2e		49.92	218.65	218.65	218.65

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

GI-07 Spreadsheet
Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number: EQUI115
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	0.84	0.01	0.00
PM10		0.01	0.71	0.04	0.00
PM2.5		0.00	0.25	0.01	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI116
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		0.00	1.45	0.01	0.00
PM10		0.01	1.23	0.04	0.01
PM2.5		0.00	0.44	0.02	0.00
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number: EQUI117
3b) Delta ID No.:

3c) Pollutant Name	3d) CAS #	3e) Potential: Pounds (lbs) per hour	3e) Potential: tons per year un-restricted	3e) Potential: tons per year limited	3f) Actual tons per year
PM		2.46E-03	0.16	3.51E-03	2.00E-03
PM10		2.46E-03	0.18	2.46E-03	1.40E-03
PM2.5		4.60E-06	0.01	2.46E-03	1.40E-03
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Total HAPs		5.06E-05	1.97E-03	2.76E-05	1.58E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chromium	7440-47-3	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.60E-06	3.29E-04	4.60E-06	2.63E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	2.76E-05	3.29E-04	4.60E-06	2.63E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

GI-07 Spreadsheet

Facility Emissions Summary
Air Quality Permit Program
Doc Type: Permit Application

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

1a) AQ Facility ID number: 12300088
2) Facility name: Northern Iron LLC
1b) Agency Interest ID number: 3518

Follow the instructions to complete this spreadsheet. This spreadsheet can be copied into a tab for your emissions spreadsheet and must be submitted on a CD with your application. If you need to provide emissions information for more emissions units, add more sets of columns (3a through 3f) to the right as needed in the Emissions by Source table. If you need to provide information for more pollutants, add rows as needed.

Emissions by Source Table

3a) Tempo SI ID number:		EQUI118			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		3.20E-04	0.70	1.40E-03	1.40E-03
PM10		2.24E-04	0.07	9.82E-04	9.82E-04
PM2.5		2.24E-04	0.07	9.82E-04	9.82E-04
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	4.21E-07	1.31E-04	1.84E-06	1.84E-06
Total HAPs		2.52E-06	7.88E-04	1.11E-05	1.11E-05
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	4.21E-07	1.31E-04	1.84E-06	1.84E-06
Chromium	7440-47-3	4.21E-07	1.31E-04	1.84E-06	1.84E-06
Chrysene	218-01-9				
Cobalt	7440-48-4	4.21E-07	1.31E-04	1.84E-06	1.84E-06
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	4.21E-07	1.31E-04	1.84E-06	1.84E-06
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	4.21E-07	1.31E-04	1.84E-06	1.84E-06
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI119			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		4.80E-05	0.70	2.10E-04	2.40E-08
PM10		4.08E-05	0.60	1.79E-04	2.04E-08
PM2.5		2.04E-05	0.30	8.94E-05	1.02E-08
NOx					
CO					
SO2					
VOC					
Lead	7439-92-1	3.15E-03	1.38E-02	2.83E-06	1.57E-07
Total HAPs		3.15E-03	8.28E-02	1.70E-05	9.45E-07
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9	9.45E-07	1.38E-02	2.83E-06	1.57E-07
Chromium	7440-47-3	9.45E-07	1.38E-02	2.83E-06	1.57E-07
Chrysene	218-01-9				
Cobalt	7440-48-4	9.45E-07	1.38E-02	2.83E-06	1.57E-07
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5	9.45E-07	1.38E-02	2.83E-06	1.57E-07
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0	9.45E-07	1.38E-02	2.83E-06	1.57E-07
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

3a) Tempo SI ID number:		EQUI120			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.00	0.04	0.00	0.00
PM10		0.00	0.04	0.00	0.00
PM2.5		0.00	0.04	0.00	0.00
NOx		0.16	0.68	0.68	0.68
CO		0.09	0.40	0.40	0.40
SO2		0.00	0.00	0.00	0.00
VOC		0.01	0.05	0.05	0.05
Lead	7439-92-1	0.00	0.00	0.00	0.00
Total HAPs		0.00	0.01	0.01	0.01
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6	0.00	0.00	0.00	0.00
3-Methylcholanthrene	56-49-5	0.00	0.00	0.00	0.00
7,12-Dimethylbenz(a)anthracene	57-97-6	0.00	0.00	0.00	0.00
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9	0.00	0.00	0.00	0.00
Acenapthylene	208-96-8	0.00	0.00	0.00	0.00
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7	0.00	0.00	0.00	0.00
Arsenic	7440-38-2	0.00	0.00	0.00	0.00
Benz(a)anthracene	56-55-3	0.00	0.00	0.00	0.00
Benzene	71-43-2	0.00	0.00	0.00	0.00
Benzo(a)pyrene	50-32-8	0.00	0.00	0.00	0.00
Benzo(b)fluoranthene	205-99-2	0.00	0.00	0.00	0.00
Benzo(g,h,i)perylene	191-24-2	0.00	0.00	0.00	0.00
Benzo(k)fluoranthene	207-08-9	0.00	0.00	0.00	0.00
Beryllium	7440-41-7	0.00	0.00	0.00	0.00
Cadmium	7440-43-9	0.00	0.00	0.00	0.00
Chromium	7440-47-3	0.00	0.00	0.00	0.00
Chrysene	218-01-9	0.00	0.00	0.00	0.00
Cobalt	7440-48-4	0.00	0.00	0.00	0.00
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3	0.00	0.00	0.00	0.00
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1	0.00	0.00	0.00	0.00
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0	0.00	0.00	0.00	0.00
Fluorene	86-73-7	0.00	0.00	0.00	0.00
Formaldehyde	50-00-0	0.00	0.00	0.00	0.00
Hexane	110-54-3	0.00	0.01	0.01	0.01
Indeno(1,2,3-cd)pyrene	193-39-5	0.00	0.00	0.00	0.00
Manganese	7439-96-5	0.00	0.00	0.00	0.00
Mercury	7439-97-6	0.00	0.00	0.00	0.00
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3	0.00	0.00	0.00	0.00
Nickel	7440-02-0	0.00	0.00	0.00	0.00
o-Cresol	95-48-7				
Phenanathrene	85-01-8	0.00	0.00	0.00	0.00
Phenol	108-95-2				
Pyrene	129-00-0	0.00	0.00	0.00	0.00
Selenium	7782-49-2	0.00	0.00	0.00	0.00
Styrene	100-42-5				
Toluene	108-88-3	0.00	0.00	0.00	0.00
Xylenes	1330-20-7				
CO2		149.65	655.47	655.47	655.47
CH4		0.00	0.01	0.01	0.01
N2O		0.01	0.05	0.05	0.05
CO2e		152.92	669.79	669.79	669.79

3a) Tempo SI ID number:		IA-02 - IA-30			
3b) Delta ID No.:					
3c)	**3d)**	**3e)** Potential			**3f)**
Pollutant Name	CAS #	Pounds (lbs) per hour	tons per year un-restricted	tons per year limited	Actual tons per year
PM		0.01	0.57	0.04	0.04
PM10		0.01	0.57	0.04	0.04
PM2.5		0.00	0.34	0.02	0.02
NOx					
CO					
SO2					
VOC		0.72	3.15	3.15	3.15
Lead	7439-92-1				
Total HAPs					
1,3-Dimethylnaphthalene	575-41-7				
1,4-Dimethylnaphthalene	571-58-4				
1,8-Dimethylnaphthalene	569-41-5				
1-Methylnaphthalene	90-12-0				
2,3,5-Trimethylnaphthalene	2245-38-7				
2,3-Dimethylnaphthalene	581-40-8				
2,6-Dimethylnaphthalene	581-42-0				
2,7-Dimethylnaphthalene	582-16-1				
2-Methylnaphthalene	91-57-6				
3-Methylcholanthrene	56-49-5				
7,12-Dimethylbenz(a)anthracene	57-97-6				
Acenaphthalene/1,2-Dimethylnaphthalene	573-98-8				
Acenaphthene	83-32-9				
Acenapthylene	208-96-8				
Acetaldehyde	75-07-0				
Acetophenone	98-86-2				
Anthracene	120-12-7				
Arsenic	7440-38-2				
Benz(a)anthracene	56-55-3				
Benzene	71-43-2				
Benzo(a)pyrene	50-32-8				
Benzo(b)fluoranthene	205-99-2				
Benzo(g,h,i)perylene	191-24-2				
Benzo(k)fluoranthene	207-08-9				
Beryllium	7440-41-7				
Cadmium	7440-43-9				
Chromium	7440-47-3				
Chrysene	218-01-9				
Cobalt	7440-48-4				
Cumene	98-82-8				
Dibenzo(a,h)anthracene	53-70-3				
Dibenzofuran	132-64-9				
Dichlorobenzene	95-50-1				
Ethylbenzene	100-41-4				
Fluoranthene	206-44-0				
Fluorene	86-73-7				
Formaldehyde	50-00-0				
Hexane	110-54-3				
Indeno(1,2,3-cd)pyrene	193-39-5				
Manganese	7439-96-5				
Mercury	7439-97-6				
Methyl Alcohol	67-56-1				
Naphthalene	91-20-3				
Nickel	7440-02-0				
o-Cresol	95-48-7				
Phenanathrene	85-01-8				
Phenol	108-95-2				
Pyrene	129-00-0				
Selenium	7782-49-2				
Styrene	100-42-5				
Toluene	108-88-3				
Xylenes	1330-20-7				
CO2					
CH4					
N2O					
CO2e					

Melting & Refining Emissions

Scrap Preheating Sitewide Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	PM	PM10	PM2.5
										Control Efficiency (not used in calculations)			Emissions Factor[1] (lb/ton metal)		
EQUI1	EU001	Scrap Preheat Oven 1	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147
EQUI2	EU002	Scrap Preheat Oven 2	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.0147	0.0188	0.0147
COMG1	GP001	Melting													

1 Emission factors based on 2023 Stack Test. Emissions controlled during test; therefore, control efficiency is not used in calculation

2 Combined annual emissions for EQUI1 and EQUI2 are capped based on the combined sitewide annual melt limit.

Limited emissions based on bottleneck from combined furnace capacity

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Metal Melting

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	HAP	PM	PM10
										Control Efficiency					
EQUI3	EU003	Electric Induction Furnace 1	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
EQUI4	EU004	Electric Induction Furnace 2	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
EQUI5	EU005	Electric Induction Furnace 3	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	99%	93%	93%	93%	0.9	0.9
COMG1	GP001	Melting													

1 Emission factor from AP-42, Table 12.10-3. Because of the high temperatures involved, assumed high fraction of condensibles, assumed all PM = PM10 = PM2.5

2 CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive
Foundries in Mexico (1999), Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

3 Combined annual emissions for EQUI3-5 are capped based on the combined sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year for actual emission calcualtions.

Inoculation

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	PM	PM10	PM2.5	HAP	PM	PM10
										Control Efficiency					
EQUI39	EU028	Inoculation	12.5	ton/hr	4.5	ton/hr	12,750	100%	TREA47	99%	93%	93%	93%	0.4	0.4

1 Emission factor from AP-42, Table 12.10-7. Assumed all PM = PM10 = PM2.5. The Emitted to Atmosphere factor is used because it emissions are released into a building, where the enclosure limits emissions, before being routed to the control device. Therefore, it is appropriate to consider reductions due to both (1) fallout of material and (2) control efficiency.

Note 1: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). Individual HAPs were not identified in this document so individual HAP emission factora are calculated as follows (lead shown for example):

(Total HAP emission factor)x(%PB of MHAPtotal). The %PB of MHAPtotal of 26.2% was obtained from CERP Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf).

Annual throughput assumes 85% of melted metal is inoculated for actual emission calculations.

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*						Limited *(hourly @ bottlenecked capacity; annual @ sitewide melt limit)*						Actual *(projected throughput)*		
PM		PM10		PM2.5		PM		PM10		PM2.5		PM	PM10	PM2.5
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[2] (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
0.184	0.805	0.235	1.029	0.184	0.805	0.0662	0.1985	0.0846	0.2538	0.0662	0.1985	0.0551	0.0705	0.0551
							0.1985		0.2538		0.1985			

	HAPs[2]					Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																			
PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP	
Emission Factor[1] (lb/ton metal)						Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049	0.0210	0.0920	0.0013	0.0059	0.0320	0.1401
0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049	0.0210	0.0920	0.0013	0.0059	0.0320	0.1401
0.9	0.00558	0.000102	0.00074	0.014	0.000897	1.35	5.913	1.35	5.913	1.35	5.913	0.0084	0.0367	0.0002	0.0007	0.0011	0.0049	0.0210	0.0920	0.0013	0.0059	0.0320	0.1401

	HAPs[2]					Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																			
PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP	
Emission Factor[1] (lb/ton metal)						Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.4	0.0130869	0.0002392	0.0017355	0.0328346	0.00210376	5.00	21.90	5.00	21.90	5.00	21.90	0.1636	0.7165	0.0030	0.0131	0.0217	0.0950	0.4104	1.7977	0.0263	0.1152	0.6250	2.7375

Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*																		Actual *(projected throughput)*								
PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate[3] (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
0.0135	0.0591	0.0945	0.4139	0.0945	0.4139	0.0006	0.0026	0.0000	0.0000	0.0001	0.0003	0.0015	0.0064	0.0001	0.0004	0.0022	0.0098	0.0225	0.1575	0.1575	0.0010	0.0000	0.0001	0.0025	0.0002	0.0037
	0.0591		0.4139		0.4139		0.0026		0.0000		0.0003		0.0064		0.0004		0.0098									

Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*																		Actual								
PM		PM10		PM2.5		Lead		Cadmium		Chromium		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0180	0.0540	0.1260	0.3780	0.1260	0.3780	0.0041	0.0124	0.0001	0.0002	0.0005	0.0016	0.0103	0.0310	0.0007	0.0020	0.0158	0.0473	0.0255	0.1785	0.1785	0.0058	0.0001	0.0008	0.0147	0.0009	0.0223

Pouring & Cooling Emissions

Pouring & Cooling Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	Control Efficiency PM	Control Efficiency PM10	Control Efficiency PM2.5	Emission Factor[1] (lb/ton metal) PM[1]	PM10[1]	PM2.5[1]	SOX[2]	NOX[2]	VOC[2]	CO[3]
EQUI12	EU015	DISA Line Pouring & Cooling	5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	99%	93%	93%	0.4234	0.5267	0.3857	0.02	0.01	0.14	2.75
EQUI13	EU016	30^2 Line Pouring & Cooling	10	ton/hr	4.5	ton/hr	7,500	100%	TREA46	99%	93%	93%	0.4234	0.5267	0.3857	0.02	0.01	0.14	2.75
COMG3	GP003	Pouring/Cooling																	

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*

EQUI	PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	SOX Emission Rate (lb/hr)	SOX Emission Rate (ton/yr)	NOX Emission Rate (lb/hr)	NOX Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)	CO Emission Rate (lb/hr)	CO Emission Rate (ton/yr)
EQUI12	2.1170	9.2725	2.6335	11.5347	1.9285	8.4468	0.1000	0.4380	0.0500	0.2190	0.7000	3.0660	13.7746	60.3328
EQUI13	4.2340	18.5449	5.2670	23.0695	3.8570	16.8937	0.2000	0.8760	0.1000	0.4380	1.4000	6.1320	27.5492	120.6655

Limited *(based on lesser of capacity X 8,760 hr/yr or annual melt limit)*

EQUI	PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	SOX Emission Rate (lb/hr)	SOX Emission Rate (ton/yr)	NOX Emission Rate (lb/hr)	NOX Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)	CO Emission Rate (lb/hr)	CO Emission Rate (ton/yr)
EQUI12	0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	12.3971	37.1914
EQUI13	0.0191	0.0572	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	12.3971	37.1914

Actual *(projected throughput)*

EQUI	PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	SOX Emission Rate (ton/yr)	NOX Emission Rate (ton/yr)	VOC Emission Rate (ton/yr)	CO Emission Rate (ton/yr)
EQUI12	0.0159	0.1383	0.1012	0.0750	0.0375	0.5250	10.3310
EQUI13	0.0159	0.1383	0.1012	0.0750	0.0375	0.5250	10.3310

[1] Emission factors based on 2023 Stack Test

[2] Emission factors are from EPA's Webfire database

Annual tput assumes 15,000 tons metal melted per year for actual emission calculations.

Note 3: CO Emission Factor calculated from "Foundary Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976

Information from article used for calcluation

2.5	Liter exhaust/llb metal casting	Page 339 of AIGAJ 37:6, 1976
23.40%	Max CO % in exhaust pouring/casting/cooling	Table 1. page 336 of AIGAJ 37:6, 1976
1350	ppmV CO from pouring/cooling	Table II. page 343 of AIGAJ 37:6, 1976
230	ppmV CO from shakeout	Table II. page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28	g/mol	CO molecular weight
22.4	Liter/mol	Assuming ideal gas molar volume at stp
453.59	g/lb	Conversion Factor

Emission factor for pouring/cooling

1.38E-03 lb CO/lb metal casting

2.75 lb CO/ton metal casting

Emission factor for pouring/cooling

2.35E-04 lb CO/lb metal casting

0.47 lb CO/ton metal casting

Pouring & Cooling HAP Emissions

Pollutant[1]	Emission Factor (lb/ton metal)	HAP Control [1]	EQUI12; EU 15 Potential (lb/hr)	EQUI12; EU 15 Potential (tpy)	EQUI12; EU 15 Limited (lb/hr)	EQUI12; EU 15 Limited (tpy)	EQUI12; EU 15 Actual (tpy)	EQUI13; EU 16 Potential (lb/hr)	EQUI13; EU 16 Potential (tpy)	EQUI13; EU 16 Limited (lb/hr)	EQUI13; EU 16 Limited (tpy)	EQUI13; EU 16 Actual (tpy)
Lead[2]	1.34E-03	93%	0.0067	0.0293	0.0004	0.0013	0.0004	0.0134	0.0585	0.0004	0.0013	0.0004
Cadmium	2.49E-05	93%	0.0001	0.0005	0.0000	0.0000	0.0000	0.0002	0.0011	0.0000	0.0000	0.0000
Chromium	2.80E-04	93%	0.0014	0.0061	0.0001	0.0003	0.0001	0.0028	0.0122	0.0001	0.0003	0.0001
Manganese	1.36E-03	93%	0.0068	0.0297	0.0004	0.0013	0.0004	0.0136	0.0595	0.0004	0.0013	0.0004
Selenium	4.10E-06	93%	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000
Acetaldehyde	3.49E-03	0%	0.0175	0.0765	0.0157	0.0472	0.0131	0.0349	0.1530	0.0157	0.0472	0.0131
Acetophenone	1.98E-04	0%	0.0010	0.0043	0.0009	0.0027	0.0007	0.0020	0.0087	0.0009	0.0027	0.0007
Benzene	3.71E-02	0%	0.1855	0.8123	0.1669	0.5007	0.1391	0.3709	1.6245	0.1669	0.5007	0.1391
o-Cresol	9.29E-04	0%	0.0046	0.0203	0.0042	0.0125	0.0035	0.0093	0.0407	0.0042	0.0125	0.0035
Cumene	1.27E-04	0%	0.0006	0.0028	0.0006	0.0017	0.0005	0.0013	0.0056	0.0006	0.0017	0.0005
Dibenzofuran	1.63E-05	0%	0.0001	0.0004	0.0001	0.0002	0.0001	0.0002	0.0007	0.0001	0.0002	0.0001
Ethylbenzene	1.97E-03	0%	0.0099	0.0432	0.0089	0.0266	0.0074	0.0197	0.0863	0.0089	0.0266	0.0074
Formaldehyde	1.87E-03	0%	0.0093	0.0409	0.0084	0.0252	0.0070	0.0187	0.0818	0.0084	0.0252	0.0070
Naphthalene	2.59E-03	0%	0.0130	0.0567	0.0117	0.0350	0.0097	0.0259	0.1135	0.0117	0.0350	0.0097
Nitrobenzene	5.03E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	0.0002	0.0000	0.0001	0.0000
Phenol	5.77E-03	0%	0.0288	0.1263	0.0259	0.0778	0.0216	0.0577	0.2526	0.0259	0.0778	0.0216
POMs	5.00E-03	0%	0.0250	0.1094	0.0225	0.0674	0.0187	0.0500	0.2188	0.0225	0.0674	0.0187
1,3-Dimethylnaphthalene	1.18E-04	0%	0.0006	0.0026	0.0005	0.0016	0.0004	0.0012	0.0052	0.0005	0.0016	0.0004
1,4-Dimethylnaphthalene	2.51E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0001	0.0003	0.0011	0.0001	0.0003	0.0001
1,8-Dimethylnaphthalene	5.32E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0000	0.0001	0.0002	0.0000	0.0001	0.0000
1-Methylnaphthalene	9.81E-04	0%	0.0049	0.0215	0.0044	0.0132	0.0037	0.0098	0.0430	0.0044	0.0132	0.0037
2,3-Dimethylnaphthalene	9.53E-05	0%	0.0005	0.0021	0.0004	0.0013	0.0004	0.0010	0.0042	0.0004	0.0013	0.0004
2,6-Dimethylnaphthalene	1.13E-05	0%	0.0001	0.0002	0.0001	0.0002	0.0000	0.0001	0.0005	0.0001	0.0002	0.0000
2,7-Dimethylnaphthalene	2.62E-05	0%	0.0001	0.0006	0.0001	0.0004	0.0001	0.0003	0.0011	0.0001	0.0004	0.0001
2-Methylnaphthalene	1.12E-03	0%	0.0056	0.0245	0.0050	0.0151	0.0042	0.0112	0.0491	0.0050	0.0151	0.0042
Acenaphthalene/1,2- Dimethylnaphthalene	2.45E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0001	0.0002	0.0011	0.0001	0.0003	0.0001
Styrene	4.88E-04	0%	0.0024	0.0107	0.0022	0.0066	0.0018	0.0049	0.0214	0.0022	0.0066	0.0018
Toluene	2.00E-02	0%	0.0998	0.4369	0.0898	0.2693	0.0748	0.1995	0.8738	0.0898	0.2693	0.0748
Xylenes	1.20E-02	0%	0.0601	0.2631	0.0541	0.1622	0.0450	0.1201	0.5261	0.0541	0.1622	0.0450
		Total VOC	0.4446	1.9472	0.4001	1.2003	0.3334	0.8891	3.8944	0.4001	1.2003	0.3334
		Total HAPS	0.4596	2.0129	0.4011	1.2032	0.3342	0.9192	4.0259	0.4011	1.2032	0.3342

[1] Only particulate HAP emissions are controlled by TREA47.

[2] Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

[3] Unless Otherwise Noted, HAP emission factors are from CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive Foundries in Mexico (1999), Table 6.1 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

[4] Emission factors base on 2023 Stack Testing

Metal Finishing Emissions

Shot Blast Booths — Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Shot Capacity (shot TPUT)		Bottlenecked Shot Capacity		Site Rated Metal Melt Capacity		Annual TPUT - Shot (ton/yr)[4]	Annual TPUT - Metal (ton/yr)[4]	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	PM10	PM2.5	HAP	Secondary Control ID Number	Secondary Control Efficiency PM	PM10	PM2.5	HAP
EQUI58	EU020	BCT Drumblast Machine	64,000	lb/hr	64,000	lb/hr	4.5	ton/hr	64,000	5,000	100%	TREA37/21	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%
EQUI16	EU021	Tableblast	32,000	lb/hr	32,000	lb/hr	4.5	ton/hr	32,000	5,000	100%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%
EQUI51	na	Tumblemill	200	lb/hr	200	lb/hr	4.5	ton/hr	200	5,000	100%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 5,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook'). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-stap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1998, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s03-13/Technicen%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions.

5 Limited annual HAP emissions are limited to the sitewide annual melt limit.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

Finishing Operations

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual TPUT - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	PM10	PM2.5	HAP	Secondary Control ID Number	Secondary Control Efficiency PM	PM10	PM2.5	HAP	PM	PM10	PM2.5
EQUI17	EU029	South Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA40/09	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
EQUI18	EU030	East Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
EQUI20	EU032	West Cutoff Saw	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA29/19	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
EQUI23	EU035	Double Belt Sander	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/90	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI117	EU035	NE Finishing Grinder	0.25	ton/hr	0.25	ton/hr	1,250	80%	TREA13/90	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI24	EU036	SW Bench Grinder	0.5	ton/hr	0.5	ton/hr	1,250	80%	TREA43/98	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI28	EU040	NE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/98	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI29	EU041	SE Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/98	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI100	n.a	SW Chipping Bench	0.75	ton/hr	0.75	ton/hr	1,250	80%	TREA43/98	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16
EQUI30	EU042	North Swing Grinder	1	ton/hr	1	ton/hr	1,250	80%	TREA41/42	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
EQUI41	n.a	Snag Grinder 2	1	ton/hr	1	ton/hr	1,250	80%	TREA22/95	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
EQUI42	n.a	Snag Grinder 3	1	ton/hr	1	ton/hr	1,250	80%	TREA22/95	99.97%	99.97%	99.97%	99.97%	TREA47	99%	93%	93%	93%	1.6	0.16	0.16
COMG5	GP005	Grinding/Cutting Operations																			

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 (PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * EPA Fire PM10 Factor of 1.7 lbs/ton) The document is included as an attachment to these calculations. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s03-13/Technicen%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions.

Annual tput assumes 15,000 tons metal melted per year (all sources combined)for actual emission calculations.

Machine Shop

Double Disc Sander and Shot Blast Machine

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	PM10	PM2.5	HAP	Secondary Control ID Number	Secondary Control Efficiency PM	PM10	PM2.5	HAP	PM	PM10	PM2.5
EQUI118	n.a	Machine Shop Double Disc Sander	0.1	ton/hr	0.1	ton/hr	876	80%	TREA45	99.97%	99.97%	99.97%	99.97%	TREA48	99%	93%	93%	93%	1.6	0.16	0.16

1 The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 (PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * EPA Fire PM10 Factor of 1.7 lbs/ton) PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s03-13/Technicen%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to each HAP's emissions. These grinding and shot blast emissions factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus primary control is included.

Shot Blast Booths

EQUI	EU	Unit Desc	Rated Capacity (shot TPUT)		Bottlenecked Capacity		Site Rated Metal Melt Capacity		Annual Throughput - Shot[4] (ton/yr)	Annual Throughput - Metal[4] (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control Efficiency PM	PM10	PM2.5	HAP	PM	PM10	PM2.5[3]	Lead	Cadmium
																				Emission Fact (lb/lb - PM/10/2.5; lb/ton	
EQUI119	n.a	Machine Shop Blast Machine	40	lb/hr	40	lb/hr	4.5	ton/hr	40	1,500	100%	TREA44	99.97%	99.97%	99.97%	99.97%	0.004	0.0034	0.0017	0.0007	0.0007

1 Actual annual shot blast tput assumes 2,000 hours at rated capacity for shot, and 10% of 15,000 tons metal per year

2 The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook'). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-stap5-19.xlsm.

3 PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1998, NSRP 0552, N1-97-4

4 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s03-13/Technicen%202006.pdf). The calculations conservatively assume that total HAP emissions are equal to each HAP's emissions. These grinding and shot blast emissions factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus reductions due to the primary control are included.

HAP[4]								Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																							
PM	PM10	PM2.5[3]	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	
Emission Factor[2] (lb/lb - PM/10/2.5; lb/ton metal - HAPs)									Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	256	1,121.28	217.60	953.09	108.80	476.54	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	7.68E-04	3.36E-03
0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	128	560.64	108.80	476.54	54.40	238.27	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	3.84E-04	1.68E-03
0.004	0.0034	0.0017	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.8	3.50	0.68	2.98	0.34	1.49	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0189	0.0828	2.40E-06	1.05E-05

HAP[2]						Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																									
Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM
Emission Factor[2] (lb/ton metal)						Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	7.01	0.16	0.7008	0.16	0.7008	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	3.50	0.08	0.3504	0.08	0.3504	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0005	0.0020	0.0008	0.0035	0.0006	0.0025	0.0006
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.4	0.16	0.04	0.1752	0.04	0.01	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0001	0.0003	0.0005	0.0020	0.0008	0.0035	0.0006	0.0025	0.0006
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.8	0.16	0.08	0.3504	0.08	0.04	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0002	0.0007	0.0009	0.0039	0.0016	0.0070	0.0011	0.0049	0.0011
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0014	0.0059	0.0024	0.0105	0.0017	0.0074	0.0017
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.2	0.16	0.12	0.5256	0.12	0.09	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0002	0.0010	0.0014	0.0059	0.0024	0.0105	0.0017	0.0074	0.0017
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	1.6	0.16	0.16	0.7008	0.16	0.16	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0003	0.0013	0.0018	0.0079	0.0032	0.0140	0.0022	0.0098	0.0022

HAP[2]						Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																									
Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM
Emission Factor[2] (lb/ton metal)						Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.160	0.701	0.016	0.070	0.016	0.070	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	3.00E-05	1.31E-04	0.0002	0.0008	3.20E-04	1.40E-03	2.24E-04	9.82E-04	2.24E-04

HAP[4]					Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*																										Li
Chromium	Cobalt	Manganese	Nickel	PM		PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM		PM10		PM2.5		Le
or[2] metal - HAP)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)
0.0007	0.0007	0.0007	0.0007	0.160	0.701	0.138	0.596	0.068	0.298	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	3.15E-03	1.38E-02	0.0189	0.0828	4.80E-05	2.10E-04	4.08E-05	1.79E-04	2.04E-05	8.94E-05	9.45E-07

Limited *(hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)*																		Actual *(projected throughput)*									
PM10		PM2.5		Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)[5]	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
4.57E-03	2.00E-02	2.28E-03	1.00E-02	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	3.84E-07	2.28E-06	1.14E-06	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07
2.28E-03	1.00E-02	1.14E-03	5.00E-03	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	1.92E-07	1.14E-06	5.71E-07	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07
1.43E-05	6.25E-05	7.14E-06	3.13E-05	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	6.61E-08	1.98E-07	3.97E-07	1.19E-06	1.20E-09	7.14E-09	3.57E-09	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	3.67E-08	2.20E-07

Limited *(hourly @ bottlenecked capacity; annual = max hourly X 8,760 hr/yr)*																	Actual *(projected throughput)*									
2.5	Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0025	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	6.31E-06	2.76E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0025	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	1.05E-06	4.60E-06	6.31E-06	2.76E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0049	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	2.10E-06	9.21E-06	1.26E-05	5.53E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0074	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	3.15E-06	1.38E-05	1.89E-05	8.29E-05	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05
0.0098	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	4.21E-06	1.84E-05	2.52E-05	1.11E-04	0.0020	0.0014	0.0014	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	2.63E-06	1.58E-05

Limited *(captured portion to 1st + 2nd controls, uncaptured to 2nd control only)*																	Actual *(same as Limited)*									
2.5	Lead		Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
9.82E-04	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	4.21E-07	1.84E-06	2.52E-06	1.11E-05	1.40E-03	9.82E-04	9.82E-04	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.84E-06	1.11E-05

imited *(bottlenecked capacity to control; annual = max hourly X 8,760 hr/yr)*													Actual *(projected throughput shot/metal)*									
ad	Cadmium		Chromium		Cobalt		Manganese		Nickel		Total HAP		PM	PM10	PM2.5	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Total HAP
Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	9.45E-07	2.83E-06	5.67E-06	1.70E-05	2.40E-08	2.04E-08	1.02E-08	1.57E-07	1.57E-07	1.57E-07	1.57E-07	1.57E-07	1.57E-07	9.45E-07

Shakeout Emissions

Shakeout   Annual Melt Limit: 27,000 ton/yr

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Metal (ton/yr)	Capture (%)	Primary Control ID Number	Primary Control PM	PM10	PM2.5	HAP	Secondary Control ID Number	Secondary Control PM	PM10	PM2.5	HAP
										Control Efficiency					Control Efficiency			
DISA Line																		
EQUI80	EU017	DISA #1 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%
EQUI81	EU017	DISA #2 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI82	EU017	DISA #3 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI83	EU017	DISA Didion	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	99%	95%	95%	95%	TREA47	99%	93%	93%	93%
EQUI84	EU017	DISA #5 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%	--	0%	0%	0%	0%	TREA47	99%	93%	93%	93%
30^2 Line																		
EQUI63	EU018	30^2 Unit 10	10	ton/hr	4.5	ton/hr	9,000	80%	TREA23	99%	95%	95%	95%	TREA46	99%	93%	93%	93%
EQUI65	EU018	30^2 Unit 11	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%
EQUI66	EU018	30^2 Unit 12	10	ton/hr	4.5	ton/hr	9,000	0%	--	0%	0%	0%	0%	TREA46	99%	93%	93%	93%
COMG4	GP004	Shakeout																

EQUI	Emission Factor[1] (lb/ton metal) PM	PM10[2]	PM2.5[2]	CO	Potential (hourly @ rated capacity; annual = max hourly X 8,760 hr/yr) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	CO Emission Rate (lb/hr)	CO Emission Rate (ton/yr)	Limited (captured to both controls, uncaptured to 2nd only; annual by sitewide limit) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	CO Emission Rate (lb/hr)	CO Emission Rate (ton/yr)	Actual (same as Limited) PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	CO Emission Rate (ton/yr)
EQUI80	0.640	0.448	0.269	0.469	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.141	0.423	0.085	0.254	2.112	6.336	0.017	0.085	0.051	1.267
EQUI81	0.640	0.448	0.269	0.469	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI82	0.640	0.448	0.269	0.469	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI83	0.640	0.448	0.269	0.469	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.109	0.327	0.065	0.196	2.112	6.336	0.017	0.065	0.039	1.267
EQUI84	0.640	0.448	0.269	0.469	3.200	14.016	2.240	9.811	1.344	5.887	2.35	10.28	0.029	0.086	0.141	0.423	0.085	0.254	2.112	6.336	0.017	0.085	0.051	1.267
EQUI63	1.067	0.747	0.448	0.469	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.181	0.544	0.109	0.327	2.112	6.336	0.048	0.181	0.109	2.112
EQUI65	1.067	0.747	0.448	0.469	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.235	0.706	0.141	0.423	2.112	6.336	0.048	0.235	0.141	2.112
EQUI66	1.067	0.747	0.448	0.469	10.667	46.720	7.467	32.704	4.480	19.622	4.69	20.56	0.048	0.144	0.235	0.706	0.141	0.423	2.112	6.336	0.048	0.235	0.141	2.112

1 Emissions factor source: AP42 table 12.10-7. Emissions factor is for shakeout process as a whole so factor divided be number of components in process (DISA-5; 30^2-3)

2 PM10 and PM2.5 factors based on Shakeout EF multiplied by AP 42 table 12.10-8 shakeout cumulative mass % of total PM (PM10:70%; PM2.5:42%)

3 CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive
Foundries in Mexico (1999), Table 6.1 - Lead (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

DISA Line captured emissions controlled by TREA2. Uncaptured emissions controlled by TREA47

30^2 Line captured emissions controlled by TREA23. Uncaptured emissions controlled by TREA46

Note 3: CO Emission Factor calculated from "Foundary Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976

Information from article used for calcluation

2.5	Liter exhaust/llb metal casting	Page 339 of AIGAJ 37:6, 1976
23.40%	Max CO % in exhaust pouring/casting/	Table 1. page 336 of AIGAJ 37:6, 1976
1350	ppmV CO from pouring/cooling	Table II. page 343 of AIGAJ 37:6, 1976
230	ppmV CO from shakeout	Table II. page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28	g/mol	CO molecular weight
22.4	Liter/mol	Assuming ideal gas molar volume at stp
453.59	g/lb	Conversion Factor

Emission factor for pouring/cooling

1.38E-03 lb CO/lb metal casting

2.75 lb CO/ton metal casting

Emission factor for pouring/cooling

2.35E-04 lb CO/lb metal casting

0.47 lb CO/ton metal casting

Shakeout HAP Emissions

Pollutant[1]	Emission Factor[2] (lb/ton metal)	HAP Control [3]	Disa Line (EQUI80 - EQUI84) Potential (lb/hr)	Potential (tpy)	Limited (lb/hr)	Limited (tpy)	Actual (tpy)	30^2 Line (EQUI 63, 65, 66) Potential (lb/hr)	Potential (tpy)	Limited (lb/hr)	Limited (tpy)	Actual (tpy)
Lead	7.29E-05	See Table Above	0.0004	0.0016	2.30E-05	6.89E-05	1.38E-05	0.0007	0.0032	2.30E-05	6.89E-05	2.30E-05
Cadmium	1.67E-05	See Table Above	0.0001	0.0004	5.26E-06	1.58E-05	3.16E-06	0.0002	0.0007	5.26E-06	1.58E-05	5.26E-06
Chromium	1.71E-04	See Table Above	0.0009	0.0037	5.39E-05	1.62E-04	3.23E-05	0.0017	0.0075	5.39E-05	1.62E-04	5.39E-05
Manganese	3.39E-04	See Table Above	0.0017	0.0074	1.07E-04	3.20E-04	6.41E-05	0.0034	0.0148	1.07E-04	3.20E-04	1.07E-04
Acetaldehyde	5.78E-02	0%	0.2890	1.2658	0.2601	0.7803	0.1561	0.5780	2.5316	0.2601	0.7803	0.2601
Acetophenone	7.92E-04	0%	0.0040	0.0173	0.0036	0.0107	0.0021	0.0079	0.0347	0.0036	0.0107	0.0036
Benzene	2.68E-02	0%	0.1340	0.5869	0.1206	0.3618	0.0724	0.2680	1.1738	0.1206	0.3618	0.1206
o-Cresol	1.40E-02	0%	0.0700	0.3066	0.0630	0.1890	0.0378	0.1400	0.6132	0.0630	0.1890	0.0630
Cumene	3.82E-04	0%	0.0019	0.0084	0.0017	0.0052	0.0010	0.0038	0.0167	0.0017	0.0052	0.0017
Dibenzofuran	3.34E-04	0%	0.0017	0.0073	0.0015	0.0045	0.0009	0.0033	0.0146	0.0015	0.0045	0.0015
Ethylbenzene	2.91E-03	0%	0.0146	0.0637	0.0131	0.0393	0.0079	0.0291	0.1275	0.0131	0.0393	0.0131
Formaldehyde	2.57E-02	0%	0.1285	0.5628	0.1157	0.3470	0.0694	0.2570	1.1257	0.1157	0.3470	0.1157
Naphthalene	8.37E-03	0%	0.0419	0.1833	0.0377	0.1130	0.0226	0.0837	0.3666	0.0377	0.1130	0.0377
Phenol	2.80E-02	0%	0.1400	0.6132	0.1260	0.3780	0.0756	0.2800	1.2264	0.1260	0.3780	0.1260
POMs	2.21E-02	0%	0.1105	0.4840	0.0995	0.2984	0.0597	0.2210	0.9680	0.0995	0.2984	0.0995
1,3-Dimethylnaphthalene	1.03E-03	0%	0.0052	0.0226	0.0046	0.0139	0.0028	0.0103	0.0451	0.0046	0.0139	0.0046
1,4-Dimethylnaphthalene	4.64E-04	0%	0.0023	0.0102	0.0021	0.0063	0.0013	0.0046	0.0203	0.0021	0.0063	0.0021
1,8-Dimethylnaphthalene	1.06E-03	0%	0.0053	0.0232	0.0048	0.0143	0.0029	0.0106	0.0464	0.0048	0.0143	0.0048
1-Methylnaphthalene	3.41E-03	0%	0.0171	0.0747	0.0153	0.0460	0.0092	0.0341	0.1494	0.0153	0.0460	0.0153
2,3,5-Trimethylnaphthalene	7.14E-04	0%	0.0036	0.0156	0.0032	0.0096	0.0019	0.0071	0.0313	0.0032	0.0096	0.0032
2,3-Dimethylnaphthalene	6.50E-04	0%	0.0033	0.0142	0.0029	0.0088	0.0018	0.0065	0.0285	0.0029	0.0088	0.0029
2,6-Dimethylnaphthalene	5.68E-04	0%	0.0028	0.0124	0.0026	0.0077	0.0015	0.0057	0.0249	0.0026	0.0077	0.0026
2,7-Dimethylnaphthalene	4.10E-04	0%	0.0021	0.0090	0.0018	0.0055	0.0011	0.0041	0.0180	0.0018	0.0055	0.0018
2-Methylnaphthalene	5.22E-03	0%	0.0261	0.1143	0.0235	0.0705	0.0141	0.0522	0.2286	0.0235	0.0705	0.0235
Acenaphthalene/1,2- Dimethylnaphthalene	2.20E-04	0%	0.0011	0.0048	0.0010	0.0030	0.0006	0.0022	0.0096	0.0010	0.0030	0.0010
Styrene	4.81E-03	0%	0.0241	0.1053	0.0216	0.0649	0.0130	0.0481	0.2107	0.0216	0.0649	0.0216
Toluene	2.21E-02	0%	0.1105	0.4840	0.0995	0.2984	0.0597	0.2210	0.9680	0.0995	0.2984	0.0995
Xylenes	1.78E-02	0%	0.0890	0.3898	0.0801	0.2403	0.0481	0.1780	0.7796	0.0801	0.2403	0.0801
		Total VOC	1.1177	4.8956	1.0059	3.0178	0.6036	2.2354	9.7912	1.0059	3.0178	1.0059
		Total HAPS	1.1207	4.9087	1.0061	3.0184	0.6037	2.2414	9.8175	1.0061	3.0184	1.0061

[1] Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

[2] HAP emission factors are from CERP Foundry Process Emission Factors:
Baseline Emissions from Automotive Foundries in Mexico (1999), Table 6.1 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf)

[3] HAP emissions assume only secondary control (no primary control)

Nobake Cores

Emissions from the Nobake Core making come from mixing sand and resin together. Emission factors are from AP-42. Binder mixing emission factors are calculated from "Form R Reporting of binder chemicals used in Foundries" and SDS of binders used. Calculations are made using the conservative assumption that 2.0% of the core mix is binder.
VOCs, individual HAPs, and total HAPs are limited under COMG7. Sand throughputs are restricted by COMG2.
EQUI52 and EQUI53 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Control ID Number	Control Efficiency PM	Control Efficiency PM10	Control Efficiency PM2.5	Control Efficiency VOC	Emission Factor[1] (lb/ton sand) PM[2]	PM10	PM2.5[2]	VOC
EQUI52	EU010	Disco Core Machine	0.5	tons/hr	0.5	ton/hr	1,000	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.820
EQUI53	EU010	ABC6 Core Machine	0.4125	tons/hr	0.4125	ton/hr	825	100%	TREA47	99%	93%	93%	0%	0.635	0.540	0.191	0.820
COMG7	GP007	Primary VOC/HAP Sources															

EQUI	Potential (*hourly @ rated capacity; annual = max hourly X 8,760 hr/yr*) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)	Limited (*bottlenecked capacity to control; annual = max hourly X 8,760 hr/yr*) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (lb/hr)	VOC Emission Rate (ton/yr)	Actual (*projected throughput*) PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	VOC Emission Rate (ton/yr)
EQUI52	0.318	1.391	0.270	1.183	0.095	0.417	0.410	1.797	0.003	0.014	0.019	0.083	0.007	0.029	0.410	1.797	0.003	0.019	0.007	0.410
EQUI53	0.262	1.148	0.223	0.976	0.079	0.344	0.338	1.482	0.003	0.011	0.016	0.068	0.006	0.024	0.338	1.482	0.003	0.016	0.006	0.338

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Note 1: Binder Emissions

The following tables are taken from "Form R Reporting of Binder Chemicals Used in Foundries" Fourth Edition, available online at https://afsinc.s3.amazonaws.com/Documents/EHS/airquality/1.5%20-%20AFS_CISA%20Guidance.pdf.
Worst case pollutant rates calculated following instructions provided in "Form R Reporting of Binder Chemicals Used in Foundries" and the SDS for binders used at Northern Iron and Machine.

Furan Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Resin					
Phenol (108-95-2)	98	0	2	0	0
Formaldehyde (50-00-0)	98	2	0	1	0.0002
Methyl Alcohol (67-56-1)	0	50	50	3	0.015
Catalyst					
Methyl Alcohol (67-56-1)	0	50	50	0	0
Sulfuric Acid (8774-93-9)	100	0	0	3	0

Phenolic Urethane Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Phenol (108-95-2)	98	0	2	10	0
Formaldehyde (50-00-0)	98	2	0	0.1	2.00E-03
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethyl Benzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0
Part II					
Methylene Phenylene Isocyante(1)	99.99	0	0.01	0	0
Polymeric diphenylmethane	99.99	0	0.01	50	0
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethylbenzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0

Phenolic Urethane Coldbox Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From SDS	lb emitted/ lb binder used
Part I					
Formaldehyde (50-00-0)	98	2	0	0	0
Phenol (108-95-2)	98	0	2	5	0
Xylene (1330-20-7)	0	3.25	96.75	0	0
Cumene (98-82-8)	0	3.25	96.75	0	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
1,2,4 Trimethylbenzene (95-63-6)	0	3.25	96.75	0	0
Part II					
Methylene Phenylene Isocyanate	99.99	0	0.01	0	0
Polymeric Diphenylmethane	99.99	0	0.01	10	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
Xylene (1330-20-7)	0	3.25	96.75	0	0
Biphenyl (95-52-4)	0	3.25	96.75	0	0

Comparison of Core Binders

Binder content in core mix: 0.02

Material	lb/lb Furan Nobake binder used	lb/lb Phenolic Urethane Nobake Binder	lb/ lb Phenolic Urethane Coldbox Binder	worst case lb/lb binder	Worst case lb/ton core mix
Phenol	0	0	0	0	0
Formaldehyde	2.00E-04	0.002	0	2.00E-03	8.00E-02
Methyl Alcohol	1.50E-02	0	0	1.50E-02	6.00E-01
Naphthalene	0	3.51E-03	1.95E-03	3.51E-03	1.40E-01
1,2,4 Trimethyl Benzene	0	0	0	0	0
Cumene	0	0	0	0	0
Xylene	0	0	0	0	0
Methylene Phenylene Isocyante	0	0	0	0	0
Polymeric diphenylmethane	0	0	0	0	0
Biphenyl	0	0	0	0	0

Worst case pollutant rates calculated from tables in "Form R Reporting of Binder Chemicals used in Foundries" and the SDS for binders used at Northern Iron and Machine. Per Northern Iron and Machine, max amount of binder in cores is 2.75%.

Shell Cores

Higher tensile strength cores use premixed sand/resin and are heat treated during the curing process. Emissions from this operation are from sand handling and combustion. Combustion emissions for these units are included in summary page. Sand throughput is limited under COMG2
EQUI54, EQUI55, and EQUI56 are controlled by HEPA filters exhausting internally and ultimately to STRU12

EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput (ton/yr)	Capture (%)	Primary Control – Control Efficiency PM	PM10	PM2.5	Secondary Control – Control Efficiency PM	PM10	PM2.5	Emission Factor[1] (lb/ton sand) PM[2]	PM10	PM2.5[2]	HAPs Formaldehyde	Methyl Alcohol	Naphthalene
EQUI55	EU013	East CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140
EQUI54	EU013	West CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140
EQUI56	EU013	CR-22	1.1	tons/hr	1.1	tons/hr	2,200	80%	99.97%	99.97%	99.97%	99%	93%	93%	0.635	0.540	0.191	0.080	0.600	0.140

EQUI	Potential (*hourly @ rated capacity; annual = hourly X 8,760 hr/yr*) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (lb/hr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (lb/hr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (lb/hr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (lb/hr)	Total HAP Emission Rate (ton/yr)
EQUI55	0.210	0.918	0.178	0.781	0.063	0.275	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQUI54	0.210	0.918	0.178	0.781	0.063	0.275	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
EQUI56	0.699	3.061	0.594	2.602	0.210	0.918	0.088	0.385	0.660	2.891	0.154	0.676	0.902	3.953

EQUI	Limited (*captured to both controls, uncaptured to 2nd only*) PM Emission Rate (lb/hr)	PM Emission Rate (ton/yr)	PM10 Emission Rate (lb/hr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (lb/hr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (lb/hr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (lb/hr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (lb/hr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (lb/hr)	Total HAP Emission Rate (ton/yr)	Actual (*projected throughput*) PM Emission Rate (ton/yr)	PM10 Emission Rate (ton/yr)	PM2.5 Emission Rate (ton/yr)	Formaldehyde Emission Rate (ton/yr)	Methyl Alcohol Emission Rate (ton/yr)	Naphthalene Emission Rate (ton/yr)	Total HAP Emission Rate (ton/yr)
EQUI55	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186	4.20E-04	2.50E-03	8.82E-04	0.026	0.198	0.046	0.271
EQUI54	4.20E-04	1.84E-03	2.50E-03	1.09E-02	8.82E-04	3.86E-03	0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186	4.20E-04	2.50E-03	8.82E-04	0.026	0.198	0.046	0.271
EQUI56	1.40E-03	6.13E-03	8.33E-03	3.65E-02	2.94E-03	1.29E-02	0.088	0.385	0.660	2.891	0.154	0.676	0.902	3.953	1.40E-03	8.33E-03	2.94E-03	0.088	0.660	0.154	0.902

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.

2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Core Wash

Cores sent to tunnel oven go through a core wash. Core wash density and rate provided by Northern Iron. VOC emissions are limited under COMG7. Operations are uncontrolled.

EQUI	EU	Unit Desc	Capacity	Annual Throughput	Potential VOC Emission Rate (lb/hr)	Potential VOC Emission Rate (ton/yr)	Limited VOC Emission Rate (lb/hr)	Limited VOC Emission Rate (ton/yr)	Actual VOC Emission Rate (ton/yr)
EQUI11	EU014	Core Wash	15 gal/day	757.143 gal/yr	3.50	15.33	3.50	15.33	2.12

Core Wash capacity, max rate, and wash density provided by Northern Iron

Capacity:	15	gallons
Rate:	1	Container per day
Wash density:	5.6	lb/gal
Emission factor:	1	lb VOC emitted/lb VOC used
	5.6	lb VOC/gallon

Sand Handling Emissions

Sand handling is composed of the DISA and 30^2 mold lines. Mold and core sand is reclaimed during the mold making process and shakeout. Reclaimed sand is stored in the muller tank to be used again in new molds. Both lines and the core making operations are limited to a single sand throughput limit at COMG2. PTE for COMG2 is the line with the highest emissions operating at the sand handling limit.

Shakeout		Annual 30^2 Line Sand Limit:	270,000	ton/yr																														
									Primary Control						Secondary Control								Potential *(hourly @ rated capacity; annual = hourly X 8,760 hr/yr)*						Limited *(bottlenecked capacity to control; annual = hourly X 8,760 hr/yr)*						Actual *(projected throughput)*			
										PM	PM10	PM2.5				PM	PM10	PM2.5				PM		PM10		PM2.5		PM		PM10		PM2.5				
EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual Throughput - Sand (ton/yr)	Capture (%)	Primary Control ID Number	Control Efficiency			Secondary Control ID Number	Control Efficiency			Emission Factor[1] (lb/ton sand)			Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)	Emission Rate (ton/yr)
DISA Line																																		
EQUI96	EU008	DISA Bond Day Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI72	EU008	DISA Line Muller	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191	16.518	72.347	14.040	61.495	4.955	21.704	0.165	0.858	0.702	1.286	0.248	1.085	0.0683	0.2903	0.1024
EQUI73	EU008	DISA Muller Discharge Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI74	EU008	DISA Muller Distribution Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI95	EU008	DISA Prepared Sand Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI75	EU008	DISA Feed Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI102	EU008	DISA Aerator	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI97	EU008	DISA Mold Machine	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI78	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI105	EU008	DISA Bond Transport	26	ton/hr	26	ton/hr	21,500	100%	TREA2	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.008	0.036	0.003	0.013	7.92E-04	0.0034	0.0012
EQUI110	EU008	DISA Outdoor Bond Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.192	0.839	0.163	0.713	0.057	0.252	7.92E-02	0.0673	0.0238
EQUI79	EU008	DISA Cross Spill	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI76	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI77	EU008	DISA Spill Pan	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI85	EU008	DISA Mag Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI86	EU008	DISA Return Sand Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI87	EU008	DISA 125 Ton Sand Bin	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI88	EU008	DISA 125 Ton Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI89	EU008	DISA New/Old Belt	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI90	EU008	DISA New/Old Elevator	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
EQUI91	EU008	DISA Muller Storage Tank	26	ton/hr	26	ton/hr	21,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.011	0.050	0.004	0.018	7.92E-04	0.0047	0.0017
EQUI115	EU008	DISA Hopper	26	ton/hr	26	ton/hr	21,500	80%	TREA2	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.192	0.839	0.163	0.713	0.057	0.252	0.002	0.008	0.009	0.039	0.003	0.014	7.92E-04	0.0036	0.0013
30^2 Line																																		
EQUI104	EU009	30^2 Muller	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	0.635	0.54	0.191	28.588	125.216	24.300	106.434	8.576	37.565	0.286	0.858	1.215	3.645	0.429	1.878	0.1350	0.5738	0.2025
EQUI92	EU009	30^2 Discharge Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI94	EU009	30^2 Distribution belt conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI98	EU009	30^2 Mold Making	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI93	EU009	30^2 Cross Belt Conveyor	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI60	EU009	30^2 Machine Belt Sand	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI109	EU009	30^2 Prepared Sand Tank	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI61	EU009	30^2 Sprue Belt	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA46	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI62	EU009	30^2 Machine Incline	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI64	EU009	30^2 Mag Belt	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
EQUI69	EU009	30^2 Incline to Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI70	EU009	30^2 Blower	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI68	EU009	30^2 Aerator	45	ton/hr	45	ton/hr	42,500	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.020	0.059	0.007	0.031	0.0016	0.0093	0.0033
EQUI71	EU009	30^2 Sand Cooler	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	2.00E+00	1.58E+00	9.00E-01	90.000	394.200	71.100	311.418	40.500	177.390	0.900	2.700	3.555	10.665	2.025	8.870	0.4250	1.6788	0.9563
EQUI67	EU009	30^2 Return Sand Elevator	45	ton/hr	45	ton/hr	42,500	80%	TREA23	99%	95%	95%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.015	0.046	0.005	0.024	0.0016	0.0072	0.0025
EQUI106	EU009	30^2 Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI107	EU009	30^2 Bond Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI108	EU009	30^2 Sand Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI116	EU009	30^2 Bond Day Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
EQUI103	EU009	30^2 Return Sand Tank	45	ton/hr	45	ton/hr	42,500	100%	TREA23	99%	95%	95%	--	0%	0%	0%	7.37E-03	6.26E-03	2.21E-03	0.332	1.452	0.282	1.235	0.099	0.436	0.003	0.010	0.014	0.042	0.005	0.022	0.0016	0.0067	0.0023
Core Making																																		
EQUI111	EU010	ABC6 Sand Tank	0.5	ton/hr	0.5	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.004	0.016	0.003	0.014	0.001	0.005	3.68E-05	9.95E-03	2.19E-04	5.92E-02	7.74E-05	3.39E-04	8.44E-06	5.02E-05	1.77E-05
EQUI112	EU010	Disco Sand Tank	0.4125	ton/hr	0.4125	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.003	0.013	0.003	0.011	0.001	0.004	3.04E-05	9.95E-03	1.81E-04	5.92E-02	6.38E-05	2.80E-04	8.44E-06	5.02E-05	1.77E-05
EQUI113	EU010	Sand Loading (CR16 and CR22)	1.76	ton/hr	1.76	ton/hr	229	0%	--	0%	0%	0%	TREA47	99%	93%	93%	7.37E-03	6.26E-03	2.21E-03	0.013	0.057	0.011	0.048	0.004	0.017	1.30E-04	9.95E-03	7.72E-04	5.92E-02	2.72E-04	1.19E-03	8.44E-06	5.02E-05	1.77E-05
COMG2	GP002	Sand Handling																																

1 Emissions factor for sand handling is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by the MPCA. See supporting documentation in the Sand Handling EF tab. Muller factor: AP42, Tbl. 12.13-2. Sand Cooler factor: AP42, Tbl. 11.19.1-1. The Mueller and Sand Cooler Factors are reported as PM10 and have been divided by the EPA PM Augmentation too value of 85% to determine the PM emission factor. The PM2.5 emission factor for the Muller and Sand Cooler is calculated as 30% of the PM emission factor (based on data in the EPA PM Augmentation tool)

2 PM10 and PM2.5 calculated based on the PM Augmentation for the respective SCC. The PM Augmentation Calculator Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

DISA Line EQUI 72, 85, 86, 87, 88, 89, 90, 105 and 115 are controlled by TREA 2. Fugitives from these operations are contained within the building and routed to dust collector TREA47

30^2 Line EQUI 108, 107, 106, 104, 103, 71 ,67, 64 are controlled by TREA 23. Fugitives from these operations are contained within the building and routed to dust collectors TREA46 and TREA47

Core Making EQUI 111, 112, 113 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collector TREA47

Potential *(hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	PM		PM10		PM2.5		Lead		NOx		CO		SO
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
EQUI1	EU001	Scrap Preheat Oven 1	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03
EQUI2	EU002	Scrap Preheat Oven 2	4	0.000	0.000	0.000	0.000	0.000	0.000	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03
EQUI9	EU012	Core Tunnel Oven	0.8	0.006	0.027	0.006	0.027	0.006	0.027	3.92E-07	1.72E-06	0.113	0.495	0.066	0.289	4.71E-04
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042	0.186	0.025	0.108	1.76E-04
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	0.002	0.010	0.002	0.010	0.002	0.010	1.47E-07	6.44E-07	0.042	0.186	0.025	0.108	1.76E-04
EQUI56	EU013	CR-22	0.9	0.007	0.030	0.007	0.030	0.007	0.030	4.41E-07	1.93E-06	0.127	0.557	0.074	0.325	5.29E-04
EQUI36	EU025	Large Heat Treat Oven	1.6	0.012	0.053	0.012	0.053	0.012	0.053	7.84E-07	3.44E-06	0.226	0.990	0.132	0.577	9.41E-04
EQUI37	EU026	Small Heat Treat Oven	4	0.030	0.133	0.030	0.133	0.030	0.133	1.96E-06	8.59E-06	0.565	2.476	0.329	1.443	2.35E-03
EQUI46	na	East MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855	3.744	0.498	2.182	3.56E-03
EQUI47	na	West MUA	6.05	0.046	0.202	0.046	0.202	0.046	0.202	2.97E-06	1.30E-05	0.855	3.744	0.498	2.182	3.56E-03
EQUI48	na	North MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466	2.042	0.272	1.190	1.94E-03
EQUI49	na	South MUA	3.3	0.025	0.110	0.025	0.110	0.025	0.110	1.62E-06	7.09E-06	0.466	2.042	0.272	1.190	1.94E-03
EQUI114	na	Furnace Basement MUA	0.3591	0.003	0.012	0.003	0.012	0.003	0.012	1.76E-07	7.71E-07	0.051	0.222	0.030	0.130	2.11E-04
EQUI50	na	Finishing MUA	2.25	0.017	0.075	0.017	0.075	0.017	0.075	1.10E-06	4.83E-06	0.318	1.393	0.185	0.812	1.32E-03
EQUI120	na	Machine Shop MUA	1.1	0.008	0.037	0.008	0.037	0.008	0.037	5.39E-07	2.36E-06	0.155	0.681	0.091	0.397	6.47E-04

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Limited *(hourly @ rated capacity with controls; annual = max hourly X 8,760 hr/yr)*

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	Control ID Number	Control Efficiency				PM		PM10		PM2.5		Lead	
					PM	PM10	PM2.5	HAP1	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EQUI1	EU001	Scrap Preheat Oven 1	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-07	6.01E-07
EQUI2	EU002	Scrap Preheat Oven 2	4	TREA47	99%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E-07	6.01E-07
EQUI9	EU012	Core Tunnel Oven	0.8	TREA47	99%	93%	93%	93%	6.09E-05	2.67E-04	4.26E-04	1.87E-03	4.26E-04	1.87E-03	2.75E-08	1.20E-07
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04	1.60E-04	7.00E-04	1.03E-08	4.51E-08
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	TREA2	99%	93%	93%	93%	2.28E-05	1.00E-04	1.60E-04	7.00E-04	1.60E-04	7.00E-04	1.03E-08	4.51E-08
EQUI56	EU013	CR-22	0.9	TREA2	99%	93%	93%	93%	6.85E-05	3.00E-04	4.79E-04	2.10E-03	4.79E-04	2.10E-03	3.09E-08	1.35E-07
EQUI36	EU025	Large Heat Treat Oven	1.6	TREA48	99%	93%	93%	93%	1.22E-04	5.33E-04	8.52E-04	3.73E-03	8.52E-04	3.73E-03	5.49E-08	2.40E-07
EQUI37	EU026	Small Heat Treat Oven	4	TREA48	99%	93%	93%	93%	3.04E-04	1.33E-03	2.13E-03	9.33E-03	2.13E-03	9.33E-03	1.37E-07	6.01E-07
EQUI46	na	East MUA	6.05	TREA47	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02	3.22E-03	1.41E-02	2.08E-07	9.09E-07
EQUI47	na	West MUA	6.05	TREA46	99%	93%	93%	93%	4.60E-04	2.02E-03	3.22E-03	1.41E-02	3.22E-03	1.41E-02	2.08E-07	9.09E-07
EQUI48	na	North MUA	3.3	TREA46	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03	1.76E-03	7.70E-03	1.13E-07	4.96E-07
EQUI49	na	South MUA	3.3	TREA47	99%	93%	93%	93%	2.51E-04	1.10E-03	1.76E-03	7.70E-03	1.76E-03	7.70E-03	1.13E-07	4.96E-07
EQUI114	na	Furnace Basement MUA	0.3591	TREA47	99%	93%	93%	93%	2.73E-05	1.20E-04	1.91E-04	8.38E-04	1.91E-04	8.38E-04	1.23E-08	5.40E-08
EQUI50	na	Finishing MUA	2.25	TREA48	99%	93%	93%	93%	1.71E-04	7.50E-04	1.20E-03	5.25E-03	1.20E-03	5.25E-03	7.72E-08	3.38E-07
EQUI120	na	Machine Shop MUA	1.1	TREA48	99%	93%	93%	93%	8.37E-05	3.67E-04	5.86E-04	2.57E-03	5.86E-04	2.57E-03	3.77E-08	1.65E-07

[1] HAP controls are only applied to particulate HAPs.

EQUI1 and EQUI2: PM/PM10/PM2.5 emission rates were determined with stack tests and are already included under Melting & Refining >> Scrap Preheating

Actuals conservatively assumed as equal to limited TPY

O2		VOC		CO2		N2O		Arsenic		Beryllium		Cadmium		Chromium		Cobalt		Manganese		Mercury		Nickel		Selenium		CH
tpy		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
1.03E-02		0.043	0.190	544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03
1.03E-02		0.043	0.190	544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03
2.06E-03		0.009	0.038	108.84	476.70	0.008	0.034	1.57E-07	6.87E-07	9.41E-09	4.12E-08	8.63E-07	3.78E-06	1.10E-06	4.81E-06	6.59E-08	2.89E-07	2.98E-07	1.31E-06	2.04E-07	8.93E-07	1.65E-06	7.21E-06	1.88E-08	8.24E-08	1.80E-03
7.73E-04		0.003	0.014	40.81	178.76	0.003	0.013	5.88E-08	2.58E-07	3.53E-09	1.55E-08	3.24E-07	1.42E-06	4.12E-07	1.80E-06	2.47E-08	1.08E-07	1.12E-07	4.90E-07	7.65E-08	3.35E-07	6.18E-07	2.71E-06	7.06E-09	3.09E-08	6.76E-04
7.73E-04		0.003	0.014	40.81	178.76	0.003	0.013	5.88E-08	2.58E-07	3.53E-09	1.55E-08	3.24E-07	1.42E-06	4.12E-07	1.80E-06	2.47E-08	1.08E-07	1.12E-07	4.90E-07	7.65E-08	3.35E-07	6.18E-07	2.71E-06	7.06E-09	3.09E-08	6.76E-04
2.32E-03		0.010	0.043	122.44	536.29	0.009	0.039	1.76E-07	7.73E-07	1.06E-08	4.64E-08	9.71E-07	4.25E-06	1.24E-06	5.41E-06	7.41E-08	3.25E-07	3.35E-07	1.47E-06	2.29E-07	1.00E-06	1.85E-06	8.12E-06	2.12E-08	9.28E-08	2.03E-03
4.12E-03		0.017	0.076	217.67	953.41	0.016	0.069	3.14E-07	1.37E-06	1.88E-08	8.24E-08	1.73E-06	7.56E-06	2.20E-06	9.62E-06	1.32E-07	5.77E-07	5.96E-07	2.61E-06	4.08E-07	1.79E-06	3.29E-06	1.44E-05	3.76E-08	1.65E-07	3.61E-03
1.03E-02		0.043	0.190	544.18	2,383.52	0.039	0.171	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05	5.49E-06	2.40E-05	3.29E-07	1.44E-06	1.49E-06	6.53E-06	1.02E-06	4.47E-06	8.24E-06	3.61E-05	9.41E-08	4.12E-07	9.02E-03
1.56E-02		0.066	0.288	823.08	3,605.08	0.059	0.259	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05	8.30E-06	3.64E-05	4.98E-07	2.18E-06	2.25E-06	9.87E-06	1.54E-06	6.75E-06	1.25E-05	5.46E-05	1.42E-07	6.24E-07	1.36E-02
1.56E-02		0.066	0.288	823.08	3,605.08	0.059	0.259	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05	8.30E-06	3.64E-05	4.98E-07	2.18E-06	2.25E-06	9.87E-06	1.54E-06	6.75E-06	1.25E-05	5.46E-05	1.42E-07	6.24E-07	1.36E-02
8.50E-03		0.036	0.157	448.95	1,966.41	0.032	0.141	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05	4.53E-06	1.98E-05	2.72E-07	1.19E-06	1.23E-06	5.38E-06	8.41E-07	3.68E-06	6.79E-06	2.98E-05	7.76E-08	3.40E-07	7.44E-03
8.50E-03		0.036	0.157	448.95	1,966.41	0.032	0.141	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05	4.53E-06	1.98E-05	2.72E-07	1.19E-06	1.23E-06	5.38E-06	8.41E-07	3.68E-06	6.79E-06	2.98E-05	7.76E-08	3.40E-07	7.44E-03
9.25E-04		0.004	0.017	48.85	213.98	0.004	0.015	7.04E-08	3.08E-07	4.22E-09	1.85E-08	3.87E-07	1.70E-06	4.93E-07	2.16E-06	2.96E-08	1.30E-07	1.34E-07	5.86E-07	9.15E-08	4.01E-07	7.39E-07	3.24E-06	8.45E-09	3.70E-08	8.10E-04
5.80E-03		0.024	0.107	306.10	1,340.73	0.022	0.096	4.41E-07	1.93E-06	2.65E-08	1.16E-07	2.43E-06	1.06E-05	3.09E-06	1.35E-05	1.85E-07	8.12E-07	8.38E-07	3.67E-06	5.74E-07	2.51E-06	4.63E-06	2.03E-05	5.29E-08	2.32E-07	5.07E-03
2.83E-03		0.012	0.052	149.65	655.47	0.011	0.047	2.16E-07	9.45E-07	1.29E-08	5.67E-08	1.19E-06	5.20E-06	1.51E-06	6.61E-06	9.06E-08	3.97E-07	4.10E-07	1.79E-06	2.80E-07	1.23E-06	2.26E-06	9.92E-06	2.59E-08	1.13E-07	2.48E-03

NOx		CO		SO2		VOC		CO2		N2O		Arsenic		Beryllium		Cadmium		Chromium		Cobalt		Manganese		Mercury	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07
0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07
0.113	0.495	0.066	0.289	4.71E-04	2.06E-03	0.009	0.038	108.84	476.70	0.008	0.034	1.10E-08	4.81E-08	6.59E-10	2.89E-09	6.04E-08	2.65E-07	7.69E-08	3.37E-07	4.61E-09	2.02E-08	2.09E-08	9.14E-08	1.43E-08	6.25E-08
0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014	40.81	178.76	0.003	0.013	4.12E-09	1.80E-08	2.47E-10	1.08E-09	2.26E-08	9.92E-08	2.88E-08	1.26E-07	1.73E-09	7.57E-09	7.82E-09	3.43E-08	5.35E-09	2.34E-08
0.042	0.186	0.025	0.108	1.76E-04	7.73E-04	0.003	0.014	40.81	178.76	0.003	0.013	4.12E-09	1.80E-08	2.47E-10	1.08E-09	2.26E-08	9.92E-08	2.88E-08	1.26E-07	1.73E-09	7.57E-09	7.82E-09	3.43E-08	5.35E-09	2.34E-08
0.127	0.557	0.074	0.325	5.29E-04	2.32E-03	0.010	0.043	122.44	536.29	0.009	0.039	1.24E-08	5.41E-08	7.41E-10	3.25E-09	6.79E-08	2.98E-07	8.65E-08	3.79E-07	5.19E-09	2.27E-08	2.35E-08	1.03E-07	1.61E-08	7.03E-08
0.226	0.990	0.132	0.577	9.41E-04	4.12E-03	0.017	0.076	217.67	953.41	0.016	0.069	2.20E-08	9.62E-08	1.32E-09	5.77E-09	1.21E-07	5.29E-07	1.54E-07	6.73E-07	9.22E-09	4.04E-08	4.17E-08	1.83E-07	2.85E-08	1.25E-07
0.565	2.476	0.329	1.443	2.35E-03	1.03E-02	0.043	0.190	544.18	2,383.52	0.039	0.171	5.49E-08	2.40E-07	3.29E-09	1.44E-08	3.02E-07	1.32E-06	3.84E-07	1.68E-06	2.31E-08	1.01E-07	1.04E-07	4.57E-07	7.14E-08	3.13E-07
0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288	823.08	3,605.08	0.059	0.259	8.30E-08	3.64E-07	4.98E-09	2.18E-08	4.57E-07	2.00E-06	5.81E-07	2.55E-06	3.49E-08	1.53E-07	1.58E-07	6.91E-07	1.08E-07	4.73E-07
0.855	3.744	0.498	2.182	3.56E-03	1.56E-02	0.066	0.288	823.08	3,605.08	0.059	0.259	8.30E-08	3.64E-07	4.98E-09	2.18E-08	4.57E-07	2.00E-06	5.81E-07	2.55E-06	3.49E-08	1.53E-07	1.58E-07	6.91E-07	1.08E-07	4.73E-07
0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157	448.95	1,966.41	0.032	0.141	4.53E-08	1.98E-07	2.72E-09	1.19E-08	2.49E-07	1.09E-06	3.17E-07	1.39E-06	1.90E-08	8.33E-08	8.61E-08	3.77E-07	5.89E-08	2.58E-07
0.466	2.042	0.272	1.190	1.94E-03	8.50E-03	0.036	0.157	448.95	1,966.41	0.032	0.141	4.53E-08	1.98E-07	2.72E-09	1.19E-08	2.49E-07	1.09E-06	3.17E-07	1.39E-06	1.90E-08	8.33E-08	8.61E-08	3.77E-07	5.89E-08	2.58E-07
0.051	0.222	0.030	0.130	2.11E-04	9.25E-04	0.004	0.017	48.85	213.98	0.004	0.015	4.93E-09	2.16E-08	2.96E-10	1.30E-09	2.71E-08	1.19E-07	3.45E-08	1.51E-07	2.07E-09	9.07E-09	9.36E-09	4.10E-08	6.41E-09	2.81E-08
0.318	1.393	0.185	0.812	1.32E-03	5.80E-03	0.024	0.107	306.10	1,340.73	0.022	0.096	3.09E-08	1.35E-07	1.85E-09	8.12E-09	1.70E-07	7.44E-07	2.16E-07	9.47E-07	1.30E-08	5.68E-08	5.87E-08	2.57E-07	4.01E-08	1.76E-07
0.155	0.681	0.091	0.397	6.47E-04	2.83E-03	0.012	0.052	149.65	655.47	0.011	0.047	1.51E-08	6.61E-08	9.06E-10	3.97E-09	8.30E-08	3.64E-07	1.06E-07	4.63E-07	6.34E-09	2.78E-08	2.87E-08	1.26E-07	1.96E-08	8.60E-08

-l4	CO2e		2-Methylnaphthalene		3-Methylcholanthrene		7,12-Dimethylbenz(a)anthracene		Acenaphthene		Acenapthylene		Anthracene		Benz(a)anthracene		Benzene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)fluoranthene		Chrysene		Dibenzo(a,h)anthracene	
tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08
3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08
7.90E-03	111.21	487.12	1.88E-08	8.24E-08	1.41E-09	6.18E-09	1.25E-08	5.50E-08	1.41E-09	6.18E-09	1.41E-09	6.18E-09	1.88E-09	8.24E-09	1.41E-09	6.18E-09	1.65E-06	7.21E-06	9.41E-10	4.12E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09	1.41E-09	6.18E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09
2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09
2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10	2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09
8.89E-03	125.12	548.01	2.12E-08	9.28E-08	1.59E-09	6.96E-09	1.41E-08	6.18E-08	1.59E-09	6.96E-09	1.59E-09	6.96E-09	2.12E-09	9.28E-09	1.59E-09	6.96E-09	1.85E-06	8.12E-06	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09
1.58E-02	222.43	974.23	3.76E-08	1.65E-07	2.82E-09	1.24E-08	2.51E-08	1.10E-07	2.82E-09	1.24E-08	2.82E-09	1.24E-08	3.76E-09	1.65E-08	2.82E-09	1.24E-08	3.29E-06	1.44E-05	1.88E-09	8.24E-09	2.82E-09	1.24E-08	1.88E-09	8.24E-09	2.82E-09	1.24E-08	2.82E-09	1.24E-08	1.88E-09	8.24E-09
3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09	3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08
5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08
5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08	4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08
3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08
3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08
3.55E-03	49.92	218.65	8.45E-09	3.70E-08	6.34E-10	2.78E-09	5.63E-09	2.47E-08	6.34E-10	2.78E-09	6.34E-10	2.78E-09	8.45E-10	3.70E-09	6.34E-10	2.78E-09	7.39E-07	3.24E-06	4.22E-10	1.85E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09	6.34E-10	2.78E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09
2.22E-02	312.79	1,370.02	5.29E-08	2.32E-07	3.97E-09	1.74E-08	3.53E-08	1.55E-07	3.97E-09	1.74E-08	3.97E-09	1.74E-08	5.29E-09	2.32E-08	3.97E-09	1.74E-08	4.63E-06	2.03E-05	2.65E-09	1.16E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08	3.97E-09	1.74E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08
1.09E-02	152.92	669.79	2.59E-08	1.13E-07	1.94E-09	8.50E-09	1.73E-08	7.56E-08	1.94E-09	8.50E-09	1.94E-09	8.50E-09	2.59E-09	1.13E-08	1.94E-09	8.50E-09	2.26E-06	9.92E-06	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09

Nickel		Selenium		CH4		CO2e		2-Methylnaphthalene		3-Methylcholanthrene		7,12-Dimethylbenz(a)anthracene		Acenaphthene		Acenapthylene		Anthracene		Benz(a)anthracene		Benzene		Benzo(a)pyrene		Benzo(b)fluoranthene		Benzo(g,h,i)perylene		Benzo(k)flu
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
5.76E-07	2.52E-06	6.59E-09	2.89E-08	9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09
5.76E-07	2.52E-06	6.59E-09	2.89E-08	9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09
1.15E-07	5.05E-07	1.32E-09	5.77E-09	1.80E-03	7.90E-03	111.21	487.12	1.88E-08	8.24E-08	1.41E-09	6.18E-09	1.25E-08	5.50E-08	1.41E-09	6.18E-09	1.41E-09	6.18E-09	1.88E-09	8.24E-09	1.41E-09	6.18E-09	1.65E-06	7.21E-06	9.41E-10	4.12E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09	1.41E-09
4.32E-08	1.89E-07	4.94E-10	2.16E-09	6.76E-04	2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10
4.32E-08	1.89E-07	4.94E-10	2.16E-09	6.76E-04	2.96E-03	41.71	182.67	7.06E-09	3.09E-08	5.29E-10	2.32E-09	4.71E-09	2.06E-08	5.29E-10	2.32E-09	5.29E-10	2.32E-09	7.06E-10	3.09E-09	5.29E-10	2.32E-09	6.18E-07	2.71E-06	3.53E-10	1.55E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	5.29E-10
1.30E-07	5.68E-07	1.48E-09	6.49E-09	2.03E-03	8.89E-03	125.12	548.01	2.12E-08	9.28E-08	1.59E-09	6.96E-09	1.41E-08	6.18E-08	1.59E-09	6.96E-09	1.59E-09	6.96E-09	2.12E-09	9.28E-09	1.59E-09	6.96E-09	1.85E-06	8.12E-06	1.06E-09	4.64E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09	1.59E-09
2.31E-07	1.01E-06	2.64E-09	1.15E-08	3.61E-03	1.58E-02	222.43	974.23	3.76E-08	1.65E-07	2.82E-09	1.24E-08	2.51E-08	1.10E-07	2.82E-09	1.24E-08	2.82E-09	1.24E-08	3.76E-09	1.65E-08	2.82E-09	1.24E-08	3.29E-06	1.44E-05	1.88E-09	8.24E-09	2.82E-09	1.24E-08	1.88E-09	8.24E-09	2.82E-09
5.76E-07	2.52E-06	6.59E-09	2.89E-08	9.02E-03	3.95E-02	556.07	2,435.59	9.41E-08	4.12E-07	7.06E-09	3.09E-08	6.27E-08	2.75E-07	7.06E-09	3.09E-08	7.06E-09	3.09E-08	9.41E-09	4.12E-08	7.06E-09	3.09E-08	8.24E-06	3.61E-05	4.71E-09	2.06E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	7.06E-09
8.72E-07	3.82E-06	9.96E-09	4.36E-08	1.36E-02	5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08
8.72E-07	3.82E-06	9.96E-09	4.36E-08	1.36E-02	5.98E-02	841.06	3,683.82	1.42E-07	6.24E-07	1.07E-08	4.68E-08	9.49E-08	4.16E-07	1.07E-08	4.68E-08	1.07E-08	4.68E-08	1.42E-08	6.24E-08	1.07E-08	4.68E-08	1.25E-05	5.46E-05	7.12E-09	3.12E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	1.07E-08
4.76E-07	2.08E-06	5.44E-09	2.38E-08	7.44E-03	3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09
4.76E-07	2.08E-06	5.44E-09	2.38E-08	7.44E-03	3.26E-02	458.76	2,009.36	7.76E-08	3.40E-07	5.82E-09	2.55E-08	5.18E-08	2.27E-07	5.82E-09	2.55E-08	5.82E-09	2.55E-08	7.76E-09	3.40E-08	5.82E-09	2.55E-08	6.79E-06	2.98E-05	3.88E-09	1.70E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	5.82E-09
5.18E-08	2.27E-07	5.91E-10	2.59E-09	8.10E-04	3.55E-03	49.92	218.65	8.45E-09	3.70E-08	6.34E-10	2.78E-09	5.63E-09	2.47E-08	6.34E-10	2.78E-09	6.34E-10	2.78E-09	8.45E-10	3.70E-09	6.34E-10	2.78E-09	7.39E-07	3.24E-06	4.22E-10	1.85E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09	6.34E-10
3.24E-07	1.42E-06	3.71E-09	1.62E-08	5.07E-03	2.22E-02	312.79	1,370.02	5.29E-08	2.32E-07	3.97E-09	1.74E-08	3.53E-08	1.55E-07	3.97E-09	1.74E-08	3.97E-09	1.74E-08	5.29E-09	2.32E-08	3.97E-09	1.74E-08	4.63E-06	2.03E-05	2.65E-09	1.16E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08	3.97E-09
1.59E-07	6.94E-07	1.81E-09	7.94E-09	2.48E-03	1.09E-02	152.92	669.79	2.59E-08	1.13E-07	1.94E-09	8.50E-09	1.73E-08	7.56E-08	1.94E-09	8.50E-09	1.94E-09	8.50E-09	2.59E-09	1.13E-08	1.94E-09	8.50E-09	2.26E-06	9.92E-06	1.29E-09	5.67E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09	1.94E-09

Dichlorobenzene		Fluoranthene		Fluorene		Formaldehyde		Hexane		Indeno(1,2,3-cd)pyrene		Naphthalene		Phenanathrene		Pyrene		Toluene	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
9.41E-07	4.12E-06	2.35E-09	1.03E-08	2.20E-09	9.62E-09	5.88E-05	2.58E-04	1.41E-03	6.18E-03	1.41E-09	6.18E-09	4.78E-07	2.10E-06	1.33E-08	5.84E-08	3.92E-09	1.72E-08	2.67E-06	1.17E-05
3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
1.06E-06	4.64E-06	2.65E-09	1.16E-08	2.47E-09	1.08E-08	6.62E-05	2.90E-04	1.59E-03	6.96E-03	1.59E-09	6.96E-09	5.38E-07	2.36E-06	1.50E-08	6.57E-08	4.41E-09	1.93E-08	3.00E-06	1.31E-05
1.88E-06	8.24E-06	4.71E-09	2.06E-08	4.39E-09	1.92E-08	1.18E-04	5.15E-04	2.82E-03	1.24E-02	2.82E-09	1.24E-08	9.57E-07	4.19E-06	2.67E-08	1.17E-07	7.84E-09	3.44E-08	5.33E-06	2.34E-05
4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
4.22E-07	1.85E-06	1.06E-09	4.63E-09	9.86E-10	4.32E-09	2.64E-05	1.16E-04	6.34E-04	2.78E-03	6.34E-10	2.78E-09	2.15E-07	9.41E-07	5.99E-09	2.62E-08	1.76E-09	7.71E-09	1.20E-06	5.24E-06
2.65E-06	1.16E-05	6.62E-09	2.90E-08	6.18E-09	2.71E-08	1.65E-04	7.25E-04	3.97E-03	1.74E-02	3.97E-09	1.74E-08	1.35E-06	5.89E-06	3.75E-08	1.64E-07	1.10E-08	4.83E-08	7.50E-06	3.29E-05
1.29E-06	5.67E-06	3.24E-09	1.42E-08	3.02E-09	1.32E-08	8.09E-05	3.54E-04	1.94E-03	8.50E-03	1.94E-09	8.50E-09	6.58E-07	2.88E-06	1.83E-08	8.03E-08	5.39E-09	2.36E-08	3.67E-06	1.61E-05

uoranthene	Chrysene		Dibenzo(a,h)anthracene		Dichlorobenzene		Fluoranthene		Fluorene		Formaldehyde		Hexane		Indeno(1,2,3-cd)pyrene		Naphthalene		Phenanathrene		Pyrene		Toluene	
tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
6.18E-09	1.41E-09	6.18E-09	9.41E-10	4.12E-09	9.41E-07	4.12E-06	2.35E-09	1.03E-08	2.20E-09	9.62E-09	5.88E-05	2.58E-04	1.41E-03	6.18E-03	1.41E-09	6.18E-09	4.78E-07	2.10E-06	1.33E-08	5.84E-08	3.92E-09	1.72E-08	2.67E-06	1.17E-05
2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
2.32E-09	5.29E-10	2.32E-09	3.53E-10	1.55E-09	3.53E-07	1.55E-06	8.82E-10	3.86E-09	8.24E-10	3.61E-09	2.21E-05	9.66E-05	5.29E-04	2.32E-03	5.29E-10	2.32E-09	1.79E-07	7.86E-07	5.00E-09	2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
6.96E-09	1.59E-09	6.96E-09	1.06E-09	4.64E-09	1.06E-06	4.64E-06	2.65E-09	1.16E-08	2.47E-09	1.08E-08	6.62E-05	2.90E-04	1.59E-03	6.96E-03	1.59E-09	6.96E-09	5.38E-07	2.36E-06	1.50E-08	6.57E-08	4.41E-09	1.93E-08	3.00E-06	1.31E-05
1.24E-08	2.82E-09	1.24E-08	1.88E-09	8.24E-09	1.88E-06	8.24E-06	4.71E-09	2.06E-08	4.39E-09	1.92E-08	1.18E-04	5.15E-04	2.82E-03	1.24E-02	2.82E-09	1.24E-08	9.57E-07	4.19E-06	2.67E-08	1.17E-07	7.84E-09	3.44E-08	5.33E-06	2.34E-05
3.09E-08	7.06E-09	3.09E-08	4.71E-09	2.06E-08	4.71E-06	2.06E-05	1.18E-08	5.15E-08	1.10E-08	4.81E-08	2.94E-04	1.29E-03	7.06E-03	3.09E-02	7.06E-09	3.09E-08	2.39E-06	1.05E-05	6.67E-08	2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
4.68E-08	1.07E-08	4.68E-08	7.12E-09	3.12E-08	7.12E-06	3.12E-05	1.78E-08	7.79E-08	1.66E-08	7.27E-08	4.45E-04	1.95E-03	1.07E-02	4.68E-02	1.07E-08	4.68E-08	3.62E-06	1.58E-05	1.01E-07	4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	3.88E-06	1.70E-05	9.71E-09	4.25E-08	9.06E-09	3.97E-08	2.43E-04	1.06E-03	5.82E-03	2.55E-02	5.82E-09	2.55E-08	1.97E-06	8.64E-06	5.50E-08	2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
2.78E-09	6.34E-10	2.78E-09	4.22E-10	1.85E-09	4.22E-07	1.85E-06	1.06E-09	4.63E-09	9.86E-10	4.32E-09	2.64E-05	1.16E-04	6.34E-04	2.78E-03	6.34E-10	2.78E-09	2.15E-07	9.41E-07	5.99E-09	2.62E-08	1.76E-09	7.71E-09	1.20E-06	5.24E-06
1.74E-08	3.97E-09	1.74E-08	2.65E-09	1.16E-08	2.65E-06	1.16E-05	6.62E-09	2.90E-08	6.18E-09	2.71E-08	1.65E-04	7.25E-04	3.97E-03	1.74E-02	3.97E-09	1.74E-08	1.35E-06	5.89E-06	3.75E-08	1.64E-07	1.10E-08	4.83E-08	7.50E-06	3.29E-05
8.50E-09	1.94E-09	8.50E-09	1.29E-09	5.67E-09	1.29E-06	5.67E-06	3.24E-09	1.42E-08	3.02E-09	1.32E-08	8.09E-05	3.54E-04	1.94E-03	8.50E-03	1.94E-09	8.50E-09	6.58E-07	2.88E-06	1.83E-08	8.03E-08	5.39E-09	2.36E-08	3.67E-06	1.61E-05

Combustion Emission Factors

1020 MMBtu/MMscf HHV natural gas

0.092 MMBtu/gal HHV comercial grade propane

Natural Gas (<100 MMBtu/hr)

	Natural Gas		Propane		Worst Case
Pollutant	lb/MMSCF	lb/MMBtu	lb/gal	lb/MMBtu	lb/MMBtu
PM	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
PM_{10}	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
$PM_{2.5}$	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
NO_x	100	9.80E-02	1.30E-02	1.41E-01	1.41E-01
SO_2	0.6	5.88E-04	2.00E-06	2.17E-05	5.88E-04
CO	84	8.24E-02	7.50E-03	8.15E-02	8.24E-02
VOC	5.5	5.39E-03	1.00E-03	1.09E-02	1.09E-02
Lead	5.00E-04	4.90E-07	0.00E+00	0.00E+00	4.90E-07
CO_2	1.20E+05	1.18E+02	1.25E+01	1.36E+02	1.36E+02
N_2O	6.40E-01	6.27E-04	9.00E-04	9.78E-03	9.78E-03
Arsenic	2.00E-04	1.96E-07	1.79E-08	1.95E-07	1.96E-07
Beryllium	1.20E-05	1.18E-08	1.08E-09	1.17E-08	1.18E-08
Cadmium	1.10E-03	1.08E-06	9.87E-08	1.07E-06	1.08E-06
Chromium	1.40E-03	1.37E-06	1.26E-07	1.37E-06	1.37E-06
Cobalt	8.40E-05	8.24E-08	7.54E-09	8.19E-08	8.24E-08
Manganese	3.80E-04	3.73E-07	3.41E-08	3.71E-07	3.73E-07
Mercury	2.60E-04	2.55E-07	2.33E-08	2.54E-07	2.55E-07
Nickel	2.10E-03	2.06E-06	1.88E-07	2.05E-06	2.06E-06
Selenium	2.40E-05	2.35E-08	2.15E-09	2.34E-08	2.35E-08
CH_4	2.30E+00	2.25E-03	2.00E-04	2.17E-03	2.25E-03
2-Methylnaphthalene	2.40E-05	2.35E-08	8.83E-10	9.59E-09	2.35E-08
3-Methylcholanthrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	5.88E-10	6.40E-09	1.57E-08
Acenaphthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Acenapthylene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Anthracene	2.40E-06	2.35E-09	8.83E-11	9.59E-10	2.35E-09
Benz(a)anthracene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzene	2.10E-03	2.06E-06	7.72E-08	8.39E-07	2.06E-06
Benzo(a)pyrene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(b)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(k)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Chrysene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Dichlorobenzene	1.20E-03	1.18E-06	4.41E-08	4.80E-07	1.18E-06
Fluoranthene	3.00E-06	2.94E-09	1.10E-10	1.20E-09	2.94E-09
Fluorene	2.80E-06	2.75E-09	1.03E-10	1.12E-09	2.75E-09
Formaldehyde	7.50E-02	7.35E-05	2.76E-06	3.00E-05	7.35E-05
Hexane	1.80E+00	1.76E-03	6.62E-05	7.20E-04	1.76E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Naphthalene	6.10E-04	5.98E-07	2.24E-08	2.44E-07	5.98E-07
Phenanathrene	1.70E-05	1.67E-08	6.25E-10	6.80E-09	1.67E-08
Pyrene	5.00E-06	4.90E-09	1.84E-10	2.00E-09	4.90E-09
Toluene	3.40E-03	3.33E-06	1.25E-07	1.36E-06	3.33E-06

Natural Gas emission factors obtained from EPA AP-42, Volume I, Chapter 1.4, Table 1.4-1 small boilers (NOx & CO), Table 1.4-2 (PM, SO2, Lead, VOC, Methane, N20, & CO2), table 1.4-3 (Organic HAPs), and table 1.4-4 (Metal HAPs).

Propane emission factors from AP-42, "Liquified Petroleum Gas Combustion", Table 1.5-1 (07/08).

Northern Iron of St Paul LLC

Pattern Shop — Units insignificant pursuant to Minn. R. 7007.0500, Subp.2(D)(5)

IA Number	Unit Desc	Limited Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10					PM2.5				
								Emission Factor (lb/capacity unit)	Reference[1]	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-02	Woodworking Saw #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-03	Woodworking Saw #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-04	Woodworking Saw #3	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-05	Woodworking Saw #4	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-06	Woodworking Sander #1	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-07	Woodworking Sander #2	0.1	tons/hour	TREA47	100%	99%	93%	1.75E-01	EPA May 8, 2014 Sawmill Memo	1.23E-03	0.08	0.01	8.75E-02	3, 2014 Saw	6.13E-04	0.038	2.68E-03
IA-08	Drill Press	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-09	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-10	Bridgeport #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-11	Bridgeport #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
IA-12	Bridgeport #3	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04	0.1	42, Table 12.1	1.75E-04	0.011	7.67E-04
Pattern Shop											Total	0.04				Total	0.02

1 The emission factor for sawing and sanding operations is the sawing emission factor listed in the EPA Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" dated May 8, 2014. This memo can be found at the following link: https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

Lab — Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(D)

IA Number	Unit Desc	Rated Capacity		Control ID Number	Capture (%)	PM Control (%)	PM10/PM2.5 Control (%)	PM10					PM2.5				
								Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-13	Sander	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-14	Grinder	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-15	Lathe	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-16	Polisher #1	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-17	Polisher #2	0.0250	tons/hour	TREA47	100%	99%	93%	0.1	AP-42, Table 12.10-7	0.000025	0.01	1.10E-04	0.1	42, Table 12.1	0.000	0.011	1.10E-04
IA-18	Miscellaneous sand testing equipment	0.0055	tons/hour	TREA47	100%	99%	93%	0.013	AP-42 Table 11.19.1-1	7.15859E-07	3.14E-04	3.14E-06	0.013	42 Table 11.1	7.16E-07	3.14E-04	3.14E-06
Lab											Total	5.51E-04				Total	5.51E-04

Machine Shop — Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(F)

8 oil based casting finishing machines - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal
4 Lathes - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

IA Number	Unit Desc	Rated Capacity		VOC				
				VOC content	Reference	Controlled lb/hr	Unrestricted tpy	Limited tpy
IA-19		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-20		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-21		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-22		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-23		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-24		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-25		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-26		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-27		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-28		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-29		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
IA-30		0.31	lb/hr	19%	SDS	0.06	0.26	0.26
						0.72	3.15	3.15

Sand Handling Emissions Factor

From US EPA AP-42, 13.2.4.3 (available online at https://www.epa.gov/sites/default/files/2020-10/documents/13.2.4_aggregate_handling_and_storage_piles.pdf)

$$E = k(0.0032) \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}} \text{ (pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

Aerodynamic Particle Size Multiplier (k)

PM	PM10	PM2.5
0.74	0.35	0.053

Prepared/Watered Sand

M= 3 %
U= 3 MPH

	PM	PM10	PM2.5
E=	6.910E-04	3.268E-04	4.949E-05

MPCA provided EF Documentation:

$SHef_{pm10}$ = 0.013/(M/2)^1.4, and with a minimum content of 3%, $SHef_{pm10}$ = 0.013/(3/2)^1.4 = 0.0074 lb PM_{10}/ton throughput. This equates to 0.00037% of throughput. In previous submittals, for sand handling, PM_{10} = $PM_{2.5}$, however I'd imagine $Pm_{2.5}$ is only a fraction of PM10. Here I am open to justification as to what ratio $PM_{2.5}$ should be to PM_{10}.

Note that the 0.013 term above was taken from AP-42 Table 11.19.1-1 and it applies to total PM. The factor in AP-42 was increased by a factor of 10 to account for uncontrolled emissions (since a wet scrubber has an assumed control efficiency of 90%).
The proposed PM10 & PM2.5 Ratios are from EPA PM Augmentation Tool for Sand Handling (SCC 30400350). See table below for mass percentages

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_ UNCONTROLLED	PMCALC_PM10FIL_ UNCONTROLLED	PMCALC_PM25FIL_ UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

Foundry Process Emission Factors: Baseline Emissions from Automotive Foundries in Mexico

Emissions Measurement Team Casting Emission Reduction Program

McClellan Air Force Base, California

January 19, 1999

https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

Species	Lb/ton	MHAP
Aluminum	2.09E-02	
Antimony	0	Y
Arsenic	0	Y
Barium	0	
Beryllium	0	Y
Cadmium	1.02E-04	Y
Chromium	7.40E-04	Y
Cobalt	0	Y
Copper	8.52E-04	
Iron	1.40E-01	
Lead	5.58E-03	Y
Manganese	1.40E-02	Y
Mercury	0.00E+00	Y
Nickel	8.97E-04	Y
Selenium	0.00E+00	Y
Silver	6.01E-05	
Zinc	4.61E-02	
$MHAP_{total}$	0.021319	

%Cadmium of $MHAP_{total}$	0.5%
%Chrimium of $MHAP_{total}$	3.5%
%Lead of $MHAP_{total}$	26.2%
%Manganese of $MHAP_{total}$	65.7%
%Nickel of $MHAP_{total}$	4.2%

Table 5.16. Metal Emissions from Metal Melting Operations

	Line 3
	Stack 27
Species	**lb/ton metal melted**
Aluminum	2.09E-02
Antimony	0.00E+00
Arsenic	0.00E+00
Barium	0.00E+00
Beryllium	0.00E+00
Cadmium	1.02E-04
Chromium	7.40E-04
Cobalt	0.00E+00
Copper	8.52E-04
Iron	1.40E-01
Lead	5.58E-03
Manganese	1.40E-02
Mercury	0.00E+00
Nickel	8.97E-04
Selenium	0.00E+00
Silver	6.01E-05
Zinc	4.61E-02

Table 6.1

Analyte	Pouring1	Cooling1	Shakeout 2	Totals	Pouring & Cooling Total
Acetaldehyde	2.94E-04	3.20E-03	5.78E-02	6.13E-02	3.49E-03
Acetophenone	ND	1.98E-04	7.92E-04	9.90E-04	1.98E-04
Benzene	2.19E-03	3.49E-02	2.68E-02	6.39E-02	3.71E-02
Cadmium	4.55E-06	2.03E-05	1.67E-05	4.16E-05	2.49E-05
Chromium	4.85E-05	2.31E-04	1.71E-04	4.51E-04	2.80E-04
Copper	5.71E-05	1.87E-04	1.36E-04	3.80E-04	2.44E-04
Cumene	6.00E-06	1.21E-04	3.82E-04	5.09E-04	1.27E-04
Dibenzofuran	ND	1.63E-05	3.34E-04	3.50E-04	1.63E-05
Ethylbenzene	1.01E-04	1.87E-03	2.91E-03	4.88E-03	1.97E-03
Formaldehyde	1.38E-04	1.73E-03	2.57E-02	2.76E-02	1.87E-03
Lead	1.79E-04	2.22E-04	7.29E-05	4.74E-04	4.01E-04
m,p-Xylene	4.22E-04	7.61E-03	1.25E-02	2.05E-02	8.03E-03
Manganese	8.37E-04	5.21E-04	3.39E-04	1.70E-03	1.36E-03
Naphthalene	1.81E-04	2.41E-03	8.37E-03	1.10E-02	2.59E-03
Nitrobenzene	ND	5.03E-06	ND	5.03E-06	5.03E-06
o-Cresol	1.65E-06	9.27E-04	1.40E-02	1.49E-02	9.29E-04
o-Xylene	1.90E-04	3.82E-03	5.32E-03	9.33E-03	4.01E-03
Phenol	2.86E-04	5.48E-03	2.80E-02	3.38E-02	5.77E-03
POMs	3.56E-04	4.64E-03	2.21E-02	2.71E-02	5.00E-03
1,3-Dimethylnaphthalene	4.33E-06	1.14E-04	1.03E-03	1.15E-03	1.18E-04
1,4-Dimethylnaphthalene	ND	2.51E-05	4.64E-04	4.89E-04	2.51E-05
1,6-Dimethylnaphthalene	ND	ND	ND	ND	0.00E+00
1,8-Dimethylnaphthalene	ND	5.32E-06	1.06E-03	1.07E-03	5.32E-06
1-Methylnaphthalene	7.69E-05	9.04E-04	3.41E-03	4.39E-03	9.81E-04
2,3,5-Trimethylnaphthalene	ND	ND	7.14E-04	7.14E-04	0.00E+00
2,3-Dimethylnaphthalene	ND	9.53E-05	6.50E-04	7.45E-04	9.53E-05
2,6-Dimethylnaphthalene	ND	1.13E-05	5.68E-04	5.79E-04	1.13E-05
2,7-Dimethylnaphthalene	1.27E-06	2.49E-05	4.10E-04	4.36E-04	2.62E-05
2-Methylnaphthalene	9.10E-05	1.03E-03	5.22E-03	6.34E-03	1.12E-03
Acenaphthalene/ 1,2-Dimethylnaphthalene	1.51E-06	2.30E-05	2.20E-04	2.45E-04	2.45E-05
Naphthalene	1.81E-04	2.41E-03	8.37E-03	1.10E-02	2.59E-03
Propanal	ND	3.71E-05	5.70E-03	5.74E-03	3.71E-05
Selenium	ND	4.10E-06	ND	4.10E-06	4.10E-06
Styrene	5.31E-05	4.35E-04	4.81E-03	5.30E-03	4.88E-04
Toluene	1.05E-03	1.89E-02	2.21E-02	4.21E-02	2.00E-02
Xylenes	6.12E-04	1.14E-02	1.78E-02	2.99E-02	1.20E-02

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-02

Air Quality Dispersion Modeling (AQDM) protocol spreadsheet

(Previously AQDMPS-01)

Doc Type: Air Dispersion Modeling

Note: Permit applicants may create their own spreadsheet tabs.

AQ Facility ID number:	12300088
Facility name:	Northern Iron and Machine
Facility address:	867 Forest St N, St Paul, MN 55106
Facility contact:	Tierney Grutza

Model Input Key

Parameters	Units	Description
Permit ID		ID given in Permit or contact MPCA permit engineer
AERMOD ID		3-character facility ID plus Stack Vent or POINT source ID used in Modeling (up to 8 characters), e.g. FACSV001
Pollutant		Criteria pollutant modeled, PM2.5, PM10, SO2, NO2, CO, Pb, O3
Averaging time		Modeling Period for pollutant, 1-HR, 24-HR, Annual, etc.
Operating scenario	[#]	A number indicating the operating condition, described in the Emission Calculations tab, for which the emission rate will be modeled.
Scalar/Variable emissions_type		By Season (SEASON); By Month (MONTH); By Hour-of-Day (HROFDY); By Wind Speed (WSPEED); By Season/Hour (SEASHR); By Season/Hour/Day (SHRDOW); By Season/Hour/Seven Days (SHRDOW7); By Month/Hour/Day (MHRDOW); By Month/Hour/Seven Days (MHRDOW7); By Hour/Seven Days (HRDOW7); By Hour/Day (HRDOW)
Release type =		Release type parameter specified on the SO LOCATION card. Use POINT for vertical, POINTCAP for capped, or POINTHOR for horizontal releases.
X and Y	[m]	Stack Coordinates in UTM NAD83, zone 15 extended ONLY
Base_Elev =	[m]	Source base elevation above mean sea level
Emission_Rate =	[g/s]	Emission rate (g/s)
Height =	[m]	Release height above ground
Exit_Temp =	[K]	Stack exit temperature. A value of 0 is used for stacks exhausting at ambient temperature. A negative value is used to set an exit temp to a fixed amount above ambient temperature.
Exit_Vel =	[m/s]	Stack exit velocity. For capped and horizontal releases, this value should be set as if the stack was a non-capped vertical release.
Diam =	[m]	Stack diameter or equivalent diameter
Flow Rate =	[ACFM]	Flow rate of stack
Desc =		Stack description (boiler, furnace, etc)
SO EMISFACT Description		Scalar/Variable emissions description

SRCPARAM

							Easting	Northing									
Permit	AERMOD	Pollutant	Averaging time	Operating scenario	Scalar/Variable emissions_type	Release_Type	X1	Y1	Base_Elev	Emission_Rate	Emission_Rate	Height	Exit_Temp	Exit_Vel	Diam	Flow rate	Description	SO EMISFACT Description
ID	ID			#			[m]	[m]	[m]	[lb/hr]	[g/sec]	[m]	[K]	[m/s]	[m]	[ACFM]		
EU001	FACSV001	NO2	1-hr	1	SHRDOW	POINTCAP	495,489.980	5,251,009.250	450.31	1182.56	149	48.77	327.6	15.31	5.77	848,251.219	Hood Exhaust	SHRDOW will be used to represent emissions occuring from 8AM to 7PM Monday-Friday year round and Saturdays from September-November
EU002	FACSV001	$PM_{2.5}$	24-hr	1		POINT	495,494.980	5,251,011.250	450.31	0.04	0.005	47.57	327.35	15.31	5.47	762,330.637	Emergency power generator	
EU003	FACSV003	$PM_{2.5}$	24-hr	2		POINT	495,499.980	5,251,013.250	450.31	79.37	10	46.37	327.1	15.31	5.17	681,008.023	Emergency power generator	

							Easting	Northing									
Permit	AERMOD	Pollutant	Averaging Time	Operating scenario	Scalar/Variable emissions_type	Release_Type	X1	Y1	Base_Elev	Emission_Rate	Emission_Rate	Height	Exit_Temp	Exit_Vel	Diam	Flow rate	Description	SO EMISFACT Description
ID	ID			#			[m]	[m]	[m]	[lb/hr]	[g/sec]	[m]	[K]	[m/s]	[m]	[ACFM]		
EQUI54, EQUI55, EQUI56, EQUI81, EQUI82, EQUI83, EQUI72, EQUI1105, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI91, EQUI115	STRU12	PM-10	24-hr	1		POINT	495,017.020	4,979,347.430	259.24	4.6629E-01	5.8748E-02	10.67	299.82	23.00	0.91	32,000.00	Pallet Line Sand Handling/Shakeout	
EQUI63, EQUI104, EQUI64, EQUI71, EQUI67, EQUI106, EQUI107, EQUI108, EQUI116, EQUI103	STRU13	PM-10	24-hr	1		POINT	494,939.680	4,979,347.930	259.67	5.0927E-01	6.4164E-02	21.34	295.37	14.13	0.91	34,950.00	Flask Line Sand Handling/Shakeout	
EQUI36, EQUI59,	STRU35	PM-10	24-hr	1		POINT	495,160.010	4,979,309.770	257.18	1.2280E-02	1.5472E-03	9.14	299.82	43.12	0.46	15,000.00	Finishing Heater	
EQUI110	STRU40	PM-10	24-hr	1		POINT	495,013.970	4,979,349.460	259.38	1.6286E-01	2.0519E-02	9.14	294.26	28.75	0.46	10,000.00	Outdoor Bond Tank	
EQUI119, EQUI120, IA	STRU49	PM-10	24-hr	1		POINTHOR	495,181.890	4,979,232.430	256.89	8.3971E-03	1.0580E-03	3.05	294.26	0.32	0.30	50.00	Machine Shop Electrical	
STRU21-25	STRUA	PM-10	24-hr	1		POINT	494,925.300	4,979,295.300	257.14	5.6593E-02	7.1303E-03	12.19	300.00	19.76	1.83	110,000.00	Dust Collector A	
STRU6,7,8,9,17,18,19,20, 41,42,48	STRUB	PM-10	24-hr	1		POINT	494,983.800	4,979,295.300	257.14	1.4376E+00	1.8113E-01	12.19	300.00	19.76	1.83	110,000.00	Dust Collector B	
EQUI54, EQUI55, EQUI56, EQUI81, EQUI82, EQUI83, EQUI72, EQUI1105, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI91, EQUI115	STRU12	PM-2.5	24-hr	1		POINT	495,017.020	4,979,347.430	259.24	1.6457E-01	2.0735E-02	10.67	299.82	23.00	0.91	32,000.00	Pallet Line Sand Handling/Shakeout	
EQUI63, EQUI104, EQUI64, EQUI71, EQUI67, EQUI106, EQUI107, EQUI108, EQUI116, EQUI103	STRU13	PM-2.5	24-hr	1		POINT	494,939.680	4,979,347.930	259.67	1.7974E-01	2.2646E-02	21.34	295.37	14.13	0.91	34,950.00	Flask Line Sand Handling/Shakeout	
EQUI36, EQUI59,	STRU35	PM-2.5	24-hr	1		POINT	495,160.010	4,979,309.770	257.18	1.0496E-02	1.3224E-03	9.14	299.82	43.12	0.46	15,000.00	Finishing Heater	
EQUI110	STRU40	PM-2.5	24-hr	1		POINT	495,013.970	4,979,349.460	259.38	5.7479E-02	7.2419E-03	9.14	294.26	28.75	0.46	10,000.00	Outdoor Bond Tank	
EQUI119, EQUI120, IA	STRU49	PM-2.5	24-hr	1		POINTHOR	495,181.890	4,979,232.430	256.89	8.3971E-03	1.0580E-03	3.05	294.26	0.32	0.30	50.00	Machine Shop Electrical	
STRU21-25	STRUA	PM-2.5	24-hr	1		POINT	494,925.300	4,979,295.300	257.14	3.3634E-02	4.2376E-03	12.19	300.00	19.76	1.83	110,000.00	Dust Collector A	
STRU6,7,8,9,17,18,19,20, 41,42,48	STRUB	PM-2.5	24-hr	1		POINT	494,983.800	4,979,295.300	257.14	1.0077E+00	1.2696E-01	12.19	300.00	19.76	1.83	110,000.00	Dust Collector B	
EQUI54, EQUI55, EQUI56, EQUI81, EQUI82, EQUI83, EQUI72, EQUI1105, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI91, EQUI115	STRU12	PM-2.5	Annual	1		POINT	495,017.020	4,979,347.430	259.24	1.6457E-01	2.0735E-02	10.67	299.82	23.00	0.91	32,000.00	Pallet Line Sand Handling/Shakeout	
EQUI63, EQUI104, EQUI64, EQUI71, EQUI67, EQUI106, EQUI107, EQUI108, EQUI116, EQUI103	STRU13	PM-2.5	Annual	1		POINT	494,939.680	4,979,347.930	259.67	1.7974E-01	2.2646E-02	21.34	295.37	14.13	0.91	34,950.00	Flask Line Sand Handling/Shakeout	
EQUI36, EQUI59,	STRU35	PM-2.5	Annual	1		POINT	495,160.010	4,979,309.770	257.18	8.9668E-03	1.1297E-03	9.14	299.82	43.12	0.46	15,000.00	Finishing Heater	
EQUI110	STRU40	PM-2.5	Annual	1		POINT	495,013.970	4,979,349.460	259.38	5.7479E-02	7.2419E-03	9.14	294.26	28.75	0.46	10,000.00	Outdoor Bond Tank	
EQUI119, EQUI120, IA	STRU49	PM-2.5	Annual	1		POINTHOR	495,181.890	4,979,232.430	256.89	8.3971E-03	1.0580E-03	3.05	294.26	0.32	0.30	50.00	Machine Shop Electrical	
STRU21-25	STRUA	PM-2.5	Annual	1		POINT	494,925.300	4,979,295.300	257.14	3.0954E-02	3.9000E-03	12.19	300.00	19.76	1.83	110,000.00	Dust Collector A	
STRU6,7,8,9,17,18,19,20, 41,42,48	STRUB	PM-2.5	Annual	1		POINT	494,983.800	4,979,295.300	257.14	8.9356E-01	1.1258E-01	12.19	300.00	19.76	1.83	110,000.00	Dust Collector B	
EQUI54, EQUI55, EQUI56, EQUI81, EQUI82, EQUI83, EQUI72, EQUI1105, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI91, EQUI115	STRU12	Lead	Monthly	1		POINT	495,017.020	4,979,347.430	259.24	3.9366E-05	4.9598E-06	10.67	299.82	23.00	0.91	32,000.00	Pallet Line Sand Handling/Shakeout	
EQUI63, EQUI104, EQUI64, EQUI71, EQUI67, EQUI106, EQUI107, EQUI108, EQUI116, EQUI103	STRU13	Lead	Monthly	1		POINT	494,939.680	4,979,347.930	259.67	1.3122E-05	1.6533E-06	21.34	295.37	14.13	0.91	34,950.00	Flask Line Sand Handling/Shakeout	
EQUI36, EQUI59,	STRU35	Lead	Monthly	1		POINT	495,160.010	4,979,309.770	257.18	1.4394E-05	1.8135E-06	9.14	299.82	43.12	0.46	15,000.00	Finishing Heater	
EQUI110	STRU40	Lead	Monthly	1		POINT	495,013.970	4,979,349.460	259.38	0.0000E+00	0.0000E+00	9.14	294.26	28.75	0.46	10,000.00	Outdoor Bond Tank	
EQUI119, EQUI120, IA	STRU49	Lead	Monthly	1		POINTHOR	495,181.890	4,979,232.430	256.89	6.1392E-06	7.7349E-07	3.05	294.26	0.32	0.30	50.00	Machine Shop Electrical	
STRU21-25	STRUA	Lead	Monthly	1		POINT	494,925.300	4,979,295.300	257.14	3.3026E-05	4.1610E-06	12.19	300.00	19.76	1.83	110,000.00	Dust Collector A	
STRU6,7,8,9,17,18,19,20, 41,42,48	STRUB	Lead	Monthly	1		POINT	494,983.800	4,979,295.300	257.14	7.0641E-03	8.9002E-04	12.19	300.00	19.76	1.83	110,000.00	Dust Collector B	

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-02

Air Quality Dispersion Modeling (AQDM) protocol spreadsheet

(Previously AQDMPS-01)

Doc Type: Air Dispersion Modeling

Note: Permit applicants may create their own spreadsheet tabs.

AQ Facility ID number:	12300088
Facility name:	Northen Iron and Machine
Facility address:	867 Forest St N, St Paul, MN 55106
Facility contact:	Tierney Grutza

Model Input Key

Parameters	Units	Description
Permit ID		ID given in Permit or contact MPCA permit engineer
AERMOD ID		3-character facility ID plus AREA source ID used in Modeling (up to 8 characters), e.g. FACFS001
Pollutant		Criteria pollutant modeled, PM2.5, PM10, SO2, NO2, CO, Pb, O3
Averaging time		Modeling Period for pollutant, 1-HR, 24-HR, Annual, etc.
Operating scenario	[#]	A number indicating the operating condition, described in the Emission Calculations tab, for which the emission rate will be modeled.
Scalar/Variable emissions_type		By Season (SEASON); By Month (MONTH); By Hour-of-Day (HROFDY); By Wind Speed (WSPEED); By Season/Hour (SEASHR); By Season/Hour/Day (SHRDOW); By Season/Hour/Seven Days (SHRDOW7); By Month/Hour/Day (MHRDOW); By Month/Hour/Seven Days (MHRDOW7); By Hour/Seven Days (HRDOW7); By Hour/Day (HRDOW)
X1 =	[m]	X coordinate of source location [m] Enter here the X coordinate for the vertex of the area source that occurs in the southwest quadrant of the source.
Y1 =	[m]	Y coordinate of source location [m] Enter here the Y coordinate for the vertex of the area source that occurs in the southwest quadrant of the source.
Base_Elev =	[m]	Source base elevation above mean sea level
Emission_Rate =	[g/s/m2]	Emission rate (g/s for POINT, POINTCAP, POINTHOR, and VOLUME; g/s/m^2 for AREA, AREAPOLY, AREACIRC, and OPENPIT)
Height =	[m]	Release height above ground
Length_X =	[m]	X side length of the AREA
Length_Y =	[m]	Y side length of the AREA
Rotation angle	[deg]	
SigmaZ =	[m]	Initial sigma Z (optional for all AREA)
Num_Coords =		Number of coordinate pairs (POINT = 1, VOLUME = 1, OPENPIT = 1, AREA = 1, AREA_CIRC = 1, AREA_POLY >= 3)
Desc =		Optional description
SO EMISFACT Description		Scalar/Variable emissions description

Permit ID	AERMOD ID	Pollutant	Averaging time	Operating scenario	Scalar/Variable emissions_type	X1 [m]	Y1 [m]	Base_Elev [m]	Emission_Rate ($g/sec/m^2$)	Emission_Rate ($lb/hr/ft^2$)	Height [m]	Length_X [m]	Length_Y [m]	Rotation_Angle [deg]	sigma z [m]	Description	SO EMISFACT Description
FS001	FACCONCWE	PM10	24-hr	2		483,070.730	5,247,239.030	469.24	1		0	200	500	0		parking lot	
FS002	FACOXPILE	PM2.5	24-hr	1	WSPEED	483,070.730	5,247,239.030	469.24	0.00000536		0	50	100	0		talings basin	WSPEED will be used to represent emission rates as varied by wind speed in 5 default categories (A-E)

Permit ID	AERMOD ID	Pollutant	Averaging time	Operating scenario #	Scalar/Variable emissions_type	X1 [m]	Y1 [m]	Base_Elev [m]	Emission_Rate ($g/sec/m^2$)	Emission_Rate ($lb/hr/ft^2$)	Height [m]	Length_X [m]	Length_Y [m]	Rotation_Angle [deg]	sigma z [m]	Description	SO EMISFACT Description
FUGI2K	FUGI2K	PM-10	24-hr	1		495,099.360	4,979,253.070	257.26	3.11E-06	2.29E-06	2.55	9	9	-28	2.37	Paved Haul Road	
FUGI2K	FUGI2K	PM-2.5	24-hr	1		495,099.360	4,979,253.070	257.26	7.07E-07	5.21E-07	2.55	9	9	-28	2.37	Paved Haul Road	
FUGI2K	FUGI2K	PM-2.5	Annual	1		495,099.360	4,979,253.070	257.26	7.07E-07	5.21E-07	2.55	9	9	-28	2.37	Paved Haul Road	

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-02

Air Quality Dispersion Modeling (AQDM) protocol spreadsheet

(Previously AQDMPS-01)

Doc Type: Air Dispersion Modeling

Note: Permit applicants may create their own spreadsheet tabs.

AQ Facility ID number:	12300088
Facility name:	Northern Iron and Machine
Facility address:	867 Forest St N, St Paul, MN 55106
Facility contact:	Tierney Grutza

Model Input Key

Parameters	Units	Description
Permit ID		ID given in Permit or contact MPCA permit engineer
AERMOD ID		3-character facility ID plus VOLUME source ID used in Modeling (up to 8 characters), e.g. FACFS001
Pollutant		Criteria pollutant modeled, PM2.5, PM10, SO2, NO2, CO, Pb, O3
Averaging time		Modeling Period for pollutant, 1-HR, 24-HR, Annual, etc.
Operating scenario	[#]	A number indicating the operating condition, described in the Emission Calculations tab, for which the emission rate will be modeled.
Scalar/Variable emissions_type		By Season (SEASON); By Month (MONTH); By Hour-of-Day (HROFDY); By Wind Speed (WSPEED); By Season/Hour (SEASHR); By Season/Hour/Day (SHRDOW); By Season/Hour/Seven Days (SHRDOW7); By Month/Hour/Day (MHRDOW); By Month/Hour/Seven Days (MHRDOW7); By Hour/Seven Days (HRDOW7); By Hour/Day (HRDOW)
X1 =	[m]	X coordinate of source location [m]
Y1 =	[m]	Y coordinate of source location [m]
Base_Elev =	[m]	Source base elevation above mean sea level
Emission_Rate =	[g/s]	Emission rate (g/s for POINT, POINTCAP, POINTHOR, and VOLUME; g/s/m^2 for AREA, AREAPOLY, AREACIRC, and OPENPIT)
Height =	[m]	Release height above ground
SigmaY =	[m]	Initial sigma Y (VOLUME only)
SigmaZ =	[m]	Initial sigma Z (all AREA and VOLUME only, optional for all AREA)
Length_X =	[m]	X side length (OPEN PIT, AREA and VOLUME only, optional for VOLUME, will be used to calculate SigmaY)
Desc =		source description
SO EMISFACT Description		Scalar/Variable emissions description

						Easting	Northing					Lateral dimension	Vertical dimension			
Permit	AERMOD	Pollutant	Averaging time	Operating scenario	Scalar/Variable emissions_type	X1	Y1	Base_Elev	Emission_Rate	Emission_Rate	Height	SigmaY	SigmaZ	Length_X		
ID	ID					[m]	[m]	[m]	(lb/hr)	(g/sec)	[m]	[m]	[m]	[m]	Description	SO EMISFACT Description
FS002	FACCONCWE	$PM_{2.5}$	24-hr	2	SHRDOW	483,070.730	5,247,239.030	469.24			5	0.2	0.47		haul road	SHRDOW will be used to represent traffic occuring from 6AM to 10AM and 4PM to 6PM Monday-Friday year round
FS003	FACSPACEHT	NO_2	24-hr	1		483,070.730	5,247,239.030	469.24			5	15.2	4.65		space heaters	

						Easting	Northing					Lateral dimension	Vertical dimension			
Permit	AERMOD	Pollutant	Averaging time	Operating scenario	Scalar/Variable emissions_type	X1	Y1	Base_Elev	Emission_Rate	Emission_Rate	Height	SigmaY	SigmaZ	Length_X		
ID	ID					[m]	[m]	[m]	(lb/hr)	(g/sec)	[m]	[m]	[m]	[m]	Description	SO EMISFACT Description
FUGI1A	FUGI1A	PM-10	24-hr	1		495,004.132	4,979,276.760	257.26	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1B	FUGI1B	PM-10	24-hr	1		494,995.235	4,979,278.120	257.26	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1C	FUGI1C	PM-10	24-hr	1		494,986.339	4,979,279.480	257.25	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1D	FUGI1D	PM-10	24-hr	1		494,977.442	4,979,280.840	257.25	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1E	FUGI1E	PM-10	24-hr	1		494,968.546	4,979,282.200	257.25	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1F	FUGI1F	PM-10	24-hr	1		494,959.649	4,979,283.560	257.28	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1G	FUGI1G	PM-10	24-hr	1		494,950.753	4,979,284.930	257.34	6.57E-03	8.28E-04	2.55	4.19	2.37		Unpaved Haul Road	
FUGI2A	FUGI2A	PM-10	24-hr	1		495,022.090	4,979,276.510	257.26	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2B	FUGI2B	PM-10	24-hr	1		495,031.090	4,979,276.450	257.24	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2C	FUGI2C	PM-10	24-hr	1		495,040.090	4,979,276.400	257.25	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2D	FUGI2D	PM-10	24-hr	1		495,049.089	4,979,276.340	257.27	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2E	FUGI2E	PM-10	24-hr	1		495,058.089	4,979,276.290	257.29	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2F	FUGI2F	PM-10	24-hr	1		495,067.089	4,979,276.230	257.31	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2G	FUGI2G	PM-10	24-hr	1		495,076.089	4,979,276.180	257.32	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2H	FUGI2H	PM-10	24-hr	1		495,085.089	4,979,276.120	257.33	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2I	FUGI2I	PM-10	24-hr	1		495,092.873	4,979,274.050	257.35	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI2J	FUGI2J	PM-10	24-hr	1		495,097.134	4,979,266.120	257.39	2.00E-03	2.52E-04	2.55	4.19	2.37		Paved Haul Road	
FUGI1A	FUGI1A	PM-2.5	24-hr	1		495,004.132	4,979,276.760	257.26	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1B	FUGI1B	PM-2.5	24-hr	1		494,995.235	4,979,278.120	257.26	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1C	FUGI1C	PM-2.5	24-hr	1		494,986.339	4,979,279.480	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1D	FUGI1D	PM-2.5	24-hr	1		494,977.442	4,979,280.840	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1E	FUGI1E	PM-2.5	24-hr	1		494,968.546	4,979,282.200	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1F	FUGI1F	PM-2.5	24-hr	1		494,959.649	4,979,283.560	257.28	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1G	FUGI1G	PM-2.5	24-hr	1		494,950.753	4,979,284.930	257.34	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI2A	FUGI2A	PM-2.5	24-hr	1		495,022.090	4,979,276.510	257.26	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2B	FUGI2B	PM-2.5	24-hr	1		495,031.090	4,979,276.450	257.24	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2C	FUGI2C	PM-2.5	24-hr	1		495,040.090	4,979,276.400	257.25	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2D	FUGI2D	PM-2.5	24-hr	1		495,049.089	4,979,276.340	257.27	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2E	FUGI2E	PM-2.5	24-hr	1		495,058.089	4,979,276.290	257.29	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2F	FUGI2F	PM-2.5	24-hr	1		495,067.089	4,979,276.230	257.31	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2G	FUGI2G	PM-2.5	24-hr	1		495,076.089	4,979,276.180	257.32	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2H	FUGI2H	PM-2.5	24-hr	1		495,085.089	4,979,276.120	257.33	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2I	FUGI2I	PM-2.5	24-hr	1		495,092.873	4,979,274.050	257.35	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2J	FUGI2J	PM-2.5	24-hr	1		495,097.134	4,979,266.120	257.39	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI1A	FUGI1A	PM-2.5	Annual	1		495,004.132	4,979,276.760	257.26	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1B	FUGI1B	PM-2.5	Annual	1		494,995.235	4,979,278.120	257.26	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1C	FUGI1C	PM-2.5	Annual	1		494,986.339	4,979,279.480	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1D	FUGI1D	PM-2.5	Annual	1		494,977.442	4,979,280.840	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1E	FUGI1E	PM-2.5	Annual	1		494,968.546	4,979,282.200	257.25	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1F	FUGI1F	PM-2.5	Annual	1		494,959.649	4,979,283.560	257.28	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI1G	FUGI1G	PM-2.5	Annual	1		494,950.753	4,979,284.930	257.34	6.57E-04	8.28E-05	2.55	4.19	2.37		Unpaved Haul Road	
FUGI2A	FUGI2A	PM-2.5	Annual	1		495,022.090	4,979,276.510	257.26	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2B	FUGI2B	PM-2.5	Annual	1		495,031.090	4,979,276.450	257.24	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2C	FUGI2C	PM-2.5	Annual	1		495,040.090	4,979,276.400	257.25	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2D	FUGI2D	PM-2.5	Annual	1		495,049.089	4,979,276.340	257.27	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2E	FUGI2E	PM-2.5	Annual	1		495,058.089	4,979,276.290	257.29	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2F	FUGI2F	PM-2.5	Annual	1		495,067.089	4,979,276.230	257.31	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2G	FUGI2G	PM-2.5	Annual	1		495,076.089	4,979,276.180	257.32	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2H	FUGI2H	PM-2.5	Annual	1		495,085.089	4,979,276.120	257.33	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2I	FUGI2I	PM-2.5	Annual	1		495,092.873	4,979,274.050	257.35	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	
FUGI2J	FUGI2J	PM-2.5	Annual	1		495,097.134	4,979,266.120	257.39	4.55E-04	5.73E-05	2.55	4.19	2.37		Paved Haul Road	

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-02

Air Quality Dispersion Modeling (AQDM) protocol spreadsheet

(Previously AQDMPS-01)

Doc Type: Air Dispersion Modeling

Note: Permit applicants may create their own spreadsheet tabs.

AQ Facility ID number:	12300088
Facility name:	Northen Iron and Machine
Facility address:	867 Forest St N, St Paul, MN 55106
Facility contact:	Tierney Grutza

Permit ID	AERMOD ID	Emission unit	Pollutant	Operating scenario #	Operating scenario Description	Description	Throughput	Throughput units	Emission factor	Emission factor units	Emission factors references/Assumptions/Equations
SV001	FACSV001	EU001	NO_2	1	running 24 hours / 7days	Emergency Power Generator Concentrator - Diesel			0.01	lb/hp-hr	1,200 kW capacity provided by vendor x 1.341 hp/kW = 1,609 hp lb/hp-hr emission factors from AP-42 'Large Stationary Diesel And All Stationary Dual-fuel Engines' (10/96)Table 3.4.1 SO2: 0.00809 x S lb/hp-hr; Assume diesel fuel sulfur content (S) of 0.05% = 4.045E-4 lb SO2/hp-hr
SV001	FACSV001	EU002	NO_2	2	testing scenario: run for 1-hr between noon and 4 pm.	Emergency Power Generator Concentrator - Diesel			0.01	lb/hp-hr	1,200 kW capacity provided by vendor x 1.341 hp/kW = 1,609 hp lb/hp-hr emission factors from AP-42 'Large Stationary Diesel And All Stationary Dual-fuel Engines' (10/96)Table 3.4.1 SO2: 0.00809 x S lb/hp-hr; Assume diesel fuel sulfur content (S) of 0.05% = 4.045E-4 lb SO2/hp-hr

Emission Calculations Table

Permit ID	AERMOD ID	Emission unit	Pollutant	Operating scenario #	Operating scenario Description	Description	Throughput	Throughput units	Emission factor	Emission factor units	Emission factors references/Assumptions/Equations
STRU6	STRU6	EQUI!, EQUI2	PM10, PM2.5, Lead	1		Scrap Preheat Ovens					See Scrap Preheating in "Melting & Refining" worksheet and EQUI1 and EQUI2 emissions from "Combustion Emissions" worksheet.
STRU7, STRU8, STRU9, STRU48	STRU7, STRU8, STRU9, STRU49	EQUI3, EQUI4, EQUI5	PM10, PM2.5, Lead	1		Induction Furnaces					See Metal Melting in "Melting & Refining" worksheet.
STRU41, STRU42	STRU41, STRU43	EQUI39	PM10, PM2.5, Lead	1		Inoculation					See Inoculation in "Melting & Refining" worksheet.
STRU17, STRU18, STRU19, STRU20, FUGI34c, FUGI34d	STRU17, STRU18, STRU19, STRU20, FUGI34c, FUGI34d	EQUI12	PM10, PM2.5, Lead	1		Disa Line Pouring & Cooling					See Disa Line in "Pouring & Cooling" worksheet.
STRU21, STRU22, STRU23, STRU24, STRU25, FUGI34a, FUGI34b	STRU21, STRU22, STRU23, STRU24, STRU25, FUGI34a, FUGI34b	EQUI13	PM10, PM2.5, Lead	1		Flask Line Pouring & Cooling					See Flask Line in "Pouring & Cooling" worksheet.
FUGI34f	FUGI34f	EQUI58, EQUI16, EQUI51	PM10, PM2.5, Lead	1		Shot Blast Booths					See "Fugitives" tab
FUGI34f	FUGI34f	EQUI18, EQUI20	PM10, PM2.5, Lead	1		Metal finishing operations					See "Fugitives" tab
FUGI34g	FUGI34g	EQUI17, EQUI30, EQUI41, EQUI42	PM10, PM2.5, Lead	1		Metal finishing operations					See "Fugitives" tab

Permit ID	AERMOD ID	Emission unit	Pollutant	Operating scenario #	Operating scenario Description	Description	Throughput	Throughput units	Emission factor	Emission factor units	Emission factors references/Assumptions/Equations
FUGI34h	FUGI34h	EQUI23, EQUI117, EQUI24, EQUI28, EQUI29, EQUI100	PM10, PM2.5, Lead	1		Metal finishing operations					See "Fugitives" tab
FUGI34h	FUGI34h	EQUI118	PM10, PM2.5, Lead	1		Double Disc Sander					See "Fugitives" tab
STRU49	STRU49	EQUI119	PM10, PM2.5, Lead	1		Shot Blast Machine					See Machine Shop in "Metal Finishing" worksheet.
STRU12	STRU12	EQUI81, EQUI82, EQUI83	PM10, PM2.5, Lead	1		DISA Line Shakeout					See "Shakeout" worksheet.
FUGI34e	FUGI34e	EQUI80	PM10, PM2.5, Lead	1		DISA Line Shakeout					See "Shakeout" worksheet.
FUGI34f	FUGI34f	EQUI84	PM10, PM2.5, Lead	1		DISA Line Shakeout					See "Shakeout" worksheet.
STRU13	STRU13	EQUI63	PM10, PM2.5, Lead	1		Unit 10 Shakeout					See "Shakeout" worksheet.
FUGI34b	FUGI34b	EQUI63, EQUI65, EQUI66	PM10, PM2.5, Lead	1		Unit 10, 11, and 12 Shakeout fugitives					See "Shakeout" worksheet.
FUGI34c	FUGI34c	EQUI52, EQUI53	PM10, PM2.5	1		Core Machines					See "Core Making" worksheet.
FUGI34d, FUGI34e, STRU12, STRU40	FUGI34d, FUGI34e, STRU12, STRU40	EQUI96, EQUI72, EQUI73, EQUI74, EQUI95, EQUI75, EQUI102, EQUI97, EQUI78, EQUI105, EQUI110, EQUI79, EQUI76, EQUI77, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI91, EQUI115	PM10, PM2.5	1		DISA Line Sand Handling					See DISA Line in "Sand Handling" worksheet.

Permit ID	AERMOD ID	Emission unit	Pollutant	Operating scenario #	Operating scenario Description	Description	Throughput	Throughput units	Emission factor	Emission factor units	Emission factors references/Assumptions/Equations
FUGI34a, FUGI34b, FUGI34c, STRU13	FUGI34a, FUGI34b, FUGI34c, STRU14	EQUI104, EQUI92, EQUI94, EQUI98, EQUI93, EQUI60, EQUI109, EQUI61, EQUI62, EQUI64, EQUI69, EQUI70, EQUI68, EQUI71, EQUI67, EQUI106, EQUI107, EQUI108, EQUI116, EQUI103	PM10, PM2.5	1		Flask Line Sand Handling					See Flask Line in "Sand Handling" worksheet.
FUGI34d	FUGI34d	EQUI111, EQUI112, EQUI113	PM10, PM2.5	1		Core Making Sand Handling					See Core Making in "Sand Handling" worksheet.
FUGI34c	FUGI34c	EQUI9	PM10, PM2.5, Lead	1		Core Tunnel Oven					See Core Tunnel Oven in "Combustion Emissions" worksheet.
STRU35	STRU35	EQUI36, EQUI59	PM10, PM2.5, Lead	1		Heat Treat Oven and Annealing Furnace C					See "Combustion Emissions" worksheet.
FUGI34d	FUGI34d	EQUI46	PM10, PM2.5, Lead	1		East MUA					See "Combustion Emissions" worksheet.
FUGI34b	FUGI34b	EQUI47	PM10, PM2.5, Lead	1		West MUA					See "Combustion Emissions" worksheet.
FUGI34a	FUGI34a	EQUI48, EQUI49	PM10, PM2.5, Lead	1		North MUA					See "Combustion Emissions" worksheet.
FUGI34e	FUGI34e	EQUI114	PM10, PM2.5, Lead	1		Furnace Basement MUA					See "Combustion Emissions" worksheet.
FUGI34h	FUGI34h	EQUI50	PM10, PM2.5, Lead	1		Finishing Heater					See "Combustion Emissions" worksheet.
STRU15	STRU15	EQUI55, EQUI54, EQUI56	PM10, PM2.5, Lead	1		East CR16, West CR16, CR-22					See "Combustion Emissions" worksheet.
STRU49	STRU49	EQUI120	PM10, PM2.5, Lead	1		Machine Shop MUA					See "Combustion Emissions" worksheet.
FUGI1	FUGI1		PM10, PM2.5	1		Unpaved Haul Road					See "Haul Roads" worksheet.
FUGI2	FUGI2		PM10, PM2.5	1		Paved Haul Road					See "Haul Roads" worksheet.
FUGI34f	FUGI34f	IA	PM10, PM2.5	1		Insignificant Activities					See "Insignificant Activities" worksheet

Previously modeled STRUs to be routed to new dust collector - STRUA

Permit ID	Pollutant	Averaging Time	Emission_Rate [lb/hr]	Emission_Rate [g/sec]	Description	Associated EQUI
STRU21	PM-10	24-hr	0.0331821	0.004180685	Flask Line Pouring and Cooling	EQUI13
STRU22B	PM-10	24-hr	6.52E-01	0.08220971	Flask Line Pouring and Cooling	EQUI13
STRU23A	PM-10	24-hr	5.64E-02	0.007109504	Flask Line Pouring and Cooling	EQUI13
STRU24	PM-10	24-hr	0.0331821	0.004180685	Flask Line Pouring and Cooling	EQUI13
STRU25	PM-10	24-hr	0.0331821	0.004180685	Flask Line Pouring and Cooling	EQUI13
STRU21	PM-2.5	24-hr	0.0242991	0.003061497	Flask Line Pouring and Cooling	EQUI13
STRU22B	PM-2.5	24-hr	0.372804471	0.046970451	Flask Line Pouring and Cooling	EQUI13
STRU23A	PM-2.5	24-hr	0.034778135	0.004381773	Flask Line Pouring and Cooling	EQUI13
STRU24	PM-2.5	24-hr	0.0242991	0.003061497	Flask Line Pouring and Cooling	EQUI13
STRU25	PM-2.5	24-hr	0.0242991	0.003061497	Flask Line Pouring and Cooling	EQUI13
STRU21	PM-2.5	Annual	0.016643219	0.002096916	Flask Line Pouring and Cooling	EQUI13
STRU22B	PM-2.5	Annual	0.365148591	0.04600587	Flask Line Pouring and Cooling	EQUI13
STRU23A	PM-2.5	Annual	0.027122254	0.003417192	Flask Line Pouring and Cooling	EQUI13
STRU24	PM-2.5	Annual	0.016643219	0.002096916	Flask Line Pouring and Cooling	EQUI13
STRU25	PM-2.5	Annual	0.016643219	0.002096916	Flask Line Pouring and Cooling	EQUI13
STRU21	Lead	Monthly	8.416800E-05	1.06045E-05	Flask Line Pouring and Cooling	EQUI13
STRU22B	Lead	Monthly	1.348953E-04	1.69958E-05	Flask Line Pouring and Cooling	EQUI13
STRU23A	Lead	Monthly	8.439447E-05	1.0633E-05	Flask Line Pouring and Cooling	EQUI13
STRU24	Lead	Monthly	8.416800E-05	1.06045E-05	Flask Line Pouring and Cooling	EQUI13
STRU25	Lead	Monthly	8.416800E-05	1.06045E-05	Flask Line Pouring and Cooling	EQUI13

Permit ID	AERMOD ID	Pollutant	Averaging Time	Emission_Rate [lb/hr]	Emission_Rate [g/sec]	Description	Associated EQUI
STRU6	STRU6	PM-10	24-hr	0.169	0.021317878	Scrap Preheat Ovens	EQUI1, EQUI2
STRU7	STRU7	PM-10	24-hr	0.070875	0.008929696	Electric Induction Furnace 1	EQUI3, EQUI4, EQUI5
STRU8	STRU8	PM-10	24-hr	0.070875	0.008929696	Electric Induction Furnace 2	EQUI3, EQUI4, EQUI5
STRU9	STRU9	PM-10	24-hr	0.070875	0.008929696	Electric Induction Furnace 3	EQUI3, EQUI4, EQUI5
STRU17	STRU17	PM-10	24-hr	0.041477625	0.005225857	Pallet Line Pouring and Cooling	EQUI12
STRU18	STRU18	PM-10	24-hr	0.041477625	0.005225857	Pallet Line Pouring and Cooling	EQUI12
STRU19C	STRU19C	PM-10	24-hr	9.61E-02	0.012111255	Pallet Line Pouring and Cooling	EQUI12
STRU20	STRU20	PM-10	24-hr	0.041477625	0.005225857	Pallet Line Pouring and Cooling	EQUI12
STRU41E	STRU41E	PM-10	24-hr	0.311783315	0.039282262	Inoculation	EQUI39
STRU42D	STRU42D	PM-10	24-hr	2.84E-01	0.035803198	Inoculation	EQUI39
STRU48FG	STRU48FG	PM-10	24-hr	2.39E-01	0.030145261	Melt Deck	EQUI3, EQUI4, EQUI5
STRU6	STRU6	PM-2.5	24-hr	0.132	0.016668767	Scrap Preheat Ovens	EQUI1
STRU7	STRU7	PM-2.5	24-hr	0.070875	0.008929696	Electric Induction Furnace 1	EQUI3, EQUI4, EQUI5
STRU8	STRU8	PM-2.5	24-hr	0.070875	0.008929696	Electric Induction Furnace 2	EQUI3, EQUI4, EQUI5
STRU9	STRU9	PM-2.5	24-hr	0.070875	0.008929696	Electric Induction Furnace 3	EQUI3, EQUI4, EQUI5
STRU17	STRU17	PM-2.5	24-hr	0.030373875	0.003826871	Pallet Line Pouring and Cooling	EQUI12
STRU18	STRU18	PM-2.5	24-hr	0.030373875	0.003826871	Pallet Line Pouring and Cooling	EQUI12
STRU19C	STRU19C	PM-2.5	24-hr	0.044337644	0.005586197	Pallet Line Pouring and Cooling	EQUI12
STRU20	STRU20	PM-2.5	24-hr	0.030373875	0.003826871	Pallet Line Pouring and Cooling	EQUI12
STRU41E	STRU41E	PM-2.5	24-hr	0.206713538	0.026044291	Inoculation	EQUI39
STRU42D	STRU42D	PM-2.5	24-hr	0.143145001	0.018035152	Inoculation	EQUI39
STRU48FG	STRU48FG	PM-2.5	24-hr	0.177449434	0.022357243	Melt Deck	EQUI3, EQUI4, EQUI5
STRU6	STRU6	PM-2.5	Annual	0.0661500	0.008334383	Scrap Preheat Ovens	EQUI1
STRU7	STRU7	PM-2.5	Annual	0.07087500	0.008929696	Electric Induction Furnace 1	EQUI3, EQUI4, EQUI5
STRU8	STRU8	PM-2.5	Annual	0.07087500	0.008929696	Electric Induction Furnace 2	EQUI3, EQUI4, EQUI5
STRU9	STRU9	PM-2.5	Annual	0.07087500	0.008929696	Electric Induction Furnace 3	EQUI3, EQUI4, EQUI5
STRU17	STRU17	PM-2.5	Annual	0.020804024	0.002621145	Pallet Line Pouring and Cooling	EQUI12
STRU18	STRU18	PM-2.5	Annual	0.020804024	0.002621145	Pallet Line Pouring and Cooling	EQUI12
STRU19C	STRU19C	PM-2.5	Annual	0.034767793	0.00438047	Pallet Line Pouring and Cooling	EQUI12
STRU20	STRU20	PM-2.5	Annual	0.020804024	0.002621145	Pallet Line Pouring and Cooling	EQUI12
STRU41E	STRU41E	PM-2.5	Annual	0.20671354	0.026044291	Inoculation	EQUI39
STRU42D	STRU42D	PM-2.5	Annual	0.143	0.018035152	Inoculation	EQUI39
STRU48FG	STRU48FG	PM-2.5	Annual	0.16775082	0.021135293	Melt Deck	EQUI3, EQUI4, EQUI5
STRU6	STRU6	Lead	Monthly	3.921569E-06	4.94087E-07	Scrap Preheat Ovens	EQUI1
STRU7	STRU7	Lead	Monthly	4.394250E-04	5.53641E-05	Electric Induction Furnace 1	EQUI3, EQUI4, EQUI5
STRU8	STRU8	Lead	Monthly	4.394250E-04	5.53641E-05	Electric Induction Furnace 2	EQUI3, EQUI4, EQUI5
STRU9	STRU9	Lead	Monthly	4.394250E-04	5.53641E-05	Electric Induction Furnace 3	EQUI3, EQUI4, EQUI5
STRU17	STRU17	Lead	Monthly	1.052100E-04	1.32556E-05	Pallet Line Pouring and Cooling	EQUI12
STRU18	STRU18	Lead	Monthly	1.052100E-04	1.32556E-05	Pallet Line Pouring and Cooling	EQUI12
STRU19C	STRU19C	Lead	Monthly	1.052375E-04	1.32591E-05	Pallet Line Pouring and Cooling	EQUI12
STRU20	STRU20	Lead	Monthly	1.052100E-04	1.32556E-05	Pallet Line Pouring and Cooling	EQUI12
STRU41E	STRU41E	Lead	Monthly	2.097943E-03	0.000264324	Inoculation	EQUI39
STRU42D	STRU42D	Lead	Monthly	2.061397E-03	0.00025972	Inoculation	EQUI39
STRU48FG	STRU48FG	Lead	Monthly	1.161709E-03	0.000146366	Melt Deck	EQUI3, EQUI4, EQUI5

Stack ID	Pollutant	Averaging Period	PM Augmentation	Emission Rate (lb/hr)	Emission Rate (g/s)	Airflow (cfm)
STRU12	PM-10	24-hr	85%	0.466	0.058748358	32,000.000
STRU12	PM-2.5	24-hr	30%	0.165	0.020734714	32,000.000
STRU12	PM-2.5	Annual	30%	0.165	0.020734714	32,000.000
STRU13	PM-10	24-hr	85%	0.509	0.064164222	34,950.000
STRU13	PM-2.5	24-hr	30%	0.180	0.022646196	34,950.000
STRU13	PM-2.5	Annual	30%	0.180	0.022646196	34,950.000

Baghouse manufacturer guarantee 0.002 (gr/dscf) Donaldson guarantee has been provided to the MPCA

			Emission_Rate			
Stack ID	Pollutant	Averaging Period	[lb/hr]	[g/sec]	Description	Associated EQUI
STRU35H	PM-10	24-hr	1.23E-02	0.001547166	Finishing Heater	EQUI36, EQUI59
STRU35H	PM-2.5	24-hr	1.049561E-02	0.001322365	Finishing Heater	EQUI36, EQUI59
STRU35H	PM-2.5	Annual	8.97E-03	0.001129746	Finishing Heater	EQUI36, EQUI59
STRU35H	Lead	Monthly	1.439399E-05	1.81353E-06	Finishing Heater	EQUI36, EQUI59

STRU35 is equipped with a Donaldson PowerCore. Emissions control calculated at 93%

Fugitive Releases Vented Through STRUs

Uncaptured Source	AERMOD ID	Pollutant	Averaging time	Emission_Rate (lb/hr)	Emission_Rate (g/sec)	**Vented to Stack ID**
EQUI13, EQUI98, EQUI48, EQUI49	FUGI34a	PM-10	24-hr	3.32E-01	4.18E-02	**STRUA**
	FUGI34a	PM-2.5	24-hr	1.50E-01	1.89E-02	
	FUGI34a	PM-2.5	Annual	1.50E-01	1.89E-02	
	FUGI34a	Lead	Monthly	3.24E-06	4.08E-07	
EQUI13, EQUI63, EQUI65, EQUI66, EQUI92, EQUI94, EQUI93, EQUI60, EQUI61, EQUI47	FUGI34b	PM-10	24-hr	8.85E+00	1.11E+00	
	FUGI34b	PM-2.5	24-hr	4.98E+00	6.27E-01	
	FUGI34b	PM-2.5	Annual	4.98E+00	6.27E-01	
	FUGI34b	Lead	Monthly	7.25E-04	9.13E-05	
EQUI12, EQUI52, EQUI53, EQUI109, EQUI9	FUGI34c	PM-10	24-hr	7.81E-01	9.84E-02	**STRUB**
	FUGI34c	PM-2.5	24-hr	1.99E-01	2.51E-02	
	FUGI34c	PM-2.5	Annual	1.99E-01	2.51E-02	
	FUGI34c	Lead	Monthly	3.92E-07	4.94E-08	
EQUI12, EQUI111, EQUI112, EQUI113, EQUI96, EQUI73, EQUI74, EQUI75, EQUI97, EQUI78, EQUI79, EQUI76, EQUI77, EQUI85, EQUI86, EQUI87, EQUI88, EQUI89, EQUI90, EQUI115, EQUI62, EQUI64, EQUI69, EQUI70, EQUI68, EQUI67, EQUI46	FUGI34d	PM-10	24-hr	3.16E+00	3.98E-01	
	FUGI34d	PM-2.5	24-hr	1.14E+00	1.44E-01	
	FUGI34d	PM-2.5	Annual	1.14E+00	1.44E-01	
	FUGI34d	Lead	Monthly	2.97E-06	3.74E-07	
EQUI80, EQUI81, EQUI82, EQUI83, EQUI95, EQUI102, EQUI114	FUGI34e	PM-10	24-hr	3.55E+00	4.48E-01	
	FUGI34e	PM-2.5	24-hr	2.05E+00	2.59E-01	
	FUGI34e	PM-2.5	Annual	2.05E+00	2.59E-01	
	FUGI34e	Lead	Monthly	5.25E-04	6.62E-05	
EQUI58, EQUI16, EQUI51, EQUI18, EQUI20, EQUI84, IA	FUGI34f	PM-10	24-hr	2.28E+00	2.87E-01	
	FUGI34f	PM-2.5	24-hr	1.37E+00	1.72E-01	
	FUGI34f	PM-2.5	Annual	1.31E+00	1.66E-01	
	FUGI34f	Lead	Monthly	9.84E-03	1.24E-03	
EQUI17, EQUI30, EQUI41, EQUI42	FUGI34g	PM-10	24-hr	1.28E-01	1.61E-02	
	FUGI34g	PM-2.5	24-hr	1.54E-01	1.94E-02	
	FUGI34g	PM-2.5	Annual	6.99E-02	8.81E-03	
	FUGI34g	Lead	Monthly	4.80E-04	6.05E-05	
EQUI23, EQUI117, EQUI24, EQUI28, EQUI29, EQUI100, EQUI50, EQUI118	FUGI34h	PM-10	24-hr	1.33E-01	1.67E-02	**STRU35**
	FUGI34h	PM-2.5	24-hr	1.07E-01	1.35E-02	
	FUGI34h	PM-2.5	Annual	8.55E-02	1.08E-02	
	FUGI34h	Lead	Monthly	2.03E-04	2.56E-05	

Daily Melt Limit:	90	ton/day
Annual Melt Limit:	27000	ton/yr*
Operating Schedule:	Mon-Sun	
Operating Hours:	24	hr/day
Modeled Hours of Operatio	8760	hrs/yr

*Although modeled operations are based on 7 days/week, the annual melt limit based on melting 90 tons/day, 6 day/week, 50 weeks/year

Scrap Preheating

Purchased scrap steel and recycled casting pieces are preheated in an oven before being melted. Combustion emissions for these units are included in Combustion Emissions spreadsheet. Operation bottlenecked by Induction Furnaces. Metal melting limit for the induction furnaces restricts the preheat ovens throughput as well.

EQUI 1 and EQUI 2 are controlled by dust collector (STRUB)

								PM10			PM2.5			
EQUI	**EU**	**Unit Desc**	**Rated Capacity**		**Bottlenecked Capacity**		**Capture (%)**	**Emission Factor (lb/ton metal)**	**Reference**	**24-hr Emission Rate (lb/hr)**	**Emission Factor (lb/ton metal)**	**Reference**	**24-hr Emission Rate (lb/hr)**	**Annual Emission Rate (lb/hr)**
EQUI1	EU002	Scrap Preheat Oven 1	12.5	ton/hr	4.5	ton/hr	100%	0.0188	2023 Stack Test[1]	0.085	0.0147	2023 Stack Test[1]	0.066	
EQUI2	EU002	Scrap Preheat Oven 2	12.5	ton/hr	4.5	ton/hr	100%	0.0188	2023 Stack Test[1]	0.085	0.0147	2023 Stack Test[1]	0.066	
COMG1	GP001	Melting					100%				0.0147	2023 Stack Test		0.066

[1] Emission factors based on 2023 Stack Test Emissions controlled durine test: therefore control efficiency is not used in calculation

[2] Combined annual emissions for EQUI1 and EQUI2 are capped based on the combined sitewide annual melt limit.

Metal Melting

Molten metal is prepared in an electric induction furnace where an electrical current generates a charge that melts preheated scrap. Operation is controlled by dust collector (STRUB)

Limited throughput 39420 tpy. These furnaces are a bottleneck for the entire metal casting operation

										PM10			PM2.5				Lead		
EQUI	**EU**	**Unit Desc**	**Rated Capacity**		**Capture (%)**	**PM Control (%)**	**PM10/PM2.5 control (%)**	**Lead control (%)**	**Emission Factor (lb/ton metal)**	**Reference**	**24-hr Emission Rate (lb/hr)**	**Emission Factor (lb/ton metal)[1]**	**Reference [1]**	**24-hr Emission Rate (lb/hr)**	**Annual Emission Rate (lb/hr)**	**Emission Factor (lb/ton metal)**	**Reference**	**Emission Rate (lb/hr)**
EQUI3	EU003	Electric Induction Furnace 1	1.5	ton/hr	100%	99%	93%	93%	0.9	12, Table 12.	0.0945	0.9	AP-42, Table 12.10-3	0.09		5.58E-03	Note 1	5.86E-04
EQUI4	EU004	Electric Induction Furnace 2	1.5	ton/hr	100%	99%	93%	93%	0.9	12, Table 12.	0.0945	0.9	AP-42, Table 12.10-3	0.09		5.58E-03	Note 1	5.86E-04
EQUI5	EU005	Electric Induction Furnace 3	1.5	ton/hr	100%	99%	93%	93%	0.9	12, Table 12.	0.0945	0.9	AP-42, Table 12.10-3	0.09		5.58E-03	Note 1	5.86E-04
COMG1	GP001	Melting			100%	99%	93%	93%				0.9	AP-42, Table 12.10-3		0.28			

[1] Emission factor from AP-42, Table 12.10-3. Because of the high temperatures involved, assumed high fraction of condensibles, assumed all PM = PM10 = PM2.5

Note 1: CERP Foundry Process Emission Factors:

Baseline Emissions from Automotive

Foundries in Mexico (1999), Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline 1997.pdf)

Operating Schedule:	Mon-Sat	
Operating Hours:	24	hr/day
Modeled Hours of Operatio	8760	hrs/yr

Inoculation

A portion of molten metal undergoes metal treatment, which converts gray iron into ductile iron. Operation is controlled dust collector (STRUB)

											PM10			PM2.5				Lead		
EQUI	**EU**	**Unit Desc**	**Rated Capacity**		**Limited Capacity**		**Capture (%)**	**PM Control (%)**	**PM10/PM2.5 control (%)**	**Lead control (%)**	**Emission Factor (lb/ton metal)**	**Reference ***	**24-hr Emission Rate (lb/hr)**	**Emission Factor (multiplier)**	**Reference ***	**24-hr Emission Rate (lb/hr)**	**Annual Emission Rate (lb/hr)**	**Emission Factor (lb/ton metal)**	**Reference**	**Emission Rate (lb/hr)**
EQUI39	EU028	Inoculation	12.5	ton/hr	4.5	ton/hr	100%	99%	93%	93%	0.4	AP-42, Table 12.10-7	0.1	1	Assume PM2.5 = PM10	0.1260	0.1260	0.013087	Note 1	4.12E-03

* Emission factor from AP-42, Table 12.10-7. Assumed all PM = PM10 = PM2.5. The Emitted to Atmosphere factor is used because it emissions are released into a building, where the enclosure limits emissions, before being routed to the control device. Therefore, it is appropriate to consider reductions due to both (1) fallout of material and (2) control efficiency.

Note 1: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). Individual HAPs were not identified in this document so the lead emission factor is calculated as follows:

(Total HAP emission factor)x(%PB of MHAPtotal). The %PB of MHAPtotal of .% was obtained from CERP Table 5.16 (found at https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf).

Operating Schedule:	Mon-Sun
Operating Hours:	24 hr/day
Modeled Hours of Operation	8760 hrs/yr

Pouring/Cooling

Emissions from pouring/cooling are bottlenecked by what the induction furnaces can melt. EQUI12 is controlled by dust collector (STRUA). EQUI13 is controlled by dust collector (STRUB). VOCs, individual HAPs, and total HAPs limited under COMG7.

Metal Melt Limited Th 27000 TPY Metal

EQUI/COMG	EU/GP	Unit/Group Desc	Rated Capacity		Bottlenecked Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Lead control (%)	PM10				PM2.5					Lead				NOx					SOx				
											Emission Factor (lb/ton metal)	Reference	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Annual Captured Emission Rate (lb/hr)	Annual Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference	Captured Emission Rate (lb/hr)	Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/ton metal)	Reference	lb/hr	Unrestricted tpy	Limited tpy
EQUI12	EU015	Disa Line Pouring & Cooling	5	ton/hr	4.5	ton/hr	100%	99%	93%	93%	0.5267	2023 Stack Test	0.166	0.00	0.3857	2023 Stack Test	0.121	0.00			1.34E-03	2023 Stack Test	4.21E-04	0.00E+00	0.01	WebFIRE	4.50E-02	1.97E-01		0.02	WebFIRE	0.09	0.394	
EQUI13	EU016	Flask Line Pouring & Cooling	10	ton/hr	4.5	ton/hr	100%	99%	93%	93%	0.5267	2023 Stack Test	0.166	0.00	0.3857	2023 Stack Test	0.121	0.00			1.34E-03	2023 Stack Test	4.21E-04	0.00E+00	0.01	WebFIRE	4.50E-02	1.97E-01		0.02	WebFIRE	0.09	0.394	
COMG3	GP003	Pouring/cooling					100%	99%	93%	93%					0.3857	2023 Stack Test			0.083	0.00					0.01	WebFIRE			0.1	0.02	WebFIRE			0.3

CO Emission factor calculated from "Foundry Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976.

Information from article used for calculation

2.5	Liter exhaust/lb metal casting	page 339 of AIGAJ 37:6, 1976
23.40%	Max CO % in exhaust poring/ casting/ cooling	Table 1. page 336 of AIGAJ 37:6, 1976
1350	ppmV CO from pouring/cooling	Table II. Page 343 of AIGAJ 37:6, 1976
230	ppmV CO from Shakeout	Table II. Page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28	g/mol	CO molecular weight
22.4	Liter/mol	Assuming ideal gas molar volume at stp
453.59	g/lb	Conversion Factor

Emission factor for pouring/cooling

1.38E-03 lb CO/ lb metal casting
2.75 lb CO/ ton metal casting

Emission factor for Shakeout

2.35E-04 lb CO/ lb metal casting
4.69E-01 lb CO/ ton metal casting

Operating Schedule: Mon-Sun
Operating Hours: 24 hr/day
Modeled Hours of Operat 8760 hrs/yr

Shot Blast Booths

Booths operate in total enclosures and vent to HE Limited throughput 39420 TPY

EQUI	EU	Unit Desc	Rated Shot Capacity		Site Rated Melt Capacity		Capture	PM Control (%)	PM10/PM2.5 control (%) Manufacturer gaurantee	Controlled By	PM10 Emission Factor (lb/lb shot)	PM10 Reference	PM10 24-hr Emission Rate (lb/hr)	PM2.5 Emission Factor (lb/lb shot)	PM2.5 Reference	PM2.5 24-hr Emission Rate (lb/hr)	PM2.5 Annual Emission Rate (lb/hr)	Lead Emission Factor (lb/ton melt)	Lead Reference	Lead Emission Rate (lb/hr)
EQUI58	EU020	**Drumblast**	64000	lb/hr	4.5	ton/hr	100%	99.97%	99.97%	TREAs 37/21	3.44E-03	Note 1	6.60E-02	1.72E-03	Note 2	3.30E-02	4.64E-03	7.00E-04	Note 3	3.15E-03
EQUI16	EU021	**Tableblast**	32000	lb/hr	4.5	ton/hr	100%	99.97%	99.97%	TREAs 29/19	3.44E-03	Note 1	3.30E-02	1.72E-03	Note 2	1.65E-02	4.64E-03	7.00E-04	Note 3	3.15E-03
EQUI51	na	**Tumblemill**	200	lb/hr	4.5	ton/hr	100%	99.97%	99.97%	TREAs 29/19	3.44E-03	Note 1	2.06E-04	1.72E-03	Note 2	1.03E-04	1.03E-04	7.00E-04	Note 3	3.15E-03

Note 1: The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.
Note 2: PM2.5 conservatively calculated as 50% of PM10 emission factor based on comparison of PM10:PM2.5 emission factors referenced in "Particulate Emission Factors for Blasting Operations and Other Potential Sources" 9/18/1999, NSRP 0552, N1-97-4
Note 3: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to lead emissions.

Finishing Operations

Grinding and Cutting operations occur in certified hoods.
Limited throughput 39420 TPY

EQUI	EU	Unit Desc	Rated Capacity		Capture	PM Control (%)	PM10/PM2.5 control (%) Manufact	Controlled By	PM10 Emission Factor (lb/ton metal)	PM10 Reference[1]	PM10 24-hr Emission Rate (lb/hr)	PM2.5 Emission Factor (lb/ton metal)	PM2.5 Reference[1]	PM2.5 24-hr Emission Rate (lb/hr)	PM2.5 Annual Emission Rate (lb/hr)	Lead Emission Factor (lb/ton metal)	Lead Reference	Lead Emission Rate (lb/hr)
EQUI17	EU029	**South Swing Grinder**	1.00	ton/hr	80%	99.97%	99.97%	TREAs 40/39	0.2	AP-42, Table 12.10-7	0.03	0.2	AP-42, Table 12.10-7	0.03	0.02	0.0003	Note 1	3.00E-04
EQUI18	EU030	**East Cutoff Saw**	0.50	ton/hr	80%	99.97%	99.97%	TREAs 29/19	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	3.00E-05
EQUI20	EU032	**West Cutoff Saw**	0.50	ton/hr	80%	99.97%	99.97%	TREAs 29/19	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	3.00E-05
EQUI23	EU035	**Double Belt Sander**	0.25	ton/hr	80%	99.97%	99.97%	TREAs 13/30	0.2	AP-42, Table 12.10-7	0.01	0.2	AP-42, Table 12.10-7	0.01	0.00	0.0003	Note 1	1.50E-05
EQUI117	EU035	**NE Finishing Grinder**	0.25	ton/hr	80%	99.97%	99.97%	TREAs 13/30	0.2	AP-42, Table 12.10-7	0.01	0.2	AP-42, Table 12.10-7	0.01	0.00	0.0003	Note 1	1.50E-05
EQUI24	EU036	**#5 Bench Grinder**	0.50	ton/hr	80%	99.97%	99.97%	TREAs 43/38	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	3.00E-05
EQUI28	EU040	**NE Chipping Bench**	0.75	ton/hr	80%	99.97%	99.97%	TREAs 43/38	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	4.51E-05
EQUI29	EU041	**SE Chipping Bench**	0.75	ton/hr	80%	99.97%	99.97%	TREAs 43/38	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	4.51E-05
EQUI100	n.a	**SW Chipping Bench**	0.75	ton/hr	80%	99.97%	99.97%	TREAs 43/38	0.2	AP-42, Table 12.10-7	0.02	0.2	AP-42, Table 12.10-7	0.02	0.01	0.0003	Note 1	4.51E-05
EQUI30	EU042	**North Swing Grinder**	1.00	ton/hr	80%	99.97%	99.97%	TREAs 41/42	0.2	AP-42, Table 12.10-7	0.03	0.2	AP-42, Table 12.10-7	0.03	0.02	0.0003	Note 1	6.01E-05
EQUI41	n.a	**Snag Grinder 2**	1.00	ton/hr	80%	99.97%	99.97%	TREAs 22/35	0.2	AP-42, Table 12.10-7	0.03	0.2	AP-42, Table 12.10-7	0.03	0.02	0.0003	Note 1	6.01E-05
EQUI42	n.a	**Snag Grinder 3**	1.00	ton/hr	80%	99.97%	99.97%	TREAs 22/35	0.2	AP-42, Table 12.10-7	0.03	0.2	AP-42, Table 12.10-7	0.03	0.02	0.0003	Note 1	6.01E-05
COMG5	GP005	**Grinding/Cutting Operations****			80%	99.97%	99.97%					0.2	AP-42, Table 12.10-7		0.14			

[1] The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)] The document is included as an attachment to these calculations. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.

Note 1: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to Lead emissions.

Machine Shop

Double disc sander and shot blast machine

EQUI	EU	Unit Desc	Rated Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Controlled By	PM10 Emission Factor (lb/capacity unit)	PM10 Reference *	PM10 24-hr Emission Rate (lb/hr)	PM2.5 Emission Factor (lb/capacity unit)	PM2.5 Reference**	PM2.5 24-hr Emission Rate (lb/hr)	PM2.5 Annual Emission Rate (lb/hr)	Lead Emission Factor (lb/ton metal)	Lead Reference	Lead Emission Rate (lb/hr)
EQUI118		**Double Disc Sander**	0.10	tons/hour	80%	99.97%	99.97%	TREA45	0.16	Note 2	0.00	0.16	Note 2	0.00	0.00	0.0003	Note 3	6.01E-06
									Emission Factor (lb/capacity unit)	Reference *	24-hr Emission Rate (lb/hr)	Emission Factor (lb/capacity unit)	Reference**	24-hr Emission Rate (lb/hr)	Annual Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference	Emission Rate (lb/hr)
EQUI119		**Shot Blast Machine**	40.00	lbs/hour	100%	99.98%	99.98%	TREA44	3.44E-03	Note 1	2.75E-05	3.44E-03	Note 1	2.75E-05	2.75E-05	0.0007	Note 3	5.60E-06

Note 1: The emission factor for PM emissions from abrasive blasting of steel shot was taken from the abrasive blasting template developed by MPCA Small Business Environmental Assistance Program (See the "Blasting charts" tab in this workbook"). The PM10 emission factor is also in this workbook and is derived from the STAPPA/ALAPCO PM10 factors (see reference in workbook). The calculation workbook is found in the following link: https://www.pca.state.mn.us/sites/default/files/p-sbap5-19.xlsm.
Note 2. The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for the units in GP 012 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lbs/ton) * (EPA Fire PM10 Factor of 1.7 lbs/ton)]. PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is claimed.
Note 3: A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force (found at https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf). The calcualtions conservatively assume that total HAP emissions are equal to lead emissions. These grinding and shot blast emissoins factors are listed as controlled or uncontrolled. They have been assumed to be an uncontrolled emission factor, thus primary control is included.

Operating Schedule: Mon-Sun
Operating Hours: 24 hr/dav
Shakeout **Modeled Hours of Operati** 8760 hr/yr

Shakeout for both mold lines are a series of vibrating conveyors that separate the casting from the mold and cores. DISA line shakeout EQUI81 and EQUI83 are controlled by TREA 2. DISA Line shakeout EQUI80, EQUI82, EQUI84 are uncontrolled. Flask line shakeout EQUI63 is controlled by TREA 23.
Flask Line Shakeout EQUI65 and EQUI66 are both uncontrolled. Fugitives from these operations are contained within the building and routed to dust collectors (STRUA and STRUB). Operations are bottlenecked by what the furnaces can melt. VOC, individual HAPs, and total HAPs limited under COMG7.

Metal Melt Permit Limit 39.420 TPY Metal

EQUI/COMG	EU/GP	Unit/Group Desc	Rated Capacity		Bottlenecked Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Lead control (%)	PM10				PM2.5					Lead			
											Emission Factor (lb/ton metal)	Reference	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference	24-hour Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Annual Captured Emission Rate (lb/hr)	Annual Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton metal)	Reference **	Captured Emission Rate (lb/hr)	Fugitive Emission Rate (lb/hr)
		DISA Line										AP 42 Tables 12.10-7, 12.10-8[1,2]				AP 42 Tables 12.10-7, 12.10-8[1,2]								
EQUI80	EU017	#1 Oscillator	5	tonihr	4.5	tonihr	0%	0%	0%	0%	0.4480			2.02	0.26880			1.21		1.21	7.29E-05	CERP Tbl. 6.1		0.0003
EQUI81	EU017	#2 Oscillator	5	tonihr	4.5	tonihr	80%	99%	95%	95%	0.4480		0.08	0.40	0.26880		0.05	0.24	0.05	0.24	7.29E-05	CERP Tbl. 6.1	1.31E-05	0.0001
EQUI82	EU017	#3 Oscillator	5	tonihr	4.5	tonihr	80%	99%	95%	95%	0.4480		0.08	0.40	0.26880		0.05	0.24	0.05	0.24	7.29E-05	CERP Tbl. 6.1	1.31E-05	0.0001
EQUI83	EU017	Didion	5	tonihr	4.5	tonihr	80%	99%	95%	95%	0.4480		0.08	0.40	0.26880		0.05	0.24	0.05	0.24	7.29E-05	CERP Tbl. 6.1	1.31E-05	0.0001
EQUI84	EU017	#5 Oscillator	5	tonihr	4.5	tonihr	0%	0%			0.4480			2.02	0.26880			1.21		1.21	7.29E-05	CERP Tbl. 6.1		0.0003
		Flask Line																						
EQUI63	EU018	Unit 10	10	tonihr	4.5	tonihr	80%	99%	95%	95%	0.7467		0.13	0.67	0.44800		0.08	0.40	0.08	0.40	7.29E-05	CERP Tbl. 6.1	1.31E-05	0.0001
EQUI65	EU018	Unit 11	10	tonihr	4.5	tonihr	0%	0%	0%	0%	0.7467			3.36	0.44800			2.02		2.02	7.29E-05	CERP Tbl. 6.1		0.0003
EQUI66	EU018	Unit 12	10	tonihr	4.5	tonihr	0%	0%	0%	0%	0.7467			3.36	0.44800			2.02		2.02	7.29E-05	CERP Tbl. 6.1		0.0003
COMG4																								

1 Emissions factor source: AP42 table 12.10-7. Emissions factor is for shakeout process as a whole so factor divided be number of components in process (DISA-5; 30^2-3)
2 PM10 and PM2.5 factors based on Shakeout EF multiplied by AP 42 table 12.10-8 shakeout cumulative mass % of total PM (PM10:70%; PM2.5:42%)

AP 42 table 12.10-8 shakeout cumulative mass % of total P	
PM10	PM2.5
70%	42%

AP 42 Table 12.10-7			
Shakeout EF (lb PM/ton grav iron)			
3.2			

DISA Line Shakeout Equipment
5

Flask Line Shakeout Equipment
3

Note 1: CO Emissions

CO Emission factor calculated from "Foundry Air Contaminants from Green Sand Molds", American Industrial Hygiene Association Journal, 37:6, 335-344, 1976.

Information from article used for calculation

2.5	Liter exhaust/lb metal casting	page 339 of AIGAJ 37:6, 1976
23.40%	Max CO % in exhaust poring/ casting/ cooling	Table 1. page 336 of AIGAJ 37:6, 1976
1350	ppmV CO from pouring/cooling	Table II. Page 343 of AIGAJ 37:6, 1976
230	ppmV CO from Shakeout	Table II. Page 343 of AIGAJ 37:6, 1976

Additional Information and Assumptions

28	g/mol	CO molecular weight
22.4	Liter/mol	Assuming ideal gas molar volume at sto
453.59	g/lb	Conversion Factor

Emission factor for pouring/cooling
1.38E-03 lb CO/ lb metal casting
2.75 lb CO/ ton metal casting

Emission factor for Shakeout
2.35E-04 lb CO/ lb metal casting
4.69E-01 lb CO/ ton metal casting

Note 2: POM Breakdown

POM Breakdown*

Pollutant	Emission Factor (lb/ton metal)		
	Pouring	Cooling	Shakeout
1,3-Dimethylnaphthalene	4.33E-06	1.14E-04	1.02E-03
1,4-Dimethylnaphthalene	ND	2.51E-05	4.64E-04
1,6-Dimethylnaphthalene	ND	ND	ND
1,8-Dimethylnaphthalene	ND	5.32E-06	1.06E-03
1-Methylnaphthalene	7.69E-05	9.04E-04	3.41E-03
2,3,5-Trimethylnaphthalene	ND	ND	7.14E-04
2,3-Dimethylnaphthalene	ND	9.53E-05	6.50E-04
2,6-Dimethylnaphthalene	ND	1.13E-05	5.68E-04
2,7-Dimethylnaphthalene	1.27E-06	2.49E-05	4.10E-04
2-Methylnaphthalene	9.10E-05	1.03E-03	5.22E-03
Acenaphthalene	1.51E-06	2.30E-05	2.20E-04
Naphthalene	1.81E-04	2.41E-03	8.37E-03

*From CERP Tbl. 6.1

Nobake Cores

Emissions from the Nobake Core making come from mixing sand and resin together. Emission factors are from AP-42. Binder mixing emission factors are calculated from "Form R Reporting of binder chemicals used in Foundries" and SDS of binders used. Calculations are made using the conservative assumption that 2.0% of the core mix is binder. VOCs, individual HAPs, and total HAPs are limited under COMG7. Sand throughputs are restricted by COMG2.
EQUI52 and EQUI53 are uncontrolled. Fugitives from these operations are contained within the building and routed to dust collectors (STRUA and STRUB)

EQUI/COMG	EU/GP	Unit/Group Desc	Rated Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	PM10			PM2.5			
								Emission Factor (lb/ton)	Reference	24-hr Emission Rate (lb/hr)	Emission Factor (lb/ton) (Multiplier)	Reference*	24-hr Emission Rate (lb/hr)	Annual Emission Rate (lb/hr)
EQUI52	EU010	Disco Core Machine	0.50	tons/hr				0.54	AP-42 Table 12.13-2[1]	0.27	0.191	PM Augmentation -	0.05	0.05
EQUI53	EU010	ABC6 Core Machine	0.41	tons/hr				0.54	AP-42 Table 12.13-2[1]	0.22	0.191	Sand Handling[2]	0.04	0.04
COMG7	GP007	Primary VOC/HAP Sources												

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.
2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Note 1: Binder Emissions
The following tables are taken from "Form R Reporting of Binder Chemicals used in Foundries" Fourth Edition.
Worst case pollutant rates calculated following instructions provided in "Form R Reporting of Binder Chemicals used in Foundries" and the SDS for binders used at Northern Iron and Machine.

Furan Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From MSDS	lb emitted/lb binder used
Resin					
Phenol (108-95-2)	98	0	2	0	0
Formaldehyde (50-00-0)	98	2	0	1	0.0002
Methyl Alcohol (67-56-1)	0	50	50	3	0.015
Catalyst					
Methyl Alcohol (67-56-1)	0	50	50	0	0
Sulfuric Acid (8774-93-9)	100	0	0	3	0

Phenolic Urethane Nobake Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From MSDS	lb emitted/lb binder used
Part I					
Phenol (108-95-2)	98	0	2	10	0
Formaldehyde (50-00-0)	98	2	0	0.1	2.00E-03
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethyl Benzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0
Part II					
Methylene Phenylene Isocyante(1) (101-68-8)	99.99	0	0.01	0	0
Polymeric diphenylmethane Diisocyanate (9016-87-9)	99.99	0	0.01	50	0
Naphthalene (91-20-3)	0	5.85	94.15	3	1.76E-03
1,2,4 Trimethylbenzene (95-63-6)	0	5.85	94.15	0	0
Cumene (98-82-8)	0	5.85	94.15	0	0
Xylene (1330-20-7)	0	5.85	94.15	0	0

Phenolic Urethane Coldbox Binder

Material	% Reacted	% Evaporated	% Remaining	Chemical % in Binder From MSDS	lb emitted/lb binder used
Part I					
Formaldehyde (50-00-0)	98	2	0	0	0
Phenol (108-95-2)	98	0	2	5	0
Xylene (1330-20-7)	0	3.25	96.75	0	0
Cumene (98-82-8)	0	3.25	96.75	0	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
1,2,4 Trimethylbenzene (95-63-6)	0	3.25	96.75	0	0
Part II					
Methylene Phenylene Isocyanate (101-68-8)(1)	99.99	0	0.01	0	0
Polymeric Diphenylmethane	99.99	0	0.01	10	0
Naphthalene (91-20-3)	0	3.25	96.75	3	9.75E-04
Xylene (1330-20-7)	0	3.25	96.75	0	0
Biphenyl (95-52-4)	0	3.25	96.75	0	0

Comparison of Core Binders

Binder content in core mix	0.02				
Material	lb/lb Furan Nobake binder used	lb/lb Phenolic Urethane Nobake Binder	lb/ lb Phenolic Urethane Coldbox Binder	worst case lb/lb binder	Worst case lb/ton core mix
Phenol	0	0	0	0	0
Formaldehyde	2.00E-04	0.002	0	2.00E-03	8.00E-02
Methyl Alcohol	1.50E-02	0	0	1.50E-02	6.00E-01
Naphthalene	0	3.51E-03	1.95E-03	3.51E-03	1.40E-01
1,2,4 Trimethyl Benzene	0	0	0	0	0
Cumene	0	0	0	0	0
Xylene	0	0	0	0	0
Methylene Phenylene Isocyante	0	0	0	0	0
Polymeric diphenylmethane Diisocyanate	0	0	0	0	0
Biphenyl	0	0	0	0	0

Worst case pollutant rates calculated from tables in "Form R Reporting of Binder Chemicals used in Foundries" and the SDS for binders used at Northern Iron and Machine. Per Northern Iron and Machine, max amount of binder in cores in 2.75%.

Shell Cores

Higher tensile strength cores use premixed sand/resin and are heat treated during the curing process. Emissions from this operation are from sand handling and combustion. Combustion emissions for these units are included in summary page. Sand throughput is limited under COMG2
EQUI54, EQUI55, and EQUI56 are controlled by HEPA filters exhausting internally and ultimately to STRU12

EQUI	EU	Unit Desc	Rated Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	PM			PM10			PM2.5		
								Emission Factor (lb/ton core mix handled)	Reference	24-hr Emission Rate (lb/hr)	Emission Factor (lb/ton core mix handled)	Reference	24-hr Emission Rate (lb/hr)	Emission Factor (lb/ton core mix handled)	24-hr Emission Rate (lb/hr)	Annual Emission Rate (lb/hr)
EQUI55	EU013	East CR16	0.33	tons/hr	80%	99.97%	99.97%	0.54	AP-42 Table 12.13-2[1]	3.57E-02	0.54	AP-42 Table 12.13-2[1,J]	3.57E-02	0.191	1.269E-02	1.259E-02
EQUI54	EU013	West CR16	0.33	tons/hr	80%	99.97%	99.97%	0.54	AP-42 Table 12.13-2[1]	3.57E-02	0.54	AP-42 Table 12.13-2[1,J]	3.57E-02	0.191	1.259E-02	1.259E-02
EQUI56	EU013	CR-22	1.10	tons/hr	80%	99.97%	99.97%	0.54	AP-42 Table 12.13-2[1]	1.19E-01	0.54	AP-42 Table 12.13-2[1,J]	1.19E-01	0.191	4.198E-02	4.198E-02

* assuming PM10 = PM2.5

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of lb/ton sand processed. EPA indicates that non-furnace emissions are expected to be similar between foundries.
2 PM and PM2.5 factor calculated based on PM Augmentation for sand handling: 85% PM10, 30% PM2.5. The PM Augmentation Calcualtor Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

Core Wash

Cores sent to tunnel oven go through a core wash. Core wash density and rate provided by Northern Iron and Machine. VOC emissions are limited under COMG7. Operations are uncontrolled.

EQUI	EU	Unit Desc	Capacity	VOC		
				lb/hr	Unrestricted tpy	Limited tpy
EQUI11	EU014	Core Wash	15 gal/day	3.5	15.3	

Core Wash capacity, max rate, and wash density provided by Northern Iron and Machine

Capacity:	15	gallons
Rate:	1	Container per day
Wash density:	5.6	lb/gal
Emission factor:	1	lb VOC emitted/lb VOC used
	5.6	lb VOC/gallon

Operating Schedule: Mon-Sun
Operating Hours: 24 hr/dav
Modeled Hours of Operation 8760 hrs/vr

Sand handling is composed of the DISA and Flask mold lines. Mold and core sand is reclaimed during the mold making process and shakeout. Reclaimed sand is stored in the muller tank to be used again in new molds. Both lines and the core making operations are limited to a single sand throughput limit at COMG3. PTE for COMG3 is the line with the highest emissions operating at the sand handling limit.

Limited throughput 394,200 tpy sand

DISA Line EQUI 72, 85, 86, 87, 88, 89, 90, 105 and 115 are controlled by TREA 2. Fugitives from these operations are contained within the building and routed to dust collectors (STRUA and STRUB)

								PM10				PM2.5				
EQUI#	EU	Unit Desc	Rated Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Annual Captured Emission Rate (lb/hr)	Annual Fugitive Emission Rate (lb/hr)
EQUI96	EU008	Bond Day Tank	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI72	EU008	Disa Line Muller (85B B Series)	26	ton/hr	100%	99%	95%	0.54	AP-42, Table 12.13-2	0.70	0.00	0.19	AP-42, Table 12.13-2	2.48E-01	0.00E+00	0.25	0.00E+00
EQUI73	EU008	Discharge Belt	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI74	EU008	Distribution Belt	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI95	EU008	DISA Prepared Sand Tank	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI75	EU008	DISA Feed Belt	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI102	EU008	Aerator	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI97	EU008	DISA Mold Machine	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI78	EU008	Spill Belt	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI105	EU008	Bond Transport	26	ton/hr	100%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	4.02E-03	0.00E+00	0.00	0.00E+00
EQUI110	EU008	Outdoor Bond Tank	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI79	EU008	Cross Spill	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI76	EU008	DISA spill Belt	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI77	EU008	DISA spill Pan	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI85	EU008	Mag Belt	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI86	EU008	Return Sand Elevator	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI87	EU008	125 Ton Sand Bin	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI88	EU008	125 Ton Belt	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI89	EU008	New/Old Belt	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI90	EU008	New/Old Elevator	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
EQUI91	EU008	DISA Muller Storage Tank	26	ton/hr				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.16	2.21E-03	AP-42 Table 11.19.1-1	0.00E+00	5.75E-02	0.00	5.75E-02
EQUI115	EU008	Aurora Hopper	26	ton/hr	80%	99%	93%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.03	2.21E-03	AP-42 Table 11.19.1-1	3.22E-03	1.15E-02	0.00	1.15E-02
Disa Mold Line																	

Flask Line EQUI 108, 107, 106, 104, 103, 71 ,67, 64 are controlled by TREA 23. Fugitives from these operations are contained within the building and routed to dust collectors (STRUA and STRUB)

								PM10				PM2.5				
EQUI#	EU	Unit Desc	Limited Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Annual Captured Emission Rate (lb/hr)	Annual Fugitive Emission Rate (lb/hr)
EQUI104	EU009	Flask Line muller (22G G Series)	45.00	tons/hour	100%	99%	95%	0.54	AP-42. Table 12.13-2	1.15	0.00	0.19	AP-42. Table 12.13-2	4.29E-01	0.00E+00	0.43	0.00E+00
EQUI92	EU009	Discharge Conveyor	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI84	EU009	Distribution belt conveyor	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI98	EU009	Flask Line Mold Making	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI93	EU009	Cross Belt Conveyor	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI60	EU009	Machine Belt Sand	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI1109	EU009	30^2 Prepared Sand Tank	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI61	EU009	Sprue Belt	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI62	EU009	Machine Incline	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI64	EU009	Mag Belt	45.00	tons/hour	80%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.06	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.02	0.00	1.99E-02
EQUI69	EU009	Incline to Blower	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI70	EU009	Blower	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI68	EU009	Aerator	45.00	tons/hour				6.26E-03	AP-42 Table 11.19.1-1	0.00	0.28	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.10	0.00	9.95E-02
EQUI71	EU009	Cooler/dryer	45.00	tons/hour	100%	99%	95%	1.58	AP-42 Table 11.19.1-1	3.56	0.00	0.90	AP-42 Table 11.19.1-1	2.03	0.00	0.00	0.00E+00
EQUI67	EU009	Return Sand Elevator conveyor	45.00	tons/hour	80%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.06	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.02	0.00	1.99E-02
EQUI106	EU009	30^2 Sand Tank	45.00	tons/hour	100%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.00	0.00	0.00E+00
EQUI107	EU009	30^2 Bond Tank	45.00	tons/hour	100%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.00	0.00	0.00E+00
EQUI108	EU009	30^ Sand Day Tank	45.00	tons/hour	100%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.00	0.00	0.00E+00
EQUI116	EU009	30^2 Bond Day Tank	45.00	tons/hour	100%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.00	0.00	0.00E+00
EQUI103	EU009	Flask Muller Storage Tank	45.00	tons/hour	100%	99%	95%	6.26E-03	AP-42 Table 11.19.1-1	0.01	0.00	2.21E-03	AP-42 Table 11.19.1-1	0.00	0.00	0.00	0.00E+00
Flask line																	

Core Making

								PM10				PM2.5				
EQUI#	EU	Unit Desc	Limited Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Emission Factor (lb/ton sand handled)	Reference[1,2]	24-hr Captured Emission Rate (lb/hr)	24-hr Fugitive Emission Rate (lb/hr)	Annual Captured Emission Rate (lb/hr)	Annual Fugitive Emission Rate (lb/hr)
EQUI111	EU010	ABC6 Sand Tank	0.500	tons/hr				6.26E-03	AP-42 Table 11.19.1-1		3.13E-03	2.21E-03	AP-42 Table 11.19.1-1		1.11E-03		0.00
EQUI112	EU010	Disco Sand Tank	0.413	tons/hr				6.26E-03	AP-42 Table 11.19.1-1		2.58E-03	2.21E-03	AP-42 Table 11.19.1-1		9.12E-04		0.00
EQUI113	EU010	Sand Loading (CR16 and CR22)	1.760	tons/hr				6.26E-03	AP-42 Table 11.19.1-1		1.10E-02	2.21E-03	AP-42 Table 11.19.1-1		3.89E-03		0.00
Core Making																	

1 Emissions factor for sand handling is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by the MPCA. See supporting documentation in the Sand Handling EF tab. Muller factor: AP-42, Tbl. 12.13-2. Sand Cooler factor: AP-42, Tbl. 11.19.1-1. The Mueller and Sand Cooler Factors are reported as PM10 and have been divided by the EPA PM Augmentation too value of 85% to determine the PM emission factor. The PM2.5 emission factor for the Muller and Sand Cooler is calculated as 30% of the PM emission factor (based on data in the EPA PM Augmentation tool)

2 PM10 and PM2.5 calculated based on the PM Augmentation for the respective SCC. The PM Augmentation Calculator Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip.

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/hr)	PM10		PM2.5		Lead		NOx		CO		SO2	
				lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
EQUI1	EU001	Scrap Preheat Oven 1	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-06	8.59E-06	5.65E-01	2.48E+00	3.29E-01	1.44E+00	0.00E+00	0.00E+00
EQUI2	EU002	Scrap Preheat Oven 2	4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-06	8.59E-06	5.65E-01	2.48E+00	3.29E-01	1.44E+00	0.00E+00	0.00E+00
EQUI9	EU012	Core Tunnel Oven	0.8	6.09E-03	2.67E-02	6.09E-03	2.67E-02	3.92E-07	1.72E-06	1.13E-01	4.95E-01	6.59E-02	2.89E-01	1.57E-05	6.87E-05
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	2.28E-03	1.00E-02	2.28E-03	1.00E-02	1.47E-07	6.44E-07	4.24E-02	1.86E-01	2.47E-02	1.08E-01	5.88E-06	2.58E-05
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	2.28E-03	1.00E-02	2.28E-03	1.00E-02	1.47E-07	6.44E-07	4.24E-02	1.86E-01	2.47E-02	1.08E-01	5.88E-06	2.58E-05
EQUI56	EU013	CR-22	0.9	6.85E-03	3.00E-02	6.85E-03	3.00E-02	4.41E-07	1.93E-06	1.27E-01	5.57E-01	7.41E-02	3.25E-01	1.76E-05	7.73E-05
EQUI36	EU025	Heat Treat Oven	1.6	1.22E-02	5.33E-02	1.22E-02	5.33E-02	7.84E-07	3.44E-06	2.26E-01	9.90E-01	1.32E-01	5.77E-01	3.14E-05	1.37E-04
EQUI59	EU026	Annealing Furnace C	4	3.04E-02	1.33E-01	3.04E-02	1.33E-01	1.96E-06	8.59E-06	5.65E-01	2.48E+00	3.29E-01	1.44E+00	7.84E-05	3.43E-04
EQUI46	na	East MUA	6.05	4.60E-02	2.02E-01	4.60E-02	2.02E-01	2.97E-06	1.30E-05	8.55E-01	3.74E+00	4.98E-01	2.18E+00	1.19E-04	5.19E-04
EQUI47	na	West MUA	6.05	4.60E-02	2.02E-01	4.60E-02	2.02E-01	2.97E-06	1.30E-05	8.55E-01	3.74E+00	4.98E-01	2.18E+00	1.19E-04	5.19E-04
EQUI48	na	North MUA	3.3	2.51E-02	1.10E-01	2.51E-02	1.10E-01	1.62E-06	7.09E-06	4.66E-01	2.04E+00	2.72E-01	1.19E+00	6.47E-05	2.83E-04
EQUI49	na	South MUA	3.3	2.51E-02	1.10E-01	2.51E-02	1.10E-01	1.62E-06	7.09E-06	4.66E-01	2.04E+00	2.72E-01	1.19E+00	6.47E-05	2.83E-04
EQUI114	na	Furnace Basement MUA	0.3591	2.73E-03	1.20E-02	2.73E-03	1.20E-02	1.76E-07	7.71E-07	5.07E-02	2.22E-01	2.96E-02	1.30E-01	7.04E-06	3.08E-05
EQUI50	na	Finishing Heater	2.25	1.71E-02	7.50E-02	1.71E-02	7.50E-02	1.10E-06	4.83E-06	3.18E-01	1.39E+00	1.85E-01	8.12E-01	4.41E-05	1.93E-04
EQUI120	na	Machine Shop MUA	1.1	8.37E-03	3.67E-02	8.37E-03	3.67E-02	5.39E-07	2.36E-06	1.55E-01	6.81E-01	9.06E-02	3.97E-01	2.16E-05	9.45E-05

EQUI1 and EQUI2: PM10 and PM2.5 emission rates included in Preheat based on stack test values

Combustion Emission Factors

1020 MMBtu/MMscf HHV natural gas
0.092 MMBtu/gal HHV comercial grade propane

Natural Gas (<100 MMBtu/hr)

	Natural Gas		Propane		Worst Case
Pollutant	lb/MMSCF	lb/MMBtu	lb/gal	lb/MMBtu	lb/MMBtu
PM	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
PM_{10}	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
$PM_{2.5}$	7.6	7.45E-03	7.00E-04	7.61E-03	7.61E-03
NO_x	100	9.80E-02	1.30E-02	1.41E-01	1.41E-01
SO_2	0.6	5.88E-04	2.00E-06	2.17E-05	5.88E-04
CO	84	8.24E-02	7.50E-03	8.15E-02	8.24E-02
VOC	5.5	5.39E-03	1.00E-03	1.09E-02	1.09E-02
Lead	5.00E-04	4.90E-07	0.00E+00	0.00E+00	4.90E-07
CO_2	1.20E+05	1.18E+02	1.25E+01	1.36E+02	1.36E+02
N_2O	6.40E-01	6.27E-04	9.00E-04	9.78E-03	9.78E-03
Arsenic	2.00E-04	1.96E-07	1.79E-08	1.95E-07	1.96E-07
Beryllium	1.20E-05	1.18E-08	1.08E-09	1.17E-08	1.18E-08
Cadmium	1.10E-03	1.08E-06	9.87E-08	1.07E-06	1.08E-06
Chromium	1.40E-03	1.37E-06	1.26E-07	1.37E-06	1.37E-06
Cobalt	8.40E-05	8.24E-08	7.54E-09	8.19E-08	8.24E-08
Manganese	3.80E-04	3.73E-07	3.41E-08	3.71E-07	3.73E-07
Mercury	2.60E-04	2.55E-07	2.33E-08	2.54E-07	2.55E-07
Nickel	2.10E-03	2.06E-06	1.88E-07	2.05E-06	2.06E-06
Selenium	2.40E-05	2.35E-08	2.15E-09	2.34E-08	2.35E-08
CH_4	2.30E+00	2.25E-03	2.00E-04	2.17E-03	2.25E-03
2-Methylnphthalene	2.40E-05	2.35E-08	8.83E-10	9.59E-09	2.35E-08
3-Methylcholanthrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
7,12-Dimethylbenz(a)anthracene	1.60E-05	1.57E-08	5.88E-10	6.40E-09	1.57E-08
Acenaphthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Acenapthylene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Anthracene	2.40E-06	2.35E-09	8.83E-11	9.59E-10	2.35E-09
Benz(a)anthracene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzene	2.10E-03	2.06E-06	7.72E-08	8.39E-07	2.06E-06
Benzo(a)pyrene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(b)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Benzo(g,h,i)perylene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Benzo(k)fluoranthene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Chrysene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Dibenzo(a,h)anthracene	1.20E-06	1.18E-09	4.41E-11	4.80E-10	1.18E-09
Dichlorobenzene	1.20E-03	1.18E-06	4.41E-08	4.80E-07	1.18E-06
Fluoranthene	3.00E-06	2.94E-09	1.10E-10	1.20E-09	2.94E-09
Fluorene	2.80E-06	2.75E-09	1.03E-10	1.12E-09	2.75E-09
Formaldehyde	7.50E-02	7.35E-05	2.76E-06	3.00E-05	7.35E-05
Hexane	1.80E+00	1.76E-03	6.62E-05	7.20E-04	1.76E-03
Indeno(1,2,3-cd)pyrene	1.80E-06	1.76E-09	6.62E-11	7.20E-10	1.76E-09
Naphthalene	6.10E-04	5.98E-07	2.24E-08	2.44E-07	5.98E-07
Phenanathrene	1.70E-05	1.67E-08	6.25E-10	6.80E-09	1.67E-08
Pyrene	5.00E-06	4.90E-09	1.84E-10	2.00E-09	4.90E-09
Toluene	3.40E-03	3.33E-06	1.25E-07	1.36E-06	3.33E-06

Natural Gas emission factors obtained from EPA AP-42, Volume I, Chapter 1.4, Table 1.4-1 small boilers (NOx & CO), Table 1.4-2 (PM, SO2, Lead, VOC, Methane, N20, & CO2), table 1.4-3 (Organic HAPs), and table 1.4-4 (Metal HAPs).
Propane emission factors from AP-42, "Liquified Petroleum Gas Combustion", Table 1.5-1 (07/08).

Northern Iron of St Paul LLC

Pattern Shop

IA Number	Unit Desc	Limited Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	PM10					PM2.5				
							Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-02	Woodworking Saw #1	0.1	tons/hour				1.75E-01	EPA May 8. 2014 Sawmill Memo	1.75E-02	0.08	0.08	8.75E-02	EPA May 8. 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-03	Woodworking Saw #2	0.1	tons/hour				1.75E-01	EPA May 8, 2014 Sawmill Memo	0.0175	0.08	0.08	8.75E-02	EPA May 8, 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-04	Woodworking Saw #3	0.1	tons/hour				1.75E-01	EPA May 8, 2014 Sawmill Memo	0.0175	0.08	0.08	8.75E-02	EPA May 8, 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-05	Woodworking Saw #4	0.1	tons/hour				1.75E-01	EPA May 8, 2014 Sawmill Memo	0.0175	0.08	0.08	8.75E-02	EPA May 8, 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-06	Woodworking Sander #1	0.1	tons/hour				1.75E-01	EPA May 8, 2014 Sawmill Memo	0.0175	0.08	0.08	8.75E-02	EPA May 8, 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-07	Woodworking Sander #2	0.1	tons/hour				1.75E-01	EPA May 8, 2014 Sawmill Memo	0.0175	0.08	0.08	8.75E-02	EPA May 8, 2014 Sawmill Memo	8.75E-03	0.04	3.83E-02
IA-08	Drill Press	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	0.00	0.01	1.10E-02
IA-09	Lathe	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	0.00	0.01	1.10E-02
IA-10	Bridgeport #1	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	0.00	0.01	1.10E-02
IA-11	Bridgeport #2	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	0.00	0.01	1.10E-02
IA-12	Bridgeport #3	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	0.00	0.01	1.10E-02
Pattern Shop										Total	0.28				Total	0.28

1 The emission factor for sawing and sanding operations is the sawing emission factor listed in the EPA Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country" dated May 8, 2014. This memo can be found at the following link: https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

Lab

IA Number	Unit Desc	Rated Capacity		Capture (%)	PM Control (%)	PM10/PM2.5 control (%)	PM10					PM2.5				
							Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy	Emission Factor (lb/capacity unit)	Reference	lb/hr	Unrestricted tpy	Limited tpy
IA-13	Sander	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	2.50E-03	0.01	1.10E-02
IA-14	Grinder	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	2.50E-03	0.01	1.10E-02
IA-15	Lathe	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	2.50E-03	0.01	1.10E-02
IA-16	Polisher #1	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	2.50E-03	0.01	1.10E-02
IA-17	Polisher #2	0.0250	tons/hour				0.1	AP-42, Table 12.10-7	0.0025	0.01	0.01	0.1	AP-42, Table 12.10-7	2.50E-03	0.01	1.10E-02
IA-18	Miscellaneous sand testing equipment	0.0055	tons/hour				0.013	AP-42 Table 11.19.1-1	7.15859E-05	3.14E-04	3.14E-04	0.013	AP-42 Table 11.19.1-1	7.16E-05	3.14E-04	3.14E-04
Lab										Total	0.06				Total	0.06

Machine Shop

8 oil based casting finishing machines - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

4 Lathes - Machines use an oil-based coolant while operating so it is expected that PM emissions will be minimal

IA Number	Unit Desc	Rated Capacity		VOC				
				VOC content	Reference	Controlled lb/hr	Unrestricted tpy	Limited tpy
IA-19		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-20		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-21		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-22		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-23		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-24		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-25		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-26		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-27		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-28		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-29		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
IA-30		0.31	lbs/hr	19%	SDS	0.06	0.26	0.26
						0.72	3.15	3.15

Northern Iron of St Paul LLC

Unpaved Roads
AP-42 13.2.2

Constants (AP-42 Table 13.2.2-2 for Industrial Roads)

	PM	PM-10	PM-2.5
k (lb/VMT)	4.9	1.5	0.15
a	0.7	0.9	0.9
b	0.45	0.45	0.45

s = surface material silt content (%)
s = 6 AP-42 Table 13.2.2-1 (mean silt content of iron and steel production plant roads)

W = mean vehicle weight (tons)
W = 7.5 tons

P = number of days in a year with at least 0.01 in of precipitation
P = 116 https://www.ncei.noaa.gov/pub/data/ccd-data/prge0120.dat

Trucks 12 per month
Length of road 200 ft
Annual Vehicle Miles Traveled 10.9 VMT

	PM	PM-10	PM-2.5
E_{ext} (lb/VMT)	3.11	0.83	0.08
Emissions (tons/year)	0.02	0.00	0.00
Emissions (lb/hr)	0.1725616	0.045986816	0.004598682

	Trucks	12	per day
	Length of road (	200	ft
	Daily miles trave	0.9	vmt
	PM	PM-10	PM-2.5
E (lb/VMT) short-term standard	4.556	1.214	0.121

Paved Roads
AP-42 13.2.1

Constants (AP-42 Table 13.2.1-1)

	PM	PM-10	PM-2.5
k (lb/VMT)	0.011	0.0022	0.00054

sL = road surface silt loading (g/m2)
sL = 9.7 Table 13.2.1-3 Silt loading for iron and steel production (mean value)

W = mean vehicle weight (tons)
W = 12.5 tons

P = number of days in a year with at least 0.01 in of precipitation
P = 116 https://www.ncei.noaa.gov/pub/data/ccd-data/prge0120.dat

Trucks 20 per day
Length of road 300 ft
Annual Vehicle Miles Traveled 829.5 VMT

	PM	PM-10	PM-2.5
E_{ext} (lb/VMT)	0.78	0.16	0.04
Emissions (tons/year)	0.32	0.06	0.02
Emissions (lb/hr))	0.108	0.022	0.005

	Trucks	12	per day
	Length of road (one way)	300	ft
	Daily miles traveled	2.3	vmt
	PM	PM-10	PM-2.5
E (lb/VMT) short-term standard	1.143	0.229	0.056

MERP Calculations

PM2.5 - Daily

PM2.5 Precursor	Potential Emission Rate (tons/yr)	SIL (ug/m3)	MERP Value (Dakota County) - TPY	Estimated Air Quality Impact (ug/m3)
SO2	7.91E-01	1.2	1511	6.28E-04
NOx	2.41E+01	1.2	11193	2.58E-03
	Total			3.21E-03

PM2.5 - Annual

PM2.5 Precursor	Potential Emission Rate (tons/yr)	SIL (ug/m3)	MERP Value (Dakota County) - TPY	Estimated Air Quality Impact (ug/m3)
SO2	2.73E-01	0.3	7966	1.03E-05
NOx	2.38E+01	0.3	29620	2.42E-04
	Total			2.52E-04

Sand Handling Emissions Factor

$$E = k(0.0032)\ \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\ \text{(pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

Aerodynamic Particle Size Multiplier (k)

PM	PM10	PM2.5
0.74	0.35	0.053

Prepared/Watered Sand

M= 3 %
U= 3 MPH

	PM	PM10	PM2.5
E=	0.000690956	0.000326804	4.94874E-05

MPCA provided EF Documentation:

$SH_{ef_{pm10}}$ = 0.013/(M/2)^1.4, and with a minimum content of 3%, $SH_{ef_{pm10}}$ = 0.013/(3/2)^1.4 = 0.0074 lb PM_{10}/ton throughput. This equates to 0.00037% of throughput. In previous submittals, for sand handling, PM_{10} = $PM_{2.5}$, however I'd imagine $Pm_{2.5}$ is only a fraction of PM10. Here I am open to justification as to what ratio $PM_{2.5}$ should be to PM_{10}.

Proposed PM10 & PM2.5 Ratios from
EPA PM Augmentation for Sand Handling (SCC 30400350)
PM10: 85% of PM
PM2.5: 30% of PM

Note that the 0.013 term above was taken from AP-42 Table 11.19.1-1 and it applies to total PM. The factor in AP-42 was increased by a factor of 10 to account for uncontrolled emissions (since a wet
The proposed PM10 & PM2.5 Ratios are from EPA PM Augmentation Tool for Sand Handling (SCC 30400350). See table below for mass percentages

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_UNCONTROLLED	PMCALC_PM10FIL_UNCONTROLLED	PMCALC_PM25FIL_UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

Stack Test Results - Pouring and Cooling

Stack	PM		PM10		PM2.5		Lead		ACFM
	lb/hr	lb/ton	lb/hr	lb/ton	lb/hr	lb/ton	lb/hr	lb/ton	
STRU21	0.216	0.0974	0.233	0.107	0.157	0.0716	0.00042	0.000197	12800
STRU22	0.256	0.109	0.292	0.139	0.226	0.109	0.000913	0.000423	13900
STRU23	0.188	0.0875	0.201	0.0933	0.149	0.069	0.000525	0.000244	12000
STRU24	0.16	0.0717	0.3	0.127	0.234	0.0988	0.000595	0.00027	10520
STRU25	0.11	0.0578	0.115	0.0604	0.0708	0.0373	0.000385	0.000202	9180
Total	0.93	0.4234	1.141	0.5267	0.8368	0.3857	0.002838	0.001336	58400

Stack Test Results - Preheat

Stack	PM		PM10		PM2.5		ACFM
	lb/hr	lb/ton	lb/hr	lb/ton	lb/hr	lb/ton	
STRU6	0.0365	0.0147	0.0488	0.0188	0.0373	0.0147	4100

Table 5.16. Metal Emissions from Metal Melting Operations

Species	Lb/ton	MHAP
Aluminum	2.09E-02	
Antimony	0	Y
Arsenic	0	Y
Barium	0	
Beryllium	0	Y
Cadmium	1.02E-04	Y
Chromium	7.40E-04	Y
Cobalt	0	Y
Copper	8.52E-04	
Iron	1.40E-01	
Lead	5.58E-03	Y
Manganese	1.40E-02	Y
Mercury	0.00E+00	Y
Nickel	8.97E-04	Y
Selenium	0.00E+00	Y
Silver	6.01E-05	
Zinc	4.61E-02	
$MHAP_{total}$	0.021319	

%Pb of $MHAP_{total}$ 26%

	Line 3
	Stack 27
Species	**lb/ton metal melted**
Aluminum	2.09E-02
Antimony	0.00E+00
Arsenic	0.00E+00
Barium	0.00E+00
Beryllium	0.00E+00
Cadmium	1.02E-04
Chromium	7.40E-04
Cobalt	0.00E+00
Copper	8.52E-04
Iron	1.40E-01
Lead	5.58E-03
Manganese	1.40E-02
Mercury	0.00E+00
Nickel	8.97E-04
Selenium	0.00E+00
Silver	6.01E-05
Zinc	4.61E-02

Table 2 AFS Foundry Emission Factors for Preliminary Screening (2001)

Total HAP Emission Factors* for Preliminary Screening Analysis – Iron Foundries

Compiled by the AFS Air Quality Committee and MACT Task Force (Rev. 10/08/01)

Foundry Process	Pounds of Total HAPs per Ton of Metal Melted/Poured
Melting	
Electric Induction Furnace – Uncontrolled	0.040
Electric Induction Furnace – Baghouse	0.006
Cupola – Afterburner/Baghouse	0.044
Cupola – Baghouse	1.00
Cupola – Afterburner/Wet Scrubber	0.074
Cupola – Wet Scrubber	1.034
Electric Arc Furnace – Baghouse	0.0076
Electric Arc Furnace – Uncontrolled	0.363
Charging and Taping, Electric Arc Furnace – Controlled	0.0012
Charging and Tapping, Electric Arc Furnace – Uncontrolled	0.059
Melt Support Operations – Inoculation, Metal Treatment – Controlled or Uncontrolled	
All Iron Except Ductile	0.0015
Ductile Iron	0.050
Pouring, Cooling, Shakeout – Controlled or Uncontrolled	
Green Sand Molds – Lightly Cored or No Core	0.416
Green Sand Molds – Heavily Cored	0.983
Phenolic Urethane NoBake® Molds	1.5**
Furan NoBake® Molds	1.08
Centrifugal Casting	0.0005
Finishing Operations – Controlled or Uncontrolled	
Grinding	0.0003
Shot Blasting	0.0007

Binder System/Process	Pounds of Total HAPs per Pound of Binder/Catalyst
Core/Mold Making – Chemical Binders	
Acrylic/Epoxy/SO_2	0.00015
Furan hot box (Hot Box)	0.0015
Furan NoBake® - High Methanol Catalyst	0.056
Furan NoBake® - Low/No Methanol Catalyst	0.017
Furan/SO_2	0.116
Furan warm box – High Methanol Catalyst	0.075
Furan warm box – Low/No Methanol Catalyst	0.0018
Phenolic baking	1.0005
Phenolic ester NoBake®	0.0001
Phenolic ester cold box	0.0001
Phenolic hot box	0.001
Phenolic NoBake® - High Methanol Catalyst	0.056
Phenolic NoBake® - Low/No Methanol Catalyst	0.017
Phenolic – Novolac flake (Shell)	Deminimus
Phenolic urethane NoBake®	0.0008
Phenolic urethane cold box – Pert I + Part II***	0.0008
Phenolic urethane cold box – TEA Catalyst (with Acid Scrubber)	0.010
Phenolic urethane cold box – TEA Catalyst (without Acid Scrubber)	1.00
Urea formaldehyde	Deminimus
Miscellaneous Processes – Calculate Emissions Using Process-Specific Data	
Lost Foam Casting (EPS)	Use process-specific data
Thermal Sand Reclamation	Use process-specific data
Casting Painting	Use process-specific data
Degreasing	Use process-specific data
Mold Sprays/Washes	Use process-specific data
Mold and/or Core Release	Use process-specific data
Core Washes/Drying	Use process-specific data
Shell Sand Coating	Use process-specific data
Pattern Repair and Cleaning	Use process-specific data

*Since foundry processes, operations and operating parameters vary significantly form foundry to foundry, the ballpark emission factors provided in this table may not be representative of you operations. They are intended to be used solely for the purpose of conducting a preliminary assessment of major/minor status and should not be relied upon for a final determination of MACT applicability. For a final determination of applicability, you will need to conduct a detailed assessment of HAP emissions from you facility using emission factors or test data that are more representative of your specific operations.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-06

Air Quality Dispersion Modeling (AQDM) results form
(Previously AQDMR-01)

Doc Type: Air Dispersion Modeling

Acronym information on page 7

Instructions: Permit applicants required to conduct air dispersion modeling should submit two paper copies of the completed *Air Quality Dispersion Modeling results form* (*AQDM-06)* and all accompanying files to:

Air Quality Permit Document Coordinator
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Applicants may also submit an electronic version via email, in addition to the two paper copies. This is highly recommended. Please note that all assumptions made in the air dispersion modeling analysis could result in air permit requirements.

Electronic copies of the forms and accompanying files should be emailed to: AirModeling.PCA@state.mn.us. **Note:** The air modeling e-Service may not be used to submit air modeling results.

Facility information

Tempo AI ID number: 3518 AQ facility/permit ID number: 12300088 Today's date (mm/dd/yyyy): 9/10/2024

Three-letter modeling facility ID (ex., XEK = Xcel Energy Allen S. King, MEC = Mankato Energy Center, etc.): _____

Facility name: Northern Iron LLC

Facility street address: 867 Forest Street

City: St. Paul County: Ramsey Zip code: 55106 State: MN

Facility contact: Tierney Grutza Report prepared by: Robert Osborn

Facility contact phone: 608-295-9770 Preparer phone: 281-664-2815

Facility contact email address: tgrutza@lawtonstandard.com Preparer email address: rosborn@spiritenv.com

*UTM coordinates of facility (NAD83, zone 15 extended **only**): x = 495,055.00 m East, y = 4,979,319.00 m North

**This should be the central location of the facility/source.*

These results are associated with (check all that apply):

- ☐ AERA or Dispersion/Deposition modeling for air toxics
- ☐ Environmental assessment worksheet
- ☐ Environmental impact statement
- ☐ Modeling information request
- ☐ Modeling Impacts from animal feedlots
- ☐ Siting an air monitoring station
- ☐ Siting a meteorological station
- ☐ Permit condition
- ☒ Permit modification
- ☐ Prevention of significant deterioration
- ☐ Screening modeling
- ☐ Special project
- ☐ State implementation plan

Project description (50 words or less)

Files to accompany modeling results

Include the following files with the completed modeling report form. Use checkbox to indicate that all applicable files are included.

1. ☒ AERMOD input files (*.inp, *.adi, *.ami)
   ☒ AERMOD output files (*.out, *.ado, *.amo)
   ☐ AERMOD plot files (*.plt)
   ☒ AERMOD post files (*.pst) *(If applicable)*
   ☐ AERMOD event files (*.evi, *.evo) *(If applicable)*
   ☒ AERMOD miscellaneous/other files (MAXDCONT, .DAT, .emi, etc.) *(If applicable)*
2. AERMET files: ☒ *.sfc ☒*.pfl
3. BPIP-PRIME files: ☒ Input (*.bpi) ☒ Output (*.bpo, *.sum) *(If applicable)*
4. AERMAP files: ☒ Terrain (*.dem(s), *.tif [NED files]), ☒ Input (*.ami), ☒ Output (*.rou, *.sou, etc.) *(If applicable)*
5. Background data files: ☐ Background concentrations for applicable pollutants (seasonal, monthly, daily, hourly, etc.) *(If applicable)*
6. Modeling results: ☒ Figures (*.jpeg, *.pdf), ☒ GIS Maps (*.shp)
7. AQDM-02 spreadsheet: ☒ *(Provide the final spreadsheet [i.e., AQDM-02] and indicate/highlight changes.)*
8. Paved roads results: ☐ *(If applicable)*
9. SIL analysis and results: ☒ *(If applicable)*
10. Hourly O_3 file: ☐ *(If applicable)*
11. AERA forms: ☐ *(If applicable)*
12. Other files and supporting documents (paved roads fugitive dust modeling output files, etc.):

Section 1. Modeling protocol

1. The Air Dispersion Modeling presented in this report is based on a protocol that has been:
   ☐ Approved ☒ Conditionally approved ☐ *MPCA approval date (mm/dd/yyyy): 08/05/2024
   **This is the date given on AQDM-04 form*
2. Does this modeling submittal **completely** follow the approved protocol? ☐ Yes ☒ No
   If yes, proceed to Section 3.
   If no, proceed to Section 2.

Section 2. Changes to approved/conditionally approved modeling protocol

Table 1: Protocol changes (Please indicate which sections in the approved/conditionally approved protocol have been changed.)

Modeling protocol by sections

Section name	Change/No change
Modeling purpose	No Change
Terrain	No Change
Buildings	No Change
Model selection and options	Change
Point sources	Change
Volume sources	Change
Area sources	Change
Area source coordinates	Change
Paved roads fugitive dust	No Change
Receptors	Change
Meteorological data	No Change
Area of impact analysis	Change
Background values	No Change
Nearby sources	No Change
Pollutant based considerations	No Change
Attachments	Change
AERA forms	No Change

Section 2.1: Detailed changes to modeling protocol

Please provide specific information corresponding to those sections in Table 1 where changes are indicated.

Modeling purpose

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Terrain

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Buildings

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Model selection and options

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

AERMOD v. 23132 was used for this analysis (the protocol proposed using AERMOD v. 22112).

Point sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

**Please see the attached response to the Air Permit Engineer's comments on the modeling protocol.*

Volume sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

The volume sources representing the roadways were updated based on the EPA Haul Roads Workgroup memo. The volume sources are equally spaced and adjacent. Typical haul truck dimensions of 3 m tall x 3 m wide x 10 m long were used to calculate the Initial Sigma Y and Initial Sigma Z parameters for the volume sources. Volume sources were not used for locations with ambient air receptors within the volume's exclusion zone. The area source parameterization was use used for these sources.

Area sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

One area source (Source ID FUGI2K) was added for roadway emissions that are within the volume source exclusion zone. The parameters used for this area source follow the guidance in EPA's Haul Road Workshop memo.

Area source coordinates

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

The area source is a 9 m x 9 m square located at 495,099.36 mE, 4,979,253.07 mN.

Paved roads fugitive dust

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Receptors

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

To address MPCA's concerns on the Area of Impact Analysis, a uniform cartesian coordinate system with the following spacing was used for both the SIL and full modeling analyses.

-10 m spacing at fenceline

-20 m spacing out to 200 m

-50 m spacing from 200 m to 1 km

-100 m spacing from 1 km to 2 km

-250 m spacing from 2 km to 5 km

-500 m spacing from 5 km to 10 km

-1,000 m spacing from 10 km to 20 km

This grid extends well beyoned twice the distance from the center of the source to the most distant receptor exceeding the SIL (0.87 km)

Meteorological data

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Area of impact analysis

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Background values

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Nearby sources

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Pollutant based considerations

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Attachments

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

A source impact analysis and AQDM-11 is provided with this submission

**Please see the attached response to the Air Permit Engineer's comments on the modeling protocol.*

AERA forms

MPCA approved change: ☐ Yes ☐ No Date (mm/dd/yyyy): _____

Describe changes:

Section 3. Paved roads fugitive dust (Optional)

Facilities that have indicated in their e-Services submittal the exclusion of paved roads in the air dispersion modeling should provide the results of that modeling in Table 1. Results should **not** include fugitive dust from paved roads.

Table 1: Model results for paved roads fugitive dust exemption policy. (See tables 2 and 3 for categories and requirements)

	Averaging period	NAAQS ($\mu g/m^3$)	Total modeled NAAQS concentration (includes Background and Nearby Sources) ($\mu g/m^3$)	% of NAAQS	PSD Class II increments ($\mu g/m^3$)	Modeled class II increment impact concentrations ($\mu g/m^3$)	% of Class II increments
PM_{10}	24-hour	150		0.00%	30		0.00%
	Annual	-	-	-	17		0.00%
$PM_{2.5}$	24-hour	35		0.00%	9		0.00%
	Annual	12		0.00%	4		0.00%

Table 2:

	NAAQS				PSD Class II increments			
	NAAQS/MAAQS result(s) w/ background and nearby sources (%)	**Cat. 1**	**Cat. 2**	**Cat. 3**	***PSD Class II result(s) (%)***	**Cat. 1**	**Cat. 2**	**Cat. 3**
PM_{10}	**!Undefined Bookmark, TEXT190**	*# < 60%*	*60% < # < 95%*	*95% < #*	0.00%	*# < 35%*	*35% < # < 75%*	*75% < #*
$PM_{2.5}$	0.00%	*# < 80%*	*80% < # < 95%*	*95% < #*	0.00%	*# < 40%*	*40% < # < 80%*	*80% < #*

Table 3:

Cat 1:	Paved road fugitive emissions not required to be modeled, and no paved road fugitive dust permit conditions. Requirements in Minn. R. 7011.150 apply.
Cat 2:	Paved road fugitive emissions not required to be modeled, with paved road fugitive dust permit conditions determined by levels of traffic at the facility.
Cat 3:	Paved road fugitive emissions **are** required to be modeled, with site-specific paved road fugitive dust permit conditions. Re-modeling and/or addition of paved road fugitive emissions source group required.

Section 4. Modeling results

Table 2: Pollutants and averaging periods (Check all the boxes for each pollutant and averaging period(s) modeled.)

Pollutant	Averaging period	Standard		Increment	SIL
		NAAQS	MAAQS		
CO	1-hr	☐	☐	☐	☐
	8-hr	☐	☐	☐	☐
Lead	Rolling 3 mo. Avg	☒	☐	☐	☐

	Quarterly Avg	☐	☐	☐	☐
NO_2	1-hr	☐	☐	☐	☐
	Annual	☐	☐	☐	☐
SO_2	1-hr	☐	☐	☐	☐
	3-hr	☐	☐	☐	☐
	24-hr	☐	☐	☐	☐
	Annual	☐	☐	☐	☐
PM_{10}	24-hr	☒	☐	☐	☐
	Annual	-	-	☐	☐
$PM_{2.5}$	24-hr	☒	☐	☐	☐
	Annual	☒	☐	☐	☐

Table 3: NAAQS/MAAQS modeling results (Enter modeling results along with the percent of standard.)

Pollutant	Averaging period	NAAQS standard (ug/m^3)	MAAQS standard (ug/m^3)	Total modeled concentration (includes background and nearby sources) (ug/m^3)	Percent of standard (%)	
					NAAQS	MAAQS
CO	1-hr	40,071.5	40,071.5			
	8-hr	10,304.1	10,304.1			
Lead	Rolling 3 mo. Avg	0.15	0.15	0.0651	43.4%	
NO_2	1-hr	188.0	188.0			
	Annual	99.7	99.7			
SO_2	1-hr	196.4	196.4			
	3-hr	1309.3	1309.3			
	24-hr	366.6	366.6			
	Annual	78.6	78.6			
PM_{10}	24-hr	150.0	150.0	88.0179	58.7%	
$PM_{2.5}$	24-hr	35.0	35.0	33.0256	94.4%	
	Annual	12.0	12.0	8.803	97.8%	

Table 4: Increment modeling results (Provide the increment modeling results along with the percent of standard.)

Pollutant	Averaging period	Class II increment (ug/m^3)	Total modeled concentration (includes other increment sources) (ug/m^3)	Percent of standard (%)
NO_2	1-hr	-	-	-
	Annual	25		
SO_2	1-hr	-	-	-
	3-hr	512		
	24-hr	91		
	Annual	20		
PM_{10}	24-hr	30		
	Annual	17		
$PM_{2.5}$	24-hr	9		
	Annual	4		

Table 5: SIL modeling results (Provide the SIL modeling results along with the percent of standard.)

Pollutant	Averaging period	SIL (ug/m^3)	Total modeled concentration (ug/m^3)	Percent of standard (%)

NO_2	1-hr	7.52		
	Annual	1		
SO_2	1-hr	7.86		
	3-hr	25		
	24-hr	5		
	Annual	1		
PM_{10}	24-hr	5		
	Annual	1		
$PM_{2.5}$	24-hr	1.2		
	Annual	0.3		
CO	1-hr	2000		
	8-hr	500		

Section 5. Discussion

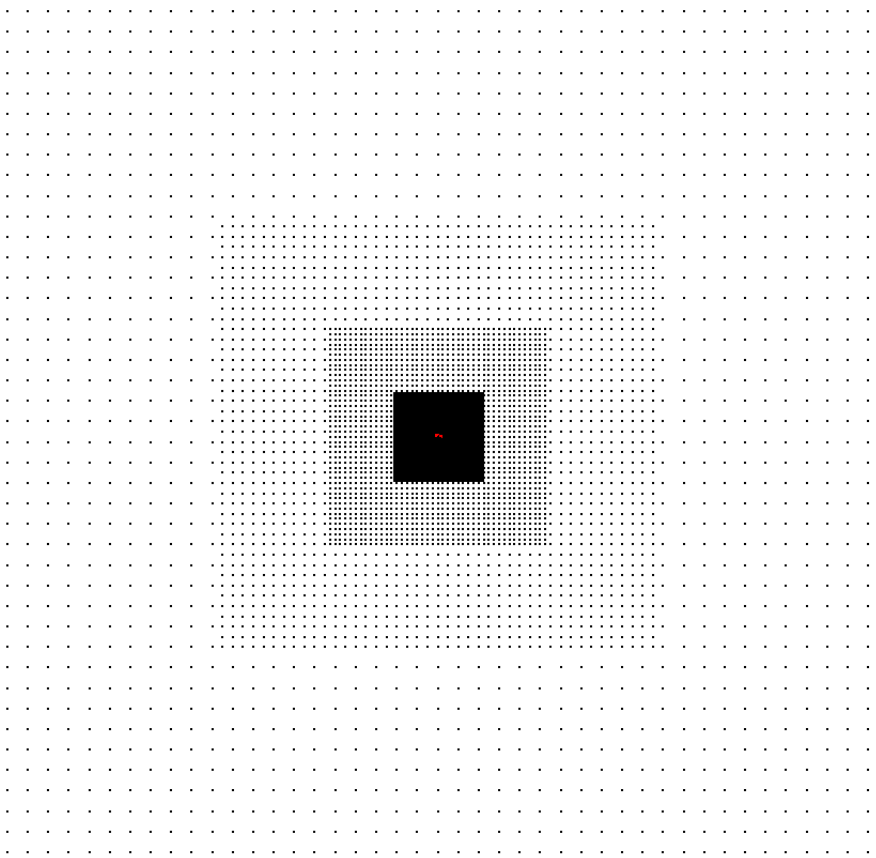
Enter any discussion or comments on the information provided in this form (this can be used as a substitute for a written report):

The modeling conducted for the changes to emission units at Northern Iron being proposed in this application demonstrates compliance with all relevant NAAQS. The modeled PM-10 concentration is 58.7% of the NAAQS. The modeled PM-2.5 24-hr concentration is 94.4% of the NAAQS and annual PM-2.5 is 97.8% of the NAAQS (which was recently lowered to 9.0 ug/m3). 3-month rolling concentrations of lead are 43.4% of the NAAQS. Based on these results, the emission controls being proposed will ensure compliance with NAAQS at this facility.

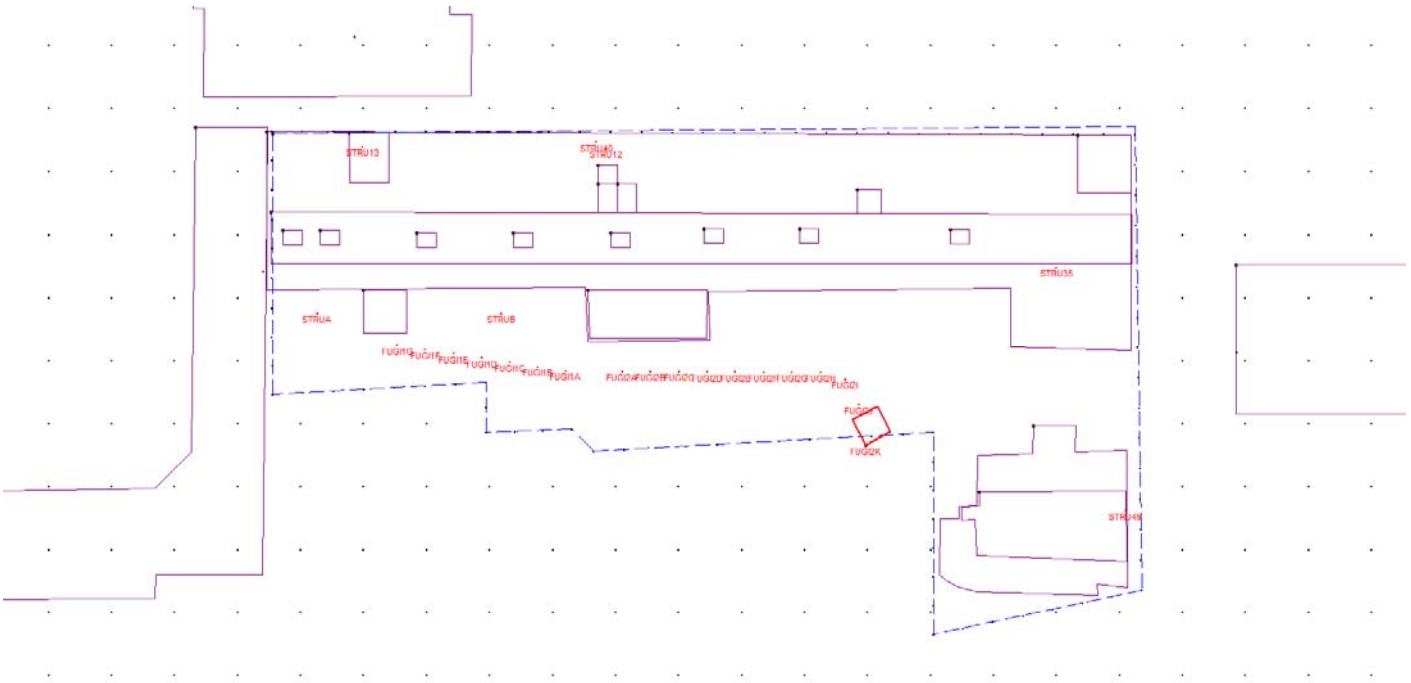
Section 6. Modeling results figures/maps

Insert a figure or map showing the facility emission sources, receptors, and the location of the modeled maximum concentration(s) for each applicable pollutant, corresponding averaging periods, and operating scenarios.

MODELED RECEPTOR GRID



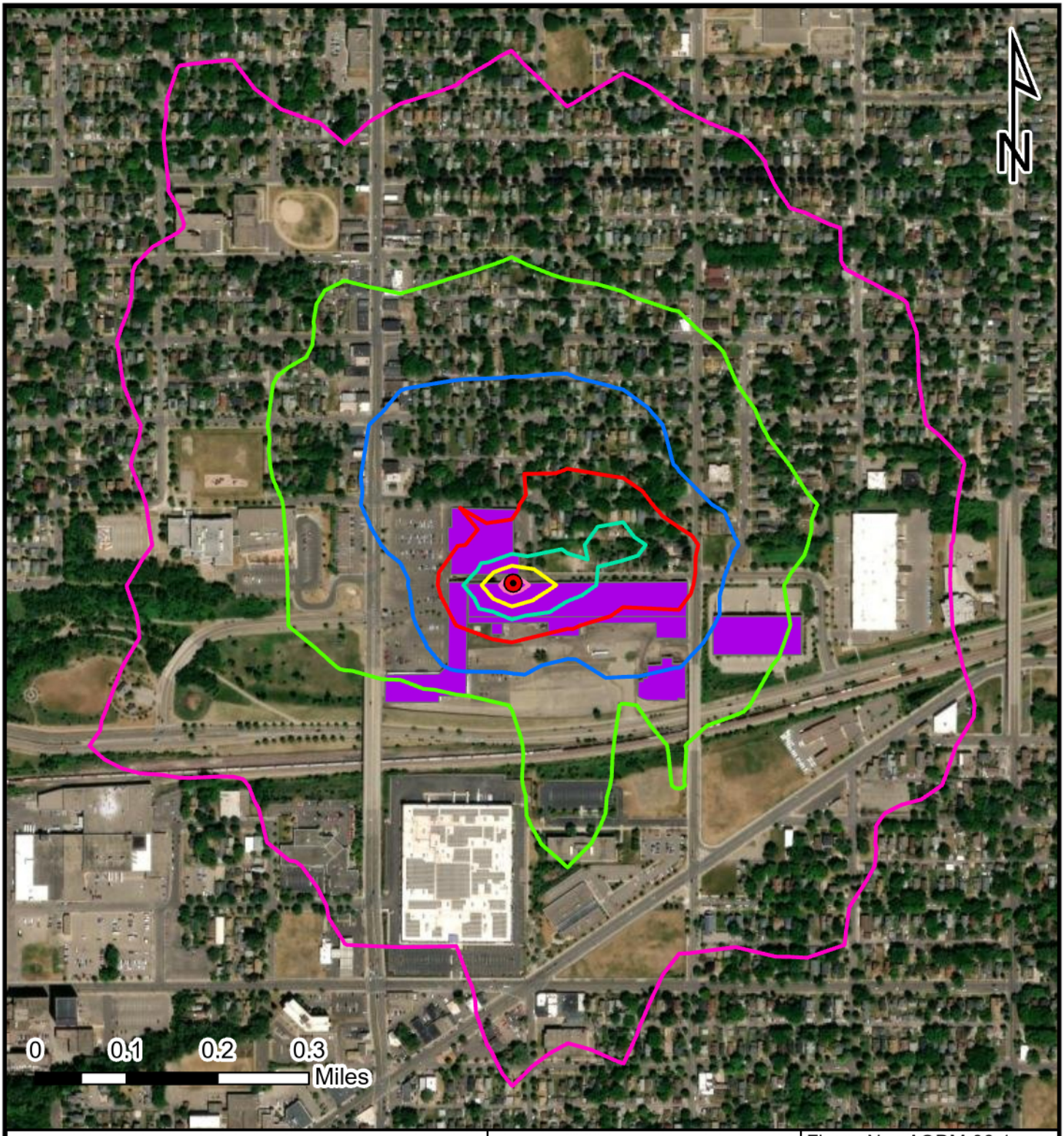
FACILITY EMISSION SOURCES



MODELED CONCENTRATIONS (See Attached Figures)

Acronyms

AERA	Air Emissions Risk Analysis
AERMAP	AERMOD Terrain Preprocessor
AERMET	AERMOD Meteorological Preprocessor
AERMOD	AMS/EPA Regulatory Model
AQ	Air Quality
AQDM	Air Quality Dispersion Modeling
AQDMR-01	Previous Modeling Results Form
BPIP-PRIME	Building Profile Input Program for PRIME
CO	Carbon Monoxide
EPA	U.S. Environmental Protection Agency
FAC	3-letter facility ID
MAAQS	Minnesota State Ambient Air Quality Standard
MPCA	Minnesota Pollution Control Agency
NAAQS	National Ambient Air Quality Standard
NO_2	Nitrogen Dioxide
OU	Operable Unit
Pb	Lead
PM_{10}	Particulate Matter less than 10 um in size
$PM_{2.5}$	Particulate Matter less than 2.5 um in size
PRIME	Plume Rise Model Enhancements
PSD	Prevention of Significant Deterioration Program
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
SIP	State Implementation Plan
SMS	Standardized Mobile Source
$\mu g/m^3$	Micrograms per cubic meter ($\mu g/m^3$)
UTM	Universal Transverse Mercator



Legend

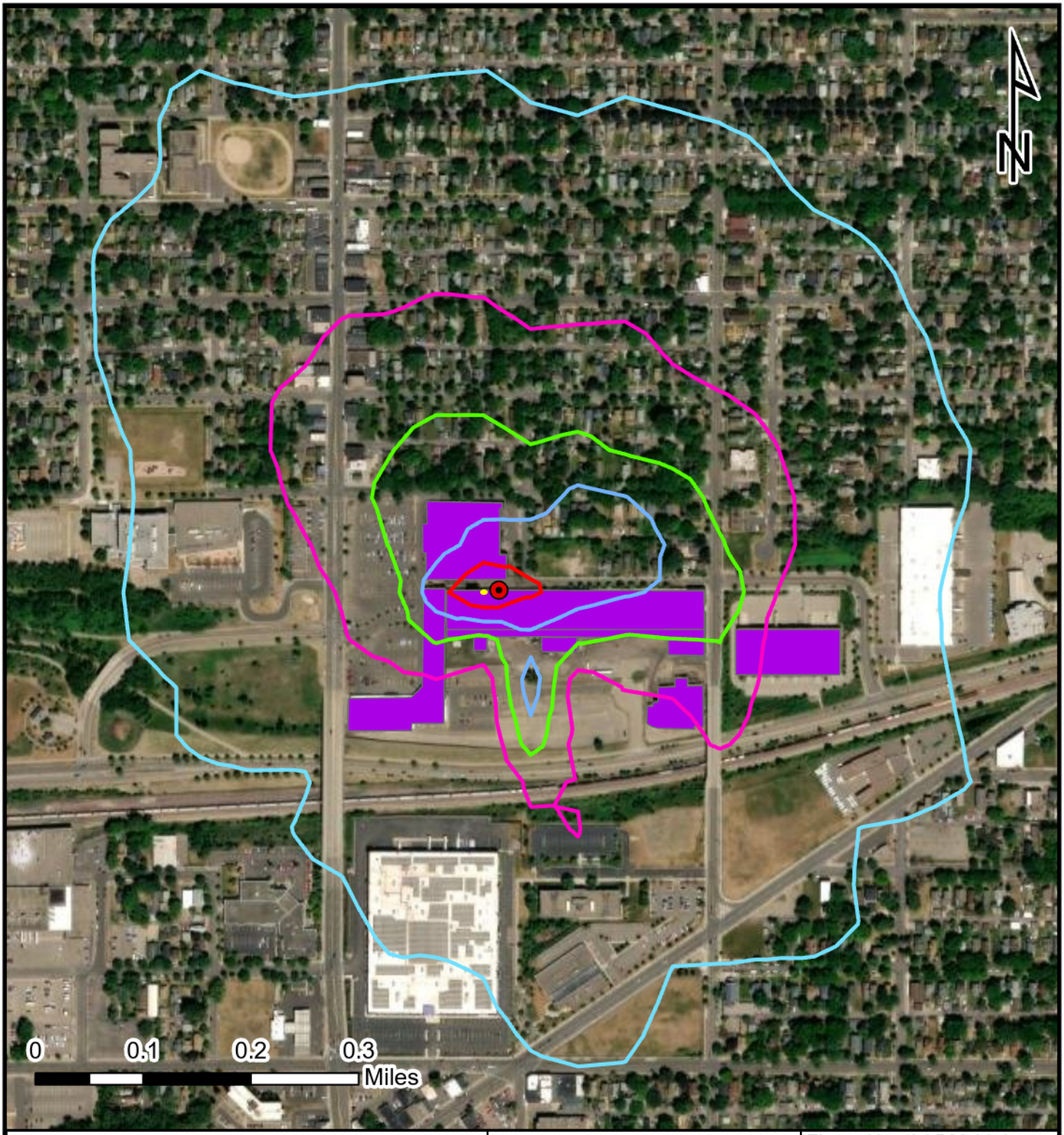
- 70.0 µg/m3
- 72.5 µg/m3
- 75.0 µg/m3
- 77.5 µg/m3
- 80.0 µg/m3
- 82.5 µg/m3
- 85.0 µg/m3
- Max Concentration = 88.02 µg/m3
- Buildings

PM10 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-1
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

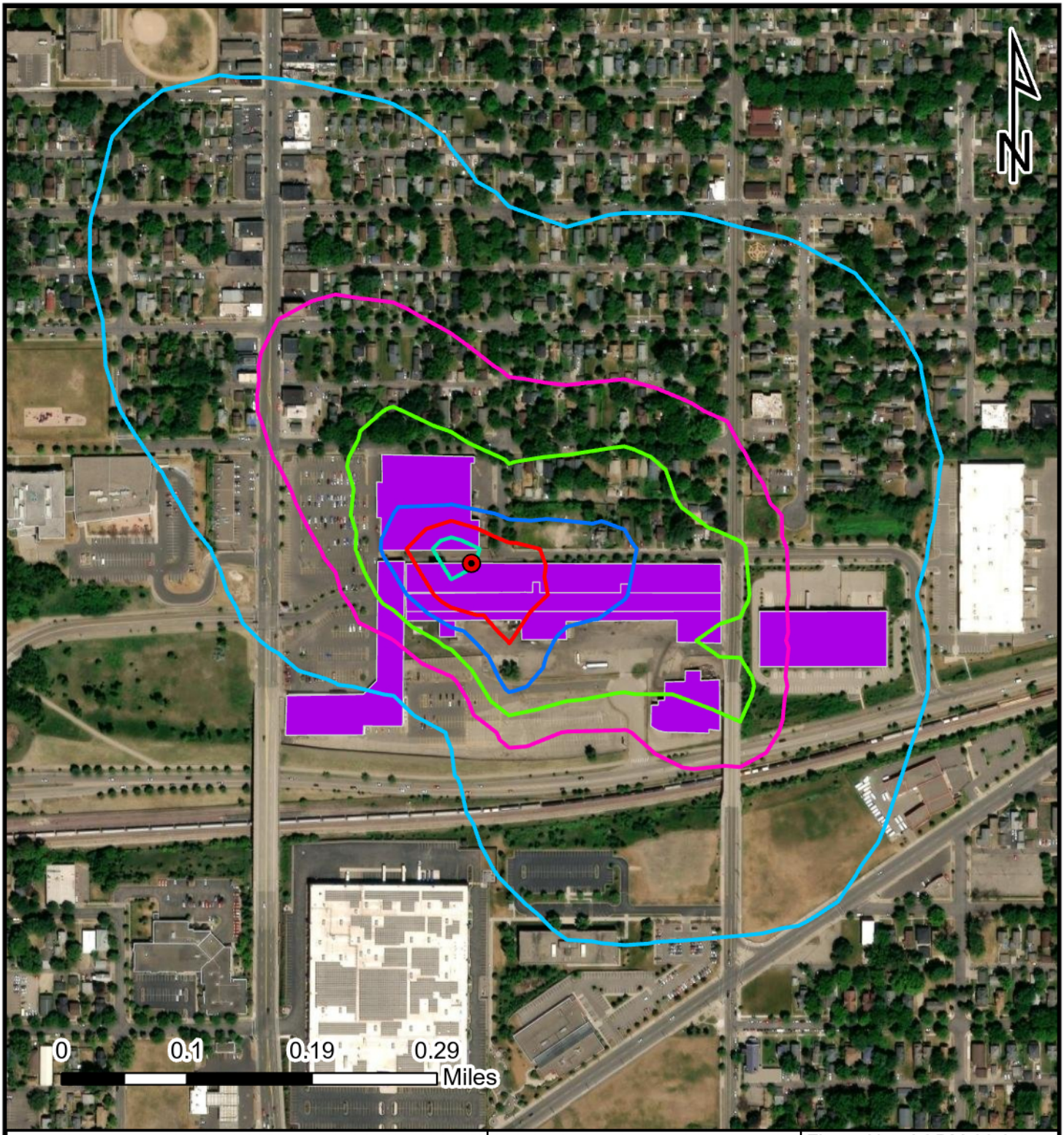
- Buildings
- 22.5
- 24.0
- 25.5
- 27.0
- 28.5
- 30.0
- Max Concentration = 33.03 µg/m3

PM 2.5 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-2
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

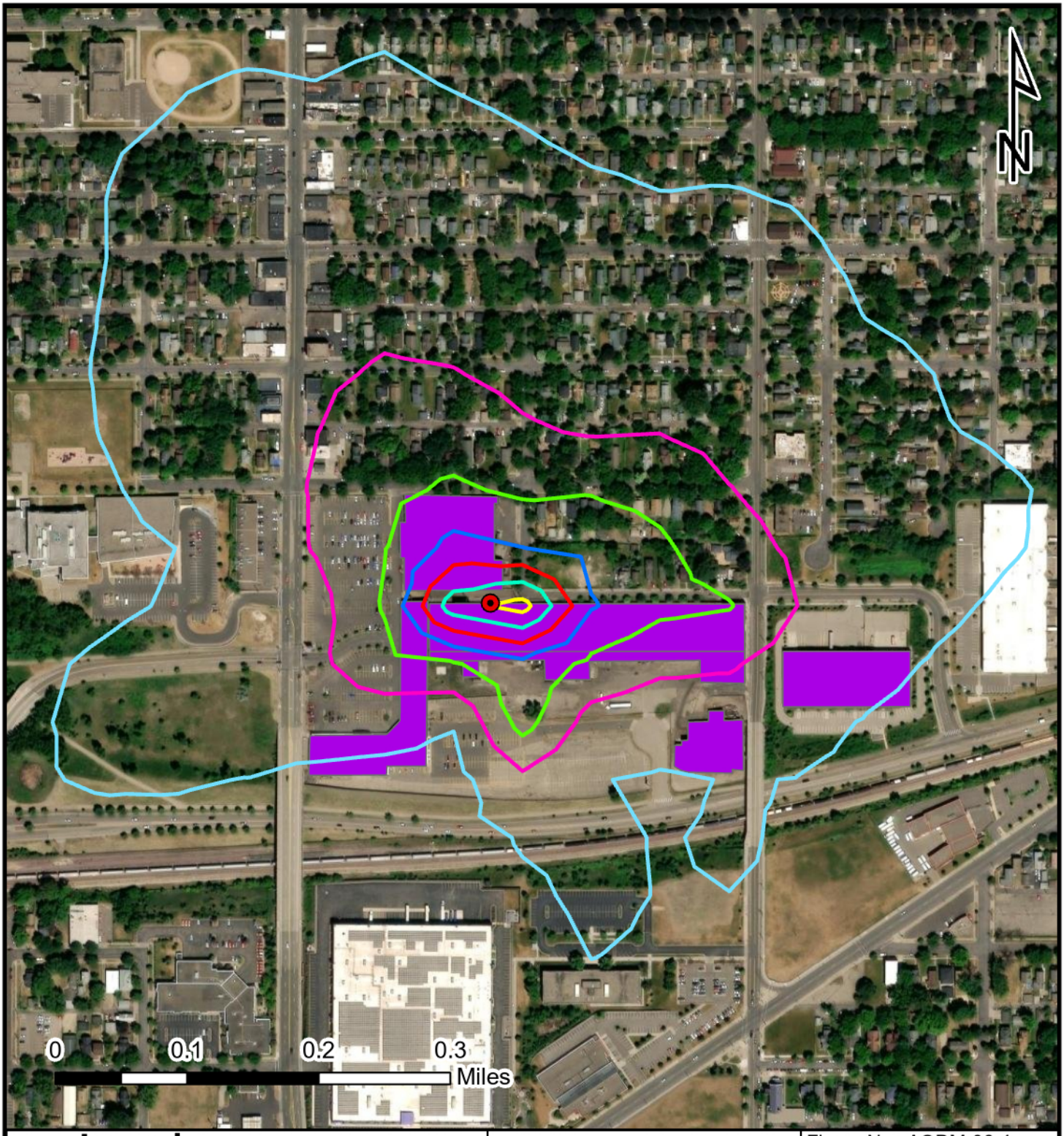
- 7.4 µg/m3
- 7.6 µg/m3
- 7.8 µg/m3
- 8.0 µg/m3
- 8.2 µg/m3
- 8.4 µg/m3
- Max Concentration = 8.80 µg/m3
- Buildings

PM2.5 ANNUAL CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-3
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

- 0.042 µg/m3
- 0.045 µg/m3
- 0.048 µg/m3
- 0.051 µg/m3
- 0.054 µg/m3
- 0.057 µg/m3
- 0.06 µg/m3
- Max Concentration = 0.0651 µg/m3
- Buildings

MONTHLY LEAD CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-4
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey

AQDM-06 Supplemental Information

Please see the following responses to comments made by the MPCA Air Permit Engineer on the modeling protocol. The Permit Engineer's comments are included followed by a response in bold text.

- **Point Sources**

  For the next modeling submittal:

  1) Include Justification for not including the following stacks in the modeling: STRU 4 and STRU 6-11

     STRU 4, STRU6, STRU10 and STRU11 are inactive and are being removed from the site. STRU 7, STRU8, and STRU 9 are active, but their emissions will be routed to the new dust collectors, therefore, they will not emit after this permitting action.

  2) Include Justification for not including the following emission units in the modeling: EQUI11 and EQUI 40

     EQUI 11 is an existing source, but it only emits VOC. Therefore, it does not need to be included in the modeling demonstration. EQUI 40 has been removed from the site.

  3) Correct the following stack parameters to match the current effective permit no. 12300088-003 (current permit) or confirm that the stack parameters need to be revised as shown in the modeling:

     - STRU 12: This stack is defined in the current permit as having a stack height of 7.62 m, but was modeled at 10.67 m; and

       The stack height for STRU 12 is being extended to 10.67 m (as modeled).

     - STRU 13: This stack is identified in the current permit as having a diameter of 1.2 m, but was modeled at 0.91 m.

       The stack exit diameter for STRU 13 is being reduced to 0.91 m (as modeled).

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4) Clarify proposed controls by identifying a TREA XXX with each control efficiency or performance test data used in the calculations where control is assumed.

   The proposed controls for each source have been identified in the emission calculations provided with Form GI-07.

5) Why were new combustion units EQUI 54-56 (see AQMD-02, Combustion Emissions) not modeled? If these emission sources are not being proposed, remove them. If these emission sources are being proposed, either justify why they are not being modeled or include them in the modeling, whichever is correct.

   The combustion emissions from EQUI 54-56 are emitted from STRU12 and are included in the model.

6) Do not double count emissions from EQUI 120. This modeling shows that emissions of PM10/2.5/lead from EQUI 120 will be 100% captured and both:

   - 93% controlled before being vented out STRU 35; and

   - Uncontrolled before being vented out STRU 49.

   Model only the correct venting relationship and remove the other relationship.

   Emissions from EQUI120 are vented uncontrolled from STRU 49. The modeling has been updated to remove EQUI 120 emissions from STRU 35.

7) Do not double count emissions from IA-03, IA-04, IA-05, and IA-06. This modeling shows emissions of PM10/PM2.5 from:

   - IA-02, 03, 04, 05, 06 combined

   - IA-03, IA-04, IA-05, IA-06 individual

     Were all modeled venting out STRU B. Model each IA only once.

   The IA Number for Woodworking Saw #1 is IA-02. The additional IA numbers shown for this saw were a typo and have been removed from the emission calculation table.

- **Attachment: AQDM-02 Form**

  For the next modeling submittal:

  1) EQUI 3-5, EQUI 63, EQUI 65-66, and EQUI 80-84

     Lead: Provide a link or other documentation for the CERP document referenced.

     The CERP document can be found at the following website:

     https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

     References to this link have been added to the calculation table in Form GI-07 for these sources.

  2) EQUI 12-13

     Why are PM10/PM2.5/lead emission rates divided by 100? Note: when the cell is the percentage type dividing by 100 is redundant and can be removed. Provide a sample calculation to show the proposed emission factor adjustment and, if this is a percentage correction, revise the calculation. Because EQUI 12-13 emissions are identified as 100% captured, there should be 0 uncaptured emissions (24-hr fugitive emission rates). Revise these calculations. Note: Within the same parenthesis numbers will always be divided first and subtracted second. (1-100%/100) will divide 100% by 100 first giving a value of 0.01, which will then be subtracted from 1. Correcting the formula to (1-100%) or (1-(100/100)) should fix this error.

     The PM_{10}/$PM_{2.5}$/lead emission calculations for EQUI 12-13 have been updated to remove the division of 100 from 100%. This correction results in all the emissions being emitted from the captured vent (since 100% of the emissions are captured) and zero uncaptured emissions.

  3) EQUI 16, EQUI 51, and EQUI 58

     Lead: Why was the emission rate calculated using adjusted values from Melting & Refining instead of the capacity of the emission unit? Clarify.

     The emission factor for HAP emissions from shot blasting published by the American Foundrymen's Society Air Quality Committee and MACT Task Force is based on pounds of emissions per ton of metal melted/poured. Therefore, the maximum hourly tonnage of metal melted in one hour at the site is used for this

emission calculation. Since this throughput is for the entire site, the emissions calculated using this factor are then distributed between the blast booths based on the ratio of their rated hourly shot capacity over the total shot capacity for all three booths. The emission calculation spreadsheet has been updated to list the melt capacity associated with the site and to better define the units of the emission factor used for PM_{10}, $PM_{2.5}$, and lead.

4) EQUI 16, EQUI 51, EQUI 58, and EQUI119

MPCA calculation workbooks are collections of citations and only the specific source of the chosen emission factor should be cited, not a reference to the entire calculation workbook. Revise.

The citation for the emission factors used for these sources has been updated to identify which factors are used in the calculation workbook and, where documented, the source of the factor.

5) EQUI 39

PM10: When using AP-42, Table 12.10-7 as shown in the calculations Melting & Refining tab (to calculate captured/controlled emissions prior to venting to the atmosphere), the Total Emission Factor (1.8 lb of pollutant/ton of gray iron produced) should be used. Revise.

The emission factors shown in Table 12.10-7 as "Emitted to Atmosphere" account for the settling of material in the work environment prior to being vented to the atmosphere. The magnesium treatment activities at the site emit into the foundry building (the work environment), where larger/heavier particles can settle prior to the smaller/lighter particles being captured and routed to the new emissions control device. These emissions are not directly routed to the control device. Therefore, the settling of particles will occur prior to capture and control and the use of the "Emitted to Atmosphere" emission factor is appropriate.

PM2.5: Provide a link or other documentation for the EPA Augmentation Calculator Tool Data. This assumption cannot be evaluated without additional documentation.

Since the smaller/lighter particles are the only ones emitted from this source, the $PM_{2.5}$ calculations for EQUI 39 assume that $PM_{2.5}$ emissions are equal to PM_{10} emissions. Therefore, the EPA's PM Augmentation Calculator Tool was not

used for this calculation and the reference to the tool has been removed from the emission calculation table.

Lead: Where does 0.05 lb HAP/tons of metal (HAP emission factor) come from? Provide a link or other documentation. (If the HAP emission factor is from the "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" provide a link or copy of the document).

The 0.05 lb HAP/tons of metal emission factor comes from Table 2 in the Casting Emission Reduction Program's document titled "CERP Organic HAP Emission Measurements for Iron Foundries and their Use in Development of an AFS HAP Guidance Document". This document can be found at the following link:

https://gaftp.epa.gov/ap42/ch12/s10-13/Technikon%202006.pdf

Table 2 can be found on Page 25 of this document (Page 31 of 36 in the pdf). The footnote for this emission calculation in Form GI-07 has been updated to include a reference to this link.

Provide a link or other documentation for the CERP document referenced, not just a screenshot of Table 5.16.

The CERP Document can be found at the following link:

https://gaftp.epa.gov/ap42/ch12/s10-13/CERPMexicoBaseline_1997.pdf

Table 5.16 can be found on Page 66 of this document (Page 82 of 154 in the pdf). The footnote for this emission calculation in Form GI-07 has been updated to include a reference to this link.

6) EQUI 52 - 53

Provide a link or other documentation for the PM Augmentation – Sand Handling referenced.

The EPA's PM augmentation data is contained in the EPA's Augmentation Calculator Tool, which is a large Microsoft Access database that can be downloaded at the following link:

https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm_aug_tool_v1.2_20may2016.zip

This tool provides mass percentages of PM_{10} and $PM_{2.5}$ relative to total PM emissions from various source types. The percentages used are specific to sand handling operations (SCC 30400350). Every factor for the sand handling SCC shows an adjustment of 85% of PM as PM_{10} and 30% of PM as $PM_{2.5}$. The following table is a subset of the data included in the augmentation calculator tool related to sand handling.

SCC	Description primary control	Description secondary control	PMCALC_PMFIL_ UNCONTROLLED	PMCALC_PM10FIL_ UNCONTROLLED	PMCALC_PM25FIL_ UNCONTROLLED
30400350	Uncontrolled	Uncontrolled	100%	85%	30%
30400350	Uncontrolled	Baghouse	100%	85%	30%
30400350	Uncontrolled	Fabric Filter	100%	85%	30%
30400350	Baghouse	Uncontrolled	100%	85%	30%
30400350	Baghouse	Baghouse	100%	85%	30%
30400350	Baghouse	Fabric Filter	100%	85%	30%
30400350	Fabric Filter	Uncontrolled	100%	85%	30%
30400350	Fabric Filter	Baghouse	100%	85%	30%
30400350	Fabric Filter	Fabric Filter	100%	85%	30%

The emission calculation table in Form GI-07 has been updated to reference the location of the PM Augmentation Tool.

7) EQUI 60 - 62, EQUI 64, EQUI 67 - 71, EQUI 73 - 79, EQUI 85 -98, EQUI 102, EQUI 103, EQUI 105 - 113, and EQUI 115 - 116

PM10/PM2.5: Why are the emission factors cited as AP-42, Table 11.19.1-1 when they don't match any of the emission factors in the table? Revise the citation to provide the correct source. If emission factors are adjusted, provide a sample calculation documenting all variables and including units for each variable.

The footnote referencing the emission factor for these sources has been updated to reflect that it is based on a calculation derived from AP-42 Table 11.19.1-1 and was approved by MPCA. The emission factor is calculated and documented on the Sand Handling EF tab in the workbook.

8) EQUI 63, EQUI 65 – 66, and EQUI 80 – 84

PM10/PM2.5: Why is the lbs/ton of metal emission factor seemingly being divided by the number of equipment? If proposing a restriction on the total capacity of a collection of equipment, adjust the capacities, not the emission factor. Provide a sample calculation to show the proposed emission factor adjustment.

The emission factor for shakeout operations provided in AP-42 is for all equipment in each shakeout line combined. Therefore, the reported emission factor was divided by the number of components in each shakeout line at the site. The total shakeout emission factor is accounted for and is distributed to each piece of equipment, as including the total shakeout factor for each item in the shakeout line would inappropriately overestimate emissions from this operation. A footnote has been added to the calculations to describe this adjustment.

9) EQUI 72 and EQUI 104

PM2.5: Provide a sample calculation documenting all variables and including units for each variable used in the calculated emission factor.

A description of how the $PM_{2.5}$ emission factor is calculated has been added to the footnotes of the emission calculation table in Form GI-07.

10) EQUI 118

Where do the PM10/PM2.5 emission factors come from? Does Note 1 apply? Only Note 2 is referenced; note 2 only identifies how to speciate a PM emission factor, it is not the emission factor shown. Revise to document the source of the emission factors used. If any calculations are included, show all work including units and citations.

The PM Emission Factor is from the Modern Casting article "An Inventory of Iron Foundry Emissions" dated January 1972. The document speciates the PM emissions from the EPA Fire emission factor for SCC 30400340 to distinguish emissions from shot blasting versus grinding. The operations for EQUI 118 are solely grinding; therefore, the listed lb/ton emission factor for Grinding is representative. The PM_{10} emissions factor is calculated by multiplying the total PM_{10} emission factor by the ratio of PM for grinding to total PM for SCC 30400340 [PM_{10} Factor = (Grinding PM Factor of 1.6) / (EPA Fire PM Factor 17 lb/ton) * (EPA Fire PM_{10} Factor of 1.7 lb/ton)]. $PM_{2.5}$ is assumed to equal PM_{10}. Though fallout

is expected to occur, no reduction for fallout is claimed. The footnote referencing the emission factor for EQUI 118 in Form GI-07 has been updated to include this information.

11) IA-02 – IA-07

According to EPA's website, AP-42, 4th Edition is available for historical purposes only. Replace the obsolete emission factors.

The emission factors have been updated to be based on the factors for a sawmill reported in the EPA's May 8, 2014 Memo titled "Particulate Matter Potential to Emit Emission Factors for Activities at Sawmills, Excluding Boilers, Located in Pacific Northwest Indian Country". The factors for sawing are now used for these sources. Since the emission factors are based on pounds of emissions per ton of wood sawn, the capacities for each source have been updated to reflect tons of wood processed per hour. A link to the EPA memo is provided below:

https://19january2021snapshot.epa.gov/sites/static/files/2016-09/documents/spmpteef_memo.pdf

12) IA-08 – IA-17

The PM10/PM2.5 emission factors used in the calculations do not appear to be from AP-42 Table 12.10.7. Revise emission factor.

The emission factor for these sources has been updated to the "Emitted to Atmosphere" factor published for uncontrolled cleaning & finishing operations in AP-42 Table 12.10-7.

13) IA-18

Provide a citation for the 90% wet scrubber control efficiency used to adjust the AP-42 Table 11.19.1-1 emission factor.

The 90% wet scrubber efficiency was obtained from AP-42, Appendix B-2, Table B.2-2. The value used is the lowest efficiency reported for a hi-efficiency wet scrubber.

14) STRU 12 - 13

It is unclear what is meant by PM Augmentation or where the identified values come from. Describe these values and include the citation.

STRU 12 and 13 vent emissions primarily from sand handling operations. Please see the response to Item 6 above for an explanation of the EPA's Augmentation Tool and how it was used to estimate PM_{10} and $PM_{2.5}$ emissions for sand handling operations.

15) Note – Melting & Refining, Metal Finishing: All lead emission factors referencing the "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Quality Committee and MACT Task Force, (except at EQUI 39) indicate that this document doesn't identify individual HAPs (i.e. that this source was NOT used for lead emission factors).

The footnotes for the calculations that refer to this document have been updated to make it clear how the total HAP emission factor is used when calculating lead emissions.

16) Note: The following emission units were modeled at annual throughput rates that exceed maximum capacity:

EQUI 51: Why was an annual throughput restriction of 32,400 tons/year of metal proposed when annual throughput is only (200 lb/hr)(1 ton/2000 lb)(8760 hr/yr) = 876 tons/year of metal?

EQUI 72 - 79, EQUI 85 - 91, EQUI 95 - 97, EQUI 102, EQUI 105, EQUI 110, and EQUI 115: Why was an annual throughput restriction of 324,000 tons of sand/year proposed when annual throughput is only (26 tons/hr)(8760 hr/yr) = 227,760 tons of sand/year?

Although this is conservative, it is not accurate and should be revised.

The annual throughput used in the emission calculations for these sources has been updated to be based on the source's hourly throughput occurring continuously for an entire year.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

AQDM-11

Air Quality Dispersion Modeling (AQDM)
Significant Impact Level (SIL) analysis
and results form

Doc Type: Air Dispersion Modeling

Instructions: If a preliminary SIL analysis has been conducted for this project, please provide results in table H-01 below. Please also attach corresponding model output files with your e-Services submittal.

Note: Refer to the Minnesota Pollution Control Agency's (MPCA) Modeling Practice Manual, "How To Model, Part II: Setting Up the Model," "Step one – Impact Area Evaluation" for more information.

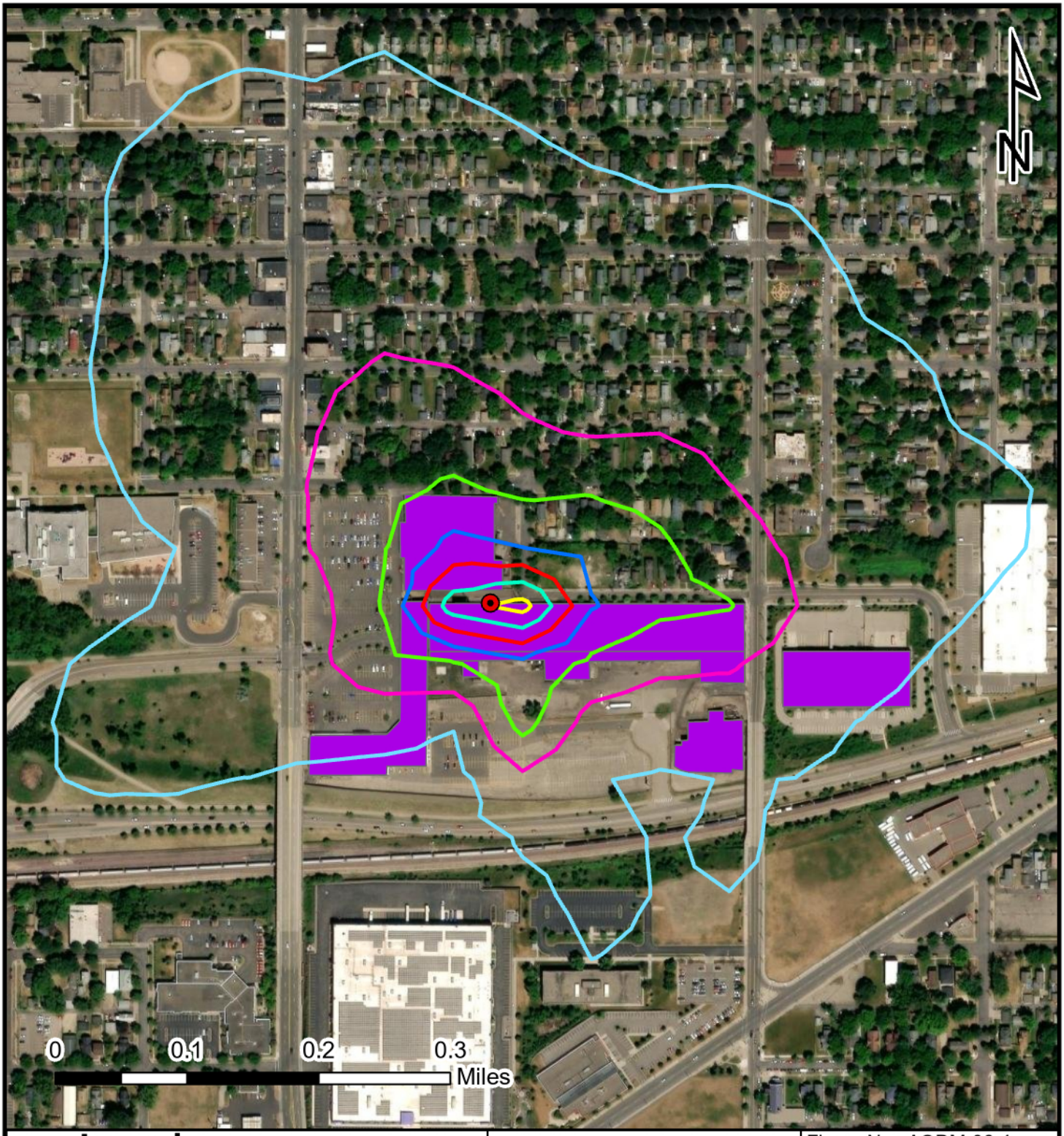
SIL analysis and results

Table H-01, Class II Significant Impact Levels modeling results:

Pollutant	Averaging time	Modeled impacts (H1H) (µg/m^3)	SILs (µg/m^3) **As of 10/26/2010*	% of SIL	Exceed SIL?	Radius of impact (If exceeds SIL)
SO_2	*1-hr*		7.83	0.00%	(blank)	km
	3-hr		25	0.00%		
	24-hr		5	0.00%		
	Annual		1	0.00%		
PM_{10}	*24-hr*	22.44	5	449.00%	Yes - Refined Modeling	0.58 km
	Annual		1	0.00%		
$PM_{2.5}$	*24-hr*	12.91	1.2	1075.80%	Yes - Refined Modeling	0.87 km
	Annual	1.70	0.3	576.70%		
NO_2	*1-hr*		7.52	0.00%	(blank)	km
	Annual		1	0.00%		
CO	*1-hr*		2000	0.00%	(blank)	km
	8-hr		500	0.00%		

Additional information for this section that was not included above (if not applicable, place N/A in field below):

SIL analysis was conservatively modeled using the propoesd permitted emissions for all onsite sources.



Legend

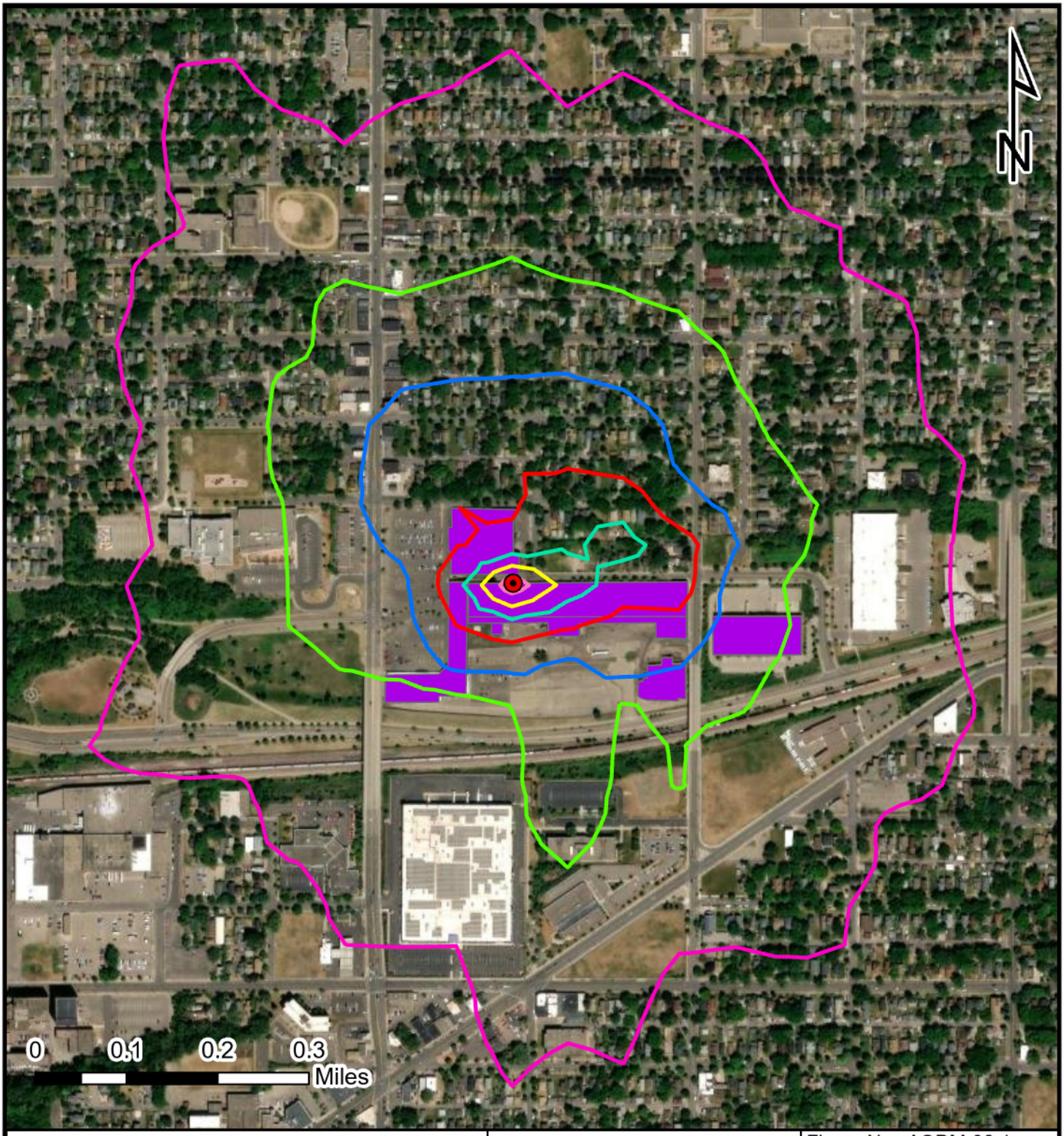
- 0.042 µg/m3
- 0.045 µg/m3
- 0.048 µg/m3
- 0.051 µg/m3
- 0.054 µg/m3
- 0.057 µg/m3
- 0.06 µg/m3
- Max Concentration = 0.0651 µg/m3
- Buildings

MONTHLY LEAD CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-4
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

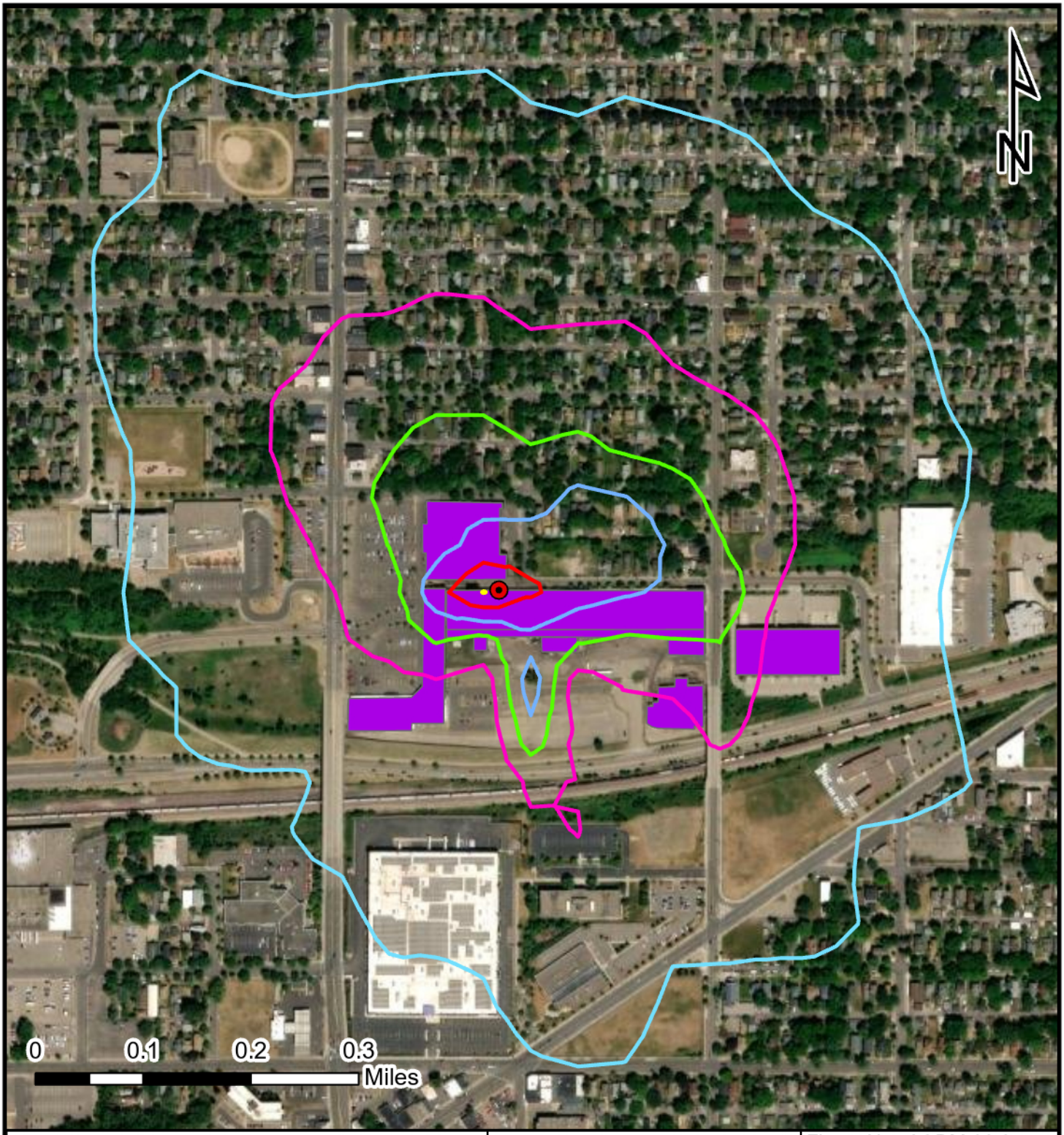
- 70.0 µg/m3
- 72.5 µg/m3
- 75.0 µg/m3
- 77.5 µg/m3
- 80.0 µg/m3
- 82.5 µg/m3
- 85.0 µg/m3
- Max Concentration = 88.02 µg/m3
- Buildings

PM10 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-1
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

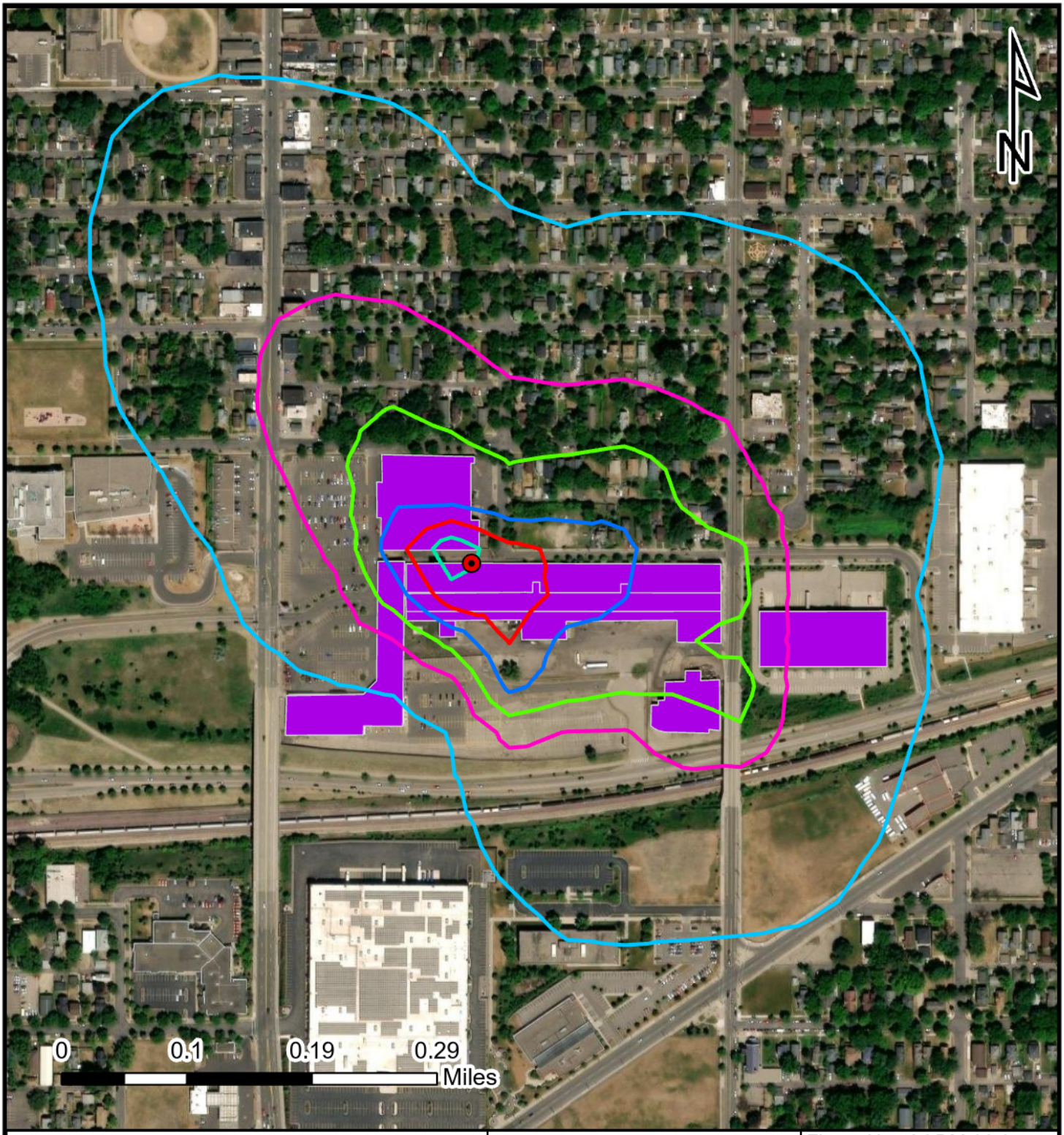
- Buildings
- 22.5
- 24.0
- 25.5
- 27.0
- 28.5
- 30.0
- Max Concentration = 33.03 µg/m3

PM 2.5 24 HOUR CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-2
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey



Legend

- 7.4 µg/m3
- 7.6 µg/m3
- 7.8 µg/m3
- 8.0 µg/m3
- 8.2 µg/m3
- 8.4 µg/m3
- Max Concentration = 8.80 µg/m3
- Buildings

PM2.5 ANNUAL CONCENTRATION PLOT
NORTHERN IRON, LLC
RAMSEY COUNTY, MINNESOTA

Figure No.:	AQDM-06-3
Date:	9/5/2024
Project No.:	24268.00A
Drawn By:	EArmstrong
Revision No.:	1

SPIRIT ENVIRONMENTAL
20465 State Highway 249, Suite 300
Houston, TX 77070

Note: This is not a Property Boundary Survey