

## **State Operating Permit Modification Application**

Air Emission Permit No. 123-00088-003

## **Northern Iron LLC**

Saint Paul, Minnesota January 31, 2025

PREPARED FOR:

Northern Iron LLC

Saint Paul, Minnesota

MPCA INTEREST ID NUMBER: 3518 MPCA TRACKING NUMBER: 7645 SPIRIT PROJECT: 24268.00A

FOR SPIRIT ENVIRONMENTAL:

Robert Osborn

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**

1.0	Executive Summary 1–1		
2.0	Introduction		
3.0	Project/Modification Description		
4.0	Process Description		
5.0	Regulatory Applicability5-1		
	5.1 State Rules		
	5.2 NESHAP		
6.0	Application Forms6–1		
7.0	Emission Calculations7–1		



## **List of Tables**

Table 3-1	Decommissioned/Removed Equipment	3–3
Table 3-2	Equipment Installed After Current Permit Issuance	3–4
Table 3-3	Currently Permitted Emission Units	3–5
Table 3-4	Summary of Control Equipment Relationships	3–7



## **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:

- Include equipment installed prior to current permit issuance but not listed in the permit,
- Include equipment installed after current permit issuance,
- Remove equipment removed since the current permit issuance,
- Request increases to material throughput limits, and
- Notify the agency of the planned replacement of the filters in two (2) existing baghouses (Control Equip ID Numbers TREA2 and TREA23) with higher efficiency filters.

Northern Iron provided notice to the agency of the planned installation of two additional dust collectors (TREA46 and TREA47) on August 20, 2024. This notification was resubmitted to the MPCA in October 2024 to address the reviewer's comments and to include the installation of an additional dust collector (TREA48). As referenced in previous correspondence with MPCA, in December 2024, the filter media in TREA48 ignited and started a small fire in the control device. As a response to that fire, Northern Iron has shut down TREA48, will be removing TREA48, and sealing off its associated stack (STRU35). The emissions formerly captured by TREA48 will be vented inside of the building where they will be captured and controlled by TREA47.



## 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 Section 6.0. The emission calculations supporting the changes in this application are detailed in Section 7.0.



## 3.0 **Project/Modification Description**

Northern Iron LLC submits this application to modify Air Emission Permit No. 123-00088-003 to:

- Include equipment installed prior to current permit issuance but not listed in the permit,
- Include equipment installed after current permit issuance,
- Remove equipment removed since the current permit issuance,
- Request increases to material throughput limits, and
- Notify the agency of the planned replacement of the filters in two (2) existing baghouses (Control Equip ID Numbers TREA2 and TREA23) with higher efficiency filters.

Northern Iron provided notice to the agency of the planned installation of two additional dust collectors (TREA46 and TREA47) on August 20, 2024. This notification was resubmitted to the MPCA in October 2024 to address the reviewer's comments and to include the installation of an additional dust collector (TREA48). As referenced in previous correspondence with MPCA, in December 2024, the filter media in TREA48 ignited and started a small fire in the control device. As a response to that fire, Northern Iron has shut down TREA48, will be removing TREA48, and sealing off its associated stack (STRU35). The emissions formerly captured by TREA48 will be vented inside of the building where they will be captured and controlled by TREA47.

As part of the baghouse notification, Northern Iron is sealing off the "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 two (2) new dust collectors (Control Equip ID Numbers: TREA46 and TREA47).

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<sup>2</sup>) of total filter media area for an Air-To-Media Ratio of 2.21:1. These collectors will use Airmax NX Cellulose Blend with Nanofiber Media which has an emissions guarantee of no more than 0.002 grains per dry standard cubic foot (gr/dscf). These filters also have rated control efficiencies of >99.9% for PM and PM<sub>10</sub> and 99.28% for PM<sub>2.5</sub>. 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.

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.

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:



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 3-1 Decommissioned/Removed Equipment

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



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	

### Table 3-2 Equipment Installed After Current Permit Issuance

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.



EU	Description	Component EQUI	Component Description	Status
		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
	DISA Line Sand Handling	EQUI86	DISA Return Sand Elevator	Existing
E0008		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
		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
ELIOOO	30^2 Line Sand	EQUI92	30^2 Discharge Conveyor	Existing
E0009	Handling	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
	Core Sand Handling	EQUI111	ABC6 Sand Tank	Existing
EU010		EQUI112	Disco Sand Tank	New
		EQUI113	Sand Loading (CR16 and CR22)	Existing
		EQUI80	DISA #1 Oscillator	Existing
		EQUI81	DISA #2 Oscillator	Existing
EU017	DISA LINE Mold	EQUI82	DISA #3 Oscillator	Existing
	Shakeout	EQUI83	DISA Didion	Existing
		EQUI84	DISA #5 Oscillator	Existing
		EQUI63	30^2 Unit 10	Existing
EU018	30^2 Line Mold Shakeout	EQUI65	30^2 Unit 11	Existing
		EQUI66	30^2 Unit 12	Existing

## **Table 3-3 Currently Permitted Emission Units**

Table 3-4 below detail which EQUIs are controlled by each control device. TREAs 46 and 47 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).

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
			EQUI81	DISA #2 Oscillator
		EU017	EQUI82	DISA #3 Oscillator
			EQUI83	DISA Didion
			EQUI54	West CR16
		EU013	EQUI55	EAST CR16
			EQUI56	CR-22
			EQUI72	DISA Line Muller
			EQUI85	DISA Mag Belt
TREA2	DISA Line Sand Handling Bagbouse		EQUI86	DISA Return Sand Elevator
	Dagnouse		EQUI87	DISA 125 Ton Sand Bin
			EQUI88	DISA 125 Ton Belt
		EU008	EQUI89	DISA New/Old Belt
			EQUI90	DISA New/Old Elevator
			EQUI91	DISA Muller Storage Tank
			EQUI96	DISA Bond Day Tank
			EQUI105	DISA Bond Transport
			EQUI115	DISA Hopper
		EU018	EQUI63	30^2 Unit 10
		EU010	EQUI111	ABC6 Sand Tank
			EQUI112	Disco Sand Tank
			EQUI62	30^2 Machine Incline
			EQUI64	30^2 Mag Belt
			EQUI67	30^2 Return Sand Elevator
			EQUI68	30^2 Aerator
	2002 Line Cond Llondling		EQUI69	30^2 Incline to Blower
TREA23	Bachouse		EQUI70	30^2 Blower
	Dagnoadd	EU009	EQUI71	30^2 Sand Cooler
		20003	EQUI103	30^2 Return Stand Tank
			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
			EQUI54	West CR16
TREA18	Core Making Dust Collector	EU013	EQUI55	East CR16
			EQUI56	CR-22

## **Table 3-4 Summary of Control Equipment Relationships**

<b>Table 3-4 Summary of Control Equipment Relationships</b>
---

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
TDEA12/20	Metal Finishing Dust	EL 1025	EQUI23	Double Belt Sander
TREAT5/50	Collector 1 w/ HEPA	E0035	EQUI117	NE Finishing Grinder
	Metal Finishing Dust	NA	EQUI41	Snag Grinder 2
TREA22/35	Collector 2 w/ HEPA	NA	EQUI42	Snag Grinder 3
		EU021	EQUI16	Tableblast
	Metal Finishing Dust	NA	EQUI51	Tumblemill
IREA29/19	Collector 3 w/ HEPA	EU030	EQUI18	East Cutoff Saw
		EU032	EQUI20	West Cutoff Saw
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
	Metal Finishing Dust Collector 7 w/ HEPA	EU036	EQUI24	SW Bench Grinder
TDEA 42/20		EU040	EQUI28	NE Bench Grinder
IREA43/30		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
		EU016	EQUI13	30^2 Line Pouring & Cooling
		NA	EQUI47	West MUA
		NA	EQUI48	North MUA
		NA	EQUI49	South MUA
		ELIOOO	EQUI60	30^2 Machine Belt Sand
		E0009	EQUI61	30^2 Spruce Belt
TREA46	Dust Hog 1		EQUI63	30^2 Unit 10
		EU018	EQUI65	30^2 Unit 11
			EQUI66	30^2 Unit 12
			EQUI92	30^2 Discharge Conveyor
		ELIOOO	EQUI93	30^2 Cross Belt Conveyor
		EUUUS	EQUI94	30^2 Distribution Belt Conveyor
		ľ	EQUI98	30^2 Mold Making

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
		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
		028	39	Inoculation
		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
TREA47	Dust Hog 2	020	58	BCT Drumblast Machine
		009	62	30 <sup>2</sup> 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
			73	DISA Muller Discharge Belt
			74	DISA Muller Distribution Belt
			75	DISA Feed Belt
		008	76	DISA Spill Belt
			77	DISA Spill Pan
			78	DISA Spill Belt
			79	DISA Cross Spill
			80	DISA #1 Oscillator
		017	81	DISA #2 Oscillator
			82	DISA #3 Oscillator
			83	DISA Didion

## **Table 3-4 Summary of Control Equipment Relationships**

Control Equipment ID	Description	EU Controlled	EQUI ID	Description
			84	DISA #5 Oscillator
			85	DISA Mag Belt
			86	DISA Return Sand Elevator
			87	DISA 125 Ton Sand Bin
			88	DISA 125 Ton Belt
		008	89	DISA New/Old Belt
		008	90	DISA New/Old Elevator
			91	DISA Muller Storage Tank
			95	DISa Prepared Sand Tank
			96	DISA Bond Day Tank
			97	DISA Mold Machine
	Dust Hog 2	NA	102	DISA Aerator
		009	109	30^2 Prepared Sand Tank
			111	ABC6 Sand Tank
TREA47		010	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
		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

### **Table 3-4 Summary of Control Equipment Relationships**

This application proposes annual melt limits of 27,000 tons/year metal melt and 270,000 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<sub>10</sub>), particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>), and Lead potential to emit (PTE). Furthermore, PM, PM10, PM2.5, and Lead limited emissions decrease due to the planned installation of TREA46 and TREA47, and the installation of higher efficiency filters in TREA2 and TREA23. There have been increases in nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and volatile organic compounds (VOCs) from the addition of sources since the last current permit issuance.



## 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 ZZZZ – National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources: The proposed metal melt limit of 27,000 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

3518

### 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:

- 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 <a href="https://www.pca.state.mn.us/data/e-services">https://www.pca.state.mn.us/data/e-services</a>. 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 <a href="https://www.pca.state.mn.us/data/e-services">https://www.pca.state.mn.us/data/e-services</a>. 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 previouslysubmitted 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: Points Quantity 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: Application due date (180 days prior to expiration): NA NA NA (mm/dd/yyyy) (mm/dd/yyyy) 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.

Ch	oose 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)

### 5) Total application fee

	x \$285 =	\$ 0
otal points from item 4)		(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.

0

**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

0

## 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:	Operator responsible official (if applicable)
Print name:	Print name:
Title:	Title:
Signature:	Signature:
Date (mm/dd/yyyy):	Date (mm/dd/yyyy):
Additional owner/operator responsible official (if applicable):	Additional owner/operator responsible official (if applicable)
Check applicable: Owner Operator.	Check applicable: Owner Operator.
Print name:	Print name:
Title:	
Organization:	Organization:
Signature:	Signature:
Date (mm/dd/yyyy):	_ 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 <u>cumulative levels and effects (CL&E) statute area</u> in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28<sup>th</sup> Street intersection).
- □ I certify that my Facility is or will be located **inside** of the <u>cumulative levels and effects (CL&E) statute area</u> in South Minneapolis (approximately 1.5 miles around Hiawatha Avenue and 28<sup>th</sup> Street intersection). I understand that the <u>CL&E process</u> applies before a permit can be issued.

Owner responsible official	Operator responsible official (if applicable)
Print name: Tierney Grutza	Print name:
Title: CAO	Title:
Signature: J J Cesa	Signature:
Date (mm/dd/yyyy): 01/31/2025	Date (mm/dd/yyyy):
Additional owner/operator responsible official (if applicable)	Additional owner/operator responsible official (if applicable)
Print name:	Print name:
Title:	Title:
Organization:	Organization:
Signature:	Signature:
Date (mm/dd/yyyy):	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 – 6<sup>th</sup> 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 previouslysubmitted 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 <a href="https://www.pca.state.mn.us/data/e-services">https://www.pca.state.mn.us/data/e-services</a>.

- 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 <a href="https://www.pca.state.mn.us/data/e-services">https://www.pca.state.mn.us/data/e-services</a>.

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 <u>https://www.pca.state.mn.us/data/e-services</u>. 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 <u>Confidentiality justification and notice of public availability of data submitted</u> to the MPCA. Additionally, you will need to submit a public version of your application, as described in <u>Instructions for Creating</u> a <u>Redacted Public Version of Your Application</u>.

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 <u>Confidentiality justification and notice of public availability of data submitted to the MPCA (state.mn.us)</u>.

For instructions about creating a public copy of your application, see <u>Instructions for Creating a Redacted Public Version of</u> 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 <u>https://www.pca.state.mn.us/air-permitting-south-minneapolis</u>

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 numbe	er: 12300088	<b>1b)</b> Agency Interest ID numbe	r: 3518
2)	Facility name: No	orthern Iron LLC		
3a)	Facility location       Street address:     8	67 Forest Street North		
	City: S	aint Paul	County: Ramsey	Zip code: 55106
2h)	le vour facility locator	d in an area of anvironmental justice or	program or within one mile of one?	
30)	Check your located	here: https://ereg.is/vgsCs		
		nere. <u>mtps.//arcg.is/vqa@a</u> .		
Na		will be leasted within the situ limits	of Minneenelie, attach a man	howing the exact location for
ins	structions for addition	nal information on projects within ar	eas of environmental justice c	oncern.
3c)	Mailing address: 8	67 Forest Street North		
	City: S	aint Paul	State: MN	Zip code: _55106
4)	Corporate/Company	y Owner		
	Name: <u>N</u>	Northern Iron LLC		
	Mailing address: 8	67 Forest Street North		
	City: S	t Paul	State: MN	Zip code: 55106
0	wner Classification:	Private I Local Govt I State Go	vt □ Federal Govt □ Utility	
Ŭ	l egally responsible			
	Nam	ne: Tiernev Grutza	Phon	e: 608-295-9770
	Tit	tle: CAO-Specialty Metals Holdco da Standard	/b/a The Lawton Fa	x:
	Mailing Addre (if different than abov	ess /e): 1950 Enterprise Dr.		
	Ci	ity: De Pere	State: WI	Zip code: 54115
	Email addres	ss: tgrutza@lawtonstandard.com		
	Indicate ownership	interest in percent: N/A		
5)	Corporate/Company	y Operator (if different than owner)		
.,	Name:	Same as Number 4 above		
	Mailing address:			
	-			
	City: _		State:	_ Zip code:
	Legally responsible	e official:		
	Name:		Phon	e:
	Title		Fa	٨
	Title: _ Mailing address:			
	_ Title: _ Mailing address:			
	Title: _ Mailing address: _ - City: _		State:	Zip code:

aq-f2-chgi01 • 11/3/23

Use your preferred relay service

Email address: 6) Additional Corporate/Company owners and operators (if applicable) Check applicable: Owner Operator. Name: Mailing address: State: Zip code: City: 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: Phone: 608-295-9770 Name: Tierney Grutza Title: CAO Fax: Owner address Operator address Emission facility address At (check one): Organization name: Northern Iron LLC Mailing address: 1950 Enterprise Dr. City: De Pere State: WI Zip code: 54115 Email address: tgrutza@lawtonstandard.com Standard Industrial Classification (SIC) Code and description, and North American Industry Classification System (NAICS) 10) 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? Yes -- You may also be required to perform a state air toxics review for your facility.  $\square$ No Please call 800-657-3864 or locally 651-296-6300.

15)	for this facility	y? Contact the at 651-201-74	nis is a new fac Minnesota Em 00.	nergency Plar	nning and Co	mmunity Righ	nt-to-Know Act (EP	CRA) Program	for more
	🛛 Yes – A	Answer Questi	on 15a.	🗌 No	– Go on to C	uestion 16.			
	15a) Are you	required to su	bmit a Pollutior	n Prevention I	Plan Progress	s Report in ac	ccordance with Min	n. Stat. § 115D.	.08?
	No.		Yes, and the	most recently	required pro	gress report	has been submitte	d.	
			Yes, but a pro	ogress report	has not beer	submitted be	ecause (fill in reaso	on below):	
16)	Is this facility	within 50 mile	es of another st	ate or the Ca	nadian borde	r?:			
	🔀 Yes (sp	ecify which or	nes): WI				No		
17)	Are you prop (See Minn. R	osing any alte R. 7007.0800,	ernative operatii subp. 10 and 1	ng or emissio 1)	ns trading sc	enarios in this	s application?		
	🛛 No	Yes - A applica see Fo	Attach a descrip able requiremer rm CH-04).	otion of your p nts (specifical	proposal, inclu ly, please add	iding a stater dress any app	nent on how the pr blicable New Sourc	roposal will mee ce Review requir	t all ements -
18)	Person prepar	ring this permi	t application:						
	Name:	Robert Osb	orn						
	Title:	Principal							
	Organization:	Spirit Envir	onmental LLC						
Μ	ailing address	20465 State	Highway 249t						
		Suite 300							
	City:	Houston			State:	TX		Zip code:	77070
	Phone:	281-664-28	15	Fax:					
E	mail address:	rosborn@sp	piritenv.com				Date (mm/dd/yyyy):	1/31/2025	

### 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 <u>https://arcg.is/vgaGa</u>.

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

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 <a href="https://www.epa.gov/ejscreen">https://www.epa.gov/ejscreen</a>.

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 <a href="http://www.naics.com/">http://www.naics.com/</a> or <a href="http://www.census.gov/naics/">http://www.census.gov/naics/</a>.

- 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 <u>http://www.pca.state.mn.us/programs/envr\_p.html</u>, 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 <u>http://www.pca.state.mn.us/air/aera.html</u> 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 <a href="https://dps.mn.gov/divisions/hsem/epcra/Pages/default.aspx">https://dps.mn.gov/divisions/hsem/epcra/Pages/default.aspx</a> 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

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 <u>https://www.pca.state.mn.us/quick-links/environmental-review</u>, to determine this)

- 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 results submitted to (who?):	MPCA	on (date mm/dd/yyyy):	1/22/2025

☐ 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

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

CONTROL AGENCY

MINNESOTA POLLUTION

### Determination of increases at minor sources

Air Quality Permit Program

Doc Type: Permit Application

CH-04b

#### 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 (CO2e) 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)
РМ	*See attached supplemental Table 1				
PM <sub>10</sub> (including condensables)					
PM <sub>2.5</sub> (including condensables)					
NO <sub>x</sub>					
SO <sub>2</sub>					
CO					
VOCs					
Lead					
Fluorides					
Sulfuric acid mist					
H <sub>2</sub> S					
Total reduced sulfur including H <sub>2</sub> S					
Total reduced sulfur compounds including H <sub>2</sub> S					
MWC organics					
MWC acid gas					
MSW landfill gas					
CO <sub>2</sub> e					

#### 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) (tpy)	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		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	14.19	100	250	25 <sup>7</sup>
PM <sub>10</sub> (including condensables)	9.41	100	250	15
PM <sub>2.5</sub> (including condensables)	5.41	100	250	10
NO <sub>x</sub>	14.00	100	250	40
SO <sub>2</sub>	0.33	100	250	40
СО	73.34	100	250	100
VOCs <sup>1</sup>	90.70	100	250	40
Lead	0.01	100	250	0.6
Fluorides		100	250	3
Sulfuric acid mist		100	250	7
H <sub>2</sub> S		100	250	10
Total reduced sulfur including H <sub>2</sub> S		100	250	10
Total reduced sulfur compounds including H <sub>2</sub> S		100	250	10
MWC organics <sup>2</sup>		100	250	10
MWC acid gas <sup>3</sup>		100	250	0.0000035
MWC metals <sup>4</sup>		100	250	40
MSW landfill gas <sup>5</sup>		100	250	15
CO <sub>2</sub> e <sup>6</sup>	13,645	NA	NA	75,000 <sup>8</sup>

- **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<sub>2</sub>e) 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<sub>2</sub>e 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 <u>https://www.pca.state.mn.us/air/greenhouse-gas-emissions-calculations</u> 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<sub>10</sub>). 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<sub>10</sub> 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 <u>https://www.pca.state.mn.us/air/synthetic-minor-permit-limits</u> for information on how to determine and propose limits.) See instructions for situations when CO<sub>2</sub>e 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<sub>2</sub>e, 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<sub>2</sub>e such that only emissions of CO<sub>2</sub>e 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 <u>https://www.pca.state.mn.us/air/synthetic-minorpermit-limits</u> 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 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<sub>2</sub>e, 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<sub>2</sub>e emissions. In addition, if either nitrogen oxides (NO<sub>x</sub>) or sulfur dioxide (SO<sub>2</sub>) emissions are above the thresholds, then the proposed project may also considered to be major for Particulate Matter less than 2.5 micrometers (PM<sub>2.5</sub>), since NO<sub>x</sub> and SO<sub>2</sub> are assumed precursors to PM<sub>2.5</sub>.

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 <a href="https://www.pca.state.mn.us/air/synthetic-minor-permit-limits">https://www.pca.state.mn.us/air/synthetic-minor-permit-limits</a>. 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<sub>2</sub>e such that only emissions of CO<sub>2</sub>e 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  $\mu$ m in size (PM<sub>10</sub>) Particulate matter less than 2.5 micrometers (PM<sub>2.5</sub>) Nitrogen oxides (NO<sub>x</sub>) Sulfur dioxide (SO<sub>2</sub>) Carbon monoxide (CO) Volatile organic compounds (VOCs) Lead (Pb) Hydrogen sulfide (H<sub>2</sub>S) Municipal Waste Combustor (MWC) Municipal Solid Waste (MSW) Carbon dioxide equivalent (CO<sub>2</sub>e)

#### CH-04B Supplement

AQ Facility ID Number: 12300088 Facility Name: Northern Iron LLC

#### Affected Units

SI ID:	EQUI11	EQUI16	EQUI39	EQUI46	EQUI47	EQUI48	EQUI49	EQUI50	EQUI51	EQUI52	EQUI53	EQUI54	EQUI55	EQUI56	EQUI58
	Potential														
	Emissions														
Pollutant	(tpy)														
PM	0.00	0.00	0.38	0.01	0.01	0.01	0.01	0.01	0.00	0.10	0.08	0.00	0.00	0.01	0.00
PM <sub>10</sub>	0.00	0.00	0.38	0.01	0.01	0.01	0.01	0.01	0.00	0.08	0.07	0.00	0.00	0.01	0.00
PM <sub>2.5</sub>	0.00	0.00	0.38	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.00	0.00	0.00	0.00
NO <sub>X</sub>	0.00	0.00	0.00	3.74	3.74	2.04	2.04	1.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SO <sub>2</sub>	0.00	0.00	0.00	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO	0.00	0.00	0.00	2.18	2.18	1.19	1.19	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VOC	15.33	0.00	0.00	0.29	0.29	0.16	0.16	0.11	0.00	1.80	1.48	1.19	1.19	3.95	0.00
Lead	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2e				3,683.82	3,683.82	2,009.36	2,009.36	1,370.02				0.00	0.00	0.00	

Net Potential Emissions Change				
Pollutant	Total (tpy)			
PM	14.19			
PM <sub>10</sub>	9.41			
PM <sub>2.5</sub>	5.4			
NO <sub>X</sub>	14.00			
SO <sub>2</sub>	0.3			
CO	73.34			
VOC	90.7			
Lead	0.0			
CO2e	13,644.8			

#### CH-04B Supplement

AQ Facility ID Number: 12300088 Facility Name: Northern Iron LLC

#### Affected Units

SI ID:	EQUI114	EQUI118	EQUI119	EQUI120	IA-02 - IA-30	COMG1 (EQUI1-5)	COMG2 (EQUI 60- 62, 64, 67-69, 85-98, 102-113, 115, 116)	COMG3 (EQUI12 & 13)	COMG4 (EQUI63, 65, 66, 80-84)	COMG5 (EQUIs 17, 18, 20, 23, 24, 28-30, 41, 42, 100, 117)	FUGI1	FUGI2	
	Potential	Potential	Potential	Potential	Potential	Potential	Potential	Potential	Potential	Potential	Potential	Potential	
	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	Emissions	
Pollutant	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	(tpy)	Total (tpy)
PM	0.00	0.01	0.00	0.04	0.04	1.58	5.97	0.99	4.30	0.30	0.32	0.02	14.19
PM <sub>10</sub>	0.00	0.00	0.00	0.04	0.04	1.10	4.00	0.50	3.03	0.03	0.06	0.00	9.41
PM <sub>2.5</sub>	0.00	0.00	0.00	0.04	0.02	1.05	1.62	0.36	1.78	0.03	0.02	0.00	5.41
NO <sub>X</sub>	0.22	0.00	0.00	0.68	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	14.00
SO <sub>2</sub>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.33
СО	0.13	0.00	0.00	0.40	0.00	0.00	0.00	40.74	24.52	0.00	0.00	0.00	73.34
VOC	0.02	0.00	0.00	0.05	3.15	55.38	0.00	0.14	6.04	0.00	0.00	0.00	90.70
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
CO2e	218.65			669.79	0.00	0.00	0.00		0.00	0.00	0.00	0.00	13644.82

Net Potential Emissions Ch
Pollutant
PM
PM <sub>10</sub>
PM <sub>2.5</sub>
NO <sub>x</sub>
SO <sub>2</sub>
CO
VOC
_ead
CO2e

n	MINNESOTA POLLUTION CONTROL AGENCY
	520 Lafavetto Road North

# 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: COMG5 - 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
	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)?
  - $\Box$  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.

### 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)?
  - $\Box$  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 <a href="http://www.epa.gov/airmarkets/business/forms.html#arp">http://www.epa.gov/airmarkets/business/forms.html#arp</a> 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.

 $\square$ 

Yes.	AFRA	and/or	FAW
100.		unu/01	

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)?
  - $\boxtimes$  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)?
  - $\boxtimes$  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)?
  - $\boxtimes$  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.

### 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)?
  - $\boxtimes$  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?
  - $\boxtimes$  No. Go on to question 19.
  - Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at <a href="http://www.epa.gov/airmarkets/business/">http://www.epa.gov/airmarkets/business/ forms.html#arp</a> for the applicable Acid Rain Program forms and instructions.

Applicable forms attached and sent to EPA as appropriate IN 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)
  - $\boxtimes$  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 compliance demonstration	
	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.
  - $\boxtimes$  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	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.)
  - $\Box$  No. Go on to question 22.
  - Yes. List the limit(s) below, along with the proposed compliance demonstration.

Proposed limit	Proposed compliance demonstration
27,000 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?

### 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:

https://www.pca.state.mn.us • 651-296-6300 • 800-657-3864 • Use your preferred relay service • Available in alternative formats aq-f1-cd01 • 10/14/19 Page 7 of 9

No Xes – 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.

- 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.

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

### Table CD-01.1

m	MINNESOTA POLLUTION CONTROL AGENCY
	520 Lafavette Road North

# 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
	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)?
  - $\Box$  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.

### 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)?
  - $\Box$  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 <a href="http://www.epa.gov/airmarkets/business/forms.html#arp">http://www.epa.gov/airmarkets/business/forms.html#arp</a> 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.

 $\square$ 

Yes.	AFRA	and/or	FAW
100.		unu/01	

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)?
  - $\boxtimes$  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)?
  - $\boxtimes$  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)?
  - $\boxtimes$  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.

### 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)?
  - $\boxtimes$  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?
  - $\boxtimes$  No. Go on to question 19.
  - Yes. The equipment may be subject to acid rain requirements. Refer to the EPA website at <a href="http://www.epa.gov/airmarkets/business/">http://www.epa.gov/airmarkets/business/ forms.html#arp</a> for the applicable Acid Rain Program forms and instructions.

Applicable forms attached and sent to EPA as appropriate IN 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)
  - $\boxtimes$  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 compliance demonstration	
	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.
  - $\boxtimes$  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?
  - $\Box$  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. 7011.0515	Emission limits found in Minn. R. 7011.0550	Rule applies to EQUIs 46-50, 114, and 120. Units fire pipeline quality natural gas. AP-42 emission factors meet the emission limits found in Minn. R. 7011.0550	

### 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.)
  - $\boxtimes$  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 Xes – 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.

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			

### Table CD-01.1



## Process Flow Diagram

Air Quality Permit Program

Doc Type: Permit Application

GI-02

### Instructions on Page 2.

<b>1a)</b> 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.



AQ FACILITY ID: 12300088

FACILITY NAME: NORTHERN IRON 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, 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



## GI-03 Facility and Stack Vent Diagram

Air Quality Permit Program

Doc Type: Permitting Checklist

1a) AQ Facility ID number: <u>12300088</u>

**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.

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





# 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	STRU1 / SV028	STRU2 / SV029	STRU3 / SV030	STRU4 / SV031
3b)	Stack/Vent operator's description	Shot Blast Booth	Swing Grinders	Cutoff Saws	NE Grinding
3c)	Height of opening from ground (feet)	27			
3d)	Inside diameter (feet)	1.7			
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)	5,070			
3f)	Exit gas temp. (°F)	Ambient			
3g)	Flow rate/temp. information source	E			
3h)	Discharge direction	U			
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	1/1/2016	1/1/2016	1/1/2016	1/1/2016
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed, Vents Inside			

٠

٠

٠



# 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	STRU5 / SV032	STRU6 / SV001	STRU7 / SV002	STRU8 / SV003
3b)	Stack/Vent operator's description	Bench Grinder	Scrap Preheat Ovens	Electric Induction Furnace 1	Electric Induction Furnace 2
3c)	Height of opening from ground (feet)		28		
3d)	Inside diameter (feet)		1.7		
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)		12,000		
3f)	Exit gas temp. (°F)		250		
3g)	Flow rate/temp. information source		М		
3h)	Discharge direction		U		
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	1/1/2016	10/22/2024	8/30/2024	8/30/2024
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed, Vents Inside	Removed, New Control Equipment Installed	Removed, Control Equipment Installed	Removed, Control Equipment Installed

٠

٠

٠



# 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.

		I	I	I	L
3a)	SV ID number	STRU9 / SV004	STRU10 / SV005	STRU11 / SV006	STRU12 / SV007
3b)	Stack/Vent operator's description	Electric Induction Furnace 1	Induction Furnace A	Induction Furnace B	Pallet Line Sand Handling/Shakeout
3c)	Height of opening from ground (feet)	22	32	32	35
3d)	Inside diameter (feet)	2.5	3	3	3
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)	17,500	30,000	30,000	32,000
3f)	Exit gas temp. (°F)	95	100	100	80
3g)	Flow rate/temp. information source		М	М	М
3h)	Discharge direction	U	U	U	U
3i)	Status	Inactive	Inactive	Inactive	Active
3j)	Removal date (mm/dd/yyyy)	8/30/2024	1/1/2016	1/1/2016	
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed	Furnace A Removed	Furnace B Removed	

٠

https://www.pca.state.mn.us aq-f1-qi04 • 12/29/22



# 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 / SV008	STRU15 / SV010	STRU17 / SV012	STRU18 / SV013
3b)	Stack/Vent operator's description	Flask Line Sand Handling/Shakeout	CR-16's	Pallet Line Pouring and Cooling	Pallet Line Pouring and Cooling
3c)	Height of opening from ground (feet)	70	30	29	29
3d)	Inside diameter (feet)	4	2.9	3	3
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)	34,950	15,000	23,000	23,000
3f)	Exit gas temp. (°F)	72	80	80	80
3g)	Flow rate/temp. information source	Μ	М	М	М
3h)	Discharge direction	U	С	U	U
3i)	Status	Active	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)		8/30/2024	8/30/2024	8/30/2024
3k)	Reasons for changes/modifications		Removed, Control Equipment Installed	Removed, Control Equipment Installed	Removed, Control Equipment Installed

٠

٠



# 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	STRU19 / SV014	STRU20 / SV015	STRU21 / SV016	STRU22 / SV017
3b)	Stack/Vent operator's description	Pallet Line Pouring and Cooling	Pallet Line Pouring and Cooling	Flask Line Pouring and Cooling	Flask Line Pouring and Cooling
3c)	Height of opening from ground (feet)	29	29	42	42
3d)	Inside diameter (feet)	3	3	2.5	2.5
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)	23,000	23,000	11,083	12,175
3f)	Exit gas temp. (°F)	80	80	145	145
3g)	Flow rate/temp. information source	М	М	М	М
3h)	Discharge direction	U	U	U	U
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	8/30/2024	8/30/2024	8/30/2024	8/30/2024
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed	Removed, Control Equipment Installed	Removed, Control Equipment Installed	Removed, Control Equipment Installed

٠

٠

٠



# 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	STRU23 / SV/018	STRU24 / SV010	STRU25 / SV020	STR1120 / SV/024
•••)		311(0237 30018	311(0247 30019	311(0237 30020	311(0297 30024
3b)	Stack/Vent operator's description	Flask Line Pouring and Cooling	Flask Line Pouring and Cooling	Flask Line Pouring and Cooling	Bond Sand Silo
3c)	Height of opening from ground (feet)	42	42	42	36
3d)	Inside diameter (feet)	2.5	2.5	2.5	2.5
_	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)	12,175	12,175	10,977	N/A
3f)	Exit gas temp. (°F)	145	145	145	Ambient
3g)	Flow rate/temp. information source	М	М	М	E
3h)	Discharge direction	U	U	U	Н
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	8/30/2024	8/30/2024	8/30/2024	1/1/2016
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed	Removed, Control Equipment Installed	Removed, Control Equipment Installed	Removed

٠

٠


# 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.

			I	1	1
3a)	SV ID number	STRU30 / SV025	STRU33 / SV033	STRU34	STRU35
3b)	Stack/Vent operator's description	Heat Treat Oven	Handchipping	Roof Vent (High Bay Roof Vents) (Not a singular point)	Finishing Heater
3c)	Height of opening from ground (feet)	35		30	30
3d)	Inside diameter (feet)				1.5
	length (feet)	14.75		20	
	width (feet)	21.5		15	
3e)	Design flow rate (cubic feet/minute)	N/A		N/A	15,000
3f)	Exit gas temp. (°F)	N/A		Ambient	80
3g)	Flow rate/temp. information source	E		E	E
3h)	Discharge direction	Н		н	U
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	1/1/2016	1/1/2016	8/30/2024	1/1/2025
3k)	Reasons for changes/modifications	Removed	Removed, Control Equipment Installed, Vents Inside	Removed, Control Equipment Installed	Removed

٠

٠

• 800-657-3864

•



# GI-04 Stack/Vent (SV) information

Air Quality Permit Program

Doc Type: Permit Application

1a) AQ Facility ID number:123000881b) 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	STRU36	STRU38	STRU41	STRU42
3b)	Stack/Vent operator's description	Building (Total Building Structure) (No Singular Vent/Stack)	Unit 12	Inoculation	Inoculation
3c)	Height of opening from ground (feet)			32	32
3d)	Inside diameter (feet)			3	3
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)			30,000	30,000
3f)	Exit gas temp. (°F)			100	100
3g)	Flow rate/temp. information source			М	М
3h)	Discharge direction			U	U
3i)	Status	Inactive	Inactive	Inactive	Inactive
3j)	Removal date (mm/dd/yyyy)	8/30/2024	1/1/2016	8/30/2024	8/30/2024
3k)	Reasons for changes/modifications	Removed, Control Equipment Installed	Shutdown/Capped	Removed, Control Equipment Installed	Removed, Control Equipment Installed

٠

٠

•



## 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	STRU45	STRU46	STRU47	STRU48
3b)	Stack/Vent operator's description	Unit 11	Dust Hog 1 Stack	Dust Hog 2 Stack	Melt Deck
3c)	Height of opening from ground (feet)		40	40	25
3d)	Inside diameter (feet)		6	6	1.5
	length (feet)				
	width (feet)				
3e)	Design flow rate (cubic feet/minute)		110,000	110,000	15,000
3f)	Exit gas temp. (°F)		80.33	80.33	80
3g)	Flow rate/temp. information source		М	М	E
3h)	Discharge direction		U	U	U
3i)	Status	Inactive	Active	Active	Inactive
3j)	Removal date (mm/dd/yyyy)	1/1/2016			8/30/2024
3k)	Reasons for changes/modifications	Shutdown/Capped	New/To Be Constructed (8/31/2024)	New/To Be Constructed (8/31/2024)	Removed, Control Equipment Installed

٠

٠

• Us



## 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	STRU49	STRU50	
3b)	Stack/Vent operator's description	Machine Shop Electrical	Outdoor Bond Tank	
3c)	Height of opening from ground (feet)	10	30	
3d)	Inside diameter (feet)	1	1.5	
	length (feet)			
	width (feet)			
3e)	Design flow rate (cubic feet/minute)	50	10,000	
3f)	Exit gas temp. (°F)	Ambient	Ambient	
3g)	Flow rate/temp. information source	E	E	
3h)	Discharge direction	Н	С	
3i)	Status	Active	Active	
3j)	Removal date (mm/dd/yyyy)			
3k)	Reasons for changes/modifications			

٠

٠

٠



## GI-05A

## Pollution control equipment information

Air Quality Permit Program

Doc Type: Permit Application

### Instructions on Page 2

1a)	AQ Facility ID number:	12300088	<b>1b)</b> 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)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k) Afterburner/
Control equip ID no.	CE type code	Description	Manufacturer	Model number	Installation date (mm/dd/yyyy)	Removal date (mm/dd/yyyy)	Pollutants controlled	Capture efficiency	Destruct/ collect efficiency	Oxidizer combustion parameters
		Fabric Filter - Low		Filter No.						
TREA45	018	Temp, T<180 deg F	Torit	8PP-21586-00	1/1/2005		PM	80%	99.97%	
							PM10	80%	99.97%	
							PM2.5	80%	99.97%	
							Lead	80%	99.97%	
_										

٠

Describe changes to existing control devices and/or operations:

٠



Search for part number or OEM name or a product

## Standard Filter Media: 80% Cellulose / 20% Polyester Blend

- Composition: Cellulose/Polyester paper blend
- MERV Rating: MERV 11 99.95% efficient @ .5 microns
- Continuous Max Temp: 180 degrees
- Air Permeability: 23 cfm feet squared @ 0.5" W.C.
- ASHRAE 52.2 Test: Initial 52.2
- Flow Rate: 5.6 FPM
- Applications: Grinding dust, blast booths, powder and dry chemical processing, non-oily welding smoke.
- Notes: Non-washable

## Upgrade Option 2: High Strength Fire-Retardant Nanofiber

- **Composition**: Fire-Retardant Nanofiber (80/20 media with a synthetic layer applied electrostatically)
- Maximum Continuous Temperature Resistance: 175 F.
- Weight: 166#/3000 ft2
- Thickness: .022"
- Air Permeability: 28 cfm Frazier
- Filtration Efficiency: Merv 15. 99.97% efficient @ .3 microns

**Nanofiber** is best used when recirculating exhaust back into the facility. It offers excellent filter cleanability and enhanced filter efficiencies with high air permeability and good chemical resistance. Our typical customer experiences 10% to 20% longer filter life with Nanofiber. Great for problem applications where *fine particles* are involved, like in welding, plasma cutting, flame cutting, laser cutting, metalizing, and ferrous metal grinding.



# Upgrade Option 2: 100% Spun Bond Polyester

- Composition: 100% Spunbonded Polyester
- Maximum Continuous Temperature Resistance: 200 F. (Upgradeable to 250 F. upon request.)
- Weight: 166#/3000 ft2
- Thickness: .022"



- Air Permeability: 28 CFM Frazier
- **Filtration Efficiency**: MERV 12 BIA Classification U.S.G and C. 99.9% when tested against Quartz Dust with 90% particles lying between 1.2um and 2um. Filtration Velocity = 3.36 m/min.

**Spun Bond** offers superior abrasion and moisture resistance and can be operated at up to 200 F. (Upgradeable to 250 F. upon request.) Open pleat structure allows for use under high dust loading conditions while providing great dust release and can be washed up to *four times* and reused. Excellent for applications in Chemical processing, pharmaceutical, pigment, plastics, mineral and metal processing, paper, cardboard, cement, cocoa, coffee, aluminized oxide, and rubber grinding dust.



We are passionate about air filtration and industrial engineering. We're also lucky enough to have resources and experts at our disposal who know how to cut through hype and get to the science.

Call us at: (844) 605-3266

Newsletter Sign Up

Enter your email address

Subscribe

**Useful Links** 

Quick links

© 2021 DAMN Filters. Site Designed And Build By Blend.



## 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	3b) CE	3c)	3d)	3e) Model	3f) Installation	3g) Removal	3h) Bollutants	3i) Capturo	3j) Destruct/	3k) Afterburner/ Oxidizer
ID no.	code	Description	Manufacturer	number	(mm/dd/yyyy)	(mm/dd/yyyy)	controlled	efficiency	efficiency	parameters
TREA46	018	Dust Hog 1	Dust Hog	160-4	08/31/2024		PM	100%	99%	
							PM10	100%	93%	
							PM2.5	100%	93%	
							Lead	100%	93%	

.

Describe changes to existing control devices and/or operations:

٠

New control equipment for the capture and control of emissions from EQUI13 (EU016).. See attached control efficiency data from manufacturer.

٠

• 800-657-3864



## **Dust Filter Media Data Sheet**

## (NX) Cellulose Blend with Nanofiber

Property	US Units	Metric		
Fiber Composition	Nanofiber treated cellulose/polyester composite media			
Construction	Wet-laid with nanof	iber surface filtration		
Industry Basis Weight	3.6 oz/yd <sup>2</sup>	122 g/m <sup>2</sup>		
Permeability Frazier	25 CFM @ 0.5" w.g.	122 l/dm²/min @ 200 Pa		
Thickness	0.014 inches	0.36 mm		
Corrugation Depth	0.016 inches	0.41 mm		
MERV Rating	15	Filtration Rating = F9		
Mullen Burst	40 PSI	276 KPa		
Tensile Strength MD Machine Direction	30 lb./inch	263 N / 5 cm		
Tensile Strength CMD Cross Machine Direction	25 lb./inch	219 N / 5 cm		

### Efficiency vs. particle size





## GI-05A

## Pollution control equipment information

Air Quality Permit Program

Doc Type: Permit Application

### Instructions on Page 2

1a)	AQ Facility ID number:	12300088	<b>1b)</b> 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
TREA47	018	Dust Hog 2	Dust Hog	160-4	08/31/2024		РМ	100%	99%	•
							PM10	100%	93%	
							PM2.5	100%	93%	
							Lead	100%	93%	

.

Describe changes to existing control devices and/or operations:

٠

New control equipment for the capture and control of emissions from EQUI3-5, EQUI12 (EU015), and EQUI39. See attached control efficiency data from manufacturer.

٠

• 800-657-3864



## **Dust Filter Media Data Sheet**

## (NX) Cellulose Blend with Nanofiber

Property	US Units	Metric		
Fiber Composition	Nanofiber treated cellulose/polyester composite media			
Construction	Wet-laid with nanof	iber surface filtration		
Industry Basis Weight	3.6 oz/yd <sup>2</sup>	122 g/m <sup>2</sup>		
Permeability Frazier	25 CFM @ 0.5" w.g.	122 l/dm²/min @ 200 Pa		
Thickness	0.014 inches	0.36 mm		
Corrugation Depth	0.016 inches	0.41 mm		
MERV Rating	15	Filtration Rating = F9		
Mullen Burst	40 PSI	276 KPa		
Tensile Strength MD Machine Direction	30 lb./inch	263 N / 5 cm		
Tensile Strength CMD Cross Machine Direction	25 lb./inch	219 N / 5 cm		

### Efficiency vs. particle size





## GI-05A

## **Pollution control equipment information**

Air Quality Permit Program

Doc Type: Permit Application

### Instructions on Page 2

1a)	AQ Facility ID number:	12300088	<b>1b)</b> 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)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)
Control equip ID no.	CE type code	Description	Manufacturer	Model number	Installation date (mm/dd/yyyy)	Removal date (mm/dd/yyyy)	Pollutants controlled	Capture efficiency	Destruct/ collect efficiency	Afterburner/ Oxidizer combustion parameters
		Fabric Filter - Low								
TREA2	018	Temp, T<180 deg F	Torit		1/1/1974		PM	80%/100%	98.06%	
							PM10	80%/100%	97.93%	
							PM2.5	80%/100%	98.66%	
							Lead	80%/100%	98.66%	
		Fabric Filter - Low								
TREA23	018	Temp, T<180 deg F	Torit		7/10/2011		PM	80%/100%	99.55%	
							PM10	80%/100%	99.52%	
							PM2.5	80%/100%	99.69%	
							Lead	80%/100%	99.69%	

٠

Describe changes to existing control devices and/or operations:

٠



## **Fugitive Emission Source Information**

Air Quality Permit Program

Doc Type: Permit Application

### Instructions on Page 2.

1a)	AQ Facility ID No.:	12300088	1b) Agency Interest ID No.:	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)	3b)	3c)	3d)	3e)	3f)	3g)	3h)
Fugitive Source (FUGI) ID No.	Fugitive Source Type	Description of Fugitive Emission Source	Year Installed (YYYY)	Pollutant(s) Emitted	Status	Removal Date (MM/DD/YYYY)	Control Equip (TREA) ID No.
FUGI1	Paved Road	Used for transporting product on and offsite	1974	PM	Active		
				PM10			
				PM2.5			
FUGI2	Unpaved Roads	Used for pickup of rolloff containers	1974	PM	Active		
				PM10			
				PM2.5			

٠



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 <i>GI-05A</i> )	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
		□ No □ Yes					□ No □ Yes		☐ Yes ☐ No	Large
		□ No □ Yes					□ No □ Yes		☐ Yes ☐ No	Large
		□ No □ Yes					□ No □ Yes		☐ Yes ☐ No	Large Other

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
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 D Other

### 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 <i>GI-05A</i> )	Using co	ontrol equipment rule?	Subject	to CAM?	For a "Larg	ge" 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 <i>GI-05A</i> )	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 Dother
		🗌 No 🗌 Yes			☐ Yes ☐ No	Large Dother
		🗌 No 🔲 Yes			☐ Yes ☐ No	Large Dother

\* 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 <i>GI-05A</i> )	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
		🗌 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 <i>GI-05A</i> )	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 Dother
		🗌 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 <i>GI-05A</i> )	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	🗌 Large 🔲 Other
							🗌 No	🗆 NA
							🗌 Yes	🗌 Large 🔲 Other
							🗌 No	🗆 NA
							🗌 Yes	🗌 Large 🔲 Other
							🗌 No	🗆 NA
							🗌 Yes	🗌 Large 🔲 Other
							🗌 No	🗆 NA
							🗌 Yes	Large Dother
							🗌 No	🗆 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

.

https://www.pca.state.mn.us aq-f1-cd05 • 6/10/21 •

.

.

### 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 <i>GI-05A</i> )	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 Dother
		□ No □ Yes		Inlet: Outlet:			☐ Yes ☐ No	Large Dother
		□ No □ Yes		Inlet: Outlet:			☐ Yes ☐ No	Large Dother
		□ No □ Yes		Inlet: Outlet:			☐ Yes ☐ No	Large Dother
		□ No □ Yes		Inlet: Outlet:			☐ Yes ☐ No	Large Dother

### 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 <i>GI-05A</i> )	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 Dother
		🗌 No 🔲 Yes		Inlet: Outlet:		☐ Yes ☐ No	Large Dother

.

\* Control equipment rule can only be used for control codes 019, 020, and 109.

٠

.

٠

٠

### 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 <i>GI-05A</i> )	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 <i>GI-05A</i> )	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 canture efficiencies listed on form <i>GI-05A</i> )	Using control	Subject to CAM?	For a "Large" or "Other"
Hamber.				
			∐ 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

.

\* Control equipment rule can be used only for control codes 023 and 086.

•

.



## 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	
---	--

Facility name: Northern Iron LLC 2)

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)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
Source ID number	% Flow	Relationship	CE ID number	Start date (mm/dd/yyyy)	End date (mm/dd/yyyy)	% Flow	Relationship	S/V ID number	Start date (mm/dd/yyyy)	End date (mm/dd/yyyy)	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				
		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				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				
		is controlled by					sends to				

800-657-3864

.

•

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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	TREA1	07/15/1984	On or after 8/30/2024		sends to	STRU6	07/15/1984	On or after 8/30/2024	STRU6 is removed from the site.
EQUI1	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI2	100	is controlled by	TREA1	07/15/1984	On or after 8/30/2024		sends to	STRU6	07/15/1984	On or after 8/30/2024	STRU6 is removed from the site.
EQUI2	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI3	0	is controlled by				100	sends to	STRU7	01/01/1964	On or after 8/30/2024	STRU7 is removed from the site.
EQUI3	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI4	0	is controlled by				100	sends to	STRU8	01/01/1964	On or after 8/30/2024	STRU8 is removed from the site.
EQUI4	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI5	0	is controlled by				100	sends to	STRU9	01/01/1973	On or after 8/30/2024	STRU9 is removed from the site.
EQUI5	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI9	0	is controlled by				100	sends to	STRU34	01/15/1994	On or after 8/30/2024	STRU34 is removed from the site.
EQUI9	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI11	0	is controlled by				100	sends to	STRU34	03/01/1993	On or after 8/30/2024	STRU34 is removed from the site.
EQUI11	0	is controlled by				100	sends to	STRU47	08/31/2024		VOC emissions only. No VOC control by TREA47
EQUI12	0	is controlled by				100	sends to	STRU17-20	07/01/1966	On or after 8/30/2024	STRU17, 18, 19, and 20 are removed from the site.
EQUI12	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI13	0	is controlled by				100	sends to	STRU21-25	07/01/1995	On or after 8/30/2024	STRU20, 21, 22, 23, and 24 are removed from the site.
EQUI13	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI16	100	is controlled by	TREA29/19	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA29/19 releases indoors. STRU34 is removed from the site.
EQUI16	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI17	100	is controlled by	TREA40/39	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA40/39 releases indoors. STRU34 is removed from the site.
EQUI17	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA40/39 controlled by TREA47
EQUI18	100	is controlled by	TREA29/19	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA29/19 releases indoors. STRU34 is removed from the site.
EQUI18	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI20	100	is controlled by	TREA29/19	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA29/19 releases indoors. STRU34 is removed from the site.
EQUI20	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI23	100	is controlled by	TREA13/30	01/01/2005			sends to				TREA13/30 releases indoors

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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
EQUI23	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA13/30 controlled by TREA47
EQUI24	100	is controlled by	TREA43/38	01/01/2005			sends to				TREA43/38 releases indoors
EQUI24	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA43/38 controlled by TREA47
EQUI28	100	is controlled by	TREA43/38	01/01/2005			sends to				TREA43/38 releases indoors
EQUI28	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA43/38 controlled by TREA47
EQUI30	100	is controlled by	TREA41/42	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA41/42 releases indoors. STRU34 is removed from the site.
EQUI30	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA41/42 controlled by TREA47
EQUI36	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		
EQUI37	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		
EQUI39	0	is controlled by				100	sends to	STRU10/11	01/01/1964	On or after 8/30/2024	STRU10 and 11 are removed from the site.
EQUI39	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI41	100	is controlled by	TREA22/35	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA22/35 releases indoors. STRU34 is removed from the site.
EQUI41	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA22/35 controlled by TREA47
EQUI42	100	is controlled by	TREA22/35	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA22/35 releases indoors. STRU34 is removed from the site.
EQUI42	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA22/35 controlled by TREA47
EQUI46	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI46	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI47	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI47	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI48	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI48	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI49	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI49	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI50	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		
EQUI51	100	is controlled by	TREA29/19	01/01/2005		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA29/19 releases indoors. STRU34 is removed from the site.
EQUI51	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA29/19 controlled by TREA47
EQUI52	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI52	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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
EQUI53	0	is controlled by				100	sends to	STRU34	01/01/1970	On or after 8/30/2024	STRU34 is removed from the site.
EQUI53	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI54	100	is controlled by	TREA18	01/01/2005			sends to				TREA18 releases indoors
EQUI54	100	is controlled by	TREA2	01/01/2005		100	sends to	STRU12	01/01/2005		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	01/01/2005		100	sends to	STRU12	01/01/2005		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	01/01/2005		100	sends to	STRU12	01/01/2005		Indoor releases from TREA18 controlled by TREA2
EQUI58	100	is controlled by	TREA37/21	01/01/2015		100	sends to	STRU34	01/01/2005	On or after 8/30/2024	TREA37/21 releases indoors. STRU34 is removed from the site.
EQUI58	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		Indoor releases from TREA37/21 controlled by TREA47
EQUI60	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI60	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI61	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI61	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI62	0	is controlled by				100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI62	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
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	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA23 controlled by TREA47
EQUI65	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI65	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI66	0	is controlled by				100	sends to	STRU38	01/01/1974	On or after 8/30/2024	STRU38 is removed from the site.
EQUI66	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA23 controlled by TREA47
EQUI68	0	is controlled by		On or offer		100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI68	100	is controlled by	TREA47	8/31/2024		100	sends to	STRU13	8/31/2024		
EQUI69	0	is controlled by				100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI69	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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	0	is controlled by				100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI70	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
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	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI73	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI74	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI74	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI75	0	is controlled by				100	sends to	STRU34	10/01/2007	On or after 8/30/2024	STRU34 is removed from the site.
EQUI75	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI76	0	is controlled by				100	sends to	STRU34	10/01/2007	On or after 8/30/2024	STRU34 is removed from the site.
EQUI76	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI77	0	is controlled by				100	sends to	STRU34		On or after 8/30/2024	STRU34 is removed from the site.
EQUI77	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI78	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI78	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI79	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI79	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI80	0	is controlled by				100	sends to	STRU34	07/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI80	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI84	0	is controlled by				100	sends to	STRU34	07/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI84	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI85	80	is controlled by	TREA2	01/01/2005		100	sends to	STRU12	01/01/2005		80% capture to TREA2

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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
EQUI85	20	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA2 controlled by TREA47
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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI91	80	is controlled by	TREA2	01/01/2005		100	sends to	STRU12	01/01/2005		80% capture to TREA2
EQUI91	20	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI92	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI92	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI93	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI93	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI94	0	is controlled by				100	sends to	STRU34	07/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI94	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI95	0	is controlled by				100	sends to	STRU34	10/01/2007	On or after 8/30/2024	STRU34 is removed from the site.
EQUI95	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI96	80	is controlled by	TREA2	01/01/2005		100	sends to	STRU12	01/01/2005		80% capture to TREA2
EQUI96	20	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		20% uncaptured by TREA2 controlled by TREA47
EQUI97	0	is controlled by				100	sends to	STRU34	10/01/2007	On or after 8/30/2024	STRU34 is removed from the site.
EQUI97	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI98	0	is controlled by				100	sends to	STRU34	07/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI98	100	is controlled by	TREA46	On or after 8/31/2024		100	sends to	STRU46	On or after 8/31/2024		
EQUI100	100	is controlled by	TREA43/38	01/01/2015							TREA43/38 releases indoors
EQUI100	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA43/38 controlled by TREA47

Facility Name: Northern Iron LLC

Agency Interest ID: 3518

GI-05F Supplement

3a)	3b)	3c)	3d)	3e)	3f)	3g)	3h)	3i)	3j)	3k)	31)
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
EQUI102	0	is controlled by				100	sends to	STRU34	10/01/2007	On or after 8/30/2024	STRU34 is removed from the site.
EQUI102	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
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	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI109	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI110	100	is controlled by				100	sends to	STRU50	01/01/2005		
EQUI111	0	is controlled by				100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI111	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI112	0	is controlled by				100	sends to	STRU13	01/01/2005	On or after 8/30/2024	
EQUI112	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI113	0	is controlled by				100	sends to	STRU34	01/01/1974	On or after 8/30/2024	STRU34 is removed from the site.
EQUI113	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
EQUI114	0	is controlled by				100	sends to	STRU34	01/01/2011	On or after 8/30/2024	STRU34 is removed from the site.
EQUI114	100	is controlled by	TREA47	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		
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	On or after 8/31/2024		100	sends to	STRU47	On or after 8/31/2024		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	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA13/30 controlled by TREA47
EQUI118	100	is controlled by	TREA45	01/01/2005			sends to				TREA45 releases indoors
EQUI118	100	is controlled by	TREA47	On or after 10/31/2024		100	sends to	STRU47	On or after 10/31/2024		Indoor releases from TREA45 controlled by TREA47
EQUI119	100	is controlled by	TREA44	01/01/2005		100	sends to	STRU49	01/01/2005		
EQUI120	100	is controlled by				100	sends to	STRU49	On or after 8/31/2024		

# 7.0 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

	g															
										PM	PM10	PM2.5	PM	PM10	PM2.5	VOC
EQUI	EU	Unit Desc	Rated (	Capacity	Bottle Cap	necked acity	Annual Throughput (ton/yr)	Capture (%)	Control ID Number	Co (not us	ntrol Efficie sed in calcu	<b>ncy</b> ations)		Emission (Ib/ton	s Factor <sup>1</sup> metal)	
EQUI1	EU001	Scrap Preheat Oven 1	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	93%	93%	93%	0.054	0.0188	0.0147	4.102
EQUI2	EU002	Scrap Preheat Oven 2	12.5	ton/hr	4.5	ton/hr	7,500	100%	TREA47	93%	93%	93%	0.054	0.0188	0.0147	4.102
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 Melti	ng	Sitewide Annual Melt Limit:	27,000	ton/yr												
										PM	PM10	PM2.5	HAP	PM	PM10	PM2.5
EQUI	EU	Unit Desc	Rated (	Capacity	Bottler Cap	necked acity	Annual Throughput (ton/yr)	Capture (%)	Control ID Number		Control E	Efficiency				Emis
EQUI3	EU003	Electric Induction Furnace 1	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	93%	93%	93%	93%	0.9	0.9	0.9
EQUI4	EU004	Electric Induction Furnace 2	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	93%	93%	93%	93%	0.9	0.9	0.9
EQUI5	EU005	Electric Induction Furnace 3	1.5	ton/hr	1.5	ton/hr	5,000	100%	TREA47	93%	93%	93%	93%	0.9	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

										PM	PM10	PM2.5	HAP	РМ	PM10	PM2.5
EQUI	EU	Unit Desc	Rated C	Capacity	Bottler Capa	necked acity	Annual Throughput (ton/yr)	Capture (%)	Control ID Number		Control E	Efficiency				Emis
EQUI39	EU028	Inoculation	12.5	ton/hr	4.5	ton/hr	12,750	100%	TREA47	93%	93%	93%	93%	0.4	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 (h	ourly @ boti	lenecked ca	pacity; annu	al @ sitewid	e melt limit)	
Р	М	PN	/10	PN	N2.5	V	C	Р	M	PN	110	PN	12.5	VC	C
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate <sup>2</sup> (ton/yr)	Emission Rate (Ib/hr)	Emission Rate <sup>2</sup> (ton/yr)	Emission Rate (Ib/hr)	Emission Rate <sup>2</sup> (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)
0.675	2.957	0.235	1.029	0.184	0.805	51.275	224.585	0.2430	0.7290	0.0846	0.2538	0.0662	0.1985	18.4590	55.3770
0.675	2.957	0.235	1.029	0.184	0.805	51.275	224.585	0.2430	0.7290	0.0846	0.2538	0.0662	0.1985	18.4590	55.3770
									0.7290		0.2538		0.1985		55.3770

		HAPs <sup>2</sup>									Potential	(hourly @ ra	ted capacity,	annual = m	ax hourly X &	3,760 hr/yr)				
Lead	Cadmium	Chromium	Manganese	Nickel	P	M	PN	110	PN	12.5	Le	ad	Cadr	nium	Chro	mium	Mang	anese	Nic	kel
ssion Facto	r <sup>1</sup> (Ib/ton me	etal)			Emission Rate (Ib/hr)	Emission Rate (ton/yr)														
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
0.00558	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
0.00558	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

		HAPs <sup>2</sup>									Potential	(hourly @ ra	ted capacity;	annual = m	ax hourly X &	3,760 hr/yr)				
Lead	Cadmium	Chromium	Manganese	Nickel	Р	M	PN	110	PM	2.5	Le	ad	Cadr	nium	Chro	mium	Mang	anese	Nic	:kel
ssion Facto	r <sup>1</sup> (Ib/ton me	etal)			Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)								
0.0130869	0.0002392	0.0017355	0.0328346	0.002104	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

				Limited	l (hourly @ l	bottleneckea	l capacity; ar	nnual based	on lesser of	capacity X 8	,760 hr/yr or	annual melt	limit; annua	l group emis	sions based	on annual n	nelt limit)		
Tota	HAP	Р	М	PN	/10	PN	12.5	Le	ad	Cadr	nium	Chro	mium	Mang	anese	Nic	ckel	Total	HAP
Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate <sup>3</sup> (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)														
0.0320	0.1401	0.0945	0.4139	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
0.0320	0.1401	0.0945	0.4139	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
0.0320	0.1401	0.0945	0.4139	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
			0.8505		0.8505		0.8505		0.0053		0.0001		0.0007		0.0132		0.0008		0.0201

								Limited (b	ased on less	er of capaci	ty X 8,760 h	r/yr or annua	l melt limit)						
Total	HAP	Р	М	PN	/10	PN	12.5	Le	ad	Cadr	nium	Chroi	mium	Mang	anese	Nic	:kel	Total	HAP
Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)								
0.6250	2.7375	0.1260	0.3780	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

#### Pouring & Cooling Emissions

Pouring &	Cooling	Annual Melt Limit:	27,000 ton/yr																			Potential	(hourly @ rat
								PM	PM10	PM2.5	PM <sup>1</sup>	PM10 <sup>1</sup>	PM2.5 <sup>1</sup>	SOX <sup>2</sup>	NOX <sup>2</sup>	VOC <sup>2</sup>	CO <sup>3</sup>	Р	M	PN	/10	PM	2.5
EQUI	EU	Unit Desc	Rated Capacity	Bottlenecked Capacity	Annual Throughput C (ton/yr)	Capture (%)	Control ID Number	Control Efficiency					Emission F	actor <sup>1</sup> (lb/	ton metal)			Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)
EQUI12	EU015	DISA Line Pouring & Cooling	5 ton/hr	4.5 ton/hr	7,500	100%	TREA47	93%	93%	93%	1.045	0.5267	0.3857	0.02	0.01	0.14	3.02	5.2250	22.8855	2.6335	11.5347	1.9285	8.4468
EQUI13	EU016	30 <sup>2</sup> Line Pouring & Cooling	10 ton/hr	4.5 ton/hr	7,500	100%	TREA46	93%	93%	93%	1.045	0.5267	0.3857	0.02	0.01	0.14	3.02	10.4500	45.7710	5.2670	23.0695	3.8570	16.8937
COMG3	GP003	Pouring/Cooling																					

<sup>1</sup> Emission factors based on 2023 Stack Test <sup>2</sup> 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/lib metal	casting	Page 339 of AIGAJ 37:6, 1976	
21.90% Max CO % in exhaust	pouring/casting/cooling	Table 1. page 336 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/cooling1

1.51E-03 lb CO/lb metal casting

3.02 lb CO/ton metal casting

<sup>1</sup> Emissions factor is conservatively assumed to be the factor for pouring/cooling and shakeout combined.

#### Pouring & Cooling HAP Emissions

Pouring & Cooling HAP Emissions				EQUI12	; EU 15			EQUI13	; EU 16	
		HAP	Pote	ential	Lim	ited	Poter	ntial	Lim	nited
Pollutant <sup>1</sup>	Emission Factor (lb/ton metal)	Control 1	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Lead <sup>4</sup>	1.34E-03	93%	0.0067	0.0293	0.0004	0.0013	0.0134	0.0585	0.0004	0.0013
Cadmium	2.49E-05	93%	0.0001	0.0005	0.0000	0.0000	0.0002	0.0011	0.0000	0.0000
Chromium	2.80E-04	93%	0.0014	0.0061	0.0001	0.0003	0.0028	0.0122	0.0001	0.0003
Manganese	1.36E-03	93%	0.0068	0.0297	0.0004	0.0013	0.0136	0.0595	0.0004	0.0013
Selenium	4.10E-06	93%	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000
Acetaldehyde	3.49E-03	0%	0.0175	0.0765	0.0157	0.0472	0.0349	0.1530	0.0157	0.0472
Acetophenone	1.98E-04	0%	0.0010	0.0043	0.0009	0.0027	0.0020	0.0087	0.0009	0.0027
Benzene	3.71E-02	0%	0.1855	0.8123	0.1669	0.5007	0.3709	1.6245	0.1669	0.5007
o-Cresol	9.29E-04	0%	0.0046	0.0203	0.0042	0.0125	0.0093	0.0407	0.0042	0.0125
Cumene	1.27E-04	0%	0.0006	0.0028	0.0006	0.0017	0.0013	0.0056	0.0006	0.0017
Dibenzofuran	1.63E-05	0%	0.0001	0.0004	0.0001	0.0002	0.0002	0.0007	0.0001	0.0002
Ethylbenzene	1.97E-03	0%	0.0099	0.0432	0.0089	0.0266	0.0197	0.0863	0.0089	0.0266
Formaldehyde	1.87E-03	0%	0.0093	0.0409	0.0084	0.0252	0.0187	0.0818	0.0084	0.0252
Naphthalene	2.59E-03	0%	0.0130	0.0567	0.0117	0.0350	0.0259	0.1135	0.0117	0.0350
Nitrobenzene	5.03E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0001	0.0002	0.0000	0.0001
Phenol	5.77E-03	0%	0.0288	0.1263	0.0259	0.0778	0.0577	0.2526	0.0259	0.0778
POMs	5.00E-03	0%	0.0250	0.1094	0.0225	0.0674	0.0500	0.2188	0.0225	0.0674
1,3-Dimethylnaphthalene	1.18E-04	0%	0.0006	0.0026	0.0005	0.0016	0.0012	0.0052	0.0005	0.0016
1,4-Dimethylnaphthalene	2.51E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0003	0.0011	0.0001	0.0003
1,8-Dimethylnaphthalene	5.32E-06	0%	0.0000	0.0001	0.0000	0.0001	0.0001	0.0002	0.0000	0.0001
1-Methylnaphthalene	9.81E-04	0%	0.0049	0.0215	0.0044	0.0132	0.0098	0.0430	0.0044	0.0132
2,3-Dimethylnaphthalene	9.53E-05	0%	0.0005	0.0021	0.0004	0.0013	0.0010	0.0042	0.0004	0.0013
2,6-Dimethylnaphthalene	1.13E-05	0%	0.0001	0.0002	0.0001	0.0002	0.0001	0.0005	0.0001	0.0002
2,7-Dimethylnaphthalene	2.62E-05	0%	0.0001	0.0006	0.0001	0.0004	0.0003	0.0011	0.0001	0.0004
2-Methylnaphthalene	1.12E-03	0%	0.0056	0.0245	0.0050	0.0151	0.0112	0.0491	0.0050	0.0151
Acenaphthalene/1,2- Dimethylnaphthalene	2.45E-05	0%	0.0001	0.0005	0.0001	0.0003	0.0002	0.0011	0.0001	0.0003
Styrene	4.88E-04	0%	0.0024	0.0107	0.0022	0.0066	0.0049	0.0214	0.0022	0.0066
Toluene	2.00E-02	0%	0.0998	0.4369	0.0898	0.2693	0.1995	0.8738	0.0898	0.2693
Xylenes	1.20E-02	0%	0.0601	0.2631	0.0541	0.1622	0.1201	0.5261	0.0541	0.1622
		Total VOC	0.4446	1.9472	0.4001	1.2003	0.8891	3.8944	0.4001	1.2003
		Total HAPS	0.4596	2.0129	0.4011	1.2032	0.9192	4.0259	0.4011	1.2032

<sup>1</sup> Only particulate HAP emissions are controlled by TREA47.

<sup>2</sup> Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

<sup>3</sup> 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)

<sup>4</sup> Emission factors base on 2023 Stack Testing

ed capacity; annual = max hourly X 8,760 hr/yr)									Limited (based on lesser of capacity X 8,760 hr/yr or annual melt limit)														
SOX		NOX		VOC		CO		PM		PM10		PM2.5 SOX NOX VOC		DC	C	0							
Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)		
0.1000	0.4380	0.0500	0.2190	0.7000	3.0660	15.0880	66.0853	0.3292	0.9875	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	13.5792	40.7375		
0.2000	0.8760	0.1000	0.4380	1.4000	6.1320	30.1759	132.1706	0.3292	0.9875	0.1659	0.4977	0.1215	0.3645	0.0900	0.2700	0.0450	0.1350	0.6300	0.1350	13.5792	40.7375		
1									0.9875		0.4977		0.3645		0.2700		0.1350		0.1350		40.7375		

#### Metal Finishing Emissions

Shot Blast	Booths	Annual Melt Limit: 27,000 ton/yr Primary Control														Secondary Control					
		Unit Desc								Annual		Deimann	PM	PM10	PM2.5	HAP		PM	PM10	PM2.5	HAP
EQUI	EU		Rated Sho (shot	t Capacity TPUT)	Bottlenecked Shot Capacity		Site Rated Metal Melt Capacity		Annual TPUT - Shot (ton/yr) <sup>4</sup>	TPUT - Metal (ton/yr) <sup>4</sup>	Capture (%)	Primary Control ID Number	Control Efficiency				Secondary Control ID Number	Control Efficiency			
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	93%	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	93%	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	93%	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-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 calcualitions 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		Annual Limit:	27,000	ton/yr						Pr	imary Contro	bl			Sec	condary Con	trol				
										PM	PM10	PM2.5	HAP	_	PM	PM10	PM2.5	HAP	PM	PM10	PM2.5
EQUI	EU	Unit Desc	Rated Capacity		Bottlenecked Capacity		Annual TPUT - Metal (ton/yr)	Capture (%)	Control ID Number		Control E	fficiency		Secondary Control ID Number		Control E	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	93%	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	93%	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	93%	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%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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%	TREA13/30	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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%	TREA43/38	99.97%	99.97%	99.97%	99.97%	TREA47	93%	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	93%	93%	93%	93%	1.6	0.16	0.16
EQUI41	n.a	Snag Grinder 2	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47	93%	93%	93%	93%	1.6	0.16	0.16
EQUI42	n.a	Snag Grinder 3	1	ton/hr	1	ton/hr	1,250	80%	TREA22/35	99.97%	99.97%	99.97%	99.97%	TREA47	93%	93%	93%	93%	1.6	0.16	0.16
COMG5	CP005 Crinding/Cutting Operat																				

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 PM Factor of 1.7 lbs/ton) \* (EPA Fire PM Factor of 1.7 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 calimed.

2 A total HAP emission factor was obtained from "Total HAP Emission Factors for Preliminary Screening Analysis - Iron Foundries" 10/801, 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 calcualitions 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.

HAP⁴									Potential (hourly @ rated capacity: annual = max hourly X 8,760 hr/yr)															
PM	PM10	PM2.5 <sup>3</sup>	Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	P	M	PM10		PN	PM2.5		Lead		nium	Chromium		Cobalt		Mang	anese
Emission Factor <sup>2</sup> (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 (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	
0.004	0.00344	0.00172	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	256	1,121.28	220.16	964.30	110.08	482.15	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138
0.004	0.00344	0.00172	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	128	560.64	110.08	482.15	55.04	241.08	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138
0.004	0.00344	0.00172	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.8	3.50	0.69	3.01	0.34	1.51	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138	0.0032	0.0138

HAP <sup>2</sup>													Potential	(hourly @ ra	nted capacity	r; annual = n	nax hourly X	8,760 hr/yr)						
Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Р	PM		PM10		PM2.5		ad	Cadr	mium	Chromium		Co	balt	Manganese		Nickel		Total
E	mission Fac (Ib/ton meta	tor <sup>1</sup> al)		_		Emission Rate (Ib/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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
0.0003	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
									Limite	d (hourly @	bottlenecke	d capacity; a	nnual based	on lesser of	max hourly .	X 8,760 hr/yi	or annual n	nelt limit)						
-----------------------------	------------------------------	-----------------------------	------------------------------	-----------------------------	--	-----------------------------	------------------------------	-----------------------------	------------------------------	-----------------------------	---	-----------------------------	---	-----------------------------	---	-----------------------------	---	-----------------------------	---	-----------------------------	---	--------------------------	------------------------------	
Nic	kel	Tota	HAP	Р	PM PM10 PM2.5 Lead Cadmium Chromium Cobalt Mangane											anese	Nic	kel	Total	HAP				
Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr) <sup>5</sup>	Emission Rate (lb/hr)	Emission Rate (ton/yr)											
0.0032	0.0138	0.0189	0.0828	5.38E-03	2.27E-03	4.62E-03	1.95E-03	2.31E-03	9.75E-04	6.61E-08	3.97E-04	3.97E-07	2.38E-03											
0.0032	0.0138	0.0189	0.0828	2.69E-03	2.27E-03	2.31E-03	1.95E-03	1.16E-03	9.75E-04	6.61E-08	3.97E-04	3.97E-07	2.38E-03											
0.0032	0.0138	0.0189	0.0828	1.68E-05	7.36E-05	1.44E-05	6.33E-05	7.22E-06	3.16E-05	6.61E-08	1.98E-07	3.97E-07	1.19E-06											

						Limited (h	nourly @ bott	lenecked ca	oacity; annu	al @ bottlen	ecked capad	tity, group en	nissions dist	ributed amor	ng sources)					
HAP	Р	M	PN	/10	PN	12.5	Le	ad	Cadı	nium	Chro	mium	Co	balt	Mang	anese	Nic	:kel	Tota	I HAP
Emission Rate (ton/yr)	Emission Rate (Ib/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/vr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/yr)	Emission Rate (Ib/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/yr)	Emission Rate (lb/br)	Emission Rate (ton/vr)
0.0079	0.0224	0.0367	0.0022	0.0037	0.0022	0.0037	4.21E-06	6.88E-06	2.52E-05	4.13E-05										
0.0039	0.0112	0.0183	0.0011	0.0018	0.0011	0.0018	2.10E-06	3.44E-06	1.26E-05	2.06E-05										
0.0039	0.0112	0.0183	0.0011	0.0018	0.0011	0.0018	2.10E-06	3.44E-06	1.26E-05	2.06E-05										
0.0020	0.0056	0.0092	0.0006	0.0009	0.0006	0.0009	1.05E-06	1.72E-06	6.31E-06	1.03E-05										
0.0020	0.0056	0.0092	0.0006	0.0009	0.0006	0.0009	1.05E-06	1.72E-06	6.31E-06	1.03E-05										
0.0039	0.0112	0.0183	0.0011	0.0018	0.0011	0.0018	2.10E-06	3.44E-06	1.26E-05	2.06E-05										
0.0059	0.0168	0.0275	0.0017	0.0028	0.0017	0.0028	3.15E-06	5.16E-06	1.89E-05	3.10E-05										
0.0059	0.0168	0.0275	0.0017	0.0028	0.0017	0.0028	3.15E-06	5.16E-06	1.89E-05	3.10E-05										
0.0059	0.0168	0.0275	0.0017	0.0028	0.0017	0.0028	3.15E-06	5.16E-06	1.89E-05	3.10E-05										
0.0079	0.0224	0.0367	0.0022	0.0037	0.0022	0.0037	4.21E-06	6.88E-06	2.52E-05	4.13E-05										
0.0079	0.0224	0.0367	0.0022	0.0037	0.0022	0.0037	4.21E-06	6.88E-06	2.52E-05	4.13E-05										
0.0079	0.0224	0.0367	0.0022	0.0037	0.0022	0.0037	4.21E-06	6.88E-06	2.52E-05	4.13E-05										
		0.30		0.03		0.03		5.68E-05		3.41E-04										

#### Machine Shop

Double Dise	Sander and	Shot Blast Machine				Pr	imary Contro	bl			Sec	condary Con	trol								
							Annual		Primary	PM	PM10	PM2.5	HAP	Secondary	PM	PM10	PM2.5	HAP	PM	PM10	PM2.5
EQUI EU		Unit Desc	Rated C	Capacity	Bottler Cap	necked acity	Throughput Metal (ton/yr)	Capture (%)	Control ID Number		Control I	Efficiency		Control ID Number		Control E	Efficiency				
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%	TREA47	93%	93%	93%	93%	1.6	0.16	0.16

1 The PM Emission Factor is from the Modern Casting article "An Inventory of fron 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 blon emission factor for Grinding is representative. The PM10 emissions factor is calculated at the ratio as PM for SCC 30400340 [PM10 Factor = 1. PM Factor of 1.6) (EPA Fire PM Factor 17 liston): PM2.5 is assumed to equal PM10. Though fallout is expected to occur, no reduction for fallout is calimed.

2 A lotal 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://gafu.pagagv/ap42/ht12/s10-137/fechnikon%202006.pdf). The calcualitons 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												P	rimary Contro	bl						
									Annual	Annual			PM	PM10	PM2.5	HAP	PM	PM10	PM2.5 <sup>3</sup>	Lead	Cadmium
EQUI	EQUI EU Unit Desc Rated Capacity Bottlenecked Capacity				Site Rated Capa	Metal Melt Icity	Throughput - Shot <sup>1</sup> (ton/yr)	Throughput Metal <sup>1</sup> (ton/yr)	Capture (%)	Primary Control ID Number		Control I	Efficiency				(	En Ib/Ib - PM/1	nission Fact D/2.5; Ib/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-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 Ouality Committee and MACT Task Force (found at https://gafu.paga.gov/gafu/2/https://dov/gafu/table/analysis-are induced and analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Ouality Committee and MACT Task Force (found at https://gafu.paga.gov/gafu/table/analysis-are induced and analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Ouality Committee and MACT Task Force (found at https://gafu.paga.gov/gafu/table/analysis-are induced and analysis-are induced and analysis - Iron Foundries" 10/8/01, compiled by the American Foundrymen's Society Air Ouality Committee and MACT Task Force (found at https://gafu.paga.gov/gafu/table/analysis-are induced and analysis-are induced and analysis-are induced and analysis-are induced and analysis-are analysis-are analysis-are induced and analysis-are analysishttps://gafu.paga.gov/gafu/table/analysis-are analysis-are analysisare analysis-are analysisare analysis-are analysisare analysis-are analysisare analysis-are analysis-are analysis-are analysis-are analysis-are analysis-are analys

		HA	P <sup>2</sup>										Potential	(hourly @ ra	nted capacity	; annual = n	nax hourly X	8,760 hr/yr)						
Lead	Cadmium	Chromium	Cobalt	Manganese	Nickel	Р	'M	PN	/10	PN	N2.5	Le	ad	Cadr	nium	Chro	mium	Co	balt	Mang	anese	Nic	kel	Tota
E	mission Fact (Ib/ton meta	tor <sup>1</sup> al)				Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)
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	0.0002										

H	AP⁴										Potential	(hourly @ ra	ted capacity	r; annual = m	ax hourly X	8,760 hr/yr)								
Chromium	Cobalt	Manganese	Nickel	Р	M	PN	/10	PN	12.5	Le	ead	Cad	nium	Chro	mium	Co	balt	Mang	anese	Nic	:kel	Total	HAP	P
or <sup>2</sup> metal - HAF	?)			Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)
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	0.0189	0.0828	4.80E-05										

							Lir	mited (captu	ired portion t	o 1st + 2nd	controls, unc	aptured to 21	nd control or	ıly)						
НАР	Р	М	PN	/10	PN	12.5	Le	ad	Cadı	nium	Chro	mium	Co	balt	Mang	anese	Nic	ckel	Total	HAP
Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/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 (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)
0.0008	2.24E-03	9.82E-03	2.24E-04	9.82E-04	2.24E-04	9.82E-04	4.21E-07	1.84E-06	2.52E-06	1.11E-05										

					Li	imited (bottl	enecked cap	pacity to con	rol; annual =	max hourly	X 8, 760 hr/y	r)						
М	PN	/10	PM	12.5	Le	ad	Cadr	nium	Chro	mium	Co	palt	Mang	anese	Nic	kel	Total	HAP
Emission	Emission	Emission																
Rate (ton/yr)	Rate (lb/hr)	Rate (ton/yr)																
2.10E-04	4.08E-05	1.79E-04	2.04E-05	8.94E-05	9.45E-07	2.83E-06	5.67E-06	1.70E-05										

### Shakeout Emissions

Shakeout		Annual Melt Limit:	27,000	ton/yr						F	Primary Cont	ol			Sec	ondary Cont	rol					
							Annual			PM	PM10	PM2.5	HAP		PM	PM10	PM2.5	HAP	PM	PM10 <sup>2</sup>	PM2.5 <sup>2</sup>	CO
EQUI	EU	Unit Desc	Rated (	Capacity	Bottlene	cked Capacity	Throughput Metal (ton/yr)	Capture (%)	Primary Control ID Number		Control I	Efficiency		Secondary Control ID Number		Control I	Efficiency			Emissio (lb/tor	n Factor <sup>1</sup> 1 metal)	
		DIS	SA Line																			
EQUI80	EU017	DISA #1 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%		0%	0%	0%	0%	TREA47	93%	93%	93%	93%	0.640	0.448	0.269	0.908
EQUI81	EU017	DISA #2 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	97.8%	97.7%	98.0%	97.7%	TREA47	93%	93%	93%	93%	0.640	0.448	0.269	0.908
EQUI82	EU017	DISA #3 Oscillator	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	97.8%	97.7%	98.0%	97.7%	TREA47	93%	93%	93%	93%	0.640	0.448	0.269	0.908
EQUI83	EU017	DISA Didion	5	ton/hr	4.5	ton/hr	5,400	80%	TREA2	97.8%	97.7%	98.0%	97.7%	TREA47	93%	93%	93%	93%	0.640	0.448	0.269	0.908
EQUI84	EU017	DISA #5 Oscillator	5	ton/hr	4.5	ton/hr	5,400	0%		0%	0%	0%	0%	TREA47	93%	93%	93%	93%	0.640	0.448	0.269	0.908
COMG4	GP004	Shakeout																				
		30	^2 Line																			
EQUI63	EU018	30^2 Unit 10	10	ton/hr	4.5	ton/hr	9,000	80%	TREA23	99.5%	99.5%	99.7%	99.7%	TREA46	93%	93%	93%	93%	1.067	0.747	0.448	0.908
EQUI65	EU018	30^2 Unit 11	10	ton/hr	4.5	ton/hr	9,000	0%		0%	0%	0%	0%	TREA46	93%	93%	93%	93%	1.067	0.747	0.448	0.908
EQUI66	EU018	30^2 Unit 12	10	ton/hr	4.5	ton/hr	9,000	0%		0%	0%	0%	0%	TREA46	93%	93%	93%	93%	1.067	0.747	0.448	0.908
COMG4	GP004	Shakeout																				

1 PM/PM10/PM2.5 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
21.90% Max CO % in exhaust pouring/casting	Table 1. page 336 of AIGAJ 37:6, 1976
1510 ppmV CO from pouring/cooling	Table II. page 343 of AIGAJ 37:6, 1976
650 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 q/lb	Conversion Factor

### Emission factor for Shakeout

4.54E-04 lb CO/lb metal casting 0.91 lb CO/ton metal casting

	Potential (	'hourly @ rat	ed capacity;	annual = ma	ax hourly X &	3,760 hr/yr)		Limit	ed (captured	d to both cor	ntrols, uncap	tured to 2nd	only; annua	l by sitewide	limit)
Р	м	PN	110	PM	2.5	С	0	Р	м	PM	110	PM	2.5	С	0
Emission Rate (Ib/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 (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)
0.000	44.04/	0.040	0.014		5 007		40.00	0.000	0.405	0.4.44	0.400	0.005	0.054	1.00/	10.050
3.200	14.016	2.240	9.811	1.344	5.887	4.54	19.89	0.202	0.605	0.141	0.423	0.085	0.254	4.086	12.259
3.200	14.016	2.240	9.811	1.344	5.887	4.54	19.89	0.090	0.271	0.065	0.195	0.036	0.108	4.086	12.259
3.200	14.016	2.240	9.811	1.344	5.887	4.54	19.89	0.090	0.271	0.065	0.195	0.036	0.108	4.086	12.259
3.200	14.016	2.240	9.811	1.344	5.887	4.54	19.89	0.090	0.271	0.065	0.195	0.036	0.108	4.086	12.259
3.200	14.016	2.240	9.811	1.344	5.887	4.54	19.89	0.202	0.605	0.141	0.423	0.085	0.254	4.086	12.259
									2.023		1.432		0.831		12.259
10.667	46.720	7.467	32.704	4.480	19.622	9.08	39.77	0.086	0.257	0.061	0.182	0.034	0.102	4.086	12.259
10.667	46.720	7.467	32.704	4.480	19.622	9.08	39.77	0.336	1.008	0.235	0.706	0.141	0.423	4.086	12.259
10.667	46.720	7.467	32.704	4.480	19.622	9.08	39.77	0.336	1.008	0.235	0.706	0.141	0.423	4.086	12.259
									2.273		1.593		0.948		12.259

Shakeout HAP Emissions			Dis	a Line (EQL	JI80 - EQUI8	4)		30^2 Line (E	QUI 63, 65,	66)
			Pote	ntial	Lim	nited	Pote	ential	Lir	nited
Pollutant <sup>1</sup>	Emission Factor <sup>2</sup> (lb/ton metal)	HAP Control <sup>3</sup>	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Lead	7.29E-05	See Table Above	0.0018	0.0080	7.77E-05	6.89E-05	0.0022	0.0096	5.14E-05	6.89E-05
Cadmium	1.67E-05	See Table Above	0.0004	0.0018	1.78E-05	1.58E-05	0.0005	0.0022	1.18E-05	1.58E-05
Chromium	1.71E-04	See Table Above	0.0043	0.0187	1.82E-04	1.62E-04	0.0051	0.0225	1.21E-04	1.62E-04
Manganese	3.39E-04	See Table Above	0.0085	0.0371	3.61E-04	3.20E-04	0.0102	0.0445	2.39E-04	3.20E-04
Acetaldehyde	5.78E-02	0%	1.4450	6.3291	1.8207	0.7803	1.7340	7.5949	0.7803	0.7803
Acetophenone	7.92E-04	0%	0.0198	0.0867	0.0249	0.0107	0.0238	0.1041	0.0107	0.0107
Benzene	2.68E-02	0%	0.6700	2.9346	0.8442	0.3618	0.8040	3.5215	0.3618	0.3618
o-Cresol	1.40E-02	0%	0.3500	1.5330	0.4410	0.1890	0.4200	1.8396	0.1890	0.1890
Cumene	3.82E-04	0%	0.0096	0.0418	0.0120	0.0052	0.0115	0.0502	0.0052	0.0052
Dibenzofuran	3.34E-04	0%	0.0084	0.0366	0.0105	0.0045	0.0100	0.0439	0.0045	0.0045
Ethylbenzene	2.91E-03	0%	0.0728	0.3186	0.0917	0.0393	0.0873	0.3824	0.0393	0.0393
Formaldehyde	2.57E-02	0%	0.6425	2.8142	0.8096	0.3470	0.7710	3.3770	0.3470	0.3470
Naphthalene	8.37E-03	0%	0.2093	0.9165	0.2637	0.1130	0.2511	1.0998	0.1130	0.1130
Phenol	2.80E-02	0%	0.7000	3.0660	0.8820	0.3780	0.8400	3.6792	0.3780	0.3780
POMs	2.21E-02	0%	0.5525	2.4200	0.6962	0.2984	0.6630	2.9039	0.2984	0.2984
1,3-Dimethylnaphthalene	1.03E-03	0%	0.0258	0.1128	0.0324	0.0139	0.0309	0.1353	0.0139	0.0139
1,4-Dimethylnaphthalene	4.64E-04	0%	0.0116	0.0508	0.0146	0.0063	0.0139	0.0610	0.0063	0.0063
1,8-Dimethylnaphthalene	1.06E-03	0%	0.0265	0.1161	0.0334	0.0143	0.0318	0.1393	0.0143	0.0143
1-Methylnaphthalene	3.41E-03	0%	0.0853	0.3734	0.1074	0.0460	0.1023	0.4481	0.0460	0.0460
2,3,5-Trimethylnaphthalene	7.14E-04	0%	0.0179	0.0782	0.0225	0.0096	0.0214	0.0938	0.0096	0.0096
2,3-Dimethylnaphthalene	6.50E-04	0%	0.0163	0.0712	0.0205	0.0088	0.0195	0.0854	0.0088	0.0088
2,6-Dimethylnaphthalene	5.68E-04	0%	0.0142	0.0622	0.0179	0.0077	0.0170	0.0746	0.0077	0.0077
2,7-Dimethylnaphthalene	4.10E-04	0%	0.0103	0.0449	0.0129	0.0055	0.0123	0.0539	0.0055	0.0055
2-Methylnaphthalene	5.22E-03	0%	0.1305	0.5716	0.1644	0.0705	0.1566	0.6859	0.0705	0.0705
Acenaphthalene/1,2- Dimethylnaphthalene	2.20E-04	0%	0.0055	0.0241	0.0069	0.0030	0.0066	0.0289	0.0030	0.0030
Styrene	4.81E-03	0%	0.1203	0.5267	0.1515	0.0649	0.1443	0.6320	0.0649	0.0649
Toluene	2.21E-02	0%	0.5525	2.4200	0.6962	0.2984	0.6630	2.9039	0.2984	0.2984
Xylenes	1.78E-02	0%	0.4450	1.9491	0.5607	0.2403	0.5340	2.3389	0.2403	0.2403
		Total VOC	5.5886	24.4781	7.0416	3.0178	6.7063	29.3737	3.0178	3.0178
		Total HAPS	5.6036	24.5437	7.0423	3.0184	6.7243	29.4525	3.0183	3.0184

<sup>1</sup> Pollutants in italics font are polycyclic organic matter and are included in the POMs emission total.

<sup>2</sup> 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)

<sup>3</sup> 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

										PM	PM10	PM2.5	VOC	PM <sup>2</sup>	PM10	PM2.5 <sup>2</sup>	VOC
EQUI	EU	Unit Desc	Rated (	Capacity	Bottleneck	ottlenecked Capacity TI		Capture (%)	Control ID Number		Control E	fficiency		Em	ission Facto	or <sup>1</sup> (lb/ton sa	and)
EQUI52	EU010	Disco Core Machine	0.5	tons/hr	0.5	ton/hr	1,000	100%	TREA47	93%	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	93%	93%	93%	0%	0.635	0.540	0.191	0.820
COMCZ	CD007	Drimony VOC/UAD Sourcos															

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 Calcuator Tool can be downloaded at the following link: https://19january2017snapshot.epa.gov/sites/production/files/2016-05/pm\_auq\_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 Nobak	e 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	@ rated capacity; annual = max hourly X 8,760 hr/yr)					L	imited (bott	lenecked cap	pacity to con	trol; annual =	max hourly	X 8,760 hr/y	r)
Р	M	PM	10	PN	PM2.5 VOC			Р	М	PM10		PN	12.5	V	C
			Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission	Emission
Emission	Emission	Emission	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate	Rate
Rate (lb/hr)	Rate (ton/yr)	Rate (lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)	(lb/hr)	(ton/yr)
0.318	1.391	0.270	1.183	0.095	0.417	0.410	1.797	0.022	0.097	0.019	0.083	0.007	0.029	0.410	1.797
0.262	1.148	0.223	0.976	0.079	0.344	0.338	1.482	0.018	0.080	0.016	0.068	0.006	0.024	0.338	1.482

	Phenolic Urethane Coldbo	ox 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 Bind	lers			
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 Ib/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									P	rimary Contro	ol	Se	condary Con	itrol			
							Appual		PM	PM10	PM2.5	PM	PM10	PM2.5	PM <sup>2</sup>	PM10	PM2.5 <sup>2</sup>
EQUI	EU	Unit Desc	Rated C	Capacity	Bottleneck	ed Capacity	Throughput (ton/yr)	Capture (%)	Cor	ntrol Efficier	су	Co	ntrol Efficie	ncy			Emis (Ib
EQUI55	EU013	East CR16	0.33	tons/hr	0.33	tons/hr	660	80%	99.97%	99.97%	99.97%	97.83%	97.71%	98.04%	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%	97.83%	97.71%	98.04%	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%	97.83%	97.71%	98.04%	0.635	0.540	0.191
EQUI55 EQUI54 EQUI56	EU EU013 EU013 EU013	Unit Desc East CR16 West CR16 CR-22	Rated C 0.33 0.33 1.1	tons/hr tons/hr tons/hr	0.33 0.33 1.1	ed Capacity tons/hr tons/hr tons/hr	Annual Throughput (ton/yr) 660 660 2,200	Capture (%) 80% 80%	Cor 99.97% 99.97% 99.97%	99.97% 99.97% 99.97% 99.97%	99.97% 99.97% 99.97%	Co 97.83% 97.83% 97.83%	97.71% 97.71% 97.71% 97.71%	98.04% 98.04% 98.04%	0.635 0.635 0.635	0.540 0.540 0.540	0.

1 AP-42 Sect. 12.13 emission factors were selected rather than AP-42 Sect. 12.10. AP-42 factor is in units of Ib/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.

					Poter	ntial	Limi	ited
						VO	С	
FOUI	EU	Unit Dosc	Canacity	Appual Throughput	Emission	Emission		Emission
LQUI	LU	Unit Desc	Capacity	Annual mitoughput	Rate	Rate	Emission	Rate
					(lb/hr)	(ton/yr)	Rate (Ib/hr)	(ton/yr)
EQUI11	EU014	Core Wash	15 gal/day	757.143 gal/yr	3.50	15.33	3.50	15.33

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

		Uncontrolle	b								
		PM	PM10		PM2.5		PM2.5		Lead		
		(lb/hr)	(lb/hr)		(lb/hr)		(tpy)		(lb/hr)		
STRU12	TREA2	0.22389188		0.190	C	0.067		0.294		0	
STRU13	TREA23	0		0		0		0		0	

	HAPs			Potential (hourly @ rated capacity; annual = hourly X 8,760 hr/yr)														Limi	ted (captured				
Formaldehyde	Methyl Alcohol	Naphthalene	P	М	PN	/10	PN	12.5	Formaldehyde		Methyl	Alcohol	Naphtl	halene	Total	HAP	Р	М	PN	PM10		PM2.5	
sion Factor <sup>1</sup> /ton sand)			Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	
0.080	0.600	0.140	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	9.13E-04	4.00E-03	8.15E-04	3.57E-03	2.47E-04	1.08E-03	
0.080	0.600	0.140	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	9.13E-04	4.00E-03	8.15E-04	3.57E-03	2.47E-04	1.08E-03	
0.080	0.600	0.140	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	3.04E-03	1.33E-02	2.72E-03	1.19E-02	8.23E-04	3.60E-03	

d to both con	ntrols, uncap	tured to 2nd	only,				
Formal	dehyde	Methyl	Alcohol	Napht	halene	Total	HAP
Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)
0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
0.026	0.116	0.198	0.867	0.046	0.203	0.271	1.186
0.088	0.385	0.660	2.891	0.154	0.676	0.902	3.953

## Sand Handling Emissions

Sand handling is composed of the DISA and 30<sup>2</sup> 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 <sup>2</sup> Line Sand Limit:	270,000	ton/yr					Primary	Control			Secondary	y Control				
							<b>.</b> .	Primary	PM	PM10	PM2.5	Secondary	PM	PM10	PM2.5	PM	PM10 <sup>2</sup>	PM2.5 <sup>2</sup>
EQUI	EU	Unit Desc	Rated (	Capacity	Bottle Cap	necked acity	Capture (%)	Control ID Number	Cor	ntrol Efficie	ncy	Control ID Number	Cor	ntrol Efficie	ncy	Em	ission Fact (Ib/ton sand	tor <sup>1</sup> 1)
		DISA Line																
EQUI96	EU008	DISA Bond Day Tank	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI72	EU008	DISA Line Muller	26	ton/hr	26	ton/hr	100%	TREA2	97.8%	97.7%	98.0%		0%	0%	0%	0.635	0.54	0.191
EQUI73	EU008	DISA Muller Discharge Belt	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI74	EU008	DISA Muller Distribution Belt	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI95	EU008	DISA Prepared Sand Tank	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI75	EU008	DISA Feed Belt	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI102	EU008	DISA Aerator	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI97	EU008	DISA Mold Machine	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI78	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI105	EU008	DISA Bond Transport	26	ton/hr	26	ton/hr	100%	TREA2	97.8%	97.7%	98.0%		0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI110	EU008	DISA Outdoor Bond Tank	26	ton/hr	26	ton/hr	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	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI76	EU008	DISA Spill Belt	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI77	EU008	DISA Spill Pan	26	ton/hr	26	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI85	EU008	DISA Mag Belt	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI86	EU008	DISA Return Sand Elevator	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI87	EU008	DISA 125 Ton Sand Bin	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI88	EU008	DISA 125 Ton Belt	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI89	EU008	DISA New/Old Belt	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI90	EU008	DISA New/Old Elevator	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI91	EU008	DISA Muller Storage Tank	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI115	EU008	DISA Hopper	26	ton/hr	26	ton/hr	80%	TREA2	97.8%	97.7%	98.0%	TREA47	93%	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	100%	TREA23	99.5%	99.5%	99.7%		0%	0%	0%	0.635	0.54	0.191
EQUI92	EU009	30^2 Discharge Conveyor	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI94	EU009	30^2 Distribution belt conveyor	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI98	EU009	30^2 Mold Making	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI93	EU009	30^2 Cross Belt Conveyor	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI60	EU009	30^2 Machine Belt Sand	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI109	EU009	30^2 Prepared Sand Tank	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI61	EU009	30^2 Sprue Belt	45	ton/hr	45	ton/hr	0%		0%	0%	0%	TREA46	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI62	EU009	30^2 Machine Incline	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI64	EU009	30^2 Mag Belt	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03

## Sand Handling Emission

Sand handling is compose operations are limited to a

Shakeout		Potentia	l (hourly @	rated capaci	ity; annual =	hourly X 8,7	760 hr/yr)	Limited	(bottleneckea	capacity to co	ontrol; annual :	= hourly X 8,70	60 hr/yr)
		Р	M	PN	110	PN	12.5	Р	M	PN	/10	PM	2.5
EQUI	EU	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (lb/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)	Emission Rate (Ib/hr)	Emission Rate (ton/yr)
501107	FURAD	0.100	0.020	0.1/0	0.710	0.057	0.050	0.00/	0.00/	0.005	0.000	0.000	0.007
EQUI96	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQ0172	EU000	0.102	12.347	0.1/0	01.490	4.900	21.704	0.339	0.050	0.321	0.004	0.097	0.420
	EU000	0.192	0.039	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.010
EQUI/4	EU008	0.192	0.839	0.103	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI95	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI/5	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUITO2	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI97	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI/8	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI105	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.004	0.018	0.004	0.016	0.001	0.005
EQUI110	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.192	0.839	0.163	0.713	0.057	0.252
EQUI79	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI76	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI77	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.013	0.059	0.011	0.050	0.004	0.018
EQUI85	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI86	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI87	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI88	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI89	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI90	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI91	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI115	EU008	0.192	0.839	0.163	0.713	0.057	0.252	0.006	0.026	0.005	0.023	0.002	0.007
EQUI104	EU009	28.588	125.216	24.300	106.434	8.576	37.565	0.136	0.409	0.123	0.368	0.030	0.090
EQUI92	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI94	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI98	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI93	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI60	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI109	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI61	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.023	0.070	0.020	0.059	0.007	0.021
EQUI62	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005
EQUI64	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005

EQUI69	EU009	30^2 Incline to Blower	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI70	EU009	30^2 Blower	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI68	EU009	30^2 Aerator	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI71	EU009	30^2 Sand Cooler	45	ton/hr	45	ton/hr	100%	TREA23	99.5%	99.5%	99.7%		0%	0%	0%	2.00E+00	1.58E+00	9.00E-01
EQUI67	EU009	30 <sup>^</sup> 2 Return Sand Elevator	45	ton/hr	45	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI106	EU009	30^2 Sand Tank	45	ton/hr	45	ton/hr	100%	TREA23	99.5%	99.5%	99.7%		0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
EQUI107	EU009	30^2 Bond Tank	45	ton/hr	45	ton/hr	100%	TREA23	99.5%	99.5%	99.7%		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	100%	TREA23	99.5%	99.5%	99.7%		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	100%	TREA23	99.5%	99.5%	99.7%		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	100%	TREA23	99.5%	99.5%	99.7%		0%	0%	0%	7.37E-03	6.26E-03	2.21E-03
		Core Making																
EQUI111	EU010	ABC6 Sand Tank	0.5	ton/hr	0.5	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	93%	93%	7.37E-03	6.26E-03	2.21E-03
EQUI112	EU010	Disco Sand Tank	0.4125	ton/hr	0.4125	ton/hr	80%	TREA23	99.5%	99.5%	99.7%	TREA47	93%	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	0%		0%	0%	0%	TREA47	93%	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 too)

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, 91, 96, 105 and 115 are controlled by TREA 2. Fugitives from these operations are contained within the building and routed to dust collector TREA47

30<sup>2</sup> Line EQUI 63, 64, 67, 68, 69, 70, 71, 103, 104, 106, 107, 108, and 116 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 113 is uncontrolled. Fugitives from EQUI 111, EQUI 112, and E QUI 113 are contained within the building and routed to dust collector TREA47

EQUI69	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005
EQUI70	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005
EQUI68	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005
EQUI71	EU009	90.000	394.200	71.100	311.418	40.500	177.390	0.429	1.287	0.359	1.077	0.141	0.423
EQUI67	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.006	0.018	0.005	0.015	0.002	0.005
EQUI106	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.002	0.005	0.001	0.004	0.000	0.001
EQUI107	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.002	0.005	0.001	0.004	0.000	0.001
EQUI108	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.002	0.005	0.001	0.004	0.000	0.001
EQUI116	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.002	0.005	0.001	0.004	0.000	0.001
EQUI103	EU009	0.332	1.452	0.282	1.235	0.099	0.436	0.002	0.005	0.001	0.004	0.000	0.001
EQUI111	EU010	0.004	0.016	0.003	0.014	0.001	0.005	6.56E-05	1.77E-02	5.65E-05	1.53E-02	1.86E-05	8.13E-05
EQUI112	EU010	0.003	0.013	0.003	0.011	0.001	0.004	5.41E-05	1.77E-02	4.66E-05	1.53E-02	1.53E-05	6.70E-05
EQUI113	EU010	0.013	0.057	0.011	0.048	0.004	0.017	9.08E-04	6.96E-02	7.72E-04	5.92E-02	2.72E-04	1.19E-03
COMG2	GP002								5.966		4.003		1.621

1 Emissions factor for sand h and Sand Cooler Factors are the EPA PM Augmentation tc

2 PM10 and PM2.5 calculate

DISA Line EQUI 72, 85, 30^2 Line EQUI 63, 64,

Core Making EQUI 113 is (

EQUI	EU	Unit Desc	Rated Capacity (MMBtu/br)	P	M	PN	//10	PM	2.5	Le	ad	NC
			(ININE Carrin)	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

Potential (hourly @ rated capacity; annual = max hourly X 8,760 hr/yr)

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	Control ID		Control F	fficiency		р	M	PM	110
				Number	PM	PM10	PM2.5	HAP1	lb/hr	tpy	lb/hr	tpy
EQUI1	EU001	Scrap Preheat Oven 1	4	TREA47	93%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EQUI2	EU002	Scrap Preheat Oven 2	4	TREA47	93%	93%	93%	93%	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EQUI9	EU012	Core Tunnel Oven	0.8	TREA47	93%	93%	93%	93%	4.26E-04	1.87E-03	4.26E-04	1.87E-03
EQUI55	EU013	East CR16 (formerly Core Baking)	0.3	TREA2	97.8%	97.7%	98.0%	98.0%	4.96E-05	2.17E-04	5.21E-05	2.28E-04
EQUI54	EU013	West CR16 (formerly Core Baking)	0.3	TREA2	97.8%	97.7%	98.0%	98.0%	4.96E-05	2.17E-04	5.21E-05	2.28E-04
EQUI56	EU013	CR-22	0.9	TREA2	97.8%	97.7%	98.0%	98.0%	1.49E-04	6.52E-04	1.56E-04	6.85E-04
EQUI36	EU025	Large Heat Treat Oven	1.6	TREA47	93%	93%	93%	93%	8.52E-04	3.73E-03	8.52E-04	3.73E-03
EQUI37	EU026	Small Heat Treat Oven	4	TREA47	93%	93%	93%	93%	2.13E-03	9.33E-03	2.13E-03	9.33E-03
EQUI46	na	East MUA	6.05	TREA47	93%	93%	93%	93%	3.22E-03	1.41E-02	3.22E-03	1.41E-02
EQUI47	na	West MUA	6.05	TREA46	93%	93%	93%	93%	3.22E-03	1.41E-02	3.22E-03	1.41E-02
EQUI48	na	North MUA	3.3	TREA46	93%	93%	93%	93%	1.76E-03	7.70E-03	1.76E-03	7.70E-03
EQUI49	na	South MUA	3.3	TREA47	93%	93%	93%	93%	1.76E-03	7.70E-03	1.76E-03	7.70E-03
EQUI114	na	Furnace Basement MUA	0.3591	TREA47	93%	93%	93%	93%	1.91E-04	8.38E-04	1.91E-04	8.38E-04
EQUI50	na	Finishing MUA	2.25	TREA47	93%	93%	93%	93%	1.20E-03	5.25E-03	1.20E-03	5.25E-03
EQUI120	na	Machine Shop MUA	1.1						8.37E-03	3.67E-02	8.37E-03	3.67E-02

<sup>1</sup> 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

Эх	C	:0	SC	D2	V	OC	С	02	N	120	Arse	enic	Bery	llium	Cadr	nium
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
2.476	0.329	1.443	2.35E-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
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	7.84E-07	3.44E-06	4.71E-08	2.06E-07	4.31E-06	1.89E-05
0.495	0.066	0.289	4.71E-04	2.06E-03	0.009	0.038	108.84	476.70	0.008	0.034	1.57E-07	6.87E-07	9.41E-09	4.12E-08	8.63E-07	3.78E-06
0.186	0.025	0.108	1.76E-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
0.186	0.025	0.108	1.76E-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
0.557	0.074	0.325	5.29E-04	2.32E-03	0.010	0.043	122.44	536.29	0.009	0.039	1.76E-07	7.73E-07	1.06E-08	4.64E-08	9.71E-07	4.25E-06
0.990	0.132	0.577	9.41E-04	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
2.476	0.329	1.443	2.35E-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
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	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05
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	1.19E-06	5.20E-06	7.12E-08	3.12E-07	6.52E-06	2.86E-05
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	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05
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	6.47E-07	2.83E-06	3.88E-08	1.70E-07	3.56E-06	1.56E-05
0.222	0.030	0.130	2.11E-04	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
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	4.41E-07	1.93E-06	2.65E-08	1.16E-07	2.43E-06	1.06E-05
0.681	0.091	0.397	6.47E-04	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

PM	2.5	Le	ad	N	Ох	С	0	S	02	V	OC	С	02	N	20	Arse
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
0.00E+00	0.00E+00	1.37E-07	6.01E-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
0.00E+00	0.00E+00	1.37E-07	6.01E-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
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	108.84	476.70	0.008	0.034	1.10E-08
4.47E-05	1.96E-04	2.88E-09	1.26E-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	1.15E-09
4.47E-05	1.96E-04	2.88E-09	1.26E-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	1.15E-09
1.34E-04	5.87E-04	8.63E-09	3.78E-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	3.45E-09
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	217.67	953.41	0.016	0.069	2.20E-08
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	544.18	2,383.52	0.039	0.171	5.49E-08
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	823.08	3,605.08	0.059	0.259	8.30E-08
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	823.08	3,605.08	0.059	0.259	8.30E-08
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	448.95	1,966.41	0.032	0.141	4.53E-08
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	448.95	1,966.41	0.032	0.141	4.53E-08
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	48.85	213.98	0.004	0.015	4.93E-09
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	306.10	1,340.73	0.022	0.096	3.09E-08
8.37E-03	3.67E-02	5.39E-07	2.36E-06	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	2.16E-07

Chro	mium	Co	balt	Mang	anese	Mer	curv	Nic	kel	Sele	nium	CI	H4	CC	)2e	2-Methvlna	phthalene	3 Methylcho	- lanthrene
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy												
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	9.41E-08	4.12E-07	7.06E-09	3.09E-08
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	9.41E-08	4.12E-07	7.06E-09	3.09E-08
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	1.88E-08	8.24E-08	1.41E-09	6.18E-09
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	7.06E-09	3.09E-08	5.29E-10	2.32E-09
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	7.06E-09	3.09E-08	5.29E-10	2.32E-09
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	2.12E-08	9.28E-08	1.59E-09	6.96E-09
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	3.76E-08	1.65E-07	2.82E-09	1.24E-08
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	9.41E-08	4.12E-07	7.06E-09	3.09E-08
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	1.42E-07	6.24E-07	1.07E-08	4.68E-08
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	1.42E-07	6.24E-07	1.07E-08	4.68E-08
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	7.76E-08	3.40E-07	5.82E-09	2.55E-08
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	7.76E-08	3.40E-07	5.82E-09	2.55E-08
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	8.45E-09	3.70E-08	6.34E-10	2.78E-09
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	5.29E-08	2.32E-07	3.97E-09	1.74E-08
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	2.59E-08	1.13E-07	1.94E-09	8.50E-09

enic	Bery	llium	Cadn	nium	Chro	mium	Col	oalt	Mang	anese	Mere	cury	Nic	kel	Selei	nium	Cł	14	CO
tpy	lb/hr	tpy	lb/hr																
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	2.89E-08	9.02E-03	3.95E-02	556.07
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	2.89E-08	9.02E-03	3.95E-02	556.07
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	5.77E-09	1.80E-03	7.90E-03	111.21
5.04E-09	6.91E-11	3.03E-10	6.33E-09	2.77E-08	8.06E-09	3.53E-08	4.84E-10	2.12E-09	2.19E-09	9.58E-09	1.50E-09	6.56E-09	1.21E-08	5.29E-08	1.38E-10	6.05E-10	6.76E-04	2.96E-03	41.71
5.04E-09	6.91E-11	3.03E-10	6.33E-09	2.77E-08	8.06E-09	3.53E-08	4.84E-10	2.12E-09	2.19E-09	9.58E-09	1.50E-09	6.56E-09	1.21E-08	5.29E-08	1.38E-10	6.05E-10	6.76E-04	2.96E-03	41.71
1.51E-08	2.07E-10	9.08E-10	1.90E-08	8.32E-08	2.42E-08	1.06E-07	1.45E-09	6.35E-09	6.56E-09	2.87E-08	4.49E-09	1.97E-08	3.63E-08	1.59E-07	4.14E-10	1.82E-09	2.03E-03	8.89E-03	125.12
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	1.15E-08	3.61E-03	1.58E-02	222.43
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	2.89E-08	9.02E-03	3.95E-02	556.07
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	4.36E-08	1.36E-02	5.98E-02	841.06
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	4.36E-08	1.36E-02	5.98E-02	841.06
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	2.38E-08	7.44E-03	3.26E-02	458.76
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	2.38E-08	7.44E-03	3.26E-02	458.76
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	2.59E-09	8.10E-04	3.55E-03	49.92
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	1.62E-08	5.07E-03	2.22E-02	312.79
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

7, Dimethylben	iz- iz(a)anthrace													Benzo(b)f	luoranthen			Benzo(k)fl
n	ie	Acena	ohthene	Acenap	thylene	Anthr	acene	Benz(a)ar	nthracene	Ben	zene	Benzo(a	a)pyrene	(	9	Benzo(g,h	,i)perylene	e
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
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
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
1.25E-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
4.71E-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
4.71E-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
1.41E-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
2.51E-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
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
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
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
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	5.82E-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
5.63E-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
3.53E-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
1.73E-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

					7,1 Dimethylben	2- z(a)anthrace												
2e	2-Methylna	aphthalene	3-Methylch	olanthrene	n	e	Acenap	hthene	Acenap	thylene	Anthr	acene	Benz(a)ar	nthracene	Benz	zene	Benzo(a	)pyrene
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
2,435.59	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
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
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
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
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
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
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
2,435.59	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
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
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
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
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
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
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
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

uoranthen															Indend	0(1,2,3-			
;	Chry	sene	Dibenzo(a,h	)anthracene	Dichloro	benzene	Fluora	nthene	Fluo	rene	Formal	dehyde	Hex	ane	cd)py	/rene	Napht	nalene	Phenan
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
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
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
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
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
2.32E-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
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
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
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
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
4.68E-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
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
2.55E-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
2.78E-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
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
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

Benzo(b)fl	uoranthen	<b>D</b> (1	· ·	Benzo(k)fl	uoranthen	0				<b>D</b> : 11		-							
e	;	Benzo(g,h	,i)perylene	(	<u>)</u>	Chry	sene	Dibenzo(a,h	)anthracene	Dichloro	benzene	Fluora	nthene	Fluo	rene	Formal	denyde	Нех	ane
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
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	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	4.71E-09	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
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	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
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	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	3.53E-10	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
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	1.06E-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
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	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
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	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
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	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	7.12E-09	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
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	3.88E-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	3.88E-09	1.70E-08	5.82E-09	2.55E-08	5.82E-09	2.55E-08	3.88E-09	1.70E-08	3.88E-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
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	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
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	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
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	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

athrene	Pyr	ene	Tolu	iene
tpy	lb/hr	tpy	lb/hr	tpy
2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
5.84E-08	3.92E-09	1.72E-08	2.67E-06	1.17E-05
2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
2.19E-08	1.47E-09	6.44E-09	1.00E-06	4.38E-06
6.57E-08	4.41E-09	1.93E-08	3.00E-06	1.31E-05
1.17E-07	7.84E-09	3.44E-08	5.33E-06	2.34E-05
2.92E-07	1.96E-08	8.59E-08	1.33E-05	5.84E-05
4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
4.42E-07	2.97E-08	1.30E-07	2.02E-05	8.83E-05
2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
2.41E-07	1.62E-08	7.09E-08	1.10E-05	4.82E-05
2.62E-08	1.76E-09	7.71E-09	1.20E-06	5.24E-06
1.64E-07	1.10E-08	4.83E-08	7.50E-06	3.29E-05
8.03E-08	5.39E-09	2.36E-08	3.67E-06	1.61E-05

	Indeno cd)py	o(1,2,3- vrene	Napht	halene	Phenan	athrene	Pvr	ene	Tolu	Jene
_	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
	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
	7.06E-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
	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
	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
	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
	1.59E-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
	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
	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
	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
	1.07E-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
	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
	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
	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
	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
	1.94E-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

### Northern Iron of St Paul LLC

		Limited Canacity		Control ID	ID Canture (%) PM Control (%)		PM10/PM2 5		PM1	0		
IA Number	Unit Desc	Limited	Capacity	Number	Capture (%)	PM Control (%)	Control (%)	Emission Factor			Unrestricted	
								(lb/capacity unit)	Reference <sup>1</sup>	lb/hr	tpy	Limited tpy
IA-02	Woodworking Saw #1	0.1	tons/hour	TREA47	100%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	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%	93%	93%	0.1	AP-42, Table 12.10-7	1.75E-04	0.01	7.67E-04
Pattern Shop											Total	0.04

Pattern Shop Units insignificant pursuant to Minn. R. 7007.0500, Subp.2(D)(5)

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/statio/files/2016-09/documents/spmpteef\_memo.pdf

### Lab Units insignificant pursuant to Minn. R. 7007.1300, subp. 3(D)

				Control ID			PM10/PM2.5		F	PM10		
IA Number	Unit Desc	Rated C	Capacity	Number	Capture (%)	PM Control (%)	Control (%)	Emission Factor			Unrestricted	
								(lb/capacity unit)	Reference	lb/hr	tpy	Limited tpy
IA-13	Sander	0.0250	tons/hour	TREA47	100%	93%	93%	0.1	AP-42, Table 12.10-7	0.000175	0.01	7.67E-04
IA-14	Grinder	0.0250	tons/hour	TREA47	100%	93%	93%	0.1	AP-42, Table 12.10-7	0.000175	0.01	7.67E-04
IA-15	Lathe	0.0250	tons/hour	TREA47	100%	93%	93%	0.1	AP-42, Table 12.10-7	0.000175	0.01	7.67E-04
IA-16	Polisher #1	0.0250	tons/hour	TREA47	100%	93%	93%	0.1	AP-42, Table 12.10-7	0.000175	0.01	7.67E-04
IA-17	Polisher #2	0.0250	tons/hour	TREA47	100%	93%	93%	0.1	AP-42, Table 12.10-7	0.000175	0.01	7.67E-04
IA-18	Miscellaneous sand testing equipment	0.0055	tons/hour	TREA47	100%	93%	93%	0.013	AP-42 Table 11.19.1-1	5.01101E-06	3.14E-04	2.19E-05
Lab											Total	3.85E-03

	PM2.5			
			Unrestrict	
Emission Factor (lb/capacity unit)	Reference	lb/hr	ed tpy	Limited tpy
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
8.75E-02	EPA May 8, 2014 Sawmill Memo	6.13E-04	0.038	2.68E-03
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
			Total	0.02

	PM2.5			
			Unrestrict	
Emission Factor (lb/capacity unit)	Reference	lb/hr	ed tpy	Limited tpy
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.1	AP-42, Table 12.10-7	1.75E-04	0.011	7.67E-04
0.013	AP-42 Table 11.19.1-1	5.01E-06	3.14E-04	2.19E-05
			Total	3.85E-03

 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

						VO	C	
IA Number	Unit Desc	Rated C	apacity			Controlled		
				VOC content	Reference	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

# Northern Iron of St Paul LLC

## **Unpaved Roads**

AP-42 13.2.2

## Constants (AP-42 Table 13.2.2-2 for Industrial Roads)

k (lb/VMT)         4.9         1.5         0.15           a         0.7         0.9         0.9           b         0.45         0.45         0.45		PM	PM-10	PM-2.5
a 0.7 0.9 0.9 b 0.45 0.45 0.45	k (lb/VMT)	4.9	1.5	0.15
b 0.45 0.45 0.45	а	0.7	0.9	0.9
	b	0.45	0.45	0.45

s = surface material silt content (%) s =

Emissions (lb/hr)

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

0.05

0.00

Trucks Length of road	12 200	per month ft	
Annual Vehicle Miles Traveled	10.9	VMT	
	PM	PM-10	PM-2.5
E <sub>ext</sub> (Ib/VMT) annual	3.11	0.83	0.08
Emissions (tons/year)	0.02	0.00	0.00
Trucks	12	per day	
Length of road (one way)	200	ft	
Daily miles traveled	0.9	vmt	
	PM	PM-10	PM-2.5
E (Ib/\/MT) short-term	4 56	1 21	0.12

0.17

# 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/n	n2)						
sL =	9.7	Table 13.2.1-3 \$	Silt loading for ir	on and steel production (mean value)			
W = mean vehicle weight (tons)							
W =	12.5	tons					
P = number of days in a year with	n at least 0.01 in of	precipitation					
P =	116	https://www.nce	i.noaa.gov/pub/	data/ccd-data/prge0120.dat			
Tanadas	00						
Irucks	20	per day					
Length of road	300	π					
Annual Vehicle Miles Traveled	829.5	VMT					
	DM	DM 40	DMOS	1			
	РМ	PM-10	PM-2.5	-			
E <sub>ext</sub> (Ib/VMT) annual	0.78	0.16	0.04				
Emissions (tons/year)	0.32	0.06	0.02				
Trucks	12	per day					
Length of road (one way)	300	ft					
Daily miles traveled	2.3	vmt					
	PM	PM-10	PM-2.5				
E (Ib/VMT) short-term	1.143	0.229	0.056				
Emissions (lb/hr)	0.108	0.022	0.005				