



**TECHNICAL SUPPORT DOCUMENT**

**Air Discharge Permit ADP 22-3557  
Air Discharge Permit Application CL-3208**

**Issued: December 21, 2022**

**North Star Casteel - Vancouver**

**SWCAA ID - 1005**

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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. Facility Identification	1
2. Facility Description	1
3. Current Permitting Action	1
4. Process Description	1
5. Equipment/Activity Identification	2
6. Emissions Determination	4
7. Regulations and Emission Standards	7
8. RACT/BACT/BART/LAER/PSD/CAM Determinations	9
9. Ambient Impact Analysis	9
10. Discussion of Approval Conditions	10
11. Start-up and Shutdown Provisions/Alternative Operating Scenarios/Pollution Prevention	10
12. Emission Monitoring and Testing	11
13. Facility History	11
14. Public Involvement Opportunity	12

## ABBREVIATIONS

### *List of Acronyms*

ADP	Air Discharge Permit	NOV	Notice of Violation/
AP-42	Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources	NSPS	New Source Performance Standard
ASIL	Acceptable Source Impact Level	PSD	Prevention of Significant Deterioration
BACT	Best available control technology	RCW	Revised Code of Washington
CAS#	Chemical Abstracts Service registry number	SCC	Source Classification Code
CFR	Code of Federal Regulations	SDS	Safety Data Sheet
EPA	U.S. Environmental Protection Agency	SQER	Small Quantity Emission Rate listed in WAC 173-460
EU	Emission Unit	Standard	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
MACT	Maximum Achievable Control Technologies	SWCAA	Southwest Clean Air Agency
NESHAP	National Emission Standards for Hazardous Air Pollutants	WAC	Washington Administrative Code

### *List of Units and Measures*

acfm	Actual cubic foot per minute	ppmv	Parts per million by volume
dscfm	Dry Standard cubic foot per minute	ppmvd	Parts per million by volume, dry
gr/dscf	Grain per dry standard cubic foot	ppmw	Parts per million by weight
MMBtu	Million British thermal unit	scfm	Standard cubic foot per minute
MMcf	Million cubic feet	tpy	Tons per year
ppm	Parts per million		

### *List of Chemical Symbols, Formulas, and Pollutants*

CH <sub>4</sub>	Methane	PM <sub>10</sub>	PM with an aerodynamic diameter 10 µm or less
CO	Carbon monoxide	PM <sub>2.5</sub>	PM with an aerodynamic diameter 2.5 µm or less
CO <sub>2</sub>	Carbon dioxide	SO <sub>2</sub>	Sulfur dioxide
CO <sub>2e</sub>	Carbon dioxide equivalent	SO <sub>x</sub>	Sulfur oxides
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act	TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
NO <sub>x</sub>	Nitrogen oxides	VOC	Volatile organic compound
O <sub>2</sub>	Oxygen		
O <sub>3</sub>	Ozone		
PM	Particulate Matter with an aerodynamic diameter 100 µm or less		

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

## 1. FACILITY IDENTIFICATION

Applicant Name: North Star Casteel Products, Inc.  
Applicant Address: 1200 W 13<sup>th</sup> Street, Vancouver, WA 98660

Facility Name: North Star Casteel - Vancouver  
Facility Address: 1200 W 13<sup>th</sup> Street, Vancouver, WA 98660

SWCAA Identification: 1005

Contact Person: Sterling Gray, Vancouver Manager

Primary Process: Foundry Operations  
SIC/NAICS Code: 3321: Gray Iron Foundries  
331511: Iron and Steel Mills

Facility Classification: Natural Minor

## 2. FACILITY DESCRIPTION

North Star Casteel - Vancouver (North Star) conducts metal finishing operations that grind, weld, heat treat and inspect steel castings made at an offsite foundry. The castings are primarily Hadfield steel castings made for use in the specialty rail, trucking, mining, and logging industries.

## 3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number CL-3208 (ADP Application CL-3208) dated August 12, 2022. North Star submitted ADP Application CL-3208 requesting approval of the following:

- Installation of a new heat treat oven (Kleenair Products / M1539); and
- Removal of inactive equipment from source registration. Affected units are listed below.
  - Induction Furnace
  - Heat Treat Furnaces
  - Electric Arc Furnace
  - Sand System
  - Young Brothers Core Ovens
  - Beatset Core Manufacturing Process
  - Amtec Systems Fuel Miser Ladle Torches

ADP 22-3557 will supersede ADP 05-2629R1 and ADP 98-2098 in their entirety.

## 4. PROCESS DESCRIPTION

- 4.a Steel Casting Finishing Operations. North Star makes Hadfield steel castings for use in the rail, trucking, mining, and logging industries. Steel castings are molded and poured at North Star's foundry in Seattle, Washington. Various steel alloys are produced to customer specifications utilizing manganese, chrome, molybdenum, nickel, and titanium. Nearly all alloys produced by North Star fall under the Hadfield steel classification. Rough castings are transported from Seattle to the Vancouver facility for grinding, welding, heat treating and inspection prior to shipment to customers.

*ADP Application CL-3208. The Vancouver facility was previously owned by Vancouver Iron and Steel. The facility operated an electric arc furnace and an induction furnace to produce steel alloys from scrap metal. The metal produced onsite was formed into specialty steel castings for use in the rail and trucking industries. Vancouver Iron and Steel ceased foundry operations in 2016. North Star took over operation of the Vancouver facility in August 2018. North Star uses the facility to finish and inspect rough castings made at an offsite foundry.*

## 5. EQUIPMENT/ACTIVITY IDENTIFICATION

- 5.a Wheelabrator Tumblast (existing). One 28 ft<sup>3</sup> Wheelabrator Tumblast shot blast system (s/n A-128787) used to clean steel castings. Emissions from unit operation and associated activities are captured with a building enclosure and vented to Baghouse #3.

### Baghouse #3 (existing)

Make/Model: Wheelabrator / 10 5-D 112-AC (s/n A-128788)  
 Air Flow: 4,300 acfm  
 No. of Filter Bags: 112 (5" dia, 112" long)  
 Filter Media 16 oz per square yard polyester fabric  
 Cleaning Method: Shaker  
 Exhaust Stack: 36" diameter vertical at 30' above grade.

- 5.b Casting Building (existing). Emissions from foundry line operations are captured within a building enclosure and vented to Baghouse #4.

### Baghouse #4 (existing)

Make/Model: Industrial Clean Air Company / 14-800SW (s/n LAC 7596)  
 Air Flow: 40,000 acfm  
 No. of Filter Bags: 672 (6" dia, 133" long)  
 Filter Media 7 oz per square yard polyester fabric  
 Cleaning Method: Pulse jet  
 Exhaust Stack: 42" x 28" vertical at 40' above grade.

*ADP Application CL-3208. Baghouse #4 was originally connected to a system of ventilation hoods serving the main foundry building, induction furnace, and pour line. Most of the collection system was removed when the associated production equipment was removed. Baghouse #4 is not in regular use at the current time, but North Star wishes to maintain the unit in active registration.*

- 5.c Welding Shop (existing). Multiple weld stations are used to repair production parts and castings. Emissions from welding shop operations are captured within a building enclosure and vented to Baghouse #5.

### Baghouse #5 (existing)

Make/Model: Fabric Filters Northwest / 36-26 (s/n ?)  
 Air Flow: 15,000 acfm  
 Filter Media 7 oz per square yard polyester fabric  
 Cleaning Method: Pulse jet  
 Exhaust Stack: 30" diameter vertical at 15' above grade.

- 5.d Annealing Oven (existing). One car-bottom type natural gas-fired annealing oven used to treat steel castings. The oven operates at a maximum temperature of 1750 °F for approximately 2.5 hours per batch.

Oven Make/Model: KleenAir Products (s/n 247)  
 Burner Make/Model: Eclipse / 84HVTA  
 Heat Input Rating: 12.0 MMBtu/hr (12 burners at 1.0 MMBtu/hr each)  
 Fuel: Natural Gas  
 Year of Manufacture: 1991  
 Exhaust Stack: 30" diameter vertical at 30' above grade.

- 5.e Heat Treat Oven (new). One natural gas-fired heat treat oven used to treat steel castings.

Oven Make/Model: KleenAir Products / M1539 (s/n 26751)  
 Burner Make/Model: Eclipse ThermJet / Model TJSR0035  
 Heat Input Rating: 4.55 MMBtu/hr combined (13 @ 0.350 MMBtu/hr each)  
 Fuel: Natural Gas  
 Year of Manufacture: 2013  
 Exhaust Stack: 12"x48" vertical, discharges inside building.

*ADP Application CL-3208. North Star proposes to remove the equipment listed below from active registration. All units have been permanently removed from service.*

- 5.f Induction Furnace (removed). The Pillar Mark 8 coreless electric induction furnace is rated at 375 kW. It has a capacity of 1,000 lbs. The induction furnace is housed in the main building and will be fitted with a hood over the exhaust vent, capturing particulate matter emissions and sending them to the existing Industrial Clean Air Company (ICA), model #14-800SW baghouse (Baghouse #4).

- 5.g Heat Treat Furnaces (removed). The two Lindberg Hevi-Duty natural gas fired heat treat furnaces, type 305414-GSM-S, serial numbers 20696 and 20696-1 each with four North American burners with a combined rating of 0.7 MMBtu/hr for each furnace. They operate at a maximum temperature of 1850 °F. These furnaces are used to preheat parts prior to placing them in the annealing oven. The units were manufactured in 1967.

- 5.h Electric Arc Furnace (removed). One modified Lectro-Melt Company submerged electrode three-phase electric arc furnace. The furnace is 7 feet in diameter, rated at 7,800 lbs mild steel per charge, operates for 2 hrs per heat, top charged, oxygen lanced, 550 KWH/ton of product. Air contaminates removed from the top of the furnace are vented to Baghouse #1.

*Baghouse #1: ICA, model #6-7000; serial #N-4762. A 15,000 acfm system provides collection of air contaminates generated by the Lectro-Melt arc furnace by utilization of Nomex filtration media designed to handle temperatures of 350 °F. The system provides a maximum air to cloth ratio of 2.2:1.*

- 5.i Sand System (removed). The following equipment makes up the sand system that is controlled by Baghouse #2.
- One Universal Model U6-5000 sand elevator with maximum capacity of 120 tons per hour of molding sand.
  - One sand cooler.
  - One Allied Systems designed sand shakeout system to reclaim used mold sand. Sand is shaken off the casting and is dropped into a bucket elevator which transports it to a sand storage bin. 60 tons of sand are handled per 12.5 tons of steel produced.
  - One Eirich Sand Muller with a 15 tph capacity. The sand is gravity fed. Additives consist of bentonite and corn flour.
  - One General Kinematics Screen, 3' by 11' model with a capacity of 15 tph with surges to 40 tph of molding sand. It is belt fed with a hood on top for salvaging fugitive particulate matter.

*Baghouse #2: Fabric Filters Northwest (FFNW), model #306-10; FABRI-JET style "A" type pulse jet, containing 306, 6" diameter, 10' long 16 oz./sq. yd. of Dacron felt filter bags for a total filter surface of 4804 sq. ft. 32,600 cfm system provides collection of fugitive emissions generated by the sand system.*

- 5.j *Two Young Brothers Co. Core Ovens (removed).* *The ovens are electrically heated to approximately 350 °F and are vented to atmosphere.*
- 5.k *"Betaset" Core Manufacturing Process (removed).* *Cores are formed using methyl formate, binder and sand. Emissions are vented, uncontrolled, inside the plant. This equipment is not currently used.*
- 5.l *Ladle Torches (removed).* *Five Amtec Systems Inc. Fuel Miser natural gas burning ladle torches, model 00-150, serial number 82600402. Only one torch is utilized at one time to heat the ladles. They are not connected to a separate nature gas meter.*
- 5.m Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Wheelabrator Tumbler	Process Enclosure, Baghouse #3 (Wheelabrator – 4,300 acfm)
2	Casting Building	Process Enclosure, Baghouse #4 (ICA – 40,000 acfm)
3	Weld Shop	Process Enclosure, Baghouse #5 (FFNW – 15,000 acfm )
4	Annealing Oven	Low Sulfur Fuel (Nat Gas)
5	Heat Treat Oven	Low Sulfur Fuel (Nat Gas)

## 6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from operations proposed in ADP Application CL-3208 consist of nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), volatile organic compounds (VOC), particulate matter (PM) sulfur dioxide (SO<sub>2</sub>), toxic air pollutants (TAPs), and hazardous air pollutants (HAPs).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

- Continuous emissions monitoring system (CEMS) data;
- Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
- Source emissions test data (other test method); and
- Emission factors or methodology provided in this TSD.

- 6.a Baghouses #3, #4, and #5 (existing). Potential emissions from emission control baghouses are calculated from the rated discharge of each unit, a maximum emission concentration of 0.005 gr/dscf, and 8,760 hr/yr of operation. All PM emissions are assumed to be PM<sub>10</sub>. PM<sub>2.5</sub> emissions are assumed to be 23% of PM<sub>10</sub> emissions. HAP/TAP emissions from welding operations are quantified in a separate section below. Annual emissions will be calculated based on actual hours of operation using the same methodology.

Unit	Pollutant	Discharge Rate (cfm)	Emission Rate (gr/dscf)	Operation (hrs)	Emissions	
					(lb/hr)	(tpy)
Baghouse #3	PM/PM <sub>10</sub>	4,300	0.005	8,760	0.18	0.81
	PM <sub>2.5</sub>		23% PM			0.19
Baghouse #4	PM/PM <sub>10</sub>	40,000	0.005	8,760	1.71	7.51
	PM <sub>2.5</sub>		23% PM			1.73
Baghouse #5	PM/PM <sub>10</sub>	15,000	0.005	8,760	0.64	2.82
	PM <sub>2.5</sub>		23% PM			0.65

- 6.b Welding (existing). Potential emissions from welding shop operations are calculated based on weld wire/rod usage equal to twice the reported usage during 2021 and emission factors from EPA AP-42, Section 12.19 (1/95). PM emissions from welding operations are vented to Baghouse #5. Building enclosure and fabric filtration is assumed to provide 50% control efficiency. Annual emissions will be calculated based on actual weld wire/rod consumption using the same methodology.

Welding Emissions							
Type	Amount lbs/yr	Emission Factors (lb/1,000 lb)					
		Cr	Cr(VI)	Co	Mn	Ni	Pb
SMAW - E308L/ER308L	4,572	0.3930	0.3590	0.0010	0.2520	0.0430	0
SMAW - E7018	400	0.0060	0.0038	0.0010	1.0300	0.0020	0
SMAW - E8018	1,340	0.0170	0.0107	0	0.0300	0.0510	0
SMAW - Hardalloy 118	6,580	0.1433	0.0902	0	0.4730	0.0086	0
Uncontrolled Emissions (lb/yr)							
Type		Cr	Cr(VI)	Co	Mn	Ni	Pb
SMAW - E308L/ER308L		1.7968	1.6413	0.0046	1.1521	0.1966	0.0
SMAW - E7018		0.0024	0.0015	0.0004	0.4120	0.0008	0.0
SMAW - E8018		0.0228	0.0144	0.0000	0.0402	0.0683	0.0
SMAW - Hardalloy 118		0.9429	0.5935	0.0000	3.1123	0.0566	0.0
Uncontrolled Total =		2.7649	2.2507	0.0050	4.7167	0.3223	0.0
Controlled Total =		1.3824	1.1254	0.0025	2.3583	0.1612	0.0



- 6.c Annealing Oven (existing). Potential emissions from oven operation are calculated from rated heat input, 8,760 hr/yr of operation, and emission factors from EPA AP-42 §1.4 "Natural Gas Combustion" (7/98). All PM is assumed to be PM<sub>2.5</sub>. Annual emissions will be calculated based on actual fuel consumption using the same methodology.

Heat Input Rating =	12.000	MMBtu/hr		
Gas Heat Content =	1,020	Btu/scf		
Fuel Consumption =	105,120	MMBtu/yr		
Pollutant	Emission Factor (lb/MMBtu)	(lb/hr)	Emissions (lb/yr)	(tpy)
NO <sub>x</sub>	0.0980	1.18	10,306	5.15
CO	0.0824	0.99	8,657	4.33
VOC	0.0054	0.065	567	0.28
SO <sub>x</sub> as SO <sub>2</sub>	5.88E-04	0.0071	62	0.031
PM (total)	0.0075	0.089	783	0.39
PM <sub>10</sub>	0.0075	0.089	783	0.39
PM <sub>2.5</sub>	0.0075	0.089	783	0.39
Benzene	2.06E-06	2.5E-05	2.2E-01	1.1E-04
Formaldehyde	7.35E-05	8.8E-04	7.7E+00	3.9E-03
CO <sub>2</sub> e	117	1,405.2	12,309,552	6,155

- 6.d Heat Treat Oven (new). Potential emissions from oven operation are calculated from rated heat input, 8,760 hr/yr of operation, and applicable emission factors. The emission factor for NO<sub>x</sub> corresponds to 110 ppmv at 3% O<sub>2</sub>. All other emission factors are taken from EPA AP-42 §1.4 "Natural Gas Combustion" (3/98). All PM is assumed to be PM<sub>2.5</sub>. Annual emissions will be calculated based on actual fuel consumption using the same methodology.

Heat Input Rating =	4.550	MMBtu/hr		
Gas Heat Content =	1,020	Btu/scf		
Fuel Consumption =	39,858	MMBtu/yr		
Pollutant	Emission Factor (lb/MMBtu)	(lb/hr)	Emissions (lb/yr)	(tpy)
NO <sub>x</sub>	0.1336	0.61	5,325	2.66
CO	0.0824	0.37	3,284	1.64
VOC	0.0054	0.025	215	0.11
SO <sub>x</sub> as SO <sub>2</sub>	5.88E-04	2.7E-03	23	0.012
PM (total)	0.0075	0.034	297	0.15
PM <sub>10</sub>	0.0075	0.034	297	0.15
PM <sub>2.5</sub>	0.0075	0.034	297	0.15
Benzene	2.06E-06	9.4E-06	8.2E-02	4.1E-05
Formaldehyde	7.35E-05	3.3E-04	2.9E+00	1.5E-03
CO <sub>2</sub> e	117	532.8	4,667,372	2,334

- 6.e Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

Pollutant	Potential Emissions (tpy)	Project Increase (tpy)
NO <sub>x</sub>	7.81	2.66
CO	5.97	1.64
VOC	0.39	0.11
SO <sub>2</sub>	0.043	0.01
Lead	0.0	0.0
PM	11.67	0.15
PM <sub>10</sub>	11.67	0.15
PM <sub>2.5</sub>	3.10	0.15
TAP	0.0080	0.0015
HAP	0.0080	0.0015
CO <sub>2e</sub>	8,488	2,334

Pollutant	CAS Number	Category	Facility-wide Emissions (lb/yr)	Project Increase (lb/yr)	WAC 173-460 SQER (lb/yr)
Benzene	71-43-2	HAP/TAP A	0.30	0.08	20
Formaldehyde	50-00-0	HAP/TAP A	10.66	2.93	20
Chromium	7440-47-3	HAP/TAP B	1.38	0.0	175
Chromium (VI)	18540-29-9	HAP/TAP A	1.13	0.0	--
Cobalt	7440-48-4	HAP/TAP B	0.0025	0.0	175
Manganese	7439-96-5	HAP/TAP B	2.36	0.0	175
Nickel	7440-02-0	HAP/TAP A	0.16	0.0	0.5

## 7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

- 7.a Title 40 Code of Federal Regulations (40 CFR) 60 Subpart AA "Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974, and On or Before August 17, 1983" establishes standards for electric arc furnaces and dust-handling systems located at steel plants that produce carbon, alloy, or specialty steels. This regulation is not applicable because the facility no longer produces steel.
- 7.b Title 40 CFR 63 Subpart ZZZZZ "National Emission Standards for Hazardous Pollutants for Iron and Steel Foundries Area Sources" establishes standards for area source iron and steel foundries. This facility was previously subject to this regulation. Vancouver Iron and Steel submitted a Notification of Compliance to EPA on December 18, 2008. This regulation is no longer applicable because the facility has ceased being a foundry.
- 7.c Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

- 7.d RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.
- 7.e WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.
- 7.f WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM<sub>10</sub>, PM<sub>2.5</sub>, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.
- 7.g SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.
- 7.h SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.
- 7.i SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.
- 7.j SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.
- 7.k SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.
- 7.l SWCAA 400-111 "Requirements for Sources in a Maintenance Plan Area" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:
- (1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;
  - (2) Emissions will be minimized to the extent that the new source will not exceed emission levels or other requirements provided in the maintenance plan;
  - (3) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;
  - (4) The proposed equipment will not cause any ambient air quality standard to be exceeded; and
  - (5) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

## 8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

### New BACT Determinations

- 8.a BACT Determination – Heat Treat Oven. The use of low sulfur fuel (natural gas) and proper combustion controls has been determined to meet the requirements of BACT and T-BACT for the types and quantities of emissions from the heat treat oven at this facility.

### Previous BACT Determinations

- 8.b BACT Determination – Annealing Oven (ADP 05-2629R1). The use of low sulfur fuel (natural gas) and visible emission limits of 0% opacity meets the requirements of BACT and T-BACT for the types and quantities of emissions from the annealing oven at this facility.
- 8.c Previously Installed Equipment (ADP 05-2629R1). The following equipment has already been through New Source Review and determined to meet the requirements of BACT at the time of installation, or were installed prior to the establishment of BACT requirements:
- 1) Lector-Melt Company electric arc furnace controlled by the Industrial Clean Air Company model #6-7000 baghouse
  - 2) Sand system controlled by the Fabric Filters Northwest model #306-10 baghouse
  - 3) Wheelabrator tumblast controlled by the Wheelabrator model 10 #5-D 112-AC dust tube
  - 4) Main building exhaust controlled by the Industrial Clean Air Company model #14-800SW baghouse
  - 5) Weld shop controlled by the Fabric Filters Northwest model 36-26 baghouse
  - 6) Young Brothers Co. core ovens
  - 7) Betaset manufacturing process
  - 8) Pillar Mark 8 coreless electric induction furnace
  - 9) Lindberg heat treat furnaces

### Other Determinations

- 8.d Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.
- 8.e Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

## 9. AMBIENT IMPACT ANALYSIS

- 9.a TAP Small Quantity Review. The incremental increases in TAP emissions associated with this permitting action are quantified in Section 6 of this Technical Support Document. All incremental increases in individual TAP emissions are less than the applicable small quantity emission rate (SQER) identified in WAC 173-460.

### Conclusions

- 9.b Installation of a heat treat oven, as proposed in ADP Application CL-3208, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.
- 9.c Installation of a heat treat oven, as proposed in ADP Application CL-3208, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.
- 9.d Installation of a heat treat oven, as proposed in ADP Application CL-3208, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

### 10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 22-3557 in response to ADP Application CL-3208. ADP 22-3557 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

- 10.a Supersession of Previous Permits. ADP 22-3557 supersedes ADP 05-2629R1 and ADP 98-2098 in their entirety.
- 10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application CL-3208. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.
- 10.c Monitoring and Recordkeeping Requirements. ADP 22-3557 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements.
- 10.d Reporting Requirements. ADP 22-3557 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for fuel consumption and hours of operation. Reports are to be submitted on an annual basis.
- 10.e Permit Requirements – Heat Treat and Annealing Ovens. Annual emission limits for each oven are established based on proper operations, AP-42 emission factors and a maximum rated heat input. Visible emissions from oven exhaust have been limited to zero percent opacity, consistent with proper operation. The new heat treat oven is not equipped with a separate gas meter. Annual emissions will be calculated by prorating gas consumption between the heat treat oven and annealing oven.

### 11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

- 11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

- 11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.
- 11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

## 12. EMISSION MONITORING AND TESTING

There are no formal emission monitoring or testing requirements for this facility.

## 13. FACILITY HISTORY

- 13.a Previous Permitting Actions. SWCAA has previously issued the following Permits for this facility:

<u>Date</u>	<u>Application Number</u>	<u>Permit Number</u>	<u>Purpose</u>
8/24/2006	CL-1734	05-2629R1	Installation and operation of Kleen Air annealing oven.
4/27/1998	CL-1345	98-2098	Installation of Wheelabrator Tumblast system and Baghouse #3.
<u>Superseded/Obsolete</u>			
8/18/2005	CL-1687	05-2629	Approval for a Pillar coreless induction furnace and two Lindberg heat treat furnaces. Superseded by ADP 96-1847.
2/27/1996	CL-1200	96-1847	Approval for ICA 14-800SW baghouse (#4), modification of the FFNW 306-10 baghouse (#2) and reinstallation of the FFNW 36-26 baghouse (#5). Superseded by ADP 05-2629.
4/4/1990	CL-784	90-1206	Approval to restore the arc furnace FFNW 306-10 baghouse (#2) to its original condition and add a second filtration system. Superseded by ADP 96-1847.
6/23/1989	--	Letter	Conversion and installation of the FFNW 306-10 baghouse (#2) from shaker style to pulse jet.
4/14/1989	--	Letter	Replacement of the electric arc furnace dust collector with a larger unit.
12/11/1988	CL-707	88-1036	Approval of the "Betaset" core and mold making system. Equipment removed.
4/19/1982	--	Letter	Addition of roof peak collection above the arc furnace and to install moving curtain walls near the truss.
9/8/1981	--	Letter	Installation of a "Hawling" type telescopic elbow to reduce fugitives during lancing.

<u>Date</u>	<u>Application Number</u>	<u>Permit Number</u>	<u>Purpose</u>
5/27/1980	--	Letter	Vancouver Foundry purchased by Rich Manufacturing and renamed Varicast.
11/30/1978	CL-356	78-414	Upgrade of Pangborn Co. baghouse. Superseded by ADP 96-1847.
9/18/1978	CL-343	78-392	Installation of sand system equipment replacements. Equipment removed.
1/14/1974	CL-154	74-0114LET	Installation of a 8000 lb/batch Lectro-Melt arc furnace. Equipment removed.
12/21/1973	CL-144 CL-144R	73-1221LET	Installation of a Pangborn Co. type CM baghouse. Equipment removed.
9/15/1971	CL-67	71-0915LET	Installation of a Polycon venturi type scrubber and two electric arc furnaces. Equipment removed.

- 13.b Compliance History. A search of source records on file at SWCAA identified the following compliance issues at this facility during the past five (5) years:

<u>Date</u>	<u>NOV Number</u>	<u>Violation</u>
8/18/2022	10713	Failure to comply with the requirements of Notice of Correction 10573.
5/10/2022	10573	Failure to submit annual throughput for 2021 in violation of SWCAA 400-105.
12/1/2021	10558	Failure to comply with the requirements of SWCAA Notice of Correction 10343.
5/5/2021	10343	Failure to submit annual throughput for 2020 in violation of SWCAA 400-105.
5/14/2019	10070	Failure to submit annual throughput for 2018 in violation of SWCAA 400-105.

#### 14. PUBLIC INVOLVEMENT OPPORTUNITY

- 14.a Public Notice for ADP Application CL-3208. Public notice for ADP Application CL-3208 was published on the SWCAA internet website for a minimum of (15) days beginning on August 16, 2022.
- 14.b Public/Applicant Comment for ADP Application CL-3208. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore no public comment period was provided for this permitting action.
- 14.c State Environmental Policy Act. A complete SEPA checklist was submitted by North Star in conjunction with ADP Application CL-3208. After reviewing the checklist, SWCAA issued a Determination of SEPA Exempt (SWCAA 22-044) concurrent with issuance of ADP 22-3557.