BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Synthetic Minor Operating Permit Revision
ENGINEERING EVALUATION REPORT
APPLICATION 14029

Pacific Steel Casting
Plant 22605
1333 2nd Street
Berkeley, CA 94710

June 2018

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Executive Summary

Pacific Steel Casting operates a steel foundry in the City of Berkeley, California. Pacific Steel Casting has three physically separate buildings designated Plants # 1, # 2, and # 3 by the facility. Each plant differs in the size of castings it produces as well as the materials and process it uses to make casting molds.

As PSC predates Regulation 2, Rule 6 (adopted November 3, 1993) – the regulation implementing Title V of the federal Clean Air Act as amended in 1990 – each plant was originally permitted as a separate facility and given unique District facility numbers: 187 (Plant # 1), 703 (Plant # 2), and 1603 (Plant # 3).

In 2002, Pacific Steel Casting obtained a Synthetic Minor Operating Permit (SMOP) that covered operations at Plants # 2 and # 3. At the time, the two plants were considered "contiguous" per Regulation 2, Rule 6 (Major Facility Review) whereas Plant # 1 was not.

In 2005, the District reviewed the facility's operations and determined that Plant # 1 was considered "adjacent" to Plant # 2 and # 3. At this time, the District treated all three plants as one facility but maintained the separate District site numbers to aid the District's Compliance and Enforcement Division responding to air quality complaints.

As a result of the District's determination, Pacific Steel Casting was required to submit a permit application to revise their existing SMOP to include Plant # 1 sources.

Through 2008 to 2013, the District and Pacific Steel Casting conducted extensive ambient air quality monitoring, source stack testing, and a comprehensive review of emissions estimation methodologies, assumptions, and emission factors on an individual source basis.

In 2014, PSC filed for bankruptcy and then was acquired by a new owner. As is customary with all transfers of ownership, the District assigned a new site number (District Facility 22605). At this time, the District re-numbered PSC's sources to aid the District's Compliance and Enforcement Division.

In 2015, the District became aware that Pacific Steel Casting's pouring, cooling, and shake operations could potentially be large sources of carbon monoxide emissions, which were previously unknown. Although carbon monoxide emissions from other facility sources were accounted for, the District did not have emission estimates for carbon monoxide emission estimates for four permitted sources. The District and Pacific Steel Casting discussed how to account for these emissions, and ultimately agreed to accept a conservative emission factor to be source tested in the future.

This SMOP revision incorporates Plant # 1 sources as well imposes substantial new requirements and limits on an individual source basis to ensure that emissions remain and can be demonstrated to remain below the SMOP facility-wide emission limits.

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Appendices

Introduction to Permitting Requirements

There are different types of local and federal air permits and associated requirements. The District's authority to impose requirements and/or conduct certain analyses is limited by the type of permit and the statutory authority under which the District is acting.

There are two general types of permits issued by the District:

1. a preconstruction review permit that is issued for an individual piece of equipment or operation, and
2. a federal operating permit that is issued for an entire facility covering all equipment at that facility.

Preconstruction Review Permit

A preconstruction review permit is required before any person may construct, modify, or operate an individual piece of equipment or operation that has the potential to emit air pollutants.

By reviewing a proposed project before construction, the District may impose stringent emissions limitations, the use of emissions control devices, or a change in equipment or operational design than may have originally been proposed. Such project changes are typically less expensive if implemented before purchasing and construction have occurred rather than afterwards.

After 1979, preconstruction review has been conducted under the New Source Review (NSR) program. There are two separate NSR programs: Major NSR and Minor NSR.

Major New Source Review (Federal Permit)
Major NSR is a federal program that applies to facilities or projects whose emissions are considered "major". One of two preconstruction review federal permits may be issued under Major NSR depending on whether the District meets ("attainment") or does not meet ("nonattainment") federal standards (National Ambient Air Quality Standards or NAAQS) for the pollutant of interest.

For attainment pollutants that are increasing above certain thresholds, a Prevention of Deterioration (PSD) permit is issued. The purpose of PSD is to maintain the air quality in regions where the air is considered "clean". PSD requires:

- the installation of Best Available Control Technology (BACT),
- an air quality analysis to show that project emissions will not cause or contribute to a violation of any applicable NAAQS by showing ambient pollutant concentrations will not increase above a maximum allowable PSD threshold,
- an analysis of potential impacts on soils, vegetation, and visibility by any increase in emissions from the project and any associated growth that will occur in the area due to the project, and
- a request for and response to public comments concerning the project.

PSD BACT is "an emission limitation based on the maximum degree of reduction … which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each pollutant."

For nonattainment pollutants that are increasing above certain thresholds, a Nonattainment NSR permit is issued. Nonattainment NSR requires:

- the installation of the Lowest Achievable Emissions Rate (LAER),
- submitting emissions offsets, and
- a request for and response to public comments concerning the project.

LAER is either:

- "the most stringent emission limitation which is contained in the implementation plan of any State for such class or category, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable, or
- the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent."

Minor New Source Review (District Permit)
Minor NSR requires evaluating whether the equipment will need:

- to meet Best Available Control Technology (BACT),
- to have emissions offset by surrendering emission reduction credits,
- a health risk screening analysis, and/or
- to meet Best Available Control Technology for Toxics (TBACT).

New equipment may either be exempt or subject to NSR while changes at existing equipment may either be considered a "modification" and subject to NSR or an "alteration" if the change is not considered a "modification" and not subject to NSR.

Existing equipment installed before 1979 that has not been "modified" since 1979 is considered a pre-NSR source.

A District preconstruction review permit (an "Authority to Construct") allows a facility to construct or modify equipment. Once constructed or modified, a District operating permit (a "Permit to Operate") is required before a facility may continue operating the equipment.

The figure below highlights the different preconstruction review permits.

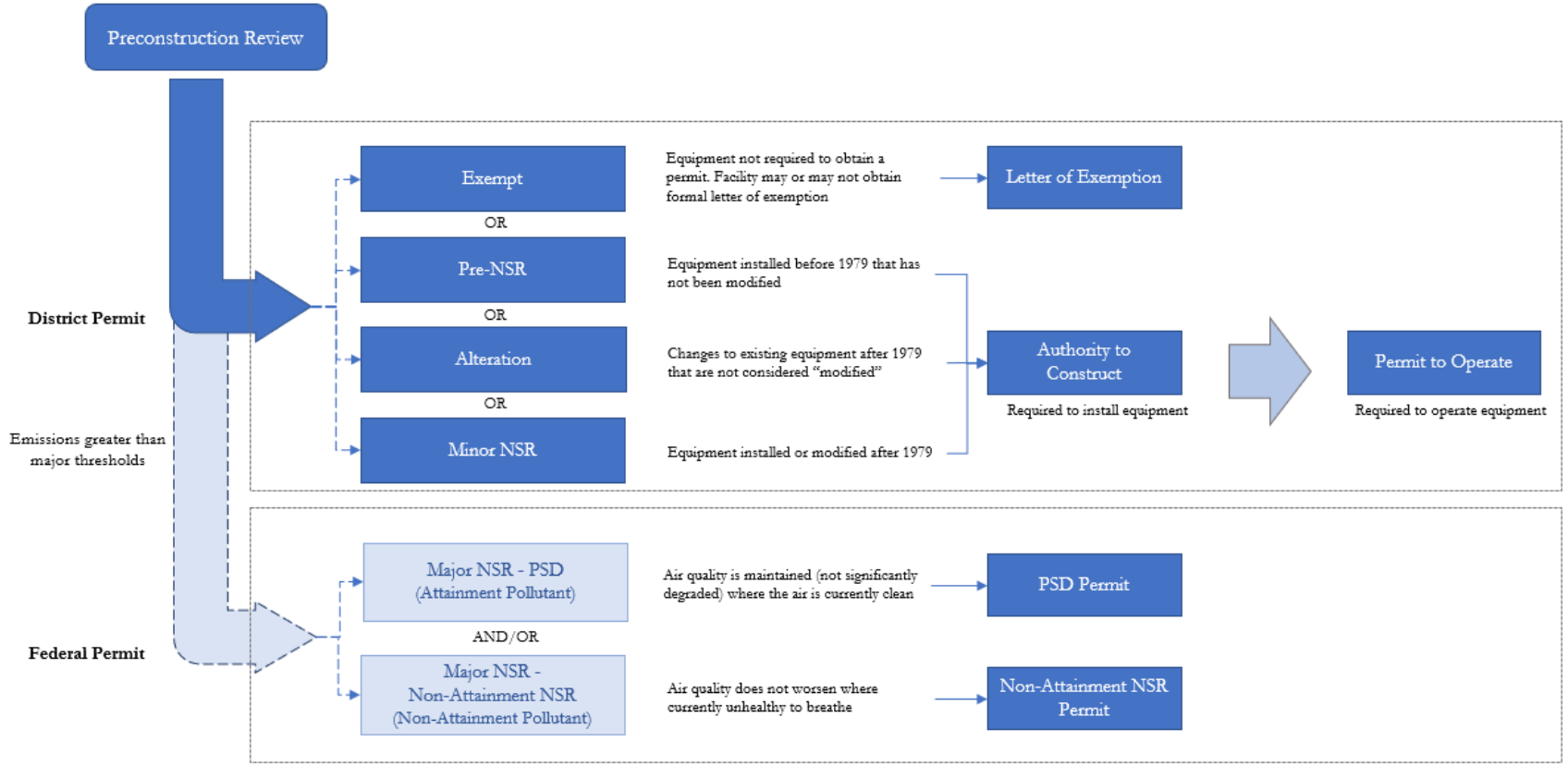

Figure 1. Types of preconstruction review permits

Federal Operating Permit

In addition to preconstruction review permits and District operating permits, a facility is required to obtain a federal operating permit (a "Title V Permit") if maximum emissions (or "potential to emit") from all equipment at a facility are greater than "major" thresholds.

The District implements and issues Title V permits through a delegation authority with the EPA.

Title V does not establish any new federal requirements for a facility but will list all significant sources of emissions as well as contain all applicable regulations and pre-construction permit conditions and any additional monitoring requirements needed to demonstrate compliance with an existing emissions limit.

If a facility's potential to emit is less than major facility thresholds, the facility is called a "minor" source.

A "minor" facility is called a "natural minor" if the facility's potential to emit is less than major facility thresholds.

A major facility may elect to become a "synthetic minor" by limiting the facility's potential to emit to less than major facility thresholds.

The figure below highlights the distinction between the various operating permits.

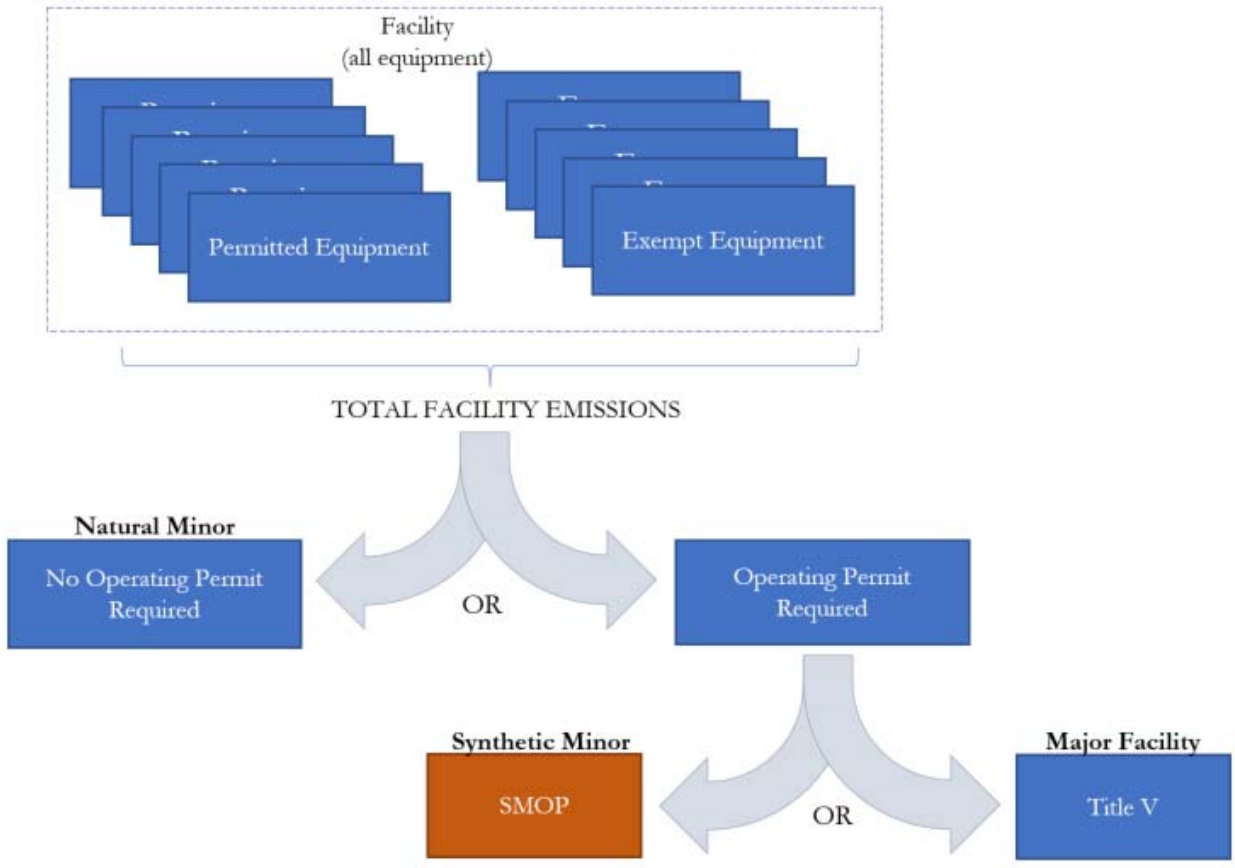

Figure 2. Types of federal operating permits

The District's authority to issue federal operating permits resides in District Regulation 2, Rule 6 (Major Facility Review). Unlike a preconstruction review or District operating permit which may be canceled, withdrawn, or denied; the District is required to issue a federal operating permit and is not allowed to impose any additional requirements (such as imposing new or additional control technology, lower emissions limits) apart from monitoring in a Title V permit. Any requirements other than additional monitoring would require that the facility submit an NSR application.

However, under District Regulation 2, Rule 6; the District does have the authority to impose sufficient requirements in a Synthetic Minor Operating Permit to demonstrate "practical enforceability" with facility-wide emission limits on a source-by-source basis.

Synthetic Minor Operating Permit

A facility may elect to limit its potential to emit by accepting permit conditions that limit emissions on an individual source basis. Such conditions are called the "Synthetic Minor Operating Permit". The District does not issue a separate physical permit like a Permit to Operate or a Title V permit for Synthetic Minor Operating Permits but rather issues the Synthetic Minor Operating Permit as conditions attached to a cover letter. These conditions are then included with all other conditions when the facility's Permits to Operate are renewed and re-issued annually.

In two recent petitions[1,2], the United States Environmental Protection Agency (EPA) outlined the criteria upon which a facility's potential to emit may be considered restricted. Per the EPA, "only limits that meet certain enforceability criteria may be used to restrict a facility's [Potential to Emit], and the permit must include sufficient terms and conditions such that the source cannot lawfully exceed the limit…. One of the key concepts in evaluating the enforceability of [Potential to Emit] limits is whether the limit is enforceable as a practical matter."[1]

When determining whether a condition is considered practically enforceable, EPA considers the following criteria:

- emissions are limited,
- all actual emissions (including startup, shutdown, upset, and malfunction) are considered in determining compliance with emissions limits,
- all emissions calculation procedures are specified,
- regular reporting of emissions and compliance with limits is required,
- periodic monitoring is required for calculating or consideration of emissions,
- recordkeeping is required for calculating or consideration of emissions, and
- emissions from all "insignificant activities" at the facility are included.

Practicably enforceable conditions should be:

- clear as to what limit applies and when,
- clear as to when compliance is required,
- short-term (so that compliance can be determined relatively quickly),
- clear as to what standard a source must meet, and
- clear as to how compliance will be determined.

As such, any proposed conditions that limit a facility's potential to emit should:

[1] U.S. EPA, *In the Matter of Yuhuang Chemical, Inc*, Order of Petition No. VI-2015-03
[2] U.S. EPA, *In the Matter of Hu Honua Bioenergy Facility*, Order of Petition No. IX-2011-1

- state that limits apply always including periods of startup, shutdown, upset, and malfunction
- state how emissions will be measured or calculated
- state how emissions will be verified
- state how emissions will be reported
- not be vague or subjective
- not have "after-the-fact" emissions testing, only testing only to verify compliance, and
- any instance of "District-approved" is defined.

Facility Background

Pacific Steel Casting (PSC) has submitted this application to revise the existing Synthetic Minor Operating Permit (SMOP) for its steel foundry ("facility") located in Berkeley, California.

PSC is a steel-casting foundry that operates three physically separate buildings or "Plants" (Plants # 1, # 2, and # 3) located in the City of Berkeley, California.

Plant # 1: 1328 2nd Street, Berkeley, CA 94710
Plant # 2 1420 2nd Street, Berkeley, CA 94710
Plant # 3: 1421 2nd Street, Berkeley, CA 94710

The three plants each produce different sized castings (metal products) from recycled scrap steel and other metals employing different molds, cores (mold inserts to form shape of metal casting), and binders (bonding agent used as an additive to mold or core sand to maintain shape).

Plant 1 began operations in the 1930's, produces castings from 1 to 1500 pounds, and uses the green sand mold process (comprising sand, bentonite clay, water, and corn starch).

Plant 2 began operations in 1975, produces castings from 1 ounce to 60 pounds, and uses phenolic shell binders for molds and cores. Plant 2 uses the Shell process for the molding system and the sand molding process uses a binder mixed with sand and is baked to form molds and cores for the castings.

Plant 3 began operations in 1981, produces large castings up to 7000 pounds, and uses phenolic no-bake binders for molds and cores. Plant 3 primarily uses a phenolic urethane binder mixed with the sand.

The facility's three plants follow a similar (but not identical) process:

(1) creating a mold, which consist of sand bound together in a specific shape (the sand is mixed with binder material for this purpose),
(2) melting the metal in an electric arc furnace,
(3) pouring the molten metal into transfer ladles and then into the cavity of the mold, and waiting for the metal to cool and harden,
(4) separating the cast component from the mold and cores by "shakeout" of the sand mold, and
(5) various finishing steps that include grinding and heat treating of the steel parts.

As PSC predates Regulation 2, Rule 6 (adopted November 3, 1993) – the regulation implementing Title V of the federal Clean Air Act as amended in 1990 – each plant was originally permitted as a separate facility and given unique District facility numbers: 187 (Plant # 1), 703 (Plant # 2), and 1603 (Plant # 3).

In 2002 (District Application 2399), the District issued a SMOP (codified in Permit Condition 20207) to comply with Title V permitting requirements for Plants # 2 and # 3 because the two plants were considered by the District to be contiguous properties (located across the street from each other). At the time, Plant # 1 was not considered contiguous because a separate business entity (Berkeley Forge) was located between Plant # 1 and Plant # 2.

In 2005, the District reviewed the three plants operations and determined that Plant # 1 is "adjacent" and functionally interrelated with Plant # 2 and Plant # 3 and that all three plants should be treated as one facility, subject to the requirements of District Regulation 2, Rule 6, which implements the Federal Title V operating permit program. The District determined that PSC had to apply to modify the SMOP to include Plant # 1, in accordance with District Regulation 2-6-422. For the detailed analysis, see the September 9, 2005 letter from Brian Bateman, Director of Engineering, to Joe Emmerichs, Vice President and General Manager of PSC,

attached to this Engineering Evaluation as Appendix A. At this time, the District treated all three plants as one facility but maintained the separate District site numbers to aid the District's Compliance & Enforcement division responding to air quality complaints.

Through 2005 to 2015, the District and Pacific Steel Casting conducted extensive ambient air quality monitoring, source stack testing, and a comprehensive review of emissions estimation methodologies, assumptions, and emission factors on an individual source basis. A detailed timeline is included within Appendix B. The table below lists sources, abatement devices, and emission points where emissions were tested between 2005 to 2015.

Table 1 – Sources and Abatement Device Source Test History

Plant	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
1	S-1001 S-1002 S-1003 S-1004		S-1001 Roof vents	S-1001	S-1001 S-1002 S-1003 S-1004 S-1005 S-1006 S-1007 S-1008	S-1001	S-1001 A-1002 A-1003 A-1004 A-1006	S-1001	S-1001 S-1002 S-1003 S-1004 S-1005 S-1006 S-1007 S-1008	S-1001	S-1001 S-1002 S-1003 S-1004 S-1005 S-1006 S-1007 S-1008
2	S-2006 S-2007 S-2008 S-2009 S-2010 S-2011 S-2012 S-2029 S-2030 S-2044 S-2045 S-2046 S-2047 S-2048 S-2049	S-2020 S-2021 S-2022 S-2023 S-2024 S-2027 S-2049 A-2007	Roof vents			P-2001 P-2002 P-2003 P-2006 P-2008 A-2007	A-2004 A-2005				
3	S-3001 S-3004 S-3014	S-3001 S-3004 S-3019 A-3003 A-3007	S-3001 S-3014 S-3019	S-3001	S-3001	S-3001 S-3004 S-3019	S-3001 A-3002 A-3004 A-3006	S-3001	S-3001	S-3001	S-3001

In 2014, PSC filed for bankruptcy and then was acquired by a new owner. As is customary with all transfers of ownership, the District assigned a new site number (District Facility 22605). At this time, the District re-numbered PSC's sources to aid the District's Compliance and Enforcement Division.

In 2015, the District became aware that PSCs pouring, cooling, and shake operations could potentially be large sources of carbon monoxide emissions, which were previously unknown. The District and PSC discussed how to account for these emissions, and ultimately agreed to accept a conservative emission factor that will be imposed as an emission limit and for which PSC will be required to conduct periodic source tests to demonstrate compliance.

Existing SMOP Condition 20207 limited precursor organic compound (POC) emissions from Plants 2 and 3 to 90 tons per year. For the SMOP revision, PSC requested to keep the same POC limit as well as impose conditions to ensure facility's emissions do not exceed 90 tons for any of the criteria pollutants. The facility will be required to accept conditions limiting hazardous air pollutant (HAP) emissions to less than 9 tons per year for a single HAP and less than 23 tons per year for all HAPs combined.

Sources Covered by Synthetic Minor Operating Permit

The following tables list the sources and abatement devices at each Pacific Steel Casting plant that are covered by the Synthetic Minor Operating Permit. The tables also identify if the source emits oxides of nitrogen (NO_X), POC, particulate matter with aerodynamic diameters less than 10 microns (PM_{10}), carbon monoxide (CO), and sulfur dioxide (SO_2).

Table 1A - Plant 1 Sources

Source	Description	Pollutant Emitted?				
		NO_X	POC	PM_{10}	CO	SO_2
1001	Arc Furnace	Y	Y	Y	Y	Y
1002	Pour-Off Area	Y		Y	Y	
1003	B Shake Out (Dust Collection)		Y	Y		
1004	A Shake Out (Dust Collection)		Y	Y		
1005	Sand System (Dust Collection)		Y	Y		
1006	Sand Cooler 6 Screen		Y	Y		
1007	Sand Screen			Y		
1008	Muller			Y		
1010	Muller, Core Sand			Y		
1011	Muller			Y		
1012	Cleaning & Grinding Dept.			Y		
1013	Arc-Air Booth			Y		
1014	Arc-Air Booth			Y		
1015	Pangborn Table Blast			Y		
1016	Roto-Blast			Y		
1017	Roto-Blast			Y		
1018	Heat Treating Furnaces [exempt]	Y	Y	Y	Y	
1019	Raw Sand Receiving			Y		
1022	Core Bake Ovens [exempt]	Y	Y	Y	Y	Y
1027	Core-Making Operation		Y			
32001	Minor Combustion Sources (small ladle heater) [exempt]	Y	Y	Y	Y	Y

Table 1B - Plant 1 Abatement Devices

Abatement Device	Description	Pollutant Abated?				
		NO_X	POC	PM_{10}	CO	SO_2
1001	Baghouse # 1			Y		
1002	Baghouse # 2			Y		
1003	Baghouse # 3			Y		
1004	Baghouse # 4			Y		
1006	Baghouse # 5a			Y		
1007	Carbon Adsorption System		Y			
1008	Baghouse, Cartridge			Y		
1009	Baghouse			Y		
1010	Baghouse Core Sand # 9			Y		

Table 2A – Plant 2 Sources

Source	Description	Pollutant Emitted?				
		NO_X	POC	PM_{10}	CO	SO_2
2001	Sand Silo Loading Elevator			Y		
2002	Sand Silo #1			Y		
2003	Sand Silo #2			Y		
2004	Bucket Elevator			Y		

Source	Description	Pollutant Emitted?				
		NO_X	POC	PM_{10}	CO	SO_2
2005	Resin Tank (Hai 789he)			Y		
2006	Sand Heater	Y	Y	Y	Y	Y
2007	Sand Coating		Y	Y	Y	Y
2008	Coated Sand Pug Mill		Y	Y	Y	Y
2009	Coated Sand Vibrating Screen		Y	Y	Y	Y
2010	Bucket Elevator		Y	Y	Y	Y
2011	Cooling Tower, Coated Sand		Y	Y	Y	Y
2012	Bucket Elevator		Y	Y	Y	Y
2013	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2014	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2015	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2016	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2017	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2018	Core Molding Machine [exempt]	Y	Y	Y	Y	Y
2019	Coated Sand Bin			Y		
2020	Shell Molding Machine, Single [exempt]	Y	Y	Y	Y	Y
2021	Shell Molding Machine, Twin [exempt]	Y	Y	Y	Y	Y
2022	Shell Molding Machine, Twin [exempt]	Y	Y	Y	Y	Y
2023	Shell Molding Machine, Twin [exempt]	Y	Y	Y	Y	Y
2024	Shell Molding Machine, Single [exempt]	Y	Y	Y	Y	Y
2025	Abrasive Blaster, Core Area [exempt]			Y		
2026	Large Ladle Heater	Y	Y	Y	Y	Y
2027	Electric Arc Furnace	Y	Y	Y	Y	Y
2028	EAF ladle station w/canopy hood		Y	Y		
2029	Shell Mold Pouring Station		Y	Y		
2030	Cast Mold Cooling Room		Y	Y	Y	
2031	Shakeout & Tray Sanding		Y	Y		
2032	Rotoblast			Y		
2033	Abrasive Cut-Off Saw / Grinding [exempt]			Y		
2034	Abrasive Cut-Off Saw / Grinding [exempt]			Y		
2035	Abrasive Cut-Off Saw / Grinding [exempt]			Y		
2036	Abrasive Cut-Off Saw / Grinding [exempt]			Y		
2037	Grinder [exempt]			Y		
2038	Grinder [exempt]			Y		
2039	Grinder [exempt]			Y		
2044	Grinder [exempt]			Y		
2044	Sand Storage Silo	Y	Y	Y	Y	Y
2045	Lump Breaker	Y	Y	Y	Y	Y
2046	Flow Bin (rejected material)	Y	Y	Y	Y	Y
2047	Sand Cooler/Air Bed #1 (c-1)	Y	Y	Y	Y	Y
2048	Material Handling Equipment (3 hoppers, 3 bucket elevs …)	Y	Y	Y	Y	Y
2049	Thermal Recycling Unit (sand reclamation)	Y	Y	Y	Y	Y
32000	Miscellaneous Minor Sources [exempt]	Y	Y	Y	Y	Y

Table 2B - Plant 2 Abatement Devices

Abatement Device	Description	Pollutant Abated?				
		NO_X	POC	PM_{10}	CO	SO_2
2001	Baghouse # 1			Y		
2002	Baghouse # 2			Y		
2003	Baghouse # 3			Y		
2004	Baghouse # 4			Y		

2005	Baghouse # 5			Y		
2006	Bag Filter			Y		
2007	Carbon Adsorption System		Y			
2010	Pulse Jet Bag House Dust Collector			Y		

Table 3A – Plant 3 Sources

Source	Description	Pollutant Emitted?				
		NO_X	POC	PM_{10}	CO	SO_2
3001	Electric Arc Furnace	Y	Y	Y	Y	Y
3002	Ladle Heater [exempt]	Y	Y	Y	Y	Y
3004	Casting mold shake out		Y	Y	Y	
3005	Blast table			Y		
3006	Tumble blast			Y		
3007	New Sand Silo #1			Y		
3009	Sand cooler classifier			Y		
3010	Sand conditioning unit #1			Y		
3011	Sand conditioning unit #2			Y		
3012	Return sand bin #1			Y		
3013	Reclaimed sand bin #2			Y		
3014	Mold mixing area		Y	Y		
3015	New sand receiving bucket elevator #1			Y		
3016	Bucket elevator #2 returned sand			Y		
3017	Bucket elevator #3 reclaimed sand			Y		
3018	Coating operation		Y	Y		
3019	Pouring, Cooling			Y		
3020	Holcote 578 CCD Coating [exempt]			Y		
Exempt	Heat treat furnaces	Y	Y	Y	Y	Y
Exempt	Cleaning and Grinding in Finishing Room			Y		
Exempt	Arc Air Booth/Welding in Finishing Room			Y		

Table 3B – Plant 3 Abatement Devices

Abatement Device	Description	Pollutant Abated?				
		NO_X	POC	PM_{10}	CO	SO_2
3001	EAF Baghouse			Y		
3002	Cleaning Room Baghouse # 1			Y		
3003	Shake Out Baghouse # 1			Y		
3004	Sand System Baghouse			Y		
3005	Mixer Sand Bin Dust Filter			Y		
3006	Cleaning Room Baghouse # 2			Y		
3007	Shakeout Baghouse # 2			Y		
3008	Carbon Adsorption System		Y			

Emissions

PSC sources emit criteria pollutants (NO_X, VOC, PM_{10}, CO, SO_2, lead) as well as HAPs and toxic air contaminants (TACs).

As emissions from some PSC sources are captured by collection ducts and abated by abatement devices, pollutants may be emitted out of emission stacks (if captured) or as fugitives (if not captured).

Therefore, a source's total emissions may be calculated using the following equations:

Captured Emissions = Throughput x Emission Factor x (Capture Efficiency) x (1 – Control Efficiency) [Eqn 1]

Fugitive Emissions = Throughput x Emission Factor x (1 – Capture Efficiency) [Eqn 2]

Total Emissions = Captured Emissions + Fugitive Emissions [Eqn 3]

Throughput is the amount of material processed by a source. Emission factor is the amount (pounds) of emissions per unit (e.g. tons of steel, gallon of coating, etc.) of throughput. Capture efficiency is the amount of emissions that is collected and vented to an abatement device. Control efficiency is the abatement efficiency of the abatement device.

After an extensive review of District records, source test reports, monitoring data, and other assumptions, the District estimated emissions from individual sources using proposed maximum throughputs and emission factors for each source as well as minimum required capture and abatement efficiencies for each abatement device.

To obtain a SMOP pursuant to Section 2-6-423.2.1, a facility must have permit conditions limiting the facility's potential to emit to no greater than 95 tons per year of any regulated air pollutant, 9 tons per year of any single HAP, and 23 tons per year of any combination of HAPs.

Criteria Pollutants

Potential to Emit

Using District records of the maximum design capacities of individual PSC sources as well as requested maximum annual throughputs, the District estimated PSC's facility-wide potential to emit, shown in Table 4.

Table 4 – Potential to Emit Emissions

	Potential to Emit (tons/year)					
Plant	**NO_X**	**POC**	**PM_{10}**	**CO**	**SO_2**	**Lead**
Plant # 1	6.65	11.71	74.74	122.58	10.75	0.006
Plant # 2	8.05	305.78	92.52	144.30	116.80	0.102
Plant # 3	3.66	18.76	52.61	103.36	9.20	0.014
Facility (All Plants)	**18.36**	**336.25**	**219.88**	**370.24**	**136.76**	**0.122**

As shown in Table 4, facility-wide emissions of POC, PM_{10}, CO, and SO_2 exceed the major source thresholds. Therefore, a SMOP is required.

Proposed Emissions

To be eligible for a SMOP, PSC agreed to lower throughputs for all individual sources located at all three plants.

With the lowered proposed maximum throughputs, proposed emissions were estimated by the District (see Table 5).

Table 5 – Proposed Emissions

	Proposed Emissions (tons/year)					
Plant	**NO_X**	**VOC**	**PM_{Total}**	**CO**	**SO_2**	**Lead**
Plant # 1	4.28	4.29	23.43	30.11	2.45	0.002
Plant # 2	31.16	36.99	16.62	31.16	14.87	0.058
Plant # 3	1.71	5.48	16.85	27.96	2.44	0.006
Facility (All Plants)	**10.04**	**46.76**	**56.90**	**89.24**	**19.77**	**0.066**

As Table 5 indicates, emissions of all criteria pollutant remain below 90 tons with new proposed maximum annual throughputs.

Detailed criteria pollutant emission calculations are shown in Appendix C and the bases for emission factors are listed in Appendix D.

Hazardous Air Pollutants (HAPs)

The table below shows the complete list of HAPs evaluated in the facility-wide Health Risk Assessment for PSC that was conducted to fulfill the requirements of AB 2588 and the annual emissions of each compound and total combined HAP emissions. Detailed HAP emission calculations are included in Appendix E.

The District's estimates show that at the maximum or permit limit levels, no individual HAP is emitted in amounts greater than 10 tons per year and the combined HAP emissions are less than 25 tons per year, which are the major facility thresholds.

In response to public comments received, the District reviewed the underlying basis and source tests for each emission factor that was used and identified several entries within the calculations where emission factors were listed as being derived from pre-control source test results rather than post-control. These entries were corrected and the emission estimates were revised with revised results shown in the table below.

Table 6 – HAP Emissions

Pollutant	**Potential to Emit** (tons/year)	**Proposed Emissions** (tons/year)
2-Methylnaphthalene	0.001	0.0004
Acenaphthene	0.02	0.005
Acenaphthylene	0.0001	0.00005
Acetaldehyde	0.002	0.001
Anthracene	0.2	0.03
Arsenic	0.002	0.001
Benz(a)anthracene	0.0001	0.00002
Benzene	0.3	0.1
Benzo(a)pyrene	0.00003	0.00001
Benzo(b)fluoranthene	0.0001	0.00002
Benzo(e)pyrene	0.00003	0.00001
Benzo(g,h,i)perylene	0.00002	0.00001
Benzo(k)fluoranthene	0.00002	0.00001
Beryllium	0.00052	0.000159
Cadmium	0.392	0.2225
Chromium (VI)	0.1	0.02
Chromium, Total	0.0002	0.0001
Chrysene	0.00005	0.00002
Cresol, m,p-	0.02	0.01
Cresol, o-	0.1	0.02
Dibenzo(a,h)anthracene	0.000008	0.000003
Ethyl benzene	0.001	0.0004
Fluoranthene	0.0003	0.0001
Fluorene	0.003	0.001
Formaldehyde	2.3	0.4
Indeno(1,2,3-cd)pyrene	0.00002	0.00001
Lead	0.122	0.07
Manganese	1.2	0.6
MDI	0.003	0.001
Mercury	0.0018	0.0006

Pollutant	Potential to Emit (tons/year)	Proposed Emissions (tons/year)
Naphthalene	0.4	0.1
Nickel	0.55	0.304
Perylene	0.00001	0.000002
Phenanthrene	0.002	0.001
Phenol	7.4	0.7
Pyrene	0.0002	0.0001
Selenium	0.001	0.0004
Toluene	0.03	0.01
Total PCDD/PCDF (TEF wt-equiv.)	1.6E-10	4.7E-11
Xylene, m,p-	0.02	0.01
Xylene, o-	0.01	0.004
Xylene, Total	0.01	0.002
Zinc	0.9	0.4
Total HAPs	**13.9**	**3.0**

As shown in the table above, revised emissions estimates do not show any individual HAP or the combination of HAPs exceeding either major facility thresholds.

Health Risk Assessment

Regulation 2, Rule 6 under which the District has the authority to issue a revised Synthetic Minor Operating Permit does not allow the District to conduct a new or revised Health Risk Assessment. However, the District required Pacific Steel Casting to prepare a Health Risk Assessment (HRA) to meet the requirements of the Air Toxics Hot Spots Program (Health and Safety Code Sections 44300 through 44394, AB2588 – Air Toxics "Hot Spots" Information and Assessment Act of 1987), which established a formal regulatory program for site-specific air toxics emissions inventory and health risk quantification that is managed by California air districts.

On November 5, 2008, the District approved the final HRA report and made it available for public review. The Office of Environmental Health Hazard Assessment (OEHHA) has also approved the final HRA report. Following approval of the HRA, the District updated and finalized the criteria pollutant emissions inventory for PSC. Both the HRA and the criteria pollutant emissions inventory required extensive source testing starting in 2005 by both the District and PSC in order to develop more accurate, updated emissions estimates for both hazardous air pollutants (HAPs) and criteria pollutants for all three plants. PSC submitted a revised criteria pollutant emissions inventory for District review.

Results from the HRA indicate that the estimated maximum cancer risk is 31 in a million, the chronic hazard index is 1.8 and the acute hazard index is 0.85. The monthly averaged ambient air concentrations of lead are below levels that would impact blood lead levels in children. With an estimated maximum cancer risk that is greater than 10 in a million, PSC must provide public notification at least annually to the exposed public about its operations.

In addition, the District recently adopted Regulation 11, Rule 18 (Reduction of Risk from Existing Facilities), which will apply to the facility and require a new HRA be completed and that significant health risks be identified and mitigated. Any HRAs conducted to meet Regulation 11, Rule 18 will use the most accurate toxics emissions data available and may involve requiring facilities perform additional source tests to gather more data.

Synthetic Minor Operating Permit Limits

To obtain a District Synthetic Minor Operating Permit (SMOP) pursuant to Regulation 2-6-423.2.1, a facility must have permit conditions limiting the facility's potential to emit to no greater than 95 tons per year of any regulated air pollutant, 9 tons per year of any single hazardous air pollutant, and 23 tons per year of any combination of hazardous air pollutants.

The facility has proposed and will accept permit conditions that limit the overall POC, CO, SO_2, and PM_{10} emissions not to exceed 90 tons per year. The facility will also accept permit conditions that limit the throughput of all sources and require the facility to use the emission factors listed in Appendix C (detailed emission calculations) to calculate facility emissions, in order to assure compliance with the 90 tons per year limit. Emission factors have been established through source testing at the facility.

The facility emissions have a number of contributing variables. These variables include, but are not limited to:

- Steel production,
- Sand and binder usage,
- Size of cast products,
- Capture efficiency of abatement devices,
- Control efficiency of abatement devices, and
- Organic content of materials.

As discussed in the Emissions section and shown in Equations 1, 2, and 3; maximum estimated emissions depend on a variety of inputs. Due to the complexity of the facility and to assure that facility-wide emissions do not exceed the SMOP limits, permit conditions will be imposed on an individual source basis.

The following sections address the specific conditions that will be imposed to assure each key emissions estimation assumption (e.g. emissions, maximum throughput, emission factors, abatement requirement, capture efficiencies, abatement efficiencies) remains valid.

Emissions
Emissions will be limited on both a facility-wide and individual source basis. To demonstrate compliance with these limits, the facility will be required to calculate emissions on quarterly basis using District-approved methodologies, on an individual source, plant, and facility basis and total emissions for the previous 12 consecutive months.

Throughput
Throughputs will be limited on an individual source basis. To demonstrate compliance, the facility will be required to maintain records of daily production and report monthly throughputs on a quarterly basis.

Emission Factors
The emission factors used to estimate emissions will become enforceable limits. The facility will estimate individual source emissions using these emission factors and actual production throughput.

The basis for each emission factor is detailed in the detailed emission calculations of Appendix D.

Abatement
Within the three plants, PSC has multiple hoods stationed through the plants that collect emissions from pouring, cooling, and shakeout operations as well as dedicated hoods that collect emissions from the electric arc furnaces (EAFs).

Collected emissions are routed to either baghouses to control PM_{10} emissions and/or to carbon adsorption units to control POC emissions.

Conditions will be imposed to require that equipment be abated by existing devices and that the facility properly operate and maintain abatement equipment to ensure continued abatement.

Additionally, the District is imposing a requirement to cease operation of emitting sources, when there is an indication that the abatement equipment is malfunctioning, in order to eliminate or prevent inadvertent or excess emissions. One condition will prohibit the operation of POC emitting equipment if it is determined that the carbon has experienced breakthrough (as determined by monitoring of the outlets).

Capture Efficiencies

Because of the nature of the operations, capture efficiencies of the facility's ventilation hoods and ducting cannot be 100 percent except for the EAFs during scrap melting. Therefore, conditions requiring minimum capture efficiencies on an individual source basis will be imposed. Additional requirements will be imposed to increase capture efficiencies. These include requirements for closing exhaust vents, maintaining negative pressure for each plant as well as individual rooms, and mandating where certain operations may occur.

To ascertain if emissions are being collected, the facility will be required to conduct source tests at the inlets of abatement devices.

The facility will also be required to maintain a minimum negative pressure in all buildings and enclosures with monitoring of either inlet face velocities at entryways or continuous monitoring of differential pressure.

Control Efficiencies

Abated equipment will have enforceable limits on the minimum control efficiencies. Source tests will be required at the inlets and outlets of abatement devices to determine compliance.

To ensure efficacy of abatement equipment, enforceable limits on the minimum and maximum pressure drop across each baghouse will be imposed and the facility will be required to install detectors and alarms on all baghouses to alert the facility of any broken bags. The facility will be required to monitor total hydrocarbons from each carbon adsorption system and replace the carbon whenever the abatement efficiency decreases below 90 percent.

Monitoring

In addition to abatement device parametric monitoring (e.g. baghouse pressure drop gauges, broken bag detectors, etc.), PSC will be required to install continuous total hydrocarbon analyzers (flame ionization detectors) to measure emissions from each carbon adsorption unit at Plants # 1 and # 2 (similar to current practices at Plant # 3) as well conduct a series of source tests.

The continuous total hydrocarbon analyzers will be required to be installed at Plants # 1 or # 2 once production or a contract for production exceeds 65 percent of the maximum allowable production. A continuous analyzer is not required prior to the proposed threshold because the carbon adsorption unit, for which a FID would be used to determine if operating properly, may have zero abatement (i.e. not working) and estimated emissions would remain below the SMOP limit (90 tons). Therefore, requiring a FID is not warranted at such low throughputs.

PSC will be required to conduct the source tests listed in Table 7. Table 7 lists required source tests by pollutant and source, the deadline to complete the initial source test, and the frequency of source tests. The listed deadline period starts from either the issuance of the SMOP or if the source is not operating at the time of issuance, the date that the source begins operating after issuance of the SMOP.

Table 7 – Source Test Matrix

Pollutant	Plant(s)	Source(s)	Deadline	Frequency
PM_{10}	1	A-1009 EAF Baghouse	120 days	Annual
	2	A-2003 EAF Baghouse	120 days	Annual
	3	A-3001 EAF Baghouse	120 days	Annual
	1	A-1001 Baghouse # 1 A-1004 Baghouse # 4 A-1007 Carbon Adsorption System A-1008 Baghouse	1 year	Annual
	2	A-2001 Baghouse # 1 A-2002 Baghouse # 2 A-2003 Baghouse # 3 A-2007 Carbon Adsorption System	1 year	Annual
	3	A-3003 Shake Out Baghouse # 1 A-3007 Shake Out Baghouse # 2 A-3008 Carbon Adsorption System	1 year	Annual
	1	A-1002 Baghouse # 2 A-1008 Baghouse	3 years	Every three years
	2	A-2004 Baghouse # 4 A-2010 Pulse Jet Baghouse Dust Collector	3 years	Every three years
	3	A-3002 Cleaning Room Baghouse # 1 A-3003 Shake Out Baghouse # 1 A-3006 Cleaning Room Baghouse # 2 A-3007 Shake Out Baghouse # 2	3 years	Every three years
	1	A-1003 Baghouse # 3 A-1006 Baghouse # 5	5 years	Every five years
	2	A-2005 Baghouse # 5	5 years	Every five years
	3	A-3004 Sand System Baghouse	5 years	Every five years
CO	1	A-1009 EAF Baghouse	120 days	Every two years
	2	A-2003 EAF Baghouse	120 days	Every two years
	3	A-3001 EAF Baghouse	120 days	Every two years
	1	S-1002 Pour Off Area S-1003 B Shake Out S-1004 A Shake Out	1 year	Every five years
	2	S-2029 Shell Mold Pouring Station S-2030 Cast Mold Cooling Room S-2031 Shakeout & Tray Sanding	1 year	Every five years
	3	S-3004 Casting Mold Shake Out Station S-3019 Pouring and Cooling	1 years	Every five years
SO_2	2	S-2006 Sand Heater S-2007 Sand Coating S-2008 Coated Sand Pug Mill S-2009 Coated San Vibrating Screen S-2010 Bucket Elevator S-2011 Cooling Tower, Coated Sand S-2012 Bucket Elevator A-2004 Baghouse	120 days	Annual
Metals*	1	A-1009 EAF Baghouse	120 days	Every three years
	2	A-2003 EAF Baghouse	120 days	Every three years
	3	A-3001 EAF Baghouse	120 days	Every three years
	3	S-3001 EAF	120 days	Initial

Pollutant	Plant(s)	Source(s)	Deadline	Frequency
	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
Filterable PM	1	A-1009 EAF Baghouse	120 days	Every three years
	2	A-2003 EAF Baghouse	120 days	Every three years
	3	A-3001 EAF Baghouse	120 days	Every three years
	3	S-3001 EAF	120 days	Initial
	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
PAHs (as defined in Reg. 2-5)	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
Benzene	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
Formaldehyde	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
Non-Methane Hydrocarbons	3	S-3004 Shakeout	120 days	Initial
	3	S-3019 Pour Area	120 days	Initial
	2	S-2029 Shell Mold Pouring Station	120 days	Initial
	2	S-2031 Shakeout & Tray Sanding	120 days	Initial
	2	S-2030 Cast Mold Cooling Room	120 days	Initial
	2	S-2006 Sand Heater S-2007 Sand Coating S-2008 Coated Sand Pug Mill S-2009 Coated San Vibrating Screen S-2010 Bucket Elevator S-2011 Cooling Tower, Coated Sand S-2012 Bucket Elevator A-2004 Baghouse	120 days	Annual
*arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese, nickel, selenium, zinc				

Monitoring Basis

When determining a frequency for required monitoring, the District considers the estimated emissions impacts, the expected variability in emissions, the difficulty of conducting the monitoring, and the cost to the facility.

There are four pollutants (PM_{10}, CO, SO_2, NMOC) that have estimated potentials to emit greater than major thresholds and thus, require periodic monitoring.

Of the equipment listed in Table 7, those with annual source test requirements comprise 88 percent of estimated PM_{10} potential to emit emissions, 76 percent of estimated SO_2 potential to emit emissions, and 89 percent of estimated NMOC potential to emit emissions.

The facility currently monitors NMOC emissions continuously from the Plant 3 carbon abatement system and will be required to continuously monitor NMOC emissions from the Plants 1 and 2 carbon abatement systems if the facility exceeds certain production rates.

The largest sources of CO emissions are the pouring, cooling, and shakeout sources, which comprise 73 percent of the potential to emit, at the three plants. However, as these are area sources that vent to multiple exhaust points, it is very difficult and expensive to source test. Therefore, the source test frequency considers the difficulty and cost entailed in source testing these sources.

Recordkeeping

To allow District personnel to calculate and verify emission estimates and determine compliance with imposed limits, PSC will be required to maintain and make available records on all throughputs, emission calculations, source tests, monitoring data, maintenance and inspections.

Reporting

On a quarterly basis, PSC will be required to report to the District the monthly throughputs of all sources, total emissions from Plants # 1, # 2, and # 3, and carbon monitoring data.

On an annual basis, PSC will be required to submit an annual compliance report.

In addition to the quarterly and annual reports, PSC will be required to report any non-compliance to the Director of Enforcement within 10 calendar days of discovery.

Statement of Compliance

Regulation 2, Rule 2 (New Source Review)
Sources constructed after 1979 may potentially be subject to the New Source Review program if the source was not specifically exempted. Depending on the amount of emissions from the source, New Source Review may require that the source install Best Available Control Technology as part of either Minor NSR or Major NSR.

PSC is not applying to construct new or modify existing equipment with this application. However, because of this application, a question arose regarding whether NSR is applicable to CO emissions from Plant 3 pouring, cooling, and shakeout sources (S-3004 and S-3019).

CO Emissions from Plant 3 Pouring, Cooling, and Shakeout Operations
Pacific Steel Casting's operation at Plant 3 began in December of 1981 and therefore may have been subject to NSR requirements.

Plant 3's pouring, cooling, and shakeout operations were permitted under two separate source numbers:

- S-4 Casting Mold Shakeout, and
- S-19 Pouring, Cooling

These sources were subsequently re-numbered to S-3004 and S-3019 to aid in identifying the location of each source at which plant (S-1### sources at Plant 1, S-2### sources at Plant 2, and S-3### sources at Plant 3).

The facility submitted a permit application for Plant 3 on September 12, 1979 and was issued an Authority to Construct on October 24, 1979. At the time, the District had a different regulatory rule numbering scheme and the District's permitting requirements were listed in Section 1310 of Division 13 of the District's rulebook.

When PSC applied for an Authority to Construct for Plant 3, the following equipment was listed as being exempt from the requirement to obtain a permit to operate:

Section 1310 (amended March 16, 1977)
23 Shell core and shell-mold manufacturing machines
24 Molds used for the casting of metals

These exemptions were kept when the District's rules were re-codified into the current regulatory scheme and the permit requirements were re-numbered under Regulation 2, Rule 1 in October 7, 1981. However, exemption criteria of emitting less than 150 pounds of any pollutant per day was added.

S-3004 (as S-4 at the time) received an authority to construct and a permit to operate in 1981. However, S-3019 (as S-19 at the time) did not receive a permit to operate until 2007as a result of an application submitted in 2005.

At the time that Plant 3 was permitted, the District was not aware that pouring, cooling, and shakeout operations emit significant quantities of carbon monoxide (CO). The District has not found any evidence that the EPA or that industry was aware of this as evidenced by the absence of any mention of CO in the published emissions literature (e.g. AP-42) of the time.

If the District or the facility were aware of the quantities of CO potentially emitted by pouring, cooling, and shakeout operations, a loss of exemption permit application may have been required and an NSR review

conducted at that time. If the result of an NSR review were the imposition of BACT and/or to conduct a PSD analysis, the amount of allowable CO permitted to be emitted by the Plant 3 pouring, cooling, and shakeout operations would certainly be lower, not higher, than currently proposed.

As the currently proposed conditions already limit total facility-wide CO emissions to less than the maximum allowable to obtain a SMOP, the SMOP may be issued without conducting an NSR analysis for Plant 3's pouring, cooling, and shakeout operations.

Further, the authority under which the District issues a SMOP (District Regulation 2, Rule 6), does not include the New Source Review analysis requirement. New Source Review is imposed under District Regulation 2, Rule 2 which becomes applicable when a source is considered new or modified under District Regulation 2, Rule 1. In order for a New Source Review analysis to be conducted, a separate application is required under Regulation 2, Rule 1. Therefore, a New Source Review analysis for the pouring, cooling, and shakeout operations at Plant 3 has not been included within the evaluation of this SMOP revision.

However, an additional condition will be imposed requiring the facility to submit a permit application for an NSR analysis to be conducted on Plant 3's pouring and cooling operation for CO. The condition will also require that the facility submit a change in SMOP conditions application if the result of the NSR application is to impose more stringent limitations, technology, or other NSR-related conditions on Plant 3's pouring and cooling operations.

California Environmental Quality Act (CEQA)

The application is exempt from CEQA per District Regulation 2-1-312.1, which states that applications to modify permit conditions for sources that do not involve any increases in emissions or physical modifications are exempt from CEQA. District Regulation 2-1-312.9 exempts projects pursuant to the State CEQA Guidelines, Section 15281 of the State CEQA Guidelines exempts Title V permit applications from CEQA.

Prevention of Significant Detereoration (PSD)

Per Regulation 2-2-304, PSD applies to either a new major facility or to a major modification at a major facility. The facility is not constructing a new source or making a major modification to the facility. The facility will be required to submit a permit applicating addressing whether NSR applies to CO emissions from S-3004 and S-3019.

Regulation 2, Rule 6 (Major Facility Review)

The facility is in compliance with the necessary requirements in Regulation 2, Rule 6 to obtain a SMOP. PSC has voluntarily accepted enforceable permit conditions including emissions limits that will keep facility annual emissions at or below 90 tons per year of any regulated air pollutant, 9 tons of any hazardous air pollutant, and 23 tons of any combination of hazardous air pollutants.

The facility will continue to comply with Regulation 2-6-310, which requires a facility of this size to accept permit conditions that limit emissions to not exceed 95 tons per year of any regulated air pollutant, 23 tons per year of combined HAPs and 9 tons per year of any single HAP.

SIP Regulation 2, Rule 6, Section 423.3 (Public Participation)

Prior to issuing a SMOP, SIP Regulation 2-6-423.3 requires providing 30 days of notice to the public for public comment. The District provided an initial public comment period from July 15, 2016 to August 15, 2016. At the request of the public and the EPA, this period was later extended an additional 30 days to September 15, 2016. At the request of the public, a second public comment period was held from December 6, 2016 to January 19, 2017 and the District held a community meeting in the City of Berkeley on December 14, 2016 to accept public comments in person. In total, the District provided 105 days of notice to the public for public participation.

The District received comments on the draft report and conditions from 43 individuals, one online publication (Berkeley Citizen), two organized groups (West Berkeley Alliance for Clean Air and Safe Jobs; Golden Gate University School of Law, Environmental Law and Justice Clinic (ELJC)), and one public agency: the United States Environmental Protection Agency (EPA). After consideration of public comments received, this evaluation report and proposed permit conditions were significantly modified to address concerns of practical enforceability, regulatory applicability, as well as to provide clarity. District responses to public comments received are attached in Appendix F.

Regulation 3
Regulation 3 requires payment of permit fees. Fees have been invoiced and paid by Pacific Steel Casting.

Regulation 12, Rule 13 (Foundry and Forging Operations)
Regulation 12, Rule 13 requires an owner/operator of a foundry to: (1) develop an emissions minimization plan (EMP), (2) obtain approval from the District of an EMP, and (3) operate according to an approved EMP.

Pacific Steel Casting has developed and obtained approval of an EMP and is operating according to the EMP. A public version of the EMP has been attached in Appendix G.

New Source Performance Standards (NSPS)
The following NSPS are potentially applicable to Pacific Steel Casting:

- Title 40 CFR Part 60 Subpart A (General Provisions)
- Title 40 CFR Part 60 Subpart AA (Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed After October 21, 1974 And On or Before August 17, 1983)

The District has been delegated authority for applicability determinations and compliance enforcement for the two subparts listed above (Subpart A and Subpart AA).

District records indicate the following startup dates for the three electric arc furnaces at Pacific Steel Casting:

Source	Description	Startup Date
1001	Arc Furnace	01/01/1965
2027	Electric Arc Furnace	12/01/1975
3001	Electric Arc Furnace	12/01/1981

Title 40 CFR Part 60 Subpart A includes general provisions such as compliance dates and definitions applicable to all 40 CFR Part 60 subparts.

Title 40 CFR Part 60 Subpart AA applies to electric arc furnaces and dust-handling systems that were constructed, modified, or reconstructed after October 21, 1974 and on or before August 17, 1983. Pacific Steel Casting has one such electric arc furnace (S-2027) and one associated dust handling system (A-2003) at Plant 2 and one electric arc furnace (S-3001) and one associated dust handling system (A-3001) at Plant 3 that would be subject to this NSPS.

NSPS Subpart AA includes the following requirements:

- Limit PM emissions to 0.0052 grains per dry, standard cubic foot
- Limit visible emissions from a control device to less than 3 percent opacity
- Limit visible emissions from a shop and, due solely to operations of any EAF to 6 percent opacity except to less than 20 percent opacity during charging periods and to less than 40 percent opacity during tapping periods

- Install and operate a continuous opacity monitor or a bag leak detection system and a certified visible emission observer takes at least one visible emissions observation per day for at least three 6-minute periods when the furnace is operating in the melting and refining period
- Recordkeeping of operational data (e.g. charge, tap, pressure readings, inspections, etc.)

A review of source tests conducted over the past 10 years at S-2027/A-2003 and S-3001/A-3001 indicate compliance with the NSPS Subpart AA emissions limits as shown in the table below.

Source/Abatement	Source Test	Test Date	PM Results (gr/dscf)	Comply with NSPS Subpart AA?
S-2027/A-2003	OS-1499	03/16/06	0.0011	Yes
S-3001/A-3001	OS-1502	12/21/05	0.0036	Yes
S-3001/A-3001	OS-1656	06/29/06	< 0.0001	Yes
S-3001/A-3001	OS-2567	08/26/08	0.0011	Yes
S-3001/A-3001	OS-3059	10/01/09	0.0003	Yes
S-3001/A-3001	OS-3502	10/28/10	< 0.0005	Yes
S-3001/A-3001	OS-3968	10/26/11	< 0.0002	Yes
S-3001/A-3001	OS-4322	10/24/12	< 0.0006	Yes
S-3001/A-3001	OS-4883	12/03/13	0.0001	Yes
S-3001/A-3001	OS-5557	12/19/14	0.0003	Yes
S-3001/A-3001	OS-6028	11/18/15	0.0004	Yes

A search of District Enforcement records for the past 10 years resulted in one record of an opacity violation (NOV A54093A) at the Plant 2 EAF (S-2027, A-2003) and none at Plant 3. The facility corrected the cause (faulty baghouse bags) of the opacity violation and is expected to continuing complying with NSPS Subpart AA.

The facility has installed a bag leak detection system at S-3001/A-3001 but has not installed one on S-2027/A-2003. The matter is currently being investigated by the District's Enforcement Division. However, the facility will be required to install a bag leak detection system as a proposed SMOP condition and will therefore, comply with NSPS Subpart AA.

National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The following NESHAPs are potentially applicable to Pacific Steel Casting:

- Title 40 CFR Part 63 Subpart A (General Provisions)
- Title 40 CFR Part 63 Subpart EEEEE (NESHAPs for Iron and Steel Foundries)
- Title 40 CFR Part 63 Subpart YYYYY (NESHAPs for Area Sources: Electric Arc Furnace Steelmaking Facilities)
- Title 40 CFR Part 63 Subpart ZZZZZ (NESHAPs for Iron and Steel Foundries Area Sources)

NESHAP EEEEE applies to major sources of HAPs whereas NESHAP ZZZZZ applies to minor (area) sources of HAPs.

Per 40 CFR Part 63 Subpart A (40 CFR 63.2), facilities defined as major sources of HAPs are those that emit, or has the potential to emit considering controls, more than 10 tons per year of any individual HAP or more than 25 tons per year of any combination of HAPs.

As shown in Table 6, the facility's potential to emit HAPs is less than 10 tons per year on an individual basis and less than 25 tons per year on a combination basis. Therefore, the facility is considered a minor source of HAPs and is subject to 40 CFR 63 Subpart ZZZZZ.

NESHAP ZZZZZ classifies facilities as either small or large and has different thresholds for small and large based upon if the facility is considered a new or existing facility.

For new (or reconstructed) facilities, a facility is defined as small if the annual melting capacity is less than 10,000 tons or less.

For existing facilities, a facility is defined as small if it produced less than 20,000 tons for the calendar year 2008.

A facility is considered new if it commenced construction or reconstruction prior to September 17, 2007.

Pacific Steel Casting constructed Plant 1 (1930's), Plant 2 (~1975), and Plant 3 (~1981) prior to September 17, 2007 and although Pacific Steel Casting has made changes at the three plants, none of those changes would exceed the 50 percent fixed capital cost threshold included in the definition of reconstruction in 40 CFR 63.2.

Therefore, Pacific Steel Casting is considered an existing source for purposes of NESHAP ZZZZZ.

According to the District's emissions inventory, Pacific Steel Casting produced more than 20,000 tons of steel in the calendar year 2008. Therefore, the facility is considered a large foundry per NESHAP ZZZZZ.

NESHAP ZZZZZ lists the following requirements for large steel foundries:

- Prepare written materials specifications for a metallic scrap management program,
- Require scrap metal vendors remove mercury switches from vehicle bodies,
- Use binder formulations that do not contain methanol,
- Limit PM emissions from all metal melting furnaces to less than 0.8 pounds per ton of metal charged
- Limit HAP emissions from all metal melting furnaces to less than 0.06 pounds per ton of metal charged,
- Limits visible emissions from all metal melting furnaces to less than 20 percent opacity (6-minute average), except for one 6-minute average per hour that does not exceed 30 percent,
- Prepare and operate according to a written operation and maintenance (O&M) plan for each control device used to comply with the PM, metal HAP, or opacity emissions limit.
- Monthly visual inspections of baghouse ductwork for leaks or install a bag leak detection system,
- Inspect baghouse interiors for structural integrity every 6 months or install a bag leak detection system,
- Monthly inspections of equipment important to performance of total capture system (i.e. pressure sensors, damps, and damper switches) and repair found defects as soon as practicable but no longer than 90 days,
- Keep records of all deviations, written materials specifications, binder formulation, monthly melt production, O&M plan, and compliance demonstrations; and
- Submit semiannual reports of any exceedances of emissions limits.

At a minimum, each O&M plan must include the following:

- General facility and contact information;
- Positions responsible for inspecting, maintaining, and repairing emissions control devices which are used to comply with Subpart ZZZZZ;
- Descriptions of items, equipment, and conditions that will be inspected, including an inspection schedule for the items, equipment, and conditions. For baghouses that are equipped with bag leak

detection systems, the O&M plan must include the site-specific monitoring plan required by 63.10897(d)(2), and
- Identify and estimated quantity of the replacement parts that will be maintained in inventory.

Currently, the District has not been delegated authority for enforcing compliance with 40 CFR 63 Subpart ZZZZZ. Therefore, EPA is responsible for enforcing compliance with 40 CFR 63 Subpart ZZZZZ.

NESHAP YYYYY applies to new and existing electric arc furnaces at an area source of HAPs. An electric arc furnace is considered existing if it was constructed prior to September 20, 2007 and new if constructed after that date.

NESHAP YYYYY includes the following definitions:

Electric arc furnace (EAF):	an electric arc furnace as "a furnace that produces molten steel and heats the charge materials with electric arcs from carbon electrodes. An electric arc furnace consists of the furnace shell, roof, and the transformer.
Electric arc furnace steelmaking facility:	a steel plant that produces carbon, alloy, or specialty steels using an EAF. This definition excludes EAF steelmaking facilities at steel foundries and EAF facilities used to produce nonferrous metals.
Nonferrous metals:	any pure metal other than iron or any metal alloy for which an element other than iron is its major constituent by percent by weight

NESHAP YYYYY lists the following requirements for existing electric arc furnaces at an area source:
- Must have or obtain a permit under 40 CFR Part 70 or 40 CFR Part 71
- Either implement a pollution prevention plan for metallic scrap selection and inspection or restrict certain metallic scrap
- If using motor vehicle scrap, implement a program for preventing mercury switches in scrap
- Install and operate a capture system and control device for removal of PM
- Limit PM emissions from EAFs to less than 0.8 pounds per ton of steel or to less than 0.0052 grains of PM per dry standard cubic foot
- Limit visible emissions to less than 6 percent opacity
- Conduct initial source tests for PM per specified EPA methods
- Monitor the capture system and PM control device per compliance assurance monitoring requirements in 40 CFR Part 64

The District has not been delegated authority for making an applicability determination nor for enforcing potential compliance with 40 CFR 63 Subpart YYYYY. Therefore, the EPA is responsible for making any applicability determinations and for enforcing compliance if Pacific Steel Casting is found to be subject to 40 CFR 63 Subpart YYYYY.

Compliance Assurance Monitoring (CAM)

Title 40 CFR Part 64 outlines the requirements for compliance assurance monitoring.

CAM applies to equipment located at a facility considered a major source that meets the following three-part test:

- Subject to an emission limitation or standard, and
- Use a control device to achieve compliance, and
- Have pre-control emissions that exceed or are equivalent to the major source threshold.

As discussed above, the electric arc furnaces are subject to a PM and HAP emissions limitation (40 CFR Part 63 Subpart ZZZZZ) and use baghouses to achieve compliance. The pre-control PM emissions from each individual electric arc furnace (S-1001, S-2027, and S-3001) exceed the major source threshold.

Section 40 CFR 63.10686(e) of 40 CFR Part 63 Subpart YYYYY requires following the requirements of 40 CFR Part 64.

Therefore, a CAM plan would be required if Pacific Steel Casting were a major source or subject to 40 CFR Subpart YYYYY. As Pacific Steel Casting has elected to obtain a SMOP and the District has not been delegated authority for 40 CFR Part 63 Subpart YYYYY, a CAM plan is not required until such time that the facility becomes a major source or the EPA determines the facility to be subject to 40 CFR Part 63 Subpart YYYYY.

Synthetic Minor Operating Permit Conditions

Condition # 20207:

Pacific Steel Casting (PSC) Plants 1, 2, and 3 (collectively District Plant # 22605), have a synthetic minor operating permit (SMOP). This SMOP covers all sources at the facility as of the date of permit issuance.

These conditions establish the permit terms that ensure this plant is classified as a Synthetic Minor Facility under District Regulation 2, Rule 6 - Major Facility Review and ensure it is not subject to the permitting requirements of Title V of the Federal Clean Air Act as amended in 1990 and 40 CFR Part 70. All applications submitted by the applicant and all modifications to the facility's equipment after issuance of this SMOP must be evaluated to ensure that the facility will not exceed the synthetic minor operating permit limits below and that sufficient monitoring, recordkeeping, and reporting requirements are imposed to ensure enforceability of the limits.

Any revision to a condition establishing this facility's status as a Synthetic Minor Facility or any new permit term that would limit emissions of a new or modified source for the purpose of maintaining the facility as a Synthetic Minor must undergo the procedures specified by Rule 2-6, Section 423. The basis for the synthetic minor conditions is an emission limit for each regulated air pollutant of less than 90 tons per year at the facility, an emission limit for a single hazardous air pollutant of less than 9 tons per year at the facility, and an emission limit for a combination of hazardous air pollutants of less than 23 tons per year at the facility.

The District's SMOP contains adequate monitoring to enable the District to verify compliance with the SMOP emissions limits.

Pacific Steel Casting is considered a synthetic minor source for the CO, PM10, PM2.5, VOC and SO2 and a natural minor source for NOx and HAPs.

1. General Conditions

1.1 For purposes of this permit, the permitted source consists of the following equipment and/or activities. The information in this table is for descriptive purposes only.

The permitted sources (S-#) at Plant 1 on the date of issuance of this synthetic minor permit are:

1001 ARC FURNACE
1002 POUR-OFF AREA
1003 B SHAKE OUT (DUST COLLECTION)
1004 A SHAKE OUT (DUST COLLECTION)
1005 SAND SYSTEM (DUST COLLECTION)W/WHIRL AIR FLOW SYSTEM
1006 SAND COOLER,6 SCREEN,W/MOLD RELEASE COATING OPERATION
1007 SAND SCREEN
1008 MULLER
1010 MULLER, CORE SAND
1011 MULLER
1012 CLEANING & GRINDING DEPT.
1013 ARC-AIR BOOTH
1014 ARC-AIR BOOTH

1015 PANGBORN TABLE BLAST
1016 ROTO-BLAST
1017 ROTOBLAST
1018 HEAT TREATING FURNACES
1019 RAW SAND RECEIVING
1022 CORE BAKE OVENS
1027 Core-Making Operation
32001 MINOR SOURCES

The permitted abatement devices (A-#) at Plant 1 on the date of issuance of this synthetic minor permit are:

1001 BAGHOUSE # 1
1002 BAGHOUSE # 2
1003 BAGHOUSE # 3
1004 BAGHOUSE # 4
1006 BAGHOUSE # 5A
1007 CARBON ADSORPTION SYSTEM
1008 BAGHOUSE, CARTRIDGE
1009 BAGHOUSE
1010 BAGHOUSE CORE SAND # 9

The permitted sources (S-#) at Plant 2 on the date of issuance of this synthetic minor permit are:

2001 SAND SILO LOADING ELEVATOR
2002 SAND SILO #1
2003 SAND SILO #2
2004 BUCKET ELEVATOR
2005 RESIN TANK (LIQUI-BIN)
2006 SAND HEATER
2007 SAND COATING
2008 COATED SAND PUG MILL
2009 COATED SAND VIBRATING SCREEN
2010 BUCKET ELEVATOR
2011 COOLING TOWER, COATED SAND
2012 BUCKET ELEVATOR
2013 CORE MOLDING MACHINE [EXEMPT]
2014 CORE MOLDING MACHINE [EXEMPT]
2015 CORE MOLDING MACHINE [EXEMPT]
2016 CORE MOLDING MACHINE [EXEMPT]
2017 CORE MOLDING MACHINE [EXEMPT]
2018 CORE MOLDING MACHINE [EXEMPT]
2019 COATED SAND BIN
2020 SHELL MOLDING MACHINE, SINGLE [EXEMPT]
2021 SHELL MOLDING MACHINE, TWIN [EXEMPT]

2022 SHELL MOLDING MACHINE, TWIN [EXEMPT]
2023 SHELL MOLDING MACHINE, TWIN [EXEMPT]
2024 SHELL MOLDING MACHINE, SINGLE [EXEMPT]
2025 ABRASIVE BLASTER, CORE AREA [EXEMPT]
2026 LARGE LADLE HEATER
2027 ELECTRIC ARC FURNACE
2028 EAF LADLE STATION W/CANOPY HOOD
2029 SHELL MOLD POURING STATION
2030 CAST MOLD COOLING ROOM
2031 SHAKEOUT & TRAY SANDING
2032 ROTOBLAST
2033 ABRASIVE CUT-OFF SAW [EXEMPT]
2034 ABRASIVE CUT OFF SAW [EXEMPT]
2035 ABRASIVE CUT-OFF SAW [EXEMPT]
2036 ABRASIVE CUT-OFF SAW [EXEMPT]
2037 GRINDER [EXEMPT]
2038 GRINDER [EXEMPT]
2039 GRINDER [EXEMPT]
2040 GRINDER [EXEMPT]
2044 SAND STORAGE SILO
2045 LUMP BREAKER
2046 FLOW BIN (REJECTED MATERIAL)
2047 SAND COOLER/AIR BED #1 (C-1)
2048 MATERIAL HANDLING EQUIPMENT (3 HOPPERS,3 BUCKET ELEVS, ONE TRUCK
2049 (R-1), THERMAL RECYCLING UNIT (SAND RECLAMATION)
32000 MISCELLANEOUS MINOR SOURCES [EXEMPT]

The permitted abatement devices (A-#) at Plant 2 on the date of issuance of this synthetic minor permit are:

2001 BAGHOUSE # 1
2002 BAGHOUSE # 2
2003 BAGHOUSE # 3
2004 BAGHOUSE # 4
2005 BAGHOUSE # 5
2006 BAG FILTER
2007 CARBON ADSORPTION SYSTEM
2010 PULSE JET BAG HOUSE DUST COLLECTOR

The permitted sources (S-#) at Plant 3 on the date of issuance of this synthetic minor permit are:

3001 ELECTRIC ARC FURNACE
3002 LADLE HEATER [EXEMPT]
3004 CASTING MOLD SHAKE OUT STATION
3005 BLAST TABLE

3006 TUMBLE BLAST
3007 NEW SAND SILO #1
3009 SAND COOLER CLASSIFIER
3010 SAND CONDITIONING UNIT #1
3011 SAND CONDITIONING UNIT #2
3012 RETURN SAND BIN #1
3013 RECLAIMED SAND BIN #2
3014 MIXER SAND BIN
3015 NEW SAND RECEIVING BUCKET ELEVATOR #1
3016 BUCKET ELEVATOR #2 RETURNED SAND
3017 BUCKET ELEVATOR #3 RECLAIMED SAND
3018 MOLD COATING OPERATION
3019 POURING AND COOLING
3020 HOLCOTE 578 CCD COATING

The permitted abatement devices (A-#) at Plant 3 on the date of issuance of this synthetic minor permit are:

3001 EAF BAGHOUSE
3002 CLEANING ROOM BAGHOUSE # 1
3003 SHAKE OUT BAGHOUSE # 1
3004 SAND SYSTEM BAGHOUSE
3005 MIXER SAND BIN DUST FILTER
3006 CLEANING ROOM BAGHOUSE # 2
3007 SHAKEOUT BAGHOUSE # 2
3008 CARBON ADSORPTION SYSTEM & DUCTING

1.2 The owner/operator shall comply with Conditions 24466 (Plant 1), 24548 (Plant 2), and 24547 (Plant 3) at all times of operation. Condition 20207, 24466, 24547, and 24548 constitute the Synthetic Minor Operating Permit for the facility and a violation of any part of Conditions 20207, 24466, 24548, or 24547 shall be considered a violation of the Synthetic Minor Operating Permit.
[Basis: Regulation 2-6-423]

2. Acronyms, Abbreviations, Definitions & Units

For the purposes of these SMOP conditions, the following terms have the following meanings:

"**facility**" shall mean and comprise Plants 1, 2, and 3;

"**owner/operator**" shall mean the owner or operator of the facility;

"**operations**" shall mean and include material handling, mixing, mold making activities, melting, pouring, cooling, shakeout, grinding, and sand recycling;

"**operational hour**s" shall mean those periods of time during which material handling, mixing, mold making activities, melting, pouring, cooling, or shakeout operations are taking place at a facility plant;

"**cooling operations**" shall mean the period of time commencing with the pouring of casting and concluding with the commencement of shakeout operations at a plant;

"**shakeout operations**" shall mean the period of time commencing with any separation of the casting from the mold and ends with a complete removal of the casting from the shakeout station with all of the sand from the mold contained in the shakeout operation;

"**carbon cycle**" at a plant shall mean the commencement of carbon adsorption system operation with a fresh batch of carbon through the last day of operation with that same batch of carbon.

"**maintain**" shall mean maintain and keep in good repair at all times.

"**District-approved**" shall mean the following depending on the context:

- **"source tests"** shall mean source tests that met the requirements of these conditions and of District Manual of Procedures Volume IV (Source Test Policy and Procedures) using EPA-approved source test methods

- **"source test results**" shall mean results from a District-approved source test that have been reviewed and approved by the District's Source Test Section and Engineering Division

- **"corrective action**" shall mean an action that brings the facility into compliance with an associated requirement and that has been reviewed and approved by the District's Enforcement Division. Such an action shall identify and eliminate the cause(s) of the non-complying occurrence to prevent recurrence.

- **"instrument**" shall mean a device capable of detecting and measuring air velocity with a minimum resolution of one foot per minute that is properly operated and maintained according to manufacturer specifications. Such a device shall be reviewed and approved by the District's Enforcement Division.

- "**FID**" shall mean a flame ionization device that meets the requirements listed in EPA Performance Specification 8A as well as the District's Manual of Procedures Volume V (Continuous Emission Monitoring Policy and Procedures) and that has been reviewed and approved by the District's Source Test Section and Engineering Division.

- "**broken bag device**" shall mean a device that satisfies the requirements of Title 40 CFR Part 60 Subpart AA and that has been reviewed and approved by the District's Source Test Section and Enforcement and Engineering Divisions.

- "**alternative continuous monitoring and recording device**" shall mean a device that is functionally equivalent to the in lieu of device and has equivalent or superior specifications regarding data quality capture, recording, and assurance that is reviewed and approved by the District's Enforcement, Engineering, and Technical Divisions.

- "**alternative continuous parametric emissions monitoring system**" shall mean a device that continuously measures process parameters and uses a computer model to estimate emissions based on the parameters measured. Used as an equivalent to direct measurement of emissions.

- "**log**" or "**logbook**" shall mean a physical or electronic record that captures the required information in the frequency specified (e.g. daily, monthly, quarterly) in a format approved by the District's Enforcement and/or Engineering Division. At a minimum, the record shall include the date of entry, source number(s) and description(s), required information, and name of the person recording the information. If in electronic form, the record shall include a mechanism for preventing editing after a record has been entered.

- "**report**" shall mean a standardized document that includes the requested information in a format reviewed and approved by the District's Enforcement and Engineering Divisions. At a minimum, the report should include the requested information in the frequency specified (e.g. daily, monthly, etc.) as well as the listing the name and title of the facility personnel responsible for the accuracy of the report.

- "**emission factors**" shall mean emission factors calculated per the requirements of this condition and that have been reviewed and approved by the District's Enforcement and Engineering Divisions

For the purposes of this SMOP, if two or more carbon beds together abate one or more sources, the carbon beds together constitute a "carbon adsorption system." If a single carbon bed abates a specific source or sources exclusively, that carbon bed constitutes a "carbon adsorption system" for the source or sources. The carbon adsorption systems at the facility are A-1007 at Plant 1, A-2007 at Plant 2, and A-3008 at Plant 3. Unless a permit condition refers to a specific carbon adsorption system at one of the plants, a reference to a carbon adsorption system means and applies to all of the carbon adsorption systems.

3. Emission Limits and Work Practice Requirements

3.1 At all times, including periods of startup, shutdown, maintenance and malfunction, the owner/operator shall, to the extent practicable, maintain and operate each source, including any associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions and considering the manufacturer's recommended operating procedures. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the District, which may include but is not limited to, monitoring results, review of operating and maintenance procedures and inspection of the source.

[Basis: Regulation 2-6-423, 2-1-403, Synthetic Minor]

3.2 The owner/operator shall not allow the facility to exceed any of the following emission limits in any consecutive 12-month period:

a. 90 tons of any regulated air pollutant including, but not limited to: precursor organic compounds (POC), carbon monoxide (CO), particulate matter less than 10 microns (PM_{10}), sulfur dioxide (SO_2), and oxides of nitrogen (NO_X), but not including hazardous air pollutants (HAPs);

b. 9 tons of any single HAP, and

c. 23 tons of any combination of HAPs.

The emission limits listed above apply to emissions from all equipment covered by the permit, including emissions during startup periods, shutdown periods, and during periods of malfunction or upset.

[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

3.3 The owner/operator shall not allow the facility to exceed any of the throughputs, emissions factors, and/or emissions specified in these SMOP conditions as well as SMOP Conditions 24466 (Plant 1), 24548 (Plant 2), and 24547 (Plant 3). All data and assumptions contained in this part as well as Conditions 24466, 24547, and 24548 shall be considered enforceable limits. The compliance demonstration for the emissions limits listed in Part 3.2 shall include emissions from all equipment covered by the permit, including emissions during startup periods, shutdown periods, and periods of malfunction or upset.

[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

EMISSION CALCULATIONS

3.4 To demonstrate compliance with the criteria pollutant emissions limits in Parts 3.2 and 3.3, the owner/operator shall determine the facility rolling 12-month emissions by calculating the emissions (tons/month) for each source for each month and adding the emissions for the previous eleven months. The owner/operator shall determine monthly emissions (tons/month) for each source by using the following equations:

a. For sources, other than S-2005, with emission factors in units of lbs per gallon, the owner/operator shall calculate pre-control emissions using the following equation:

Pre-Control Monthly Emissions (tons/month) = $[\sum_{i=1}^{n}(Vol_i) \times (D_i) \times (W_i)]/2000$

where:

Vol_i = monthly volume (gallon/month) of each coating, sealant, solvent and ink used

D_i = density (lb/gallon) of each coating, sealant, solvent and ink

W_i = mass fraction (lb/lb) of pollutant in each coating, sealant, solvent and ink

n = number of coatings, sealants, solvents and inks used each month

b. For Source 2005 (Resin Tank), the owner/operator shall calculate emissions using the equations listed in EPA's AP 42, Fifth Edition, Volume 1, Section 7.1 (Organic Liquid Storage Tanks), Subsection 7.1.3.1 (Total Losses From Fixed Roof Tanks), dated November 2006.

c. For sources with emission factors in units of lbs per therm, the owner/operator shall calculate pre-control emissions using the following equation:

Pre-Control Monthly Emissions (tons/month) = [(NG) x (HHV) x (0.00001) x (EF)]/2000

where:

NG = scf of natural gas combusted in source each month

HHV = higher heating value for natural gas (assume 1020 unless measured)

0.00001 = conversion factor (1 therm/100,000 Btu)

EF = pollutant emission factor (lbs/therm)

d. For sources with emission factors in units of lbs per ton of steel or lbs per ton of sand, the owner/operator shall calculate pre-control emissions using the following equation:

Pre-Control Monthly Emissions (tons/month) = [(Throughput) x (EF)]/2000

where:

Throughput = monthly throughput (tons sand or steel)

EF = pollutant emission factor (lbs/ton sand or steel)

e. For sources where THC emissions are continuously measured using a flame ionization device (FID), the owner/operator shall calculate emissions using the following equation:

Emissions (tons) = [(PPM/1,000,000) x (MM/MV) x (DCFM) x (MIN)]/2000

where:

PPM	= total hydrocarbons concentration (parts per million)
MM	= molar mass (lb/lb-mol), assume 12 (for carbon) unless otherwise measured
MV	= molar volume (cubic feet/lb-mol), use 386 (21 deg Celsius, 14.7 psia)
DCFM	= exhaust flow rate (dry standard cubic feet per minute at 21 deg Celsius, 14.7 psia)
MIN	= number of minutes between FID measurements

During periods where a FID has malfunctioned, the owner/operator shall substitute the PPM reading in the above equation using the following procedure based on data availability:

Data Availability	Substitution Procedure
> 90 percent	Use average of the hour before and hour after missing period
< 90 percent	Maximum recorded during previous 720 quality-assured monitor operating hours

f. For sources where emissions of a pollutant are not controlled, the emissions shall be the "pre-control emissions" calculated using an equation per parts a through e. For sources where emissions of a pollutant are controlled, the owner/operator shall calculate total emissions (post-control and fugitive) of that pollutant from a source using the following equations:

Total Monthly Emissions = Post-Control Emissions + Fugitive Emissions

Post-Control Emissions	= (CAP) x (1 – CF) x Pre-Control Emissions
Fugitive Emissions	= (1 – CAP) x Pre-Control Emissions

where:

CAP	= Capture Efficiency (Percentage/100)
CF	= Control Efficiency (Percentage/100)

g. For sources that have emission factors in more than one units (e.g. lbs/gallon and lbs/ton sand or lb/ton steel), the owner/operator shall calculate emissions using all applicable emission factors and sum them to determine the total emissions for the source.

h. For total facility emissions, the owner/operator shall calculate total facility emissions (tons/month) by summing all individual source emissions (tons/month).

[Basis: 2-6-423, 2-1-403, Synthetic Minor]

EMISSION FACTORS

3.5 For sources where emissions are calculated using an emission factor per Part 3.4, the owner/operator shall calculate emissions using the emission factors listed in Conditions 24466 (Plant # 1 sources), 24547 (Plant # 3 sources), and 24548 (Plant # 2 sources) or emission factors derived from periodic source tests or emissions monitoring for each pollutant.

a. For sources with emission factors in units of lbs per therm, the owner/operator shall derive an emission factor from District-approved source test results using the following equation:

Emission Factor (lbs/therm) = [(ER) x (100,000)]/[(NG) x (HHV)]

where:

ER	= average emission rate (lbs/hour) during source test
NG	= average amount (scf) of natural gas combusted per hour during source test
HHV	= higher heating value for natural gas (assume 1020 unless measured)
100,000	= conversion factor (100,000 Btu/therm)

b. For sources with emission factors in units of lbs per ton of steel or lbs per ton of sand, the owner/operator shall derive an emission factor from District-approved source test results using the following equation:

Emission Factor (lbs/ton sand or steel) = (ER)/(Throughput)

where:

ER	= average emission rate (lbs/hour) during source test
Throughput	= average throughput (tons sand or steel) per hour during source test

[Basis: 2-6-423, 2-1-403]

CARBON ABATEMENT

3.6 The owner/operator shall properly maintain all carbon adsorption systems and keep all the carbon adsorption systems in good repair at all times in accordance with the manufacturer's specifications and in a manner to assure that both the carbon adsorption systems and the abated sources remain in compliance with this SMOP.

[Basis: Cumulative Increase, Regulation 2-1-403]

3.7 Within 30 days of the issuance of this SMOP and until installation of flame ionization detectors (FIDs) at each carbon adsorption system (pursuant to Part 4.2 below), the owner/operator shall operate the carbon adsorption systems at A-1007 at Plant 1 and A-2007 at Plant 2 in a manner to prevent carbon breakthrough as defined in this Part 3.7.

a. If carbon breakthrough occurs at one of the carbon adsorption systems, the owner/operator shall cease all mixing, pouring, and/or shakeout operations at the respective plant where carbon breakthrough has occurred, until the carbon is replaced in accordance with Part 3.7b.

b. The owner/operator shall replace all carbon at that carbon adsorption system with fresh carbon no later than 24 hours after carbon breakthrough has occurred. If the owner/operator has poured a mold less than 24 hours after carbon breakthrough, then the owner/operator shall continue to abate the cooling operation for a minimum of 24 hours from the time of the last pour. Abatement shall continue until carbon replacement.

For purposes of this Part 3.7 only, "carbon breakthrough" shall be defined as not achieving a minimum control efficiency of 88.0 percent by weight as determined by daily hydrocarbon sampling (per Part 4.4) at each carbon adsorption system at all times the system is in operation. The "carbon cycle" shall be defined as the period from installation of a fresh load of carbon at the carbon adsorption system until carbon breakthrough.

[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

3.8 The owner/operator shall properly operate A-3008 at Plant 3 at all times during any mixing, pouring, cooling, and/or shakeout operations at S-3019 Pouring and Cooling Area, S-3004 Shakeout Station, and/or S-3014 Mixer. If carbon breakthrough, as defined below, occurs at A-3008, the owner/operator shall cease immediately all mixing, pouring and shakeout operations at Plant 3. The owner/operator shall replace all carbon in A-3008 at Plant 3 with fresh carbon no later than 24 hours after carbon breakthrough has occurred as defined below. If a pouring operation has occurred within the previous 24 hours of carbon breakthrough, the owner/operator shall not replace the carbon until A-3008 has abated the emissions from the cooling molds/castings for at least 24 hours from the time of the last pour. Abatement shall continue until carbon replacement.

For the purposes of this SMOP "carbon breakthrough" for A-3008 at Plant 3 occurs when any one of the following conditions exists at A-3008:

i. the inlet total hydrocarbon (THC) loading is greater than or equal to 220 pounds per calendar day, the abatement efficiency is less than 88.0 % by weight averaged over the twenty-four period of each calendar day, and the inlet cumulative THC loading is greater than or equal to 5,640 pounds, or
ii. the inlet THC loading is less than 220 pounds per calendar day, the outlet THC emissions are greater than or equal to 55 pounds per calendar day, and the inlet cumulative THC loading is greater than or equal to 5,640 pounds.

The owner/operator shall not exceed an inlet THC loading that measures or exceeds 15,000 pounds.

[Basis: Regulations 2-6-423, 2-1-403, 7, 1-301, Cumulative Increase]

3.9 The owner/operator of the facility's FID systems shall:

a. Properly maintain the FID systems and keep the FID systems in good repair;
b. Repair FID monitors expeditiously, which shall be no later than 24 hours after discovery of a FID-related malfunction;
c. Calibrate each FID at least once on each day of operation of the respective carbon adsorption system and re-calibrate each FID following its repair or maintenance;
d. Maintain monitors to be accurate within 20 percent when compared with a reference test method or within 10 percent of the applicable standard including the limits contained within these conditions;
e. Replace or clean FID system tubing during carbon change-out of the FID's respective carbon adsorption system in order to minimize FID system bias; and
f. Establish FID system bias weekly using hydrocarbon-free air or zero gas introduced to the probe tip. The system bias shall be used until the next system bias is determined. The owner/operator shall maintain the system bias to less than 30 ppmv THC as C1.
g. Use data substation for periods where a FID has malfunction.

[Basis: Regulations 1-523, 2-6-423, 2-1-403, 7, 1-301, Cumulative Increase]

3.10 The owner/operator shall properly operate A-1007 at Plant 1 at all times during the operation of any or all of S-1002 Pour Off Area, including cooling operations; S-1003 B Shakeout; S-1004 A Shakeout; A-1001 Baghouse; and A-1008 Baghouse. If carbon breakthrough, as defined below occurs at A-1007, the owner/operator shall cease immediately all pouring and shakeout operations at Plant 1. Furthermore, the owner/operator shall replace all carbon in A-1007 at Plant 1 with fresh carbon no later than 24 hours after carbon breakthrough has occurred as defined below, unless a pouring operation has occurred within the previous 24 hours. Molds/casts that are cooling, while breakthrough has occurred shall continue to be abated for at least 24 hours from the time of the last pour prior to the carbon change out. Abatement shall continue until carbon replacement.

Breakthrough definition will be determined within permit applications required to be submitted as specified in Part 5.6.

[Basis: Regulations 2-6-423, 2-1-403, 7, 1-301, Cumulative Increase]

3.11 The owner/operator shall properly operate A-2007 at Plant 2 at all times during the operation of any or all of S-2022, S-2023, S-2026, S-2029, S-2030, S-2031, S-2032, A-2001, and A-2002. If carbon breakthrough, as defined below, occurs at A-2007, the owner/operator shall cease immediately all pouring and shakeout at Plant 2. Furthermore, the owner/operator shall replace all carbon in A-2007 at Plant 2 with fresh carbon no later than 24 hours after carbon breakthrough has occurred as defined below, unless a pouring operation has occurred within the previous 24 hours. Molds/casts that are cooling, while breakthrough has occurred shall continue to be abated for at least 24 hours from the time of the last pour prior to the carbon change out. Abatement shall continue until carbon replacement.

Breakthrough definition will be determined within applications required to be submitted as specified in Part 5.6

[Basis: Regulations 2-6-423, 2-1-403, 7, 1-301, Cumulative Increase]

3.12 The owner/operator shall operate each carbon adsorption system (A-1007, A-2007, A-3008) to achieve a "minimum control efficiency," of at least 90.5% by weight on a carbon cycle basis. For the purposes of this SMOP, a carbon cycle commences on the date of installation of a load of "fresh" carbon at the carbon adsorption system through the date of removal of that load as "spent" carbon. The owner/operator shall demonstrate compliance with the "minimum control efficiency" through the use of the FID data on each carbon adsorption system's inlet and outlet concentration measurements and verified on a carbon cycle basis. If the owner/operator discovers that a carbon adsorption system has failed to meet the "minimum control efficiency," the owner/operator shall report the non-compliance in accordance with Part 5.13.

[Basis: Regulations 2-6-423, 2-1-403, 2-5]

3.13 The owner/operator shall have on-site a full replacement load of fresh carbon for carbon change out at A-1007, A-2007, or A-3008 no later than five business days following carbon replacement at A-1007, A-2007, or A-3008.

The following is considered full replacement load for each carbon abatement device:

A-1007	12,350 lbs/carbon bed	37,000 lbs/three carbon beds
A-2007	9,667 lbs/carbon bed	29,000 lbs/three carbon beds
A-3008	52,000 lbs/carbon	

[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

3.14 The owner/operator of Plant 1, 2, and 3 shall properly install and properly operate both audible and visual alarms to be triggered at carbon breakthrough as defined in Part 3.8, 3.10, and/or 3.11.

[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

3.15 The owner/operator shall not operate the carbon adsorption systems in a manner such that the outlet THC concentration exceeds the inlet THC concentration measured as C1 by the FIDs.

[Basis: Regulation 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

BAGHOUSE ABATEMENT

3.16 The owner/operator shall cease all pouring and shakeout operations whenever the pressure drop across each carbon adsorption system carbon bed that abates the respective pouring and shakeout operations is lower than one inch water gauge and greater than nine inches water gauge.
[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

3.17 The owner/operator shall not allow the pressure drop at any baghouse to exceed any of the following pressure ranges (inches water gauge):

Plant 1 Baghouses

Device	Minimum	Maximum	
A-1007	1.0	9.0	
A-1002	[TBD]	[TBD]	no device currently installed
A-1003	[TBD]	[TBD]	no device currently installed
A-1004	[TBD]	[TBD]	no device currently installed
A-1006	[TBD]	[TBD]	no device currently installed
A-1008	1.0	5.0	
A-1009	2.0	12.0	
A-1010	0.0	4.0	

Plant 2 Baghouses

Device	Minimum	Maximum	
A-2001	1.0	9.0	7 sections and 7 pressure differential gauges
A-2002	1.0	9.0	
A-2003	1.0	9.0	4 sections and 4 pressure differential gauges
A-2004	1.0	9.0	
A-2005	1.0	9.0	
A-2006	1.0	9.0	
A-2010	1.0	6.0	

Plant 3 Baghouses

Device	Minimum	Maximum
A-3001	2.0	12.0
A-3002	1.0	9.0
A-3003	4.5	7.0
A-3004	1.0	7.0
A-3005	0.0	2.0
A-3006	1.0	9.0
A-3007	4.5	7.0

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

3.18 The owner/operator of the facility shall maintain and operate at sufficient intervals the pulsejet cleaning system to maintain compliance with Part 3.2 above.
[Basis: Regulations 2-6-423, 2-1-403]

3.19 The owner/operator shall cease operation of all equipment abated by any of abatement devices listed in Part 4.8, when an associated alarm is triggered, until a District-approved corrective action has been taken. The owner/operator shall only operate these baghouses in compliance with the set pressure ranges.
[Basis: Regulations 6-1-301, 6-1-310, 6-1-311, 2-1-403, 2-6-423]

MATERIAL USAGE

3.20 The owner/operator shall not change materials that may increase either VOC and/or HAP emissions, or result in the emissions of a toxic air contaminant not previously emitted, without obtaining prior approval of an application for the revision from the District Engineering Division. Any change in materials shall be submitted on a Data Form X with an attached MSDS. The owner/operator of this facility (including Plants 1, 2, and 3) shall not use any materials containing chlorinated compounds without obtaining prior approval from the District Engineering Division.
[Basis: Regulations 2-1-301, 7, 1-301, 2-5, Cumulative Increase]

3.21 The owner/operator shall not use purchased pre-coated sand at Plant 3.
[Basis: Regulation 2-5, Cumulative Increase]

CAPTURE EFFICIENCY

3.22 The owner/operator shall conduct all furnaces, pouring, cooling, shakeout, and scrap and charge handling in a total enclosure. The owner/operator shall comply with all of the following requirements to maintain the entire building of each plant and new addition, other than the main office area, as a total enclosure.

a. The owner/operator shall maintain a negative pressure at each of the plant's exterior doors, windows, and other openings as identified and required within the facility's Regulation 12, Rule 13 Emissions Minimization Plan.
b. The owner/operator shall maintain in inward flow of air through all natural draft openings.
c. The owner/operator shall maintain all other openings or doors leading to/from the total enclosure closed except for during use, or equip the openings with overlapping strip doors or air curtains.
d. The owner/operator shall ventilate the total enclosure continuously to ensure negative pressure values of at least 0.007 inches of water is maintained at all times.
e. The owner/operator shall maintain the inlet face velocity at each exterior opening at a minimum of 200 feet per minute.
f. The owner/operator shall use a District-approved instrument to measure the face velocity of each opening of a plant for which a source is operating. The owner/operator shall measure the face velocity of each facility exterior opening at least once per operating day. The owner/operator is not required to measure the face velocity for a plant for which no source is operating and for which no mold is being cooled or material is being shaken out.
g. The owner/operator shall maintain a District-approved logbook of all face velocity measurements.
h. If the owner/operator cannot maintain the inlet face velocities of Part 3.22e for a plant, the owner/operator shall not commence shakeout operations at the respective plant's shakeout sources S-1003, S-1004, S-2031, and/or S-3004 until there is no casting that produces visible emissions as demonstrated using EPA Method 22 at the respective plant's pouring and cooling sources S-1002, S-2029, and/or S-3019.
i. The owner/operator shall maintain all exterior openings closed except during use, or equip the openings with overlapping strip doors or air curtains.

j. If the owner/operator installs air curtains, the air curtains shall be operated at all times that any of the pouring stations, furnaces, and scrap and charge handling equipment are in operation. The owner/operator shall maintain and operate all air curtains according to the manufacturer's specifications. The owner/operator shall conduct inspections at least once each calendar week, while the pouring stations, furnaces or scrap handling equipment is in operation, to determine if the air curtains are in operation as required by this condition. The owner/operator shall maintain a written record of the inspections and any corrective action taken.

k. If the owner/operator installs air curtains, the owner/operator shall post signs at each exit that has an air curtain that states that the air curtain must be operated at all times that any of the pouring stations, furnaces, or scrap handling equipment are in operation.

If the APCO determines that significant fugitive emissions are emitted from any source, the APCO may require the owner/operator to conduct tracer gas testing to demonstrate the capture efficiencies listed in Conditions 24466, 24547, and 24548.

[Basis: Regulations 2-1-403, 2-6-423, 12-13-403]

3.23 The owner/operator shall maintain a negative pressure at each of the plant's interior doors, windows, and other openings as identified and required within the facility's Regulation 12, Rule 13 Emissions Minimization Plan.

a. The owner/operator shall maintain the inlet face velocity at each interior opening at a minimum of 200 feet per minute.

b. If the owner/operator cannot maintain the inlet face velocities of Part 3.23a for a plant, the owner/operator shall not commence shakeout operations at the respective plant's shakeout sources S-1003, S-1004, S-2031, and/or S-3004 until there is no casting that produces visible emissions as demonstrated using EPA Method 22 at the respective plant's pouring and cooling sources S-1002, S-2029, and/or S-3019.

[Basis: Regulations 2-1-403, 2-6-423]

PLANT 1

3.24 The owner/operator of the Plant 1 S-1004 Line "A" deck conveyor system shall maintain all rubber/plastic strips in good condition and ensure that there are no missing rubber/plastic strips or damaged strips. The owner/operator shall not operate the S-1004 Shake Out if there is any missing or damaged rubber/plastic strips.

[Basis: Regulations 2-1-403, 2-6-423]

3.25 The owner/operator of Plant 1 S-1003 Shake Out shall not store or allow any open or cracked molds outside of the Plant 1 shakeout station, except as provided below for flasked molds. The owner/operator shall only open molds that are in the shakeout station, except that it may open flasked molds (unflasking) up to 5 minutes prior to placing the molds in the shakeout station. The owner/operator of Plant 1 S-1003 "Line B" shall not remove opened or cracked molds until shakeout is completed in the Shake Out Station. The owner/operator shall not cease shakeout until all castings in the shakeout station are removed from the molds.

[Basis: Regulations 2-1-403, 2-6-423]

3.26 The owner/operator shall abate all pouring and cooling operations on the Main Floor Area of S-1002 by A-1007.

[Basis: Regulations 2-1-403, 2-6-423]

3.27 The owner/operator shall route all PM emissions, including PM10 emissions, from Plant 1 Source S-1001 Electric Arc Furnace, from the Pouring Operations at the Electric Arc Furnace ladle, and the A-line ladle, to A-1009 Baghouse at Plant 1.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-301, 6-1-310, 6-1-311]

3.28 The owner/operator of Plant 1 A-1009 Baghouse shall not exceed PM10 emissions of 0.0017 grains per dry standard cubic foot as determined by District-approved methods per Part 4.31.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, BACT, Cumulative Increase]

PLANT 2

3.29 The owner/operator shall route all PM emissions, including PM10 emissions, from Plant 2 Source S-2027 Electric Arc Furnace, from the Pouring Operations at the Electric Arc Furnace ladle, and the A-line ladle, to A-2003 Baghouse at Plant 2.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-301, 6-1-310, 6-1-311]

PLANT 3

3.30 The owner/operator shall route all PM emissions, including PM10 emissions, from Source S-3001 Electric Arc Furnace, from the Pouring Operations at the Electric Arc Furnace ladle, and the A-line ladle, to A-3001 Baghouse at Plant 3.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-301, 6-1-310, 6-1-311]

3.31 The owner/operator of Plant 3 shall keep the two exhaust vents above the molding area (S-3014) fully closed at all times of operation of S-3014. The owner/operator of Plant 3 shall shut off the roof fans and fully close the dampers when the roof intake vents are shut off. The owner/operator shall only perform maintenance on S-3014 while S-3014 is not operating. The owner/operator of S-3014 shall only open these two exhaust vents above S-3014 during periods of maintenance.

[Basis: Regulations 2-1-403, 2-6-423]

3.32 The owner/operator of Plant 3 shall not have any fugitive visible emissions from S-3004 at Plant 3, while S-3004 Casting Mold Shakeout Station is operating. The owner/operator shall complete the shakeout and ensure that sand is not left and/or stored in S-3004.

[Basis: Regulations 2-1-403, 2-6-423]

ODOR MINIMIZATION

3.33 The owner/operator shall implement a District-approved written program to respond to odor complaints from the community.

If the District has not confirmed an odor complaint to the facility for a period of 24 consecutive months, the owner/operator is not required to follow this program until such time that the District confirms an odor complaint to the facility.

[Basis: Regulations 2-1-403 and 2-6-423]

4. Monitoring and Recordkeeping Requirements

4.1 The owner/operator shall calculate and record monthly and rolling 12-month total emissions (tons) for all sources using the equations in Part 3.4.

CARBON ADSORPTION SYSTEMS (Plants 1, 2, and 3)

Depending on the activity level at each plant, the following Parts 4.2 through 4.7 require the installation and operation of an organic vapor-analyzer-flame ionization detector (FID) system for each carbon adsorption system in Plants 1, 2, and 3 as the parametric monitoring and recording system to demonstrate compliance with the Synthetic Minor Operating Permit, including the determination of carbon breakthrough and verification of system control efficiencies.

4.2 Within 90 days of either exceeding 4,500 tons of steel production at Plant 1 or Plant 2 or of an indication that production will exceed 4,500 tons of steel at Plant 1 or Plant 2, unless prior to the expiration of the 90-day period the APCO approves a later date not to exceed 180 days of the issuance of the SMOP, the owner/operator shall properly install, at the plant that exceeded or will exceed the threshold, a District-approved FID system to measure and record both the inlet and outlet volatile organic compounds (VOC) concentration of the respective carbon adsorption systems (A-1007 at Plant 1, A-2007 at Plant 2). This parametric monitoring system shall provide for the calculation and recording of VOC mass emissions from the inlet and outlet of each carbon adsorption system, control efficiencies, and carbon breakthrough determinations.

[Basis: Regulations 2-6-423, 2-1-403, 1-523, 1-301, 7, Cumulative Increase, Rule 2-5]

4.3 Prior to installing a District-approved FID at A-1007 or A-2007 per Part 4.2, the owner/operator shall conduct a source test at the inlet of the carbon adsorption unit for total hydrocarbon analysis using EPA Method 18 or a District-approved equivalent method, to determine specific organic compounds and an appropriate FID response factor.

[Basis: Regulation 2-6-423, 2-1-403, 1-523, 1-307, Cumulative Increase, Rule 2-5]

4.4 Prior to installing a District-approved FID at A-1007 or A-2007 per Part 4.2, the owner/operator shall conduct hydrocarbon sampling at both the inlets and outlets of each carbon adsorption system's carbon bed during either pouring or shake-out operations at the sources abated by the carbon adsorption system. The owner/operator shall also conduct analysis of all hydrocarbon samples. The owner/operator shall have such hydrocarbon sampling and analysis conducted by an entity approved in advance by the District. The hydrocarbon sampling and analysis shall be conducted a minimum of once every calendar day.

[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

4.5 The owner/operator shall properly operate each FID system at all times that any of the respective sources that are being abated by each carbon adsorption system is operating. Each FID system shall do the following:

a. Continuously monitor (i.e. generate at least one valid data point of VOC concentration every l5 minutes) and record at both the inlet and outlet at each carbon adsorption system. If necessary as determined by the APCO, the owner/operator shall substitute the missing data through use of a best engineering practice acceptable to the APCO.
b. Continuously calculate VOC mass emissions from each inlet and outlet VOC concentration data point.
c. Calculate the abatement efficiency of each carbon adsorption system for each set of inlet and outlet data points and averaged over each calendar day and carbon cycle.

d. Determine VOC concentrations by subtracting the FID system bias from the FID measurement.

The FID system shall be subject to the requirements of Regulation 1-523 and those requirements set forth in Parts 3.6 and 3.9.

[Basis: Regulations 1-523, 2-6-423, 1-301, 7, Cumulative Increase]

4.6 The owner/operator shall properly maintain and properly operate a continuous pressure monitor that shall measure and record the pressure drop across each carbon adsorption system carbon bed and each carbon system prefilter.

[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

4.7 In order to demonstrate compliance with the above permit conditions, the owner/operator shall maintain the following **FID/Carbon Adsorption/Odor-related information** in a District-approved daily log:

a. The most recent odor panel results in units of DTT for each carbon bed and/or system.
b. FID system bias determination of the sampling/analysis system and the time and date it was established at each carbon bed and/or system.
c. All pressure drop data across each carbon bed or carbon adsorption system.
d. The inlet temperature to each carbon adsorption system carbon bed.
e. Results of all source testing and inlet velocity testing.
f. FID 90 minute and one-minute average total hydrocarbon (THC) concentrations from both the inlet and outlet of each carbon adsorption system carbon bed, as ppm C1.
g. FID daily and cumulative hydrocarbon mass emissions at both the inlet and outlet of each carbon adsorption system carbon bed.
h. At the request of the APCO, make monitoring data available within 30 days following the replacement of carbon at each carbon adsorption system.
i. Carbon-cycle basis abatement efficiency of each carbon adsorption system carbon bed.
j. Daily carbon control efficiency, mass emissions at both the inlet and outlet for the purposes of determining carbon breakthrough and compliance per Parts 3.8, 3.10, 3.11, 3.12, and 3.13.
k. The date that carbon change-outs occur and the steel throughput in tons between carbon change-outs for each plant.
l. Any carbon adsorption system's non-operation times lasting more than one hour.
m. Carbon prefilter change-outs for each carbon bed or system at each plant.
n. Manometer readings for each of the carbon prefilters at each plant.
o. Records that demonstrate that the owner/operator timely ordered the replacement carbon to demonstrate compliance with Part 3.13.
p. All source test data and results for each plants.
q. All records required per Parts 3.13 and 5.3
r. Records of maintenance and repairs, including the date of discovery of the breakdown, and the date and nature of the repair, as required by Part 3.9.
s. Records to verify daily FID system calibrations.

All records shall be retained on-site for five years from the date of entry and shall be made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.

[Basis: Regulations 2-1-403, 2-6-423, Cumulative Increase, Regulation 1-441]

BAGHOUSE ABATEMENT (Plants 1, 2, and 3)

Plant 1 Broken Bag Leak Detection Device (A-1001 and A-1008 CARBON and A-1009 EAF)
Plant 1 Pressure Drop (A-1001, A-1002, A-1003, A-1004, A-1006, S-1008, S-1009)

Plant 2 Broken Bag Leak Detection Device (A-2001 and A-2002 CARBON and A-2003 EAF)
Plant 2 Pressure Drop (A-2001, A-2002, A-2003, A-2004, A-2005, A-2006, S-2010)

Plant 3 Broken Bag Leak Detection Device (A-3003 and A-3007 CARBON and A-3001 EAF)
Plant 3 Pressure Drop (A-3001, A-3002, A-3003, A-3004, A-3005, A-3006, A-3007)
[Basis: Regulation 2-1-403]

4.8 No later than 180 days from the issuance of the SMOP, the owner/operator shall properly install and properly operate a device at each that measures the pressure drop across each of the following baghouses:

Plant 1: A-1001, A-1002, A-1003, A-1004, A-1006, A-1008, A-1009, and A-1010 Baghouses
Plant 2: A-2001, A-2002, A-2003, A-2004, A-2005, A-2006, and A-2010 Baghouses
Plant 3: A-3001, A-3002, A-3003, A-3004, A-3005, A-3006, and A-3007 Baghouses

The owner/operator shall check each measuring device for plugging at least once every three months. The owner/operator shall cease operation of any equipment abated by any of the abatement devices listed above, when the pressure drop measured across an associated baghouse is outside of the range identified in Part 3.17 and shall not commence operations, until the pressure drop range of the baghouse returns to compliance.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.9 The owner/operator of the facility shall check or inspect the pressure drop across the baghouse at the three plants daily to ensure proper operation.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.10 The owner/operator of the facility shall check or inspect all baghouses at the three plants daily for evidence of particulate breakthrough. If breakthrough is evident from plume observations, dust buildup near the stack outlet, or abnormal pressure drops, the filter bags shall be checked for any tears, holes, abrasions, and scuffs, and replaced as needed.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.11 No later than 180 days from the issuance of the SMOP, the owner/operator shall properly install and properly operate a District-approved broken bag detection device, unless it is determined by the District not to be technologically feasible, then the owner/operator shall properly install and properly operate a District-approved alternative continuous monitoring and recording device, that shall trigger an audible alarm when a preset level is exceeded, on each of the following baghouses:

Plant 1: A-1001, A-1008, and A-1009 Baghouses
Plant 2: A-2001, A-2002, and A-2003 Baghouses
Plant 3: A-3001, A-3003, and A-3007 Baghouses
[Basis: Regulations 6-1-301, 6-1-310, 6-1-311, 2-1-403, 2-6-423]

4.12 In order to demonstrate compliance with these conditions, the owner/operator of the facility shall maintain the following **baghouse monitoring information** in a District-approved daily log:

a. Records of all inspections and all maintenance work including bag replacements for each baghouse. Records of each inspection shall consist of a District-approved log containing the date of inspection and the initials of the personnel that inspects each of the above baghouses.
b. The pressure drop records across all baghouses as required by Parts 3.17 and 4.9 above.
c. In order to demonstrate compliance with Part 4.11, the time, date, and duration of each broken bag leak detector alarm event and the corrective action taken.
d. All source test data and results for each plants.

All records shall be retained on-site for five years from the date of entry and shall be made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.
[Basis: Regulations 2-1-403, 2-6-423, Cumulative Increase, 1-441]

CAPTURE EFFICIENCY

4.13 To demonstrate operating under a negative pressure, the owner/operator shall comply with the following:

a. The owner/operator shall install, operate, and maintain a minimum of one building digital differential pressure monitor at each of the following three walls in a total enclosure that has a total ground surface area of 10,000 square feet or more:
   (i) the leeward wall,
   (ii) the windward wall, and
   (iii) An exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between a point on the connecting wall and a point on its furthest opposite exterior wall, and intersecting within plus or minus 10 meters of the midpoint of a straight line between the two other monitors specified. The midpoint monitor must not be located on the same wall as either of the other two monitors.

   If District-approved, the third monitor may be placed in an alternative location on the midpoint wall or an exterior wall that is not the windward wall, leeward wall or midpoint wall.
b. The owner/operator shall install, operate, and maintain a minimum of one building digital differential pressure monitor at the leeward wall of a total enclosure that has a total ground surface area of less than 10,000 square feet.
c. All digital pressure monitors shall be certified by the manufacturer to be capable of measuring and displaying a negative pressure containing values in the range of 0.01 to 0.2 millimeters mercury (0.005 to 0.11 inches of water) and capable of recording data in increments of 0.002 millimeters of mercury (0.001 inches of water).
d. The owner/operator shall record the differential pressure at least once every 24 hours when in operation. The owner/operator shall record the time and date of each pressure reading and whether or not the recorded pressure was above the minimum value required by this condition.
e. The owner/operator shall calibrate each digital differential pressure monitor in accordance with manufacturer's specifications.
f. The owner/operator shall take corrective action as soon as possible if the differential pressure is below 0.007 inches of water. Corrective action shall return the pressure differential to above the permitted range. The owner/operator shall keep a record of the type and date of any corrective action taken.

The windward wall shall be the exterior wall of a total enclosure that is most impacted by the wind in its most prevailing direction determined by a wind rose using available data from the closest representative meteorological station. When openings into enclosures are not impacted by ambient wind due to the enclosure being part of a larger structure, the owner/operator may designate which wall of the enclosure to define as the windward wall.

The leeward wall shall be the exterior wall of a total enclosure that is opposite the leeward wall.

[Basis: Regulation 2-6-423, 2-1-403, Synthetic Minor]

4.14 The owner/operator shall use a District-approved instrument to measure the face velocity of each opening of a plant for which a source is operating.

a. The owner/operator shall measure the face velocity of each facility interior opening at least once per operating day. The owner/operator is not required to measure the face velocity for a plant for which no source is operating and for which no mold is being cooled or material is being shaken out.
b. The owner/operator shall maintain a District-approved logbook of all face velocity measurements.

If the APCO determines that significant fugitive emissions are emitted from any source, the APCO may require the owner/operator to conduct tracer gas testing to demonstrate the capture efficiencies listed in Conditions 24466, 24547, and 24548.

[Basis: Regulations 2-1-403, 2-6-423]

4.15 At a minimum of once every three years and unless meeting the criteria specified in Part 4.15b, the owner/operator shall verify the capture efficiencies of any source whose emissions are abated by a control device and whose uncontrolled emissions exceed 10 percent of an emissions limit in Part 3.2. The owner/operator shall verify capture efficiencies using tracer gas testing.

a. At the issuance of this SMOP, the following sources and respective abatement devices have been identified as having maximum uncontrolled emissions exceeding 10 percent of an emissions limit in Part 3.2. For entries with more than one source and/or abatement device listed, the owner/operator shall verify the capture efficiencies of those sources and/or abatement devices on the same operating day.

Plant	Source(s)	Abatement Device(s)
Plant 1	S-1001	A-1009
Plant 1	S-1003	A-1001 and A-1007
Plant 1	S-1004	A-1001 and A-1007
Plant 1	S-1005	A-1001 and A-1007
Plant 1	S-1006	A-1001 and A-1007
Plant 1	S-1007	A-1001 and A-1007
Plant 1	S-1008	A-1001 and A-1007
Plant 1	S-1012	A-1004
Plant 2	S-2006 through S-2012	A-2004
Plant 2	S-2027	A-2003
Plant 2	S-2028, S-2029, and S-2031	A-2001, A-2002, and A-2007
Plant 2	S-2030	A-2002 and A-2007
Plant 2	S-2033 through S-2040	A-2005

Plant 2	S-2044 through S-2049	A-2010
Plant 3	S-3001	A-3001
Plant 3	S-3004 and S-3019	A-3003, A-3007, and A-3008
Plant 3	S-3009	A-3004
Plant 3	S-3012	A-3004
Plant 3	S-3013	A-3004
Plant 3	S-3016	A-3004
Plant 3	S-3017	A-3004
Plant 3	Finishing Room Cleaning & Grinding	

b. The owner/operator does not have to verify the capture efficiency of a source required per this Part 4.15 if the owner/operator can demonstrate compliance with Part 3.2 using the pre-control emissions rather than post-control emissions for that source.

[Basis: Regulation 2-6-423, 2-1-403, Synthetic Minor]

SOURCE TEST REQUIREMENTS

4.16 No later than 120 days from the issuance of this SMOP or the date a source (S-1001, S-2027, S-3001) begins operating if is not operating at the time of SMOP issuance, the owner/operator of the facility shall conduct District approved PM10 source tests at each Baghouse (A-1009, A-2003, A-3001) abating an Electric Arc Furnace (S-1001, S-2027, S-3001) at the facility to determine initial compliance with the emissions limits in Parts 3.2 and 3.3 and grain loading limits in Part 3.28 and in Condition 24466, 24547, and 24548. The owner/operator shall repeat the source testing on an annual basis thereafter.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.17 No later than 120 days from the issuance of this SMOP or the date a source (S-1001, S-2027, S-3001) begins operating if is not operating at the time of SMOP issuance, the owner/operator of the facility shall conduct District approved CO source tests at each Baghouse (A-1009, A-2003, A-3001) abating an Electric Arc Furnace (S-1001, S-2027, S-3001) at the facility to determine initial compliance with the individual source (S-1001, S-2027, S-3001) CO limits in Conditions 24466, 24547, and 24548 as well as the facility-wide CO limit in Part 3.2. The owner/operator shall repeat the source testing on a biennial (occurring every two years) basis thereafter.

[Basis: Regulations 2-6-423, 2-1-403, Cumulative Increase]

4.18 No later than 120 days from the issuance of this SMOP or the date a source (S-2006, S-2007, S-2008, S-2009, S-2010, S-2011, S-2012) begins operating if it is not operating at the time of SMOP issuance, the owner/operator of the facility shall conduct District approved SO2 source tests at S-2006 (Sand Heater), S-2007 (Sand Coating), S-2008 (Coated Sand Pug Mill), S-2009 (Coated Sand Vibrating Screen), S-2010 (Bucket Elevator), S-2011 (Cooling Tower), and S-2012 (Bucket Elevator) to determine initial compliance with the individual source SO2 limits in Condition 24547 as well as the facility-wide SO2 limit in Part 3.2. The owner/operator shall repeat the source testing on an annual basis thereafter.

[Basis: Regulation 2-6-423, 2-1-403, Cumulative Increase]

4.19 No later than 120 days from the issuance of this SMOP or the date a source (S-1001, S-2027, S-3001) begins operating if is not operating at the time of SMOP issuance, the owner/operator shall conduct District-approved source tests for the full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese, mercury, nickel, selenium and zinc) and filterable PM at each Baghouse (A-1009, A-2003, A-3001) abating an Electric Arc Furnace (S-1001, S-2027, S-3001) at the

facility to determine initial compliance with the HAP limits in Part 3.2. The owner/operator shall provide the steel production rate data during each source test in order to determine an emission factors for each test point. The owner/operator shall repeat the source testing once every 3 years thereafter.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.20 No later than 120 days from the issuance of this SMOP or the date S-3001 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 3 S-3001 EAF shall conduct a one-time source test for the full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese, mercury, nickel, selenium and zinc) and filterable PM to characterize the emissions from Plant 3 S-3001 EAF (post-modifications to improve capture efficiency). Test points should include the inlet to the baghouse (A-3001), the outlet from the baghouse and the melt shop roof vents. The owner/operator shall report the steel production rate during the test to the District in order to calculate emission factors for each test point.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.21 No later than 120 days from the issuance of this SMOP or the date S-3004 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 3 S-3004 Shakeout shall conduct a one-time source test for the full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese mercury, nickel, selenium and zinc), filterable PM, PAHs (contained in Reg. 2, Rule 5), benzene, formaldehyde and NMHC to characterize emissions separate from the S-3019 Pour Area and S-3014 & S-3018 Mold Mixing Area/Coating Operation emissions. The test points should be in the ducting before the split to the two baghouses (A-3003, A-3007) and before and after the carbon bed (A-3008). The owner/operator shall provide to the District the amount of sand in the molds processed during the test in order to calculate emission factors.

The owner/operator shall conduct annual source tests for a pollutant from a source listed above if the results of an initial source test for that pollutant and source demonstrate any of the following:

a. Emissions exceed an applicable federal, state, or District regulation.
b. Emissions would cause an increase in health risk above a previously calculated level per Regulation 2, Rule 5 or would cause the facility health risk to exceed a previously calculated level per AB 2588 (Air Toxics "Hot Spots" Program).
c. The variation between source test results and previous source test results on an activity basis (e.g. lbs per ton of material) exceed 50 percent.

The owner/operator may petition to reduce the frequency of source testing by submitting a permit application and demonstrating that the source and pollutant no longer meet any of the conditions listed above.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.22 No later than 120 days from the issuance of this SMOP or the date S-3019 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 3, S-3019, Pour Area shall conduct a one-time source test for full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese mercury, nickel, selenium and zinc), filterable PM, PAHs, benzene, formaldehyde and NMHC to characterize emissions separate from the S-3004 Shakeout and S-3014 & S-3018 Mold Mixing Area/Coating Operation emissions. The test points should be in the ducting before the split to the two baghouses (A-3003, A-3007), and before and after the carbon bed (A-3008). The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors. The duration of the test should include not only the pouring operation, but also a cooling period.

The owner/operator shall conduct annual source tests for a pollutant from a source listed above if the results of an initial source test for that pollutant and source demonstrate any of the following:

a. Emissions exceed an applicable federal, state, or District regulation.
b. Emissions would cause an increase in health risk above a previously calculated level per Regulation 2, Rule 5 or would cause the facility health risk to exceed a previously calculated level per AB 2588 (Air Toxics "Hot Spots" Program).
c. The variation between source test results and previous source test results on an activity basis (e.g. lbs per ton of material) exceed 50 percent.

The owner/operator may petition to reduce the frequency of source testing by submitting a permit application and demonstrating that the source and pollutant no longer meet any of the conditions listed above.

[Basis: Regulations 2-6-423, 2-1-403, 2-5]

4.23 No later than 120 days from the issuance of this SMOP or the date S-2029 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 2, S-2029, Shell Mold Pouring Station shall conduct a one-time source test for full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese mercury, nickel, selenium and zinc), filterable PM, PAHs, benzene, formaldehyde and NMHC to characterize S-2029 emissions separate from S-2031 Shake Out & Tray Sanding, S-2030 Cast Mold Cooling and S-2032 Rotoblast emissions. The test point should at a location downstream of S-2029, but before the common ducting for the other sources. Testing should be done for the sand molds that are prepared using the resin binder and sand mixed on-site. The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors.

The owner/operator shall conduct annual source tests for a pollutant from a source listed above if the results of an initial source test for that pollutant and source demonstrate any of the following:

a. Emissions exceed an applicable federal, state, or District regulation.
b. Emissions would cause an increase in health risk above a previously calculated level per Regulation 2, Rule 5 or would cause the facility health risk to exceed a previously calculated level per AB 2588 (Air Toxics "Hot Spots" Program).
c. The variation between source test results and previous source test results on an activity basis (e.g. lbs per ton of material) exceed 50 percent.

The owner/operator may petition to reduce the frequency of source testing by submitting a permit application and demonstrating that the source and pollutant no longer meet any of the conditions listed above.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.24 No later than 120 days from the issuance of this SMOP or the date S-2031 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 2, S-2031, Shakeout & Tray Sanding, shall conduct a one-time source test for full set of metals (arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese mercury, nickel, selenium and zinc), filterable PM, PAHs, benzene, formaldehyde and NMHC to characterize S-2031 emissions separate from S-2029 Shell Mold Pouring Station, S-2030 Cast Mold Cooling and S-2032 Rotoblast emissions. The test point should at a location downstream of S-2031, but before the common ducting for the other sources. Testing shall be conducted on sand molds that use the resin binder and sand mixed on-site. The

owner/operator shall report to the District the amount of sand in the molds processed during the test in order to calculate emission factors.

The owner/operator shall conduct annual source tests for a pollutant from a source listed above if the results of an initial source test for that pollutant and source demonstrate any of the following:

a. Emissions exceed an applicable federal, state, or District regulation.
b. Emissions would cause an increase in health risk above a previously calculated level per Regulation 2, Rule 5 or would cause the facility health risk to exceed a previously calculated level per AB 2588 (Air Toxics "Hot Spots" Program).
c. The variation between source test results and previous source test results on an activity basis (e.g. lbs per ton of material) exceed 50 percent.

The owner/operator may petition to reduce the frequency of source testing by submitting a permit application and demonstrating that the source and pollutant no longer meet any of the conditions listed above.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.25 No later than 120 days from the issuance of this SMOP or the date S-2030 begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 2, S-2030, Cast Mold Cooling Room shall conduct a one-time source test for filterable PM, PAHs, benzene, formaldehyde and NMHC to characterize S-2030 emissions separate from S-2029 Shell Mold Pouring Station, S-2031 Shake Out & Tray Sanding and S-2032 Rotoblast emissions. The test point should at a location downstream of S-2030, but before the common ducting for the other sources. The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors. The duration of the test shall be pre-approved by the APCO in order to provide sufficient time to determine the amount of emissions that off-gas from the molds.

The owner/operator shall conduct annual source tests for a pollutant from a source listed above if the results of an initial source test for that pollutant and source demonstrate any of the following:

a. Emissions exceed an applicable federal, state, or District regulation.
b. Emissions would cause an increase in health risk above a previously calculated level per Regulation 2, Rule 5 or would cause the facility health risk to exceed a previously calculated level per AB 2588 (Air Toxics "Hot Spots" Program).
c. The variation between source test results and previous source test results on an activity basis (e.g. lbs per ton of material) exceed 50 percent.

The owner/operator may petition to reduce the frequency of source testing by submitting a permit application and demonstrating that the source and pollutant no longer meet any of the conditions listed above.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.26 No later than one year from the issuance of this SMOP or the date a source (S-1002, S-1003, S-1004) begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 1, S-1002 (Pour-Off Area), S-1003 (B Shake Out), and S-1004 (A Shake Out) shall conduct a source test for carbon monoxide to characterize carbon monoxide emissions from pouring, cooling, and shakeout operations at Plant 1. The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors. The duration of the test shall be pre-approved by the APCO in order to provide sufficient time to determine the amount of emissions that off-gas from the molds. The owner/operator shall obtain approval of the testing methodology by the District's Engineering and

Technical Divisions prior to conducting the source test. The owner/operator shall repeat the source testing once every five years thereafter.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.27 No later than one year from the issuance of this SMOP or the date a source (S-2029, S-2030, S-2031) begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 2 S-2029 (Shell Mold Pouring Station), S-2030 (Cast Mold Cooling Room), and S-2031 (Shakeout & Tray Sanding) shall conduct a source test for carbon monoxide to characterize carbon monoxide emissions from pouring, cooling, and shakeout operations at Plant 2. The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors. The duration of the test shall be pre-approved by the APCO in order to provide sufficient time to determine the amount of emissions that off-gas from the molds. The owner/operator shall obtain approval of the testing methodology by the District's Engineering and Technical Divisions prior to conducting the source test. The owner/operator shall repeat the source testing once every five years thereafter.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

4.28 No later than one year from the issuance of this SMOP or the date a source (S-3004, S-3019) begins operating if is not operating at the time of SMOP issuance, the owner/operator of Plant 3 S-3004 (Casting Mold Shake Out Station) and S-3019 (Pouring and Cooling) shall conduct a source test for carbon monoxide to characterize carbon monoxide emissions from pouring, cooling, and shakeout operations at Plant 3. The owner/operator shall report to the District the amount of steel processed during the test in order to calculate emission factors. The duration of the test shall be pre-approved by the APCO in order to provide sufficient time to determine the amount of emissions that off-gas from the molds. The owner/operator shall obtain approval of the testing methodology by the District's Engineering and Technical Divisions prior to conducting the source test. The owner/operator shall repeat the source testing once every five years thereafter.

[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

CONTROL EFFICIENCY VERIFICATION

4.29 The owner/operator of the facility shall conduct District-approved annual PM10 source tests at each baghouse upstream of each carbon adsorption system. In order to determine compliance with the control efficiencies used in Part 1.2 and 3.2, the owner/operator shall test the following points:

Plant 1: inlet and outlet of A-1001 and A-1008 and the outlet of A-1007
Plant 2: inlet and outlet of both A-2001 and A-2002 and the outlet of A-2007
Plant 3: inlet and outlet of both A-3003 and A-3007 and the outlet of A-3008

[Basis: Regulations 2-6-423, 2-1-403, 6-310, 2-5, Cumulative Increase]

4.30 The owner/operator of the facility shall conduct District approved source tests at each of the following baghouses and sources per the frequencies and pollutants specified below:

Annual Source Test Frequency	
A-1001, A-1004, A-1009	PM10
A-2001, A-2002, A-2003	PM10
A-3001, A-3003, A-3007	PM10
S-2006 to S-2012	SO2
S-2006 to S-2012	Non-Methane Hydrocarbons

Once Every Two Years Source Test Frequency

A-1009	CO
A-2003	CO
A-3001	CO

Once Every Three Years Source Test Frequency

A-1002, A-1008	PM10
A-2004, A-2010	PM10
A-3002, A-3003, A-3006, A-3007	PM10
A-1009	Metals*
A-2003	Metals*
A-3001	Metals*
A-1009	Filterable PM
A-2003	Filterable PM
A-3001	Filterable PM

*arsenic, beryllium, cadmium, total chromium, hexavalent chromium, copper, lead, manganese, nickel, selenium, zinc

Once Every Five Years Source Test Frequency

A-1003, A-1006	PM10
A-2005	PM10
A-3004	PM10
S-1002, S-1003, S-1004	CO
S-2029, S-2030, S-2031	CO
S-3004, S-3019	CO

in order to determine compliance with the abatement efficiencies, emissions limits, and/or grain loading contained in Part 1.2.

[Basis: Regulations 2-6-423, 2-1-403, 6-310, 2-5, Cumulative Increase]

SOURCE TEST METHODS

4.31 The owner/operator of the facility shall conduct District approved source tests using the following the approved methods:

Pollutant	Method
Volume Flowrate	EPA Method 2 or CARB Method 2
PM10	EPA Method 201A* and EPA Method 202
CO	EPA Method 10 or CARB Method 10 or 100
SO2	EPA Method 6 or 6C, CARB Method 6 or 100
Filterable PM	EPA Method 5
Metals	
Arsenic	EPA Method 29 or CARB 436

Beryllium	EPA Method 29 or CARB 436
Cadmium	EPA Method 29 or CARB 436
Total Chromium	EPA Method 29 or CARB 436
Hexavalent Chromium	CARB 425
Copper	EPA Method 29 or CARB 436
Lead	EPA Method 12 or 29 or CARB 436
Manganese	EPA Method 29 or CARB 436
Nickel	EPA Method 29 or CARB 436
Selenium	EPA Method 29 or CARB 436
Zinc	EPA Method 29 or CARB 436
PAHs	EPA SW-846 Method 0023A (Modification Approved)
Benzene	EPA Method 18 or TO-15
Formaldehyde	EPA Method 320 or EPA SW-846 Method 001
Non-Methane Hydrocarbons	EPA Method 25 or 25A and EPA Method 8

*If stack gas conditions or port size do not allow the use of EPA Method 201A, the District may approve a different filterable PM method to be used with EPA Method 202. However, in such cases the total measured filterable PM would be assumed to be PM10.

The owner/operator may use an equivalent method to those specified above on a case-by-case basis and for which is pre-approved by the District's Engineering Division and District's Technical Division. [Basis: Regulation 2-6-423, 2-1-403]

CONTINUOUS EMISSIONS MONITORING

4.32 The owner/operator of the facility shall install a continuous emissions monitoring system or District-approved alternative continuous parametric emissions monitoring system for any source with a potential to emit equal to or exceeding 25 tons per year of a criteria pollutant and for which the results of two or more source tests for the source and pollutant indicate a violation of Condition 24466, 24547, or 24548. The facility shall install the monitor per the procedures listed in the District's Manual of Procedures Volume V (Continuous Emission Monitoring Policy and Procedures). For purpose of installation scheduling per the Manual of Procedures, the effective date shall be the date of the second source test indicating a violation of Condition 24466, 24547, or 24548.

The following sources and pollutants have been identified as having a potential to emit equal to or exceeding 25 tons per year.

Source	Pollutant(s)
S-1001	CO, PM10
S-1002	CO
S-2006 to S-2012	SO2
S-2027	CO, PM10
S-2028, S-2029, and S-2031	PM10
S-2030	CO
S-3001	PM10
S-3004 & S-3019	CO

[Basis: Regulation 2-6-423]

DAILY RECORDKEEPING

4.33 In order to demonstrate compliance with the above permit conditions, the owner/operator of the facility shall maintain the following **production/emissions-related information** in a District-approved daily log:

a. In order to demonstrate compliance with Parts 1.2, 3.2, 3.3, 3.8, 3.10, 3.11, 3.12, and 3.13 carbon capture efficiency records for each source contained in Part 3.3, in the units used in Part 3.3, with monthly summaries and consecutive 12-month totals
b. The total amount of steel throughput at each plant in tons at each plant
c. The total amount of binder and catalyst usage in tons at each plant
d. The total amount of coated sand usage in tons at each plant
e. The total amount of pre-coated sand usage in tons at each plant
f. The total amount of stainless steel castings produced in tons at each plant
g. Time of first casting poured and last casting poured at each plant
h. Start and end times of shakeout at each plant

All records shall be retained on-site for five years from the date of entry and shall be made available for inspection by District staff upon request. These recordkeeping requirements shall not replace the recordkeeping requirements contained in any applicable District Regulations.
[Basis: Cumulative Increase, Regulation 1-441]

4.34 The owner/operator shall maintain records for at least five years of emission calculations and raw data and parameters used in the emission calculations.

5. Reporting Requirements

ABATEMENT EQUIPMENT PERFORMANCE REPORTING

5.1 The owner/operator shall submit a carbon breakthrough report within 10 days of breakthrough, as defined in Part 3.7 and determined in Part 4.4, at A-1007 or A-2007 to the Director of Engineering, with a copy to the Director of the Compliance and Enforcement. The plant report shall include all of the following information about the carbon cycle in which carbon breakthrough occurred and the sources abated by that plant's carbon adsorption system:

a. The date, time and location of each daily hydrocarbon sample taken and whether pouring and/or shake out operations occurred during the sampling.
b. The daily hydrocarbon sampling's analytical results.
c. The number of days of operation prior to breakthrough.
d. The daily tonnage of steel throughput.
e. The number of castings produced each day during the operation period prior to breakthrough.
f. The total tons of sand used each day during the operation period prior to breakthrough.
g. The total tons of binder and catalyst materials used each day during the operation period prior to breakthrough.
h. The date and time of the last pouring operation prior to breakthrough.

[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

5.2 The owner/operator shall notify the District staff no later than three business days after each carbon replacement at A-1007, A-2007, or A-3008 per Part 3.13.
[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

5.3 If carbon breakthrough occurs as defined in Parts 3.8, 3.10, and/or 3.11, the owner/operator shall submit a notification in accordance with Part 5.13.
[Basis: Regulations 2-1-403, 2-6-423, 1-301, 2-5-501, 7]

QUARTERLY COMPLIANCE REPORTING

5.4 In order to demonstrate compliance with Parts 3.2 and 3.3, the owner/operator shall submit a District-approved quarterly throughput and emissions report within thirty days of the end of the previous calendar quarter. The report shall provide the information listed below with supporting documentation for each of the previous three months, the previous calendar quarter and the previous consecutive twelve-month period. The owner/operator shall calculate the consecutive 12-month emissions estimates using the actual throughputs and District-approved emissions factors and assumptions contained in Part 3.3. In addition to normal operation, the owner/operator shall include emissions resulting from any startup, shutdown, and malfunction periods. The report shall include:

a. Monthly throughputs from all sources contained in Part 3.3.
b. Total Plant 1 emissions of POC, CO, PM10, SO2, individual HAPs and combined HAPs, in tons/month.
c. Total Plant 2 emissions POC, CO, PM10, SO2, individual HAPs and combined HAPs, in tons/month.
d. Total Plant 3 emissions of POC, CO, PM10, SO2, individual HAPs and combined HAPs, in tons/month.
e. Total facility emissions of POC, CO, PM10, SO2, individual HAPs and combined HAPs, in tons/month.
f. Total facility emissions of POC, CO, PM10, SO2, individual HAPs and combined HAPs, in tons/consecutive 12 months for each month covered in the quarterly report.
g. All FID inlet and outlet monitoring data for the carbon adsorption abatement system and/or carbon beds for each plant.
h. For each plant, the cumulative total hydrocarbon (THC) mass emissions for each carbon cycle, measured at the inlet of each carbon adsorption system that is required to have a THC mass emissions monitoring device pursuant to Part 4.2.
i. Carbon control efficiencies corresponding to the 90-minute averages for each of the carbon adsorption abatement systems as determined by the FID monitoring systems.
j. For each plant's carbon adsorption system, the average control efficiencies averaged over each carbon cycle as determined by the FID monitoring systems.
k. The control efficiencies determined in Part 3.12.
l. Dates and amounts of each carbon replacement as required by Parts 3.8, 3.10, and 3.11.
m. Combined facility aerosol paint spray can usage in gallons and emissions in pounds or tons. The POC emissions shall be included with the emissions estimates in Part 3.4 in order to demonstrate compliance with the POC emission limit contained in Part 3.2a.
n. All material safety data sheets for all aerosol spray paints used during the previous quarterly period if either the MSDS has changed since the previous MSDS submittal for that aerosol spray paint or the owner or operator has not used such aerosol spray paint within the past five years and identification of all materials used including quantities of each material.

o. Cumulative steel production rates for the previous quarter and consecutive 12-month period at each facility.

The owner/operator shall submit the report to the Director of Engineering with a copy to the Director of Compliance & Enforcement. The owner/operator shall follow the reporting procedure outlined in Part 5.13 for any discovery of non-compliance or potential non-compliance.

The owner/operator shall retain all quarterly throughput and emissions reports and accompanying documentation at the facility for five years from the date of the report. The owner/operator will make the reports and accompanying documentation available for inspection by District staff upon request.
[Basis: Regulations 2-6-423, 2-1-403, Synthetic Minor]

5.5 The owner/operator shall submit an annual compliance certification report to both the Director of Engineering and Director of Compliance & Enforcement consistent with requirements of Reg. 2-6-426. The owner/operator shall certify the facility's compliance with the requirements of all parts, including Parts 3.2, 3.3, 3.8, 3.10, 3.11, and 3.12. The annual report shall specifically include all emissions-related information including, but not limited to, throughput, capture/control efficiencies, and emissions factors. If during the certification review, the owner/operator determines that any of the emissions-related items listed above are no longer accurate, or are underestimating the emissions from any source, then the owner/operator shall submit a completed permit application to the District within 30 days of either the annual compliance certification notice or any monitoring data throughout the year that indicates inaccurate or underestimated emissions from the source, such as FID or source test data.
[Basis: Regulations 2-1-403, 2-6-423, Cumulative Increase, 1-441]

PERMIT APPLICATIONS

5.6 In order to establish the initial and subsequent carbon breakthrough-related parameters for Part 3.10 and Part 3.11, the owner/operator shall submit permit applications to the District within 30 days of the collection of 6 months, one year, and two years of FID data from the date of issuance of this permit condition. The APCO shall determine enforceable parameters for Plant 1 and Plant 2 following similar FID data analysis used to determine the carbon breakthrough-related parameters for Plant 3 in Part 3.8.
[Basis: Regulations 2-6-423, 2-1-403, 7, 1-301, Cumulative Increase]

5.7 No later than 60 days from the installation of a pressure drop measuring device required per Part 4.8, the owner/operator shall submit a permit application to revise Part 3.17 to include the minimum and maximum operating pressure drop range specific to the baghouse being measured.
[Basis: Regulation 2-6-423, 2-1-403]

5.8 Prior to the use of purchased pre-coated sand at Plant 3, the owner/operator shall submit a permit application to the District in order to obtain an Authority to Construct and/or Permit to Operate for the use of purchased pre-coated sand at Plant 3 and a revision to Part 3.21.
[Basis: Regulation 2-5, Cumulative Increase]

5.9 If the corrective action proposed to be taken per Part 5.13 is to modify the applicable limit set forth in Parts 3.2, 3.3, 3.8, 3.10, 3.11, 3.12, 3.13, or 4.2, the owner/operator shall submit a permit application within 30 days of the date of discovery to modify that limit.
[Basis: Regulation 2-6-423, 2-1-403]

5.10 If a continuous emissions monitor or an alternative continuous parametric emissions monitoring system is installed at the facility, the owner/operator shall submit a permit application to revise these synthetic minor operating permit conditions to include the additional monitoring. The permit application should be submitted to the District within 60 days of the District certifying the monitor or monitoring system.
[Basis: Regulation 2-6-423, 2-1-403, Synthetic Minor]

5.11 No later than 90 days from the issuance of this SMOP, the owner/operator of Plant 3 S-3004 (Casting Mold Shake Out Station) and S-3019 (Pouring and Cooling) shall submit a permit application for a New Source Review analysis of carbon monoxide emissions from S-3004 and S-3019. Within 60 days of issuance of an NSR permit, the owner/operator shall submit a permit application to revise these synthetic minor operating permit conditions to include the additional monitoring or emissions limitation resulting from the analysis.
[Basis: Regulation 2-6-423, Regulation 2-2]

SOURCE TEST AND CAPTURE EFFICIENCY TEST REPORTS

5.12 The owner/operator shall submit results of all source tests or capture efficiency tests required by this condition to the District Source Test Manager no later than 60 days after the source test or capture efficiency test. The owner/operator shall obtain approval for all source test or capture efficiency test procedures from the District's Source Test Section prior to conducting any tests and shall comply with all applicable testing requirements as specified in Volume IV of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test or capture efficiency test protocols and projected test dates at least 7 days prior to testing.
[Basis: Regulations 2-6-423, 2-1-403, 6-1-310, 2-5, Cumulative Increase]

NOTIFICATION AND NON-COMPLIANCE REPORTING

5.13 The owner/operator shall report any instance of carbon breakthrough or non-compliance with any permit condition in writing to the Director of Compliance and Enforcement with a copy to the Director of Engineering within 10 calendar days of discovery of non-compliance. The report shall describe the incident and any corrective action taken to address the incident and to assure future compliance with the permit condition.
[Basis: Regulation 2-6-423, 2-1-403]

6. SEVERABILITY

6.1 In the event that any provision of this permit is invalidated by a court or tribunal of competent jurisdiction, or by the Administrator of the EPA, all remaining portions of the permit shall remain in full force and effect.
[Basis: Regulation 2-6-423]

Condition # 24466
Maximum Operating Throughput and Emissions Related Limits
Pacific Steel Casting Plant #1

The owner/operator of Pacific Steel Casting facility (Plant 22605) shall not allow the facility to exceed any of the throughputs, emission factors, and/or emissions specified in these conditions. All data and assumptions contained in these conditions shall be considered enforceable limits.

The owner/operator of the facility shall demonstrate compliance with the emission limits listed in this condition by using the following equations:

Captured emissions = throughput x emission factor x capture efficiency x (1 - control efficiency)

Fugitive emissions = throughput x emission factor x (1 - capture efficiency)

Total emissions = captured emissions + fugitive emissions

The following tables list maximum throughputs, emission factors, and emissions as well as the minimum required capture and control efficiencies for Pacific Steel Casting Plant # 1 sources. These assumptions constitute Synthetic Minor Operating limits as specified in Condition 20207 Part 2.

Source No. 1001, Arc Furnace abated by A-1009
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
NO_X	2.00E-01	97.50%	0.00%
CO	1.80E+00	97.50%	0.00%
VOC	3.50E-01	97.50%	0.00%
$PM_{10/2.5}$	1.24E+02	97.50%	99.57%
SO_2	7.00E-01	97.50%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.36E+03	3.48E+01	1.39E+03
CO	1.22E+04	3.13E+02	1.25E+04
VOC	2.37E+03	6.08E+01	2.43E+03
$PM_{10/2.5}$	3.62E+0e	2.16E+04	2.52E+04
SO_2	4.74E+03	1.22E+02	4.87E+03

Source No. 1002, Pour-off area abated by A-1008 and A-1007
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	4.52E-01	86.50%	90.50%
CO	6.00E+00	86.50%	0%
PM10/2.5	5.83E-01	86.50%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)

VOC	2.58E+02	4.24E+02	6.82E+02
CO	3.61E+04	5.63E+03	4.17E+04
$PM_{10/2.5}$	5.25E+00	5.47E+02	5.52E+02

Source No. 1003, B Shake Out (Dust Collection) abated by A-1001, A-1007
Max. Annual throughput = 22,920 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	8.00E-02	95.00%	90.50%
$PM_{10/2.5}$	1.00E+01	95.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
VOC	1.65E+02	9.17E+01	2.57E+02
$PM_{10/2.5}$	3.27E+02	1.15E+04	1.18E+04

Source No.1004, A Shake Out (Dust Collection) abated by A-1001, A-1007
Max. Annual throughput = 45,840 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	7.68E-02	99.00%	90.50%
PM10/2.5	9.62E+00	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
VOC	3.31E+02	3.52E+01	3.66E+02
PM10/2.5	6.55E+02	4.41E+03	5.06E+03

Source No.1005, SAND SYSTEM (DUST COLLECTION) abated by A-1001, A-1007
Max. Annual throughput = 63,140 tons sand
Max. Annual throughput = 1,094 gallons mold release

Pollutants	Unabated Emissions Factors (lb/unit)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%
VOC	3.05E+00	99.00%	90.50%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	5.06E+01	3.41E+02	3.92E+02
VOC	3.14E+02	3.34E+01	3.48E+02

Source No.1006, SAND COOLER, 6 SCREEN, abated by A-1001, A-1007
Max. Annual throughput = 34,727 tons sand
Max. Annual throughput = 330 gallons mold release

Pollutants	Unabated Emissions Factors (lb/unit)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%
VOC	1.60E+00	99.00%	90.50%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	2.78E+01	1.88E+02	2.15E+02
VOC	4.98E+01	5.29E+00	5.51E+01

Source No.1007, SAND SCREEN abated by A-1001, A-1007
Max. Annual throughput = 34,727 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	2.78E+01	1.88E+02	2.15E+02

Source No.1008, MULLER abated by A-1001, A-1007
Max. Annual throughput = 63,140 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	5.06E+01	3.41E+02	3.92E+02

Source No.1010, MULLER, CORE SAND abated by A-1001
Max. Annual throughput = 4929 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	3.95E+00	2.66E+01	3.06E+01

Source No.1011, MULLER abated by A-1010
Max. Annual throughput = 5 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required

$PM_{10/2.5}$	5.40E-01	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	4.01E-03	2.70E-02	3.10E-02

Source No.1012, CLEANING & GRINDING DEPT. abated by A-1004
Max. Annual throughput = 12,600 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.70E+00	90.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	8.29E+01	2.14E+03	2.22E+03

Source No.1013, ARC-AIR BOOTH abated by A-1004
Max. Annual throughput = 8,760 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.00E-03	90.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	3.39E-02	8.76E-01	9.10E-01

Source No.1014, ARC-AIR BOOTH abated by A-1006
Max. Annual throughput = 8,760 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.00E-03	90.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	3.39E-02	8.76E-01	9.10E-01

Source No.1015, PANGBORN TABLE BLAST abated by A-1003
Max. Annual throughput = 4,200 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	4.00E-02	100.00%	99.57%
$PM_{2.5}$	4.00E-03	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	7.22E-01	0.00E+00	7.22E-01
$PM_{2.5}$	7.22E-02	0.00E+00	7.22E-02

Source No.1016, ROTO-BLAST abated A-1002
Max. Annual throughput = 4,200 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	4.00E-02	100.00%	98.00%
$PM_{2.5}$	4.00E-03	100.00%	98.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	3.36E+00	0.00E+00	3.36E+00
$PM_{2.5}$	3.36E-01	0.00E+00	3.36E-01

Source No.1017, ROTO-BLAST abated A-1002
Max. Annual throughput = 4,200 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	4.00E-02	100.00%	98.00%
$PM_{2.5}$	4.00E-03	100.00%	98.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	3.36E+00	0.00E+00	3.36E+00
$PM_{2.5}$	3.36E-01	0.00E+00	3.36E-01

Source No. 1018, HEAT TREATING FURNACES
Max. Annual throughput = 560,640 therms

Pollutants	Unabated Emissions Factors (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	5.50E+03	0.00E+00	5.50E+03
CO	4.62E+03	0.00E+00	4.62E+03
VOC	3.02E+02	0.00E+00	3.02E+02
$PM_{10/2.5}$	4.18E+02	0.00E+00	4.18E+02
SO_2	3.30E+01	0.00E+00	3.30E+01

Source No. 1019, Raw Sand Receiving

Max. Annual throughput = 30,000 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	99.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	2.41E+01	1.62E+02	1.86E+02

Source No. 1022, Core Bake Ovens (exempt)
Max. Annual throughput = 140,160 therms

Pollutants	Unabated Emissions Factors (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.37E+03	0.00E+00	1.37E+03
CO	1.15E+03	0.00E+00	1.15E+03
VOC	7.56E+01	0.00E+00	7.56E+01
$PM_{10/2.5}$	1.04E+02	0.00E+00	1.04E+02
SO_2	8.24E+00	0.00E+00	8.24E+00

Source No. 1027, Core-Making Operation
Max. Annual throughput = 6,300 gallons binder

Pollutants	Unabated Emissions Factors (lb/gallon)	Capture Efficiency Required	Control Efficiency Required
VOC	6.42E-01	0.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
VOC	0.00E+00	4.05E+03	4.05E+03

Source No. 32001, MINOR SOURCES (small ladle heater, exempt)
Max. Annual throughput = 29,696 therms

Pollutants	Unabated Emissions Factors (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	2.91E+02	0.00E+00	2.91E+02
CO	2.45E+02	0.00E+00	2.45E+02
VOC	1.60E+01	0.00E+00	1.60E+01
$PM_{10/2.5}$	2.21E+01	0.00E+00	2.21E+01
SO_2	1.75E+00	0.00E+00	1.75E+00

Emissions from stacks:

Baghouse A-1001
Abating S-1003, S-1004, S-1005, S-1006, S-1007, S-1008, S-1010, S-1011, and S-1019
Required Emissions Limits: 0.0045 gr/dscf
Maximum Flow Rate: 37,287 dscfm
Operation Hour: 8760 hours/year

Baghouse A-1002
Abates: S-1016 and S-1017
Required Emissions Limits: 0.01 gr/dscf
Maximum Flow Rate: 6,325 dscfm
Maximum Operation Hour: 7200 hours/year

Baghouse A-1003
Abates: S-1015
Required Emissions Limits: 0.01 gr/dscf
Maximum Flow Rate: 3,680 dscfm
Maximum Operation Hour: 8760 hours/year

Baghouse A-1004
Abates: S-1012 and S-1013
Required Emissions Limits: 0.01 gr/dscf
Maximum Flow Rate: 10,323 dscfm
Maximum Operation Hour: 7200 hours/year

Baghouse A-1006
Abates: S-1014
Required Emissions Limits: 0.01 gr/dscf
Maximum Flow Rate: 40,294 dscfm
Maximum Operation Hour: 6000 hours/year

Baghouse A-1008
Abates: S-1002
Required Emissions Limits: 0.0045 gr/dscf
Maximum Flow Rate: 3,228 dscfm
Maximum Operation Hour: 7200 hours/year

Baghouse A-1009
Abates: S-1001
Required Emissions Limits: 0.0017 gr/dscf
Maximum Flow Rate: 41,443 dscfm
Maximum Operation Hour: 6000 hours/year

Condition # 24548
Maximum Operating Throughput and Emissions Related Limits
Pacific Steel Casting Co-Plant #2

The owner/operator of Pacific Steel Casting facility (Plant 22605) shall not allow the facility to exceed any of the throughputs, emission factors, and/or emissions specified in these conditions. All data and assumptions contained in these conditions shall be considered enforceable limits.

The owner/operator of the facility shall demonstrate compliance with the emission limits listed in this condition by using the following equations:

Captured emissions = throughput x emission factor x capture efficiency x (1 - control efficiency)

Fugitive emissions = throughput x emission factor x (1 - capture efficiency)

Total emissions = captured emissions + fugitive emissions

The following tables list maximum throughputs, emission factors, and emissions as well as the minimum required capture and control efficiencies for Pacific Steel Casting Plant # 2 sources. These assumptions constitute Synthetic Minor Operating limits as specified in Condition 20207 Part 2.

Source No.2001, SAND SILO LOADING ELEVATOR abated by A-2005
Max. Annual throughput = 5,175 tons sand

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	90.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	1.08E+01	2.79E+02	2.90E+02

Source No. 2002, SAND SILO #1 abated by A-2005
Max. Annual throughput = 2,588 tons sand

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	90.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	5.41E+00	1.40E+02	1.45E+02

Source No. 2003 SAND SILO #2 abated by A-2005
Max. Annual throughput = 2,587 tons sand

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	90.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	5.41E+00	1.40E+02	1.45E+02

Source No. 2004 BUCKET ELEVATOR abated by A-2005
Max. Annual throughput = 5,175 tons sand

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	90.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	1.08E+01	2.79E+02	2.90E+02

Source No. 2005 RESIN TANK (LIQUI-BIN)
Max. Annual throughput = 80,000 gallons organic liquid

Pollutants	Unabated Emissions Factor (lb/lb)	Capture Efficiency Required	Control Efficiency Required
VOC	5.91E-04	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	4.72E+01	0.00E+00	4.72E+01

Source No. 2006 SAND HEATER abated by A-2004
Max. Annual throughput = 37,318 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	99.57%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	3.66E+02	0.00E+00	3.66E+02
CO	3.07E+02	0.00E+00	3.07E+02
VOC	2.01E+01	0.00E+00	2.01E+01
$PM_{10/2.5}$	1.20E-01	0.00E+00	1.20E-01
SO_2	2.20E+00	0.00E+00	2.20E+00

Source No. 2006 SAND HEATER abated by A-2004
Source No. 2007 SAND COATING abated by A-2004
Source No. 2008 COATED SAND PUG MILL abated by A-2004
Source No. 2009 COATED SAND VIBRATING SCREEN abated by A-2004
Source No. 2010 BUCKET ELEVATOR abated by A-2004
Source No. 2011 COOLING TOWER, COATED SAND abated by A-2004
Source No. 2012 BUCKET ELEVATOR abated by A-2004
Max. Annual throughput = 5,175 tons sand combined

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
CO	4.80E-01	100.00%	0.00%
VOC	1.36E+01	100.00%	0.00%
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%
SO_2	4.80E+00	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
CO	2.48E+03	0.00E+00	2.48E+03
VOC	7.04E+04	0.00E+00	7.04E+04
$PM_{10/2.5}$	1.20E+01	0.00E+00	1.20E+01
SO_2	2.48E+04	0.00E+00	2.48E+04

Source No. 2013 CORE MOLDING MACHINE
Source No. 2014 CORE MOLDING MACHINE
Source No. 2015 CORE MOLDING MACHINE
Source No. 2016 CORE MOLDING MACHINE
Source No. 2017 CORE MOLDING MACHINE
Source No. 2018 CORE MOLDING MACHINE
Max. Annual throughput = 493 tons sand combined

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	3.53E-02	100.00%	0.00%
$PM_{10/2.5}$	5.40E-01	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	1.74E+01	0.00E+00	1.74E+01
$PM_{10/2.5}$	2.66E+02	0.00E+00	2.66E+02

Source No. 2013 CORE MOLDING MACHINE
Max. Annual throughput = 6,841 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	6.71E+01	0.00E+00	6.71E+01
CO	5.63E+01	0.00E+00	5.63E+01
VOC	3.69E+00	0.00E+00	3.69E+00
$PM_{10/2.5}$	5.10E+00	0.00E+00	5.10E+00
SO_2	4.02E-01	0.00E+00	4.02E-01

Source No. 2014 CORE MOLDING MACHINE
Max. Annual throughput = 6,841 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	6.71E+01	0.00E+00	6.71E+01
CO	5.63E+01	0.00E+00	5.63E+01
VOC	3.69E+00	0.00E+00	3.69E+00
$PM_{10/2.5}$	5.10E+00	0.00E+00	5.10E+00
SO_2	4.02E-01	0.00E+00	4.02E-01

Source No. 2015 CORE MOLDING MACHINE
Max. Annual throughput = 12,265 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.20E+02	0.00E+00	1.20E+02
CO	1.01E+02	0.00E+00	1.01E+02
VOC	6.61E+00	0.00E+00	6.61E+00
$PM_{10/2.5}$	9.14E+00	0.00E+00	9.14E+00
SO_2	7.21E-01	0.00E+00	7.21E-01

Source No. 2016 CORE MOLDING MACHINE
Max. Annual throughput = 12,265 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/year)	Total Emissions (lb/year)
NO_X	1.20E+02	0.00E+00	1.20E+02
CO	1.01E+02	0.00E+00	1.01E+02
VOC	6.61E+00	0.00E+00	6.61E+00
$PM_{10/2.5}$	9.14E+00	0.00E+00	9.14E+00
SO_2	7.21E-01	0.00E+00	7.21E-01

Source No. 2017 CORE MOLDING MACHINE
Max. Annual throughput = 12,265 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/year)	Fugitive Emissions (lb/year)	Total Emissions (lb/year)
NO_X	1.20E+02	0.00E+00	1.20E+02
CO	1.01E+02	0.00E+00	1.01E+02
VOC	6.61E+00	0.00E+00	6.61E+00
$PM_{10/2.5}$	9.14E+00	0.00E+00	9.14E+00
SO_2	7.21E-01	0.00E+00	7.21E-01

Source No. 2018 CORE MOLDING MACHINE
Max. Annual throughput = 12,265 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.20E+02	0.00E+00	1.20E+02
CO	1.01E+02	0.00E+00	1.01E+02
VOC	6.61E+00	0.00E+00	6.61E+00
$PM_{10/2.5}$	9.14E+00	0.00E+00	9.14E+00

SO_2	7.21E-01	0.00E+00	7.21E-01

Source No. 2019, COATED SAND BIN
Max. Annual throughput = 5,175 tons sand

Pollutants	Unabated Emissions Factor (lb/ton	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	1.20E+01	0.00E+00	1.20E+01

Source No. 2020 SHELL MOLDING MACHINE, SINGLE w/ mold adhesive operation
Max. Annual throughput = 40,427 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	3.96E+02	0.00E+00	3.96E+02
CO	3.33E+02	0.00E+00	3.33E+02
VOC	2.18E+01	0.00E+00	2.18E+01
$PM_{10/2.5}$	3.01E+01	0.00E+00	3.01E+01
SO_2	2.38E+00	0.00E+00	2.38E+00

Source No. 2020 SHELL MOLDING MACHINE, SINGLE w/ mold adhesive operation
Max. Annual throughput = 818 tons sand

Pollutants	Unabated Emissions Factor (lb/ton	Capture Efficiency Required	Control Efficiency Required
VOC	3.53E-02	100.00%	0.00%
$PM_{10/2.5}$	5.40E-01	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	2.89E+01	0.00E+00	2.89E+01
$PM_{10/2.5}$	4.42E+02	0.00E+00	4.42E+02

Source No. 2021 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 68,229 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%

CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	6.69E+02	0.00E+00	6.69E+02
CO	5.62E+02	0.00E+00	5.62E+02
VOC	3.68E+01	0.00E+00	3.68E+01
$PM_{10/2.5}$	5.08E+01	0.00E+00	5.08E+01
SO_2	4.01E+00	0.00E+00	4.01E+00

Source No. 2021 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 2,740 tons sand

Pollutants	Unabated Emissions Factor (lb/ton	Capture Efficiency Required	Control Efficiency Required
VOC	3.53E-02	100.00%	0.00%
$PM_{10/2.5}$	5.40E-01	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	9.67E+01	0.00E+00	9.67E+01
$PM_{10/2.5}$	1.48E+03	0.00E+00	1.48E+03

Source No. 2022 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 68,229 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	90.00%	0.00%
CO	8.24E-03	90.00%	0.00%
VOC	5.39E-04	90.00%	90.50%
$PM_{10/2.5}$	7.45E-04	90.00%	0.00%
SO_2	5.88E-05	90.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	6.02E+02	6.69E+01	6.69E+02
CO	5.06E+02	5.62E+01	5.62E+02
VOC	3.15E+00	3.68E+00	6.82E+00
$PM_{10/2.5}$	4.58E+01	5.08E+00	5.08E+01
SO_2	3.61E+00	4.01E-01	4.01E+00

Source No. 2022 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 2,740 tons sand
.

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
VOC	3.92E-02	90.00%	90.50%
$PM_{10/2.5}$	5.40E-01	90.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	9.19E+00	1.07E+01	1.99E+01
$PM_{10/2.5}$	1.33E+03	1.48E+02	1.48E+03

Source No. 2023 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 68,229 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	90.00%	0.00%
CO	8.24E-03	90.00%	0.00%
VOC	5.39E-04	90.00%	90.50%
$PM_{10/2.5}$	7.45E-04	90.00%	0.00%
SO_2	5.88E-05	90.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	6.02E+02	6.69E+01	6.69E+02
CO	5.06E+02	5.62E+01	5.62E+02
VOC	3.15E+00	3.68E+00	6.82E+00
$PM_{10/2.5}$	4.58E+01	5.08E+00	5.08E+01
SO_2	3.61E+00	4.01E-01	4.01E+00

Source No. 2023 SHELL MOLDING MACHINE, TWIN w/ mold adhesive operation
Max. Annual throughput = 2,740 tons sand

Pollutants	Unabated Emissions Factor (lb/ton	Capture Efficiency Required	Control Efficiency Required
VOC	3.92E-02	90.00%	90.50%
$PM_{10/2.5}$	5.40E-01	90.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	9.19E+00	1.07E+01	1.99E+01
$PM_{10/2.5}$	1.33E+03	1.48E+02	1.48E+03

Source No. 2024 SHELL MOLDING MACHINE, SINGLE w/ mold adhesive operation
Max. Annual throughput = 40,427 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	3.96E+02	0.00E+00	3.96E+02

CO	3.33E+02	0.00E+00	3.33E+02
VOC	2.18E+01	0.00E+00	2.18E+01
$PM_{10/2.5}$	3.01E+01	0.00E+00	3.01E+01
SO_2	2.38E+00	0.00E+00	2.38E+00

Source No. 2024 SHELL MOLDING MACHINE, SINGLE w/ mold adhesive operation
Max. Annual throughput = 818 tons sand

Pollutants	Unabated Emissions Factor (lb/ton	Capture Efficiency Required	Control Efficiency Required
VOC	3.53E-02	100.00%	0.00%
$PM_{10/2.5}$	5.40E-01	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	2.89E+01	0.00E+00	2.89E+01
$PM_{10/2.5}$	4.42E+02	0.00E+00	4.42E+02

Source No. 2025, ABRASIVE BLASTER, CORE AREA abated by A-206
Max. Annual throughput = 263 lbs steel shot

Pollutants	Unabated Emissions Factor (lb/lb steel shot	Capture Efficiency Required	Control Efficiency Required
PM_{10}	8.63E-03	80.00%	90.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	1.81E-01	4.54E-01	6.35E-01

Source No. 2026 LARGE LADLE HEATER
Max. Annual throughput = 74,635 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%
CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	90.50%
$PM_{10/2.5}$	7.45E-04	100.00%	99.85%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	7.32E+02	0.00E+00	7.32E+02
CO	6.15E+02	0.00E+00	6.15E+02
VOC	3.82E+00	0.00E+00	3.82E+00
$PM_{10/2.5}$	8.34E-02	0.00E+00	8.34E-02
SO_2	4.39E+00	0.00E+00	4.39E+00

Source No. 2027 ELECTRIC ARC FURNACE abated by A-2003
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
NO_X	2.00E-01	97.50%	0.00%
CO	1.80E+00	97.50%	0.00%
VOC	3.50E-01	97.50%	0.00%
$PM_{10/2.5}$	5.06E+01	97.50%	99.57%
SO_2	7.00E-01	97.50%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.36E+03	3.48E+01	1.39E+03
CO	1.22E+04	3.13E+02	1.25E+04
VOC	2.37E+03	6.08E+01	2.43E+03
$PM_{10/2.5}$	1.47E+03	8.79E+03	1.03E+04
SO_2	4.74E+03	1.22E+02	4.87E+03

Source No. 2028 EAF LADLE STATION W/CANOPY HOOD abated by A-2001
Source No. 2029 SHELL MOLD POURING STATION abated by A-2001
Source No. 2031 SHAKEOUT & TRAY SANDING abated by A-2001
Max. Annual throughput = 6,950 tons steel combined

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	8.33E-02	90.00%	90.50%
$PM_{10/2.5}$	1.61E+01	89.00%	99.85%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	4.95E+01	5.79E+01	1.07E+02
$PM_{10/2.5}$	1.49E+02	1.23E+04	1.25E+04

Source No. 2030 CAST MOLD COOLING ROOM abated by A-2002
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	7.20E-02	99.99%	90.50%
CO	6.0E+00	99.99%	0.00%
$PM_{10/2.5}$	2.57E-01	99.99%	99.85%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	4.75E+01	5.00E-02	4.76E+01
CO	4.17E+04	4.17E+00	4.17E+04
$PM_{10/2.5}$	2.68E+00	1.79E-01	2.86E+00

Source No. 2032 ROTOBLAST abated by A-2002
Max. Annual throughput = 13,500 tons steel

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	3.96E-02	100.00%	99.85%

$PM_{2.5}$	3.96E-03	100.00%	99.85%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	8.02E-01	0.00E+00	8.02E-01
$PM_{2.5}$	8.02E-02	0.00E+00	8.02E-02

Source No. 2033 through 2036: ABRASIVE CUT-OFF SAW abated by A-2005
Source No. 2037 through 2040: GRINDER abated by A-2005
Max. Annual throughput = 13,500 tons steel combined

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.70E+00	90.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	8.88E+01	2.30E+03	2.38E+03

Thermal Sand Recycling System
Source No. 2044 (R-1), Sand Storage Silo abated by A-2010
Source No. 2045 Lump Breaker abated by A-2010
Source No. 2046 Flow Bin (Rejected Material) abated by A-2010
Source No. 2047 Sand Cooler/Air Bed #1 (C-1) Abated by A-2010
Source No. 2048 Material Handling Equipment abated by A-2010
Source No. 2049 (R-1), Thermal Recycling Unit abated by A-2010
Max. Annual throughput = 10,000 tons sand

Pollutants	Unabated Emissions Factor (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	4.85E-02	99.00%	0.00%
$PM_{10/2.5}$	8.55E+00	99.00%	99.57%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	4.80E+02	4.85E+00	4.85E+02
$PM_{10/2.5}$	3.64E+02	8.55E+02	1.22E+03

Thermal Sand Recycling System
Source No. 2044 (R-1), Sand Storage Silo abated by A-2010
Source No. 2045 Lump Breaker abated by A-2010
Source No. 2046 Flow Bin (Rejected Material) abated by A-2010
Source No. 2047 Sand Cooler/Air Bed #1 (C-1) Abated by A-2010
Source No. 2048 Material Handling Equipment abated by A-2010
Source No. 2049 (R-1), Thermal Recycling Unit abated by A-2010
Max. Annual throughput = 186,588 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	100.00%	0.00%

CO	8.24E-03	100.00%	0.00%
VOC	5.39E-04	100.00%	0.00%
$PM_{10/2.5}$	7.45E-04	100.00%	0.00%
SO_2	5.88E-05	100.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.83E+03	0.00E+00	1.83E+03
CO	1.54E+03	0.00E+00	1.54E+03
VOC	1.01E+02	0.00E+00	1.01E+02
$PM_{10/2.5}$	1.39E+02	0.00E+00	1.39E+02
SO_2	1.10E+01	0.00E+00	1.10E+01

Source No. 32000 Miscellaneous Minor Combustion Sources [exempt]
Max. Annual throughput = 37,318 therms

Pollutants	Unabated Emissions Factor (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	0.00%	0.00%
CO	8.24E-03	0.00%	0.00%
VOC	5.39E-04	0.00%	0.00%
$PM_{10/2.5}$	7.45E-04	0.00%	0.00%
SO_2	5.88E-05	0.00%	0.00%

Pollutants	Captured and/or abated Emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	0.00E+00	3.66E+02	3.66E+02
CO	0.00E+00	3.07E+02	3.07E+02
VOC	0.00E+00	2.01E+01	2.01E+01
$PM_{10/2.5}$	0.00E+00	2.78E+01	2.78E+01
SO_2	0.00E+00	2.20E+00	2.20E+00

Standards for Baghouses

Baghouses A-2001 and A-2002, Abating S-2026, S-2209, S-2030, S-2031, S-2032
Emission Limit: 0.0045 gr/dscf
Maximum Flow: 40,903 dscfm
Annual Operating Hours: 5263 hours/year

Baghouse A-2003 Abating S-2027
Emission Limit: 0.0013 gr/dscf
Maximum Flow: 22,053 dscfm
Annual Operating Hours: 5263 hours/year

Baghouse A-2004 Abating S-2006, S-2007, S-2008, S-2009, S-2010, S-2011, S-2012, and S-2019
Emission Limit: 0.01 gr/dscf
Maximum Flow: 5,902 dscfm
Annual Operating Hours: 4380 hours/year

Baghouse A-2005 Abating S-2033, S-2034, S-2035, S-2036, S-2037, S-2038, S-2039, and S-2040
Emission Limit: 0.0045 gr/dscf
Maximum Flow: 14,170 dscfm

Annual Operating Hours: 5500 hours/year

Baghouse A-2006 Abating S-2025
Emission Limit: 0.01 gr/dscf
Annual Operating Hours: 8760 hours/year

Baghouse A-2010 Abating S-2044, S-2045, S-2046, S-2047, S-2048, and S-2049
Emission Limit: 0.0013 gr/dscf
Maximum Flow: 10,217 dscfm
Annual Operating Hours: 4992 hours/year

Condition # 24547
Maximum Operating Throughput and Emissions Related Limits
Pacific Steel Casting Plant #3

The owner/operator of Pacific Steel Casting facility (Plant 22605) shall not allow the facility to exceed any of the throughputs, emission factors, and/or emissions specified in these conditions. All data and assumptions contained in these conditions shall be considered enforceable limits.

The owner/operator of the facility shall demonstrate compliance with the emission limits listed in this condition by using the following equations:

Captured emissions = throughput x emission factor x capture efficiency x (1 - control efficiency)

Fugitive emissions = throughput x emission factor x (1 - capture efficiency)

Total emissions = captured emissions + fugitive emissions

The following tables list maximum throughputs, emission factors, and emissions as well as the minimum required capture and control efficiencies for Pacific Steel Casting Plant # 3 sources. These assumptions constitute Synthetic Minor Operating limits as specified in Condition 20207 Part 2.

Source No. 3001, Electric Arc Furnace abated by A-3001
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
NO_X	2.00E-01	97.50%	0.00%
CO	1.80E+00	97.50%	0.00%
VOC	3.50E-01	97.50%	0.00%
$PM_{10/2.5}$	1.03E+02	97.50%	99.57%
SO_2	7.00E-01	97.50%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	1.36E+03	3.48E+01	1.39E+03
CO	1.22E+04	3.13E+02	1.25E+04
VOC	2.37E+03	6.08E+01	2.43E+03
$PM_{10/2.5}$	3.01E+03	1.79E+04	2.09E+04
SO_2	4.74E+03	1.22E+02	4.87E+03

Source No. 3002, Ladle Heater
Max. Annual throughput = 105,120 therms

Pollutants	Unabated Emissions Factors (lb/therm)	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	0.00%	0.00%
CO	8.24E-03	0.00%	0.00%
VOC	5.39E-04	0.00%	0.00%
$PM_{10/2.5}$	7.45E-04	0.00%	0.00%
SO_2	5.88E-05	0.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	0.00E+00	1.03E+03	1.03E+03
CO	0.00E+00	8.66E+02	8.66E+02
VOC	0.00E+00	5.67E+01	5.67E+01
$PM_{10/2.5}$	0.00E+00	7.83E+01	7.83E+01
SO_2	0.00E+00	6.18E+00	6.18E+00

Source No. 3004, Casting Mold Shake Out Station abated by A-3003
Source No. 3019, Casting Mold Shake Out Station abated by A-3003
Max. Annual throughput = 6,950 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	8.18E+00	99.00%	90.50%
CO	6.00E+00	99.00%	0.00%
$PM_{10/2.5}$	1.8E-02	99.00%	65.00%
Condensable $PM_{10/2.5}$	1.09E-02	99.00%	65.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	5.35E+03	5.69E+02	5.92E+03
CO	4.13E+04	4.17E+02	4.17E+04
$PM_{10/2.5}$	4.34E+01	1.25E+00	4.46E+01
Condensable $PM_{10/2.5}$	2.61E+01	7.54E-01	2.69E+01

Source No. 3004, Casting Mold Shake Out Station abated by A-3003
Source No. 3019, Casting Mold Shake Out Station abated by A-3003
Max. Annual throughput = 37,800 tons sand combined

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	4.48E-02	99.00%	65.00%
Condensable $PM_{10/2.5}$	3.49E-02	99.00%	65.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	5.87E+02	1.69E+01	6.04E+02
Condensable $PM_{10/2.5}$	4.57E+02	1.32E+01	4.71E+02

Source No. 3005, Blast Table
Max. Annual throughput = 12,150 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	3.30E-02	100.00%	99.57%
$PM_{2.5}$	3.30E-03	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	1.72E+00	0.00E+00	1.72E+00
$PM_{2.5}$	1.72E-01	0.00E+00	1.72E-01

Source No. 3006 Tumble Blast
Max. Annual throughput = 12,150 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
PM_{10}	3.30E-02	100.00%	99.57%
$PM_{2.5}$	3.30E-03	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
PM_{10}	1.72E+00	0.00E+00	1.72E+00
$PM_{2.5}$	1.72E-01	0.00E+00	1.72E-01

Source No. 3007, New Sand Silo #1 abated by A-3004
Max. Annual throughput = 3,366 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	7.82E+00	0.00E+00	7.82E+00

Source No. 3009, Sand Cooler Classifier abated by A-3004
Max. Annual throughput = 37,800 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	8.78E+01	0.00E+00	8.78E+01

Source No. 3010, Sand Conditioning Unit #1 abated by A-3004
Max. Annual throughput = 18,900 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	4.39E+01	0.00E+00	4.39E+01

Source No. 3011 Sand Conditioning Unit #2 abated by A-3004
Max. Annual throughput = 18,900 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	4.39E+01	0.00E+00	4.39E+01

Source No. 3012 Return Sand Bin #1 abated by A-3004
Max. Annual throughput = 37,800 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	8.78E+01	0.00E+00	8.78E+01

Source No. 3013 Reclaimed Sand Bin #2 abated by A-3004
Max. Annual throughput = 34,020 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	7.90E+01	0.00E+00	7.90E+01

Source No. 3014 Sand Mixer w/Techniset F6000/17712/17717 Binder abated by A-3003 and A-3007
Source No. 3018, Mold Coating Operation abated by A-3003 and A-3007
Max. Annual throughput = 37,800 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
VOC	8.50E-02	75.00%	90.50%
$PM_{10/2.5}$	6.00E-03	75.00%	99.85%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	2.29E+02	8.03E+02	1.03E+03
$PM_{10/2.5}$	2.55E-01	5.67E+01	5.70E+01

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Source No. 3015 New Sand Receiving Bucket Elevator #1

Max. Annual throughput = 3,366 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	7.82E+00	0.00E+00	7.82E+00

Source No. 3016 Bucket Elevator #2 Returned Sand
Max. Annual throughput = 37,800 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	8.78E+01	0.00E+00	8.78E+01

Source No. 3017 Bucket Elevator #3 Reclaimed Sand
Max. Annual throughput = 34,020 tons sand

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	5.40E-01	100.00%	99.57%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	7.90E+01	0.00E+00	7.90E+01

Source No. 3018, Mold Coating Operation abated by A-3003 and A-3007
Max. Annual throughput = 1,200 gallons

Pollutants	Unabated Emissions Factors (lb/gal)	Capture Efficiency Required	Control Efficiency Required
VOC	3.69E+00	75.00%	90.50%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	3.15E+02	1.11E+03	1.42E+03

Source No. 3020 Holcote 578 CCD
Max. Annual throughput = 1,200 gallons mold coating

Pollutants	Unabated Emissions Factors (lb/gal)	Capture Efficiency Required	Control Efficiency Required
VOC	1.00E-01	75.00%	90.50%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
VOC	8.55E+00	3.00E+01	3.86E+01

Exempt Source: Heat Treat Furnaces
Max. Annual throughput = 102,664 therms

Pollutants	Unabated Emissions Factors (lb/therm	Capture Efficiency Required	Control Efficiency Required
NO_X	9.80E-03	0.00%	0.00%
CO	8.24E-03	0.00%	0.00%
VOC	5.39E-04	0.00%	0.00%
$PM_{10/2.5}$	7.45E-04	0.00%	0.00%
SO_2	5.88E-05	0.00%	0.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
NO_X	0.00E+00	1.01E+03	1.01E+03
CO	0.00E+00	8.45E+02	8.45E+02
VOC	0.00E+00	5.54E+01	5.54E+01
$PM_{10/2.5}$	0.00E+00	7.65E+01	7.65E+01
SO_2	0.00E+00	6.04E+00	6.04E+00

Exempt Source: Finishing Room cleaning and grinding
Max. Annual throughput = 12,150 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.70E+00	90.00%	50.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	9.29E+03	2.07E+03	1.14E+04

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Exempt Source: Finishing Room Arc Air Booth/Welding
Max. Annual throughput = 12,150 tons steel

Pollutants	Unabated Emissions Factors (lb/ton)	Capture Efficiency Required	Control Efficiency Required
$PM_{10/2.5}$	1.00E-03	100.00%	50.00%

Pollutants	Captured and/or abated emissions (lb/yr)	Fugitive Emissions (lb/yr)	Total Emissions (lb/yr)
$PM_{10/2.5}$	6.08E+00	0.00E+00	6.08E+00

Emissions from stacks/baghouses:

Baghouse A-3001, Abating S-3001

Required Emissions Limits: 0.0014 gr/dscf
Maximum Flow Rate: 41,768 dscfm
Operation Hour: 6000 hours/year

Baghouses A-3002 and A-3006, Abating: S-3005 and S-3006
Required Emissions Limits: 0.0013 gr/dscf
Maximum Flow Rate: 56,362 dscfm
Maximum Operation Hour: 7200 hours/year

Baghouses A-3003 and A-3007, Abating: S-3004, S-3014, S-3018, and S-3019
Required Emissions Limits: 0.0013 gr/dscf
Maximum Flow Rate: 9,618 dscfm
Maximum Operation Hour: 8760 hours/year

Baghouse A-3004, Abating: S-3007, S-3008, S-3009, S-3010, S-3011, S-3012, S-3013, S-3014, S-3015, S-3016, and S-3017
Required Emissions Limits: 0.01 gr/dscf
Maximum Flow Rate: 11,062 dscfm
Maximum Operation Hour: 7200 hours/year

Recommendation

Issue revised Synthetic Minor Operating Permit to Pacific Steel Casting.

_____ _____

Nicholas C. Maiden, P.E. Date
Principal Air Quality Engineer

APPENDIX

APPENDIX A
Adjacent Basis

BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT
SINCE 1955

September 9, 2005

Mr. Joe Emmerichs
Vice President – General Manager
Pacific Steel Casting Company
1333 Second Street
Berkeley, CA 94710

Re: Pacific Steel Casting – Permits to Operate

Dear Mr. Emmerichs:

I am writing concerning the permits to operate three steel casting plants issued to Pacific Steel Casting (PSC) by the Bay Area Air Quality Management District (District).

Currently, you operate the three plants under District Permit Nos. 187 (Plant #1), 703 (Plant #2), and 1603 (Plant #3). Plant #2 and Plant #3, which are contiguous, also operate under a synthetic minor operating permit pursuant to District Rule 2-6-310. However, based on the District's review of Pacific Steel Casting's current operations, it appears the three plants must be treated as one facility subject to requirements of District Regulation 2, Rule 6, which implements the federal Title V operating permit program.

Multiple plants constitute a single Title V "major source" - and may be a "major facility" or "synthetic minor facility" under District Regulation 2, Rule 6 - if they are under the same ownership or control, they belong to the same industrial classification (based on the facilities' primary activity), and they are adjacent or contiguous to each other. PSC owns and controls Plants #1, #2, and #3 and produces steel castings at each of them. The District has determined that the three plants are adjacent or contiguous to each other.

Plants are contiguous if they are touching, especially along a border. Plants #2 and #3, which are separated by Second Street, are contiguous. See, e.g., Section 2.3 of "Questions and Answers on the Requirements of Operating Permits Program Regulations," United States Environmental Protection Agency (EPA), July 7, 1993.[1] Plant #1 is not contiguous to the other two plants, but it is adjacent to them pursuant to 40 C.F.R. sec. 70.2.

[1] See e.g., Letter to Iowa Air Quality Bureau, dated October 1, 2004, from JoAnn M. Heiman, Chief, Air Permitting and Compliance Branch, EPA, concerning the definition of "contiguous" under Part 63 (hazardous air pollutants), in which she confirms that two facilities separated by a public right of way are contiguous (66 Fed. Reg. 16324).

ALAMEDA COUNTY
Roberta Cooper
Scott Haggerty
Nate Miley
Shelia Young

CONTRA COSTA COUNTY
Mark DeSaulnier
Mark Ross
(Secretary)
Michael Shimansky
Gayle B. Uilkema
(Vice-Chairperson)

MARIN COUNTY
Harold C. Brown, Jr.

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
Chris Daly
Jake McGoldrick
Gavin Newsom

SAN MATEO COUNTY
Jerry Hill
Marland Townsend
(Chairperson)

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SOLANO COUNTY
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Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Plants are "adjacent" to each other if they lie near or adjoin each other. See e.g., Shorter Oxford English Dictionary, Fifth Edition, 2002. [2] In other words, Plant #1 need not border the others to be adjacent to them. Whether Plant #1 is adjacent to the other two plants is a "case-by-case determination" based upon their proximity to each other and interrelatedness. 45 Fed. Reg. 52965 ("EPA is unable to say ... precisely how far apart activities must be in order to be treated separately."[3]) It is the "common sense notion" of a single facility that controls in this determination. Id.[4]

PSC operates its business out of its administrative office building, located at 1333 Second Street, Berkeley, and at its three foundries. The office building and Plant #3 are on the east side of the street. Plant #1, which faces the office building, is located on the west side of Second Street and is separated from Plant #2, approximately 210 feet away, by another industrial business, Berkeley Forge and Tool.

It is evident that the three plants are functionally interrelated and are sufficiently proximate that they operate together as a single steel foundry business.[5] PSC operates out of its administrative office, where it receives orders for steel goods and determines which plant fills the orders. PSC's general manager, plant operator, and environmental manager are responsible for and shuttle between the three plants.[6] Whether PSC casts steel components at one or another plant is a function of the size of the casting requested by a customer and the availability of a specific plant to fill an order. In fact, the proximity of the plants to each other

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[2] EPA has relied on the dictionary definitions of "adjacent" and "contiguous" in its inquiries of whether facilities are adjacent or contiguous and thus constitute one source. See e.g., letter dated May 21, 1998, Ref 8P2-A, to Utah Division of Air Quality from Richard Long, Director, Air Program, Region 8 EPA; Letter dated August 7, 1997 to Oregon Department of Environmental Quality from Joan Cabreza, Office of Air Quality, Region 10 EPA.

[3] "A physical separation of property does not in itself constitute separate sources." Letter dated May 19, 1999 to Mecklenburg County Department of Environmental Protection, North Carolina from Winston A. Smith, Air, Pesticides and Toxics Management Division, EPA Region 4. "Use of documents not directly related to Title V is appropriate because the Title V definition of major source is an outgrowth of the definitions used for [prevention of significant deterioration] and nonattainment area new source review purposes." Id.

[4] "The determination of whether two sources are adjacent is based on the 'common sense' notion of source, and whether the distance between two facilities is sufficiently small that it enables them to operate as a single source." Undated letter to Pennsylvania Department of Environmental Protection (DEP) re: Northeast Hub Partners, from Judith M. Katz, Director, Air Protection Division, EPA Region 8. See also, undated letter to Pennsylvania DEP from Kathleen Henry, Chief, Permits and Technical Assessment Branch, EPA Region 8, in response to December 9, 1998 Pennsylvania DEP letter to EPA, describing EPA's "common sense notion" of a plant.

[5] See Footnote 4.

[6] See, e.g., EPA Region 8 letter, Ref. 8P2-A (finding that "managers or other workers," such as "maintenance and repair crews, or security or administrative personnel," who "frequently shuttle back and forth to be involved actively" in the facilities, can demonstrate the facilities are a single source) and undated Kathleen Henry, EPA Region 8, letter.

enables integrated operation of the plants.[7] The only significant difference between the steel casting plants is the range of cast sizes each plant can manufacture. (The size of the mold designates the type of binding material used in the mold.) Plant #2 produces castings from one ounce to 60 pounds; Plant #1 produces castings from one pound to 1500 pounds; Plant #3 produces castings up to 7,000 pounds. Indeed, PSC prides itself on the flexibility it provides customers, by offering "with our three plants[,] ... precision-made components from one ounce to 7,000 pounds."[8] The three plants would not be any more functionally integrated if they were directly contiguous to each other. PSC acknowledges that Plant #2 and Plant #3 share some operations and support each other, but has stated that Plant #1 does not support, and is not supported by, the other two plants. However, plants need not support each other to be treated as one facility.[9]

Because Plants #1, #2, and #3 are adjacent and/or contiguous and thus constitute a single facility for purposes of District Regulation 2, Rule 6, the District has determined that Pacific Steel Casting must submit an application to modify the synthetic minor operating permit to include Plant #1, in accordance with District Rule 2-6-422. It may be that the emissions calculations required pursuant to District Rule 2-6-422.4 cannot demonstrate that the potential to emit remains below the emissions thresholds for a "major facility" (District Rules 2-6-212, 2-6-237). In that event, Pacific Steel Casting must submit a major facility review permit application. The appropriate application, including all required documents, must be submitted by no later than December 31, 2005.

If you have any further questions concerning this matter, please contact Gregory Solomon at (415) 749-4715 or me at (415) 749-4653.

Sincerely,

Brian Bateman

Brian Bateman
Director of Engineering

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[7] In addition, selecting a new location primarily because of its proximity to the existing facility to enable an integrated operation indicates the two facilities are one source. See, EPA Region 8 letter, Ref. 8P2-A. In the instant matter, PSC expanded its operation at Plant #1, installed in the 1930s, by adding Plant #2 in the 1970s and Plant #3 in the 1980s.

[8] Pacific Steel Casting website, www.pacific steeel.com/info.

[9] See, e.g., EPA Region 10 letter dated August 7, 1997 (finding that "[where two sources are on contiguous or adjacent properties, are under common ownership, and are within the same SIC code, there would be only one stationary source and there would be no need to assign the support facility to one source or the other").

APPENDIX B
Timeline

Timeline

- 09/09/05 – District informs PSC that Plant 1 is adjacent to Plants 2 and 3 and to submit revised SMOP application
- 10/26/05 – PSC submits application to modify Plant 2 baghouse
- 11/17/05 – PSC submits application for Plant 3 collection system
- 12/06 – 07/05 – PSC conducts source tests (PM) at Plant 1 EAF
- 12/07/05 – PSC conducts source tests (PM, NMOC, trace metals, aldehydes) at Plant 1 casting pour off area
- 12/08/05 – PSC conducts source tests (PM, NMHC, trace metals, aldehydes) at Plant 1 A&B Shakeout
- 12/12/05 – PSC conducts source tests (PM, trace metals) at Plant 2 cast mold cooling
- 12/13/05 – PSC conducts source tests (PAHs, phenols, aldehydes, benzene) at Plant 2 cast mold cooling
- 12/14/05 – PSC conducts source tests (NMHC) at Plant 2 cast mold cooling
- 12/14/05 – District approves modification of Plant 2 baghouse
- 12/14-15/05 – PSC conducts source tests (PM, trace metals, PAHs, phenols, aldehydes, benzene, NMHC) at Plant 2 Shell Mold Pouring
- 12/19/05 – PSC conducts source tests (PM, trace metals, PAHs, phenols, aldehydes, benzene, NMHC) at Plant 2 thermal sand recycling
- 12/20/05 – Enforcement Settlement Agreement – PSC to install Carbon Abatement System in Plant 3 and develop odor control and equipment maintenance plans
- 12/21/05 – PSC conducts source tests (PM, methylene diphenyl diisocyanate, phenols, aldehydes, benzene, NMHC) on Plant 3 sand mixing area
- 12/21/05 – PSC conducts source tests (PM) on Plant 3 EAF
- 12/30/05 – PSC submits SMOP Application 14029
- 12/30/05 – PSC submits application for Plant 3 collection system
- 01/03/06 – District issues permit for Plant 3 collection system
- 01/26/06 – District issues incomplete letter for Application 14029, requests additional information
- 02/22/06 – PSC agrees to extend District completeness review deadline to June 30, 2006
- 03/15-16/06 – PSC conducts source tests (PM, trace metals, hexavalent chromium) at Plant 2 EAF
- 03/20/06 – PSC conducts source tests (phenols, aldehydes, benzene, NMHC) at Plant 2 shell molding machine
- 03/21/06 – HRA source test of Plant 1 core sand mixing station
- 03/22/06 – PSC conducts source tests (PM, trace metals, BTEX, NMHC) at Plant 3 pour area
- 03/23/06 – PSC conducts source tests (PAHs, methylene diphenyl diisocyanate, phenols) at Plant 3 pour area
- 03/27/06 – PSC submits response to District's January 26, 2006 letter
- 03/31/06 – PSC submits Odor Management Plan as required by Enforcement Settlement Agreement
- 05/16/06 – PSC submits letter stating it will miss May 19th due date for revised emissions inventory report
- 06/01-06/06 – District conducts source tests at Plant 3 shake out baghouse
- 06/19/06 – PSC submits application for new Plant 1/Plant 2/Plant sand system and mold release agents
- 06/19/06 – PSC submits application for a Plant 1 portable sand blast station
- 06/19/06 – PSC submits application for Plant 2 mold adhesive source
- 06/29/06 – District issues incomplete letters for Application 13689 and 14029, requests an Emissions Inventory Report with methodology for characterizing PSC's emissions
- 07/14/06 – District issues permit for Plant 3 carbon adsorption system
- 07/25-28/06 – District conducts source tests at Plant 2 carbon unit
- 08/11/06 – PSC files a Permit Appeal and has a Pro Forma Hearing with District Hearing Board
- 08/14/06 – District files a Civil Complaint with Alameda County due to violations of the Settlement Agreement because of PSC's inability to meet the schedule of the carbon unit and failure to submit the Emissions Inventory report
- 08/25/06 – PSC submits a revised Odor Management Plan
- 08/30/06 – District conducts source test at Plant 2 EAF for PM
- 08/30/06 – PSC consultant provides estimated collection system capture efficiencies for all three plants
- 08/31/06 – Pro Forma Hearing with Hearing Board on Permit Appeal
- 09/01/06 – PSC accepts service of District Civil Complaint
- 09/01/06 – PSC submits initial Emissions Inventory Report. District stated it was incomplete
- 09/18/06 – PSC withdraws application for Plant 1 portable sand blast station

- 09/25/06 – District issues letter of exemption for Plant 3 mold coating station
- 11/02/06 – District issues permit for new Plant 1 sand system
- 11/03/06 – District issues permit for new Plant 2 mold adhesive
- 11/07/06 – PSC submits Emissions Inventory Report
- 11/07-09/06 – PSC conducts source and tracer capture efficiency testing for Plant 3 pouring and cooling area
- 12/04/06 – District issues permit for new mold release agent
- 02/05/07 – District issues letter to PSC providing comments on Emissions Inventory Report
- 02/13/07 – District issues letter stating Applications 13689 and 14029 is closing the two applications until an Emissions Inventory Report is submitted, once submitted the two applications will be combined
- 02/15/07 – PSC submits revised Emissions Inventory Report
- 02/23/07 – District accepts and determines Emissions Inventory Report to be complete
- 03/05/07 – District requests additional information, states Application 14029 (combined with Application 13689) has been re-activated
- 03/08/07 – District conducts source test at Plant 3 EAF
- 03/21/07 – PSC submits application for temporary binder at Plant 3 mold mixing area
- 03/28/07 – District issues letter to PSC to extend the HRA submittal date
- 05/23/07 – PSC submits application for Plant 3 baghouse
- 06/07/07 – District issues permit for temporary binder at Plant 3 mold mixing area
- 06/08/07 – PSC submits application for Plant 1 furnace baghouse upgrade
- 06/28/07 – PSC submits SMOP application regulated and hazardous air pollutant emissions inventories report
- 07/23/07 – PSC submits initial HRA. District requested additional information
- 08/16/07 – District issues permit for Plant 1 furnace baghouse upgrade
- 08/16/07 – District issues letter to PSC stating completion of preliminary review of HRA and provided comments
- 08/22/07 – PSC conducts source tests at Plant 3 mold mixing area
- 08/23/07 – PSC conducts source tests at Plant 3 pour area
- 09/06/07 – District issues permit for Plant 3 baghouse
- 09/06/07 – PSC submits application for an alteration to Plant 3 mold shakeout station
- 10/04/07 – PSC conducts source tests at Plant 1 EAF
- 10/17/07 – District completes review of AB2588 facility-wide health risk assessment
- 11/01/07 – PSC submits a revision to the Odor Management Plan
- 11/02/07 – PSC submits application for change in conditions for Plant 1 steel pour off area and shakeout sources
- 11/02/07 – PSC submits application to use no bake binder at Plant 1 core room
- 11/11/07 – District issues public notice requesting public comments regarding HRA
- 12/05/07 – District issues permit for alteration of Plant 3 mold mixing area
- 12/12/07 – West Berkeley Air Monitoring Station begins measurements
- 12/14/07 – OEHHA issues review of AB2588 facility-wide health risk assessment
- 12/20/07 – District holds public community meeting to discuss HRA
- 12/17/07 – PSC submits calculations of NMOC & toxics for Plant 1 core making operation
- 12/31/07 – District e-mails PSC regarding sufficient monitoring for baghouses and carbon units
- 01/3-4/08 – PSC and District exchange e-mails regarding proposed monitoring requirements
- 02/06/08 – PSC's consultant submits detailed response regarding baghouse and carbon monitoring
- 04/02/08 – District requests copy of Plant 1 core sand mixing station source test
- 05/18/08 – District approves use of no bake binder at Plant 1 core room
- 07/20/08 – District provides PSC draft SMOP conditions
- 09/26/08 – PSC submits copies of SMOP application on CD
- 10/03/08 – District approves PSC's Odor Management Plan
- 10/10/08 – District approves change in conditions for Plant 1 steel pour off area and shakeout sources
- 11/05/08 – District finalizes HRA
- 12/31/08 – West Berkeley Air Monitoring Station stops measurements
- 04/14/09 – District staff reviewed the data from the West Berkeley Air Monitoring Station
- 04/28/09 – District conducts source tests at Plant 3 mold pouring & cooling operations

- 05/11/09 – PSC requests District response to PSC letter dated 02/06/08
- 07/24/09 – District issues detailed response to PSC letter dated 02/06/08
- 07/28/09 – PSC meeting at District to discuss calculations and assumptions
- 07/28/09 – PSC requests District provide all data, calculations, analyses, engineering and regulatory evaluations, and documentation used to develop and form basis of preliminary draft SMOP conditions
- 07/31/09 – District e-mails response to PSC letter and states it does not release drafts or notes that are not deemed a public record or part of the agency's deliberation
- 08/11/09 – District e-mails PSC consultant requesting PSC confirmation for sharing information
- 08/19/09 – PSC submits response to District e-mail stating ENVIRON to be copied on all correspondence and requests basis for emissions estimate
- 01/04/10 – PSC Plant 1 completed modifications to collect emissions from "main floor" pouring and cooling area. Additional containment walls & ducting installed & emissions routed to an existing baghouse & carbon adsorption unit.
- 02/02/10 – District staff visited Plant 1 to observe new modifications at the "main floor" pouring and cooling area to verify improvements in capturing fugitive emissions
- 03/11/10 – District issues draft SMOP conditions for PSC review
- 04/01/10 – PSC submits objections to draft SMOP conditions stating source testing requirements would cost nearly $1 million in the first year, some conditions raise safety concerns, and others are impossible to implement
- 06/08-10/10 – District conducted a source test at Plant 3 to develop updated emission factors for the pouring/cooling and shakeout operations.
- 06/23/10 – District response to PSC letter dated 04/01/10. Informs PSC of basis for source test requirements
- 07/19/10 – PSC-District meeting regarding PM emissions
- 09/09/10 – PSC submits memo regarding EAF PM source testing requirements
- 10/13-14/10 – District conducted source tests at Plant 2 to determine organic hydrocarbon loading at the carbon adsorption unit based on current operations and production levels.
- 12/03/10 – PSC submits memo regarding POC emissions from Plant 3 carbon unit
- 04/11/11 – District issues draft SMOP permit conditions for PSC review
- 04/12/11 – District conducts source tests on Plant 1 abatement devices to determine flow rates
- 04/12/11 – District conducts source tests on Plant 3 blast table
- 04/27/11 – District conducts source tests at Plant 2 baghouses
- 05/29/12 – PSC submits responses to draft SMOP permit conditions
- 11/12/12 – PSC conducts source tests of EAFs at Plants 1, 2, and 3 for PM_{10} including condensable PM
- 01/10/13 – District conducts source test of Plant 1 pour-off area for PM_{10} including condensable PM
- 02/15/13 – District informs PSC of proposed changes to emissions spreadsheet
- 03/20/13 – PSC submits response to District on proposed changes to emissions spreadsheet
- 04/02/13 – District meets with PSC
- 04/09/13 – PSC informs District of proposed changes to emissions spreadsheet
- 05/01/13 – District adopts Regulation 12, Rule 13 (Foundry and Forging Operations), applicable to PSC
- 07/24/13 – District informs PSC of proposed changes to emissions spreadsheet
- 08/06/13 – PSC informs District of proposed changes to emissions spreadsheet
- 08/14/13 – District informs PSC of proposed changes to emissions spreadsheet
- 12/03/13 – District conducts source tests for PM_{10} from Plants 1 and 3 EAFs
- 03/12/14 – PSC files for bankruptcy
- 07/10/14 – District contacted by potential buyers of PSC
- 08/25/14 – PSC acquired by new owners
- 11/07/14 – District met with PSC
- 12/03/14 – District site visit and meeting of new ownership/management
- 12/19/14 – PSC conducts source tests for PM_{10} from Plants 1 and 3 EAFs
- 01/11/15 – PSC submits Regulation 12, Rule 13 Emissions Minimization Plant
- 01/17/15 – District issues PSC's Regulation 12, Rule 13 Emissions Minimization Plant for public comment
- 01/23/15 – District informed by another agency of potentially significant CO emissions from pouring, cooling, and shakeout operations
- 02/20/15 – District call with another agency regarding CO emissions from foundry operations

- 05/14/15 – PSC contacts the District regarding new consultant and potential changes to Plant 2 sources
- 06/02/15 – Conference call with PSC about potential Plant 2 source changes
- 06/03/15 – PSC's three plants given new facility number (Plant 22604) and sources re-numbered for ownership change
- 07/27/15 – District sends PSC letter regarding CO emissions from pouring, cooling, and shakeout
- 07/29/15 – District site visit and meeting of PSC consulting engineer
- 08/06/15 – District submits additional information request for SMOP application
- 08/11/15 – PSC provides partial response to request for additional information
- 08/25/15 – PSC has internal meeting regarding CO emissions from pouring, cooling, and shakeout
- 08/26/15 – PSC provides additional responses to information request
- 09/09/15 – PSC requests meeting regarding CO from pouring, cooling, and shakeout
- 10/02/15 – District-PSC meeting regarding CO from pouring, cooling, and shakeout
- 11/18/15 – PSC conducts source tests for PM_{10} from Plant 3 EAF
- 11/23/15 – PSC conducts source tests for PM_{10} from Plant 1 EAF
- 12/11/15 –PSC calls District to discuss CO emissions from pouring, cooling, and shakeout
- 02/10/16 – Member of the public (self-identified as a Berkeley citizen) calls the District to enquire on SMOP status
- 02/12/16 – "Berkeley Citizen" e-mails the District requesting plant number and SMOP
- 02/12/16 – District contacted by EPA regarding PSC
- 02/16/16 – District responds to "Berkeley Citizen" e-mail
- 02/16/16 – District asks if PSC determined a way to source test CO from pouring, cooling, and shakeout
- 02/17/16 – PSC provides response regarding CO source test methodology
- 02/18/16 – District reviews PSC response with District source test manager
- 02/19/16 – District discusses proposed solution to CO source test issue with PSC
- 03/17/16 – District has conference call with PSC regarding CO source test methodology
- 03/29/16 – PSC proposes lower steel throughputs
- 04/22/16 – District provides updated emissions spreadsheets and requests lower proposed throughputs
- 04/25/16 – PSC asks about process of adjusting/raising throughputs in the future
- 04/27/16 – PSC proposes lower steel throughputs to keep potential emissions below 90 tons per year
- 05/12/16 – District provides PSC with draft SMOP conditions
- 05/17/16 – PSC and District exchange e-mails regarding initial source tests
- 05/18/16 – District provides PSC with revised draft SMOP conditions
- 05/19/16 – PSC requests extension for baghouse leak detection installation
- 05/19/16 – PSC provides updated baghouse pressure differential settings
- 05/23/16 – District agrees with PSC request for extension for baghouse leak detection installation
- 05/25/16 – PSC agrees with draft SMOP conditions
- 05/31/16 – District provides PSC with revised draft SMOP conditions
- 06/08/16 – PSC agrees to draft SMOP conditions
- 07/15/16 – District issues draft SMOP conditions for public comment
- 08/15/16 – District agrees to extend public comment period by 15 days
- 08/31/16 – District agrees to extend public comment period by 15 days
- 12/14/16 – District holds public community meeting in the City of Berkeley to receive public comments in person
- 04/05/17 – PSC submits permit application for new induction furnace
- 07/28/17 – District submits information request to the ARB regarding delegation of authority of 40 CFR 63 Subpart YYYYY and ZZZZZ.
- 09/06/17 – ARB informs the District that the District has not been delegated authority for 40 CFR 63 Subparts YYYYY, ZZZZZ, and ZZZZZZ.
- 10/18/17 – PSC withdraws permit application for new induction furnace
- 10/18/17 – PSC withdraws permit application for new induction furnace
- 12/08/17 – PSC announces that it will remain open through end of March 2018
- Feb 2018 – PSC tells City of Berkeley that it will remain open until April 2, 2018
- 05/01/18 – PSC tells the District that it will remain open through July 2018
- 06/02/18 – PSC tells the District that it will remain open through middle of August 2018

APPENDIX C
Detailed Emission Calculations
(Criteria Air Pollutants)

																	Potential to Emit			Proposed Limits		
PSC Plant#	Source Number	Source Name	Potential to Emit Annual Throughput	Proposed Throughput Limit	Throughput Units	Pollutant	Unabated Emissions Factor (lbs/throughput)	Uncontrolled Emission Factor (total) (lbs/throughput unit)	Effective Fugitive Emission Factor (lbs/throughput)	Uncontrolled Emission Factor (captured emissions) (lbs/throughput unit)	Controlled Emission Factor (captured emissions) (lbs/throughput unit)	Basis for Emission Factor	A#	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)
1	1001	ARC FURNACE	30,660	6,950	tons steel	NOx	2.00E-01	2.00E-01	5.00E-03	NA	NA	2	1009	Baghouse	97.50%	0.00%	5,979	153	6,132	1,355	35	1,390
1	1001	ARC FURNACE	30,660	6,950	tons steel	CO	1.80E+00	1.80E+00	4.50E-02	NA	NA	3	1009	Baghouse	97.50%	0.00%	53,808	1,380	55,188	12,197	313	12,510
1	1001	ARC FURNACE	30,660	6,950	tons steel	VOC	3.50E-01	3.50E-01	8.75E-03	NA	NA	4	1009	Baghouse	97.50%	0.00%	10,463	268	10,731	2,372	61	2,433
1	1001	ARC FURNACE	30,660	6,950	tons steel	PM10/2.5	1.24E+02	NA	3.11E+00	NA	5.21E-01	12	1009	Baghouse	97.50%	99.57%	15,984	95,314	111,299	3,623	21,606	25,229
1	1001	ARC FURNACE	30,660	6,950	tons steel	SO2	7.00E-01	7.00E-01	1.75E-02	NA	NA	4	1009	Baghouse	97.50%	0.00%	20,925	537	21,462	4,743	122	4,865
1	1002	POUR-OFF AREA	30,660	6,950	tons steel	VOC	4.52E-01	NA	6.10E-02	3.91E-01	NA	5b	1008 & 1007	#8 Baghouse/prefilter & #7 Carbon Adsorption System	86.50%	90.50%	1,139	1,871	3,010	258	424	682
1	1002	POUR-OFF AREA	30,660	6,950	tons steel	CO	6.00E+00	6.00E+00	8.10E-01	6.00E+00	NA	14	1008 & 1007	#8 Baghouse/prefilter & #7 Carbon Adsorption System	86.50%	0.00%	159,125	24,835	183,960	36,071	5,630	41,700
1	1002	POUR-OFF AREA	30,660	6,950	tons steel	PM10/2.5	5.83E-01	NA	7.87E-02	5.04E-01	NA	5c	1008 & 1007	#8 Baghouse/prefilter & #7 Carbon Adsorption System	86.50%	99.85%	23	2,412	2,435	5	547	552
1	1003	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	VOC	8.00E-02	NA	4.00E-03	7.60E-02	NA	5d	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	95.00%	90.50%	316	175	491	165	92	257
1	1003	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	PM10/2.5	1.00E+01	NA	5.01E-01	9.52E+00	NA	5e	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	95.00%	99.85%	625	21,946	22,572	327	11,484	11,811
1	1004	A SHAKE OUT (DUST COLLECTION)	43,800	43,800	tons sand	VOC	7.68E-02	NA	7.68E-04	7.60E-02	NA	5d	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	90.50%	316	34	350	316	34	350
1	1004	A SHAKE OUT (DUST COLLECTION)	43,800	43,800	tons sand	PM10/2.5	9.62E+00	NA	9.62E-02	9.52E+00	NA	5e	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	625	4,212	4,837	625	4,212	4,837
1	1005	SAND SYSTEM (DUST COLLECTION)	306,600	63,140	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	246	1,656	1,902	51	341	392
1	1005	SAND SYSTEM (DUST COLLECTION) with Whirl Air Flow System	2,640	1,094	gallons	VOC	3.05E+00	3.05E+00	3.05E-02	NA	NA	10	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	90.50%	759	81	839	314	33	348
1	1006	SAND COOLER 6 SCREEN	43,800	34,727	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	35	237	272	28	188	215
1	1006	SAND COOLER 6 SCREEN with Mold Release Coating Operation	330	330	gallons	VOC	1.60E+00	1.60E+00	1.60E-02	NA	NA	11	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	90.50%	50	5	55	50	5	55
1	1007	SAND SCREEN	43,800	34,727	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	35	237	272	28	188	215
1	1008	MULLER	192,720	63,140	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	155	1,041	1,195	51	341	392
1	1010	MULLER, CORE SAND	17,520	4,929	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	14	95	109	4	27	31
1	1011	MULLER	8,760	5	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	7	47	54	0	0	0
1	1012	CLEANING & GRINDING DEPT.	17,520	12,600	tons steel	PM10/2.5	1.70E+00	1.70E+00	1.70E-01	NA	NA	2	1004	BAGHOUSE #4	90.00%	99.57%	115	2,978	3,094	83	2,142	2,225
1	1013	ARC-AIR BOOTH	8,760	8,760	tons steel	PM10/2.5	1.00E-03	1.00E-03	1.00E-04	NA	NA	6	1004	BAGHOUSE #4	90.00%	99.57%	0	1	1	0	1	1
1	1014	ARC-AIR BOOTH	8,760	8,760	tons steel	PM10/2.5	1.00E-03	1.00E-03	1.00E-04	NA	NA	6	1006	BAGHOUSE #6	90.00%	99.57%	0	1	1	0	1	1
1	1015	PANGBORN TABLE BLAST	87,600	4,200	tons steel	PM10	4.00E-02	4.00E-02	0.00E+00	NA	NA	7a	1003	BAGHOUSE #3	100.00%	99.57%	15	0	15	1	0	1
1	1015	PANGBORN TABLE BLAST	87,600	4,200	tons steel	PM2.5	4.00E-03	4.00E-03	0.00E+00	NA	NA	7b	1003	BAGHOUSE #3	100.00%	99.57%	2	0	2	0	0	0
1	1016	ROTO-BLAST	35,040	4,200	tons steel	PM10	4.00E-02	4.00E-02	0.00E+00	NA	NA	7a	1002	BAGHOUSE #2	100.00%	98.00%	28	0	28	3	0	3
1	1016	ROTO-BLAST	35,040	4,200	tons steel	PM2.5	4.00E-03	4.00E-03	0.00E+00	NA	NA	7b	1002	BAGHOUSE #2	100.00%	98.00%	3	0	3	0	0	0
1	1017	ROTO-BLAST	43,800	4,200	tons steel	PM10	4.00E-02	4.00E-02	0.00E+00	NA	NA	7a	1002	BAGHOUSE #2	100.00%	98.00%	35	0	35	3	0	3
1	1017	ROTO-BLAST	43,800	4,200	tons steel	PM2.5	4.00E-03	4.00E-03	0.00E+00	NA	NA	7b	1002	BAGHOUSE #2	100.00%	98.00%	4	0	4	0	0	0
1	1018	HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	5,496	0	5,496	5,496	0	5,496
1	1018	HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	4,617	0	4,617	4,617	0	4,617
1	1018	HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	302	0	302	302	0	302
1	1018	HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	418	0	418	418	0	418
1	1018	HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	9		None	100.00%	0.00%	33	0	33	33	0	33
1	1019	RAW SAND RECEIVING	131,400	30,000	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-03	NA	NA	2	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	99.85%	105	710	815	24	162	186
1	1022	CORE BAKE OVENS [exempt]	140,160	140,160	therm	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	1,374	0	1,374	1,374	0	1,374
1	1022	CORE BAKE OVENS [exempt]	140,160	140,160	therm	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	1,154	0	1,154	1,154	0	1,154
1	1022	CORE BAKE OVENS [exempt]	140,160	140,160	therm	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	76	0	76	76	0	76
1	1022	CORE BAKE OVENS [exempt]	140,160	140,160	therm	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	104	0	104	104	0	104
1	1022	CORE BAKE OVENS [exempt]	140,160	140,160	therm	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	9		None	100.00%	0.00%	8	0	8	8	0	8
1	1027	Core-Making Operation	11,750	6,300	gallons	VOC	6.42E-01	6.42E-01	6.42E-01	NA	NA	13		None	0.00%	0.00%	0	7,548	7,548	0	4,047	4,047
1	32001	MINOR SOURCES [small ladle heater, exempt]	29,696.4	29,696	therm	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	291	0	291	291	0	291
1	32001	MINOR SOURCES [small ladle heater, exempt]	29,696.4	29,696	therm	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	8		None	100.00%	0.00%	245	0	245	245	0	245
1	32001	MINOR SOURCES [small ladle heater, exempt]	29,696.4	29,696	therm	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	16	0	16	16	0	16
1	32001	MINOR SOURCES [small ladle heater, exempt]	29,696.4	29,696	therm	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	9		None	100.00%	0.00%	22	0	22	22	0	22
1	32001	MINOR SOURCES [small ladle heater, exempt]	29,696.4	29,696	therm	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	9		None	100.00%	0.00%	2	0	2	2	0	2

NOTES:

1. Emission Calculation - when uncontrolled emission factor total emissions is available:
   abated emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (capture efficiency, column O) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (1 - capture efficiency, column O)
   - when uncontrolled emission factor for captured emissions is available (source test in ducting before abatement device):
   abated emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column J) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column I) / (capture efficiency, column O) * (1 - capture efficiency, column O)
   - when controlled emission factor for captured emissionsis available (source test in ducting after abatement device):
   abated emissions = (throughput, column E or F) * (controlled captured emission factor, column J)
   fugitive emissions = (throughput, column E or F) * (controlled captured emission factor, column I) / (1- abatement efficiency, column P) / (capture efficiency, column O) * (1 - capture efficiency, column O)

BASIS FOR EMISSION FACTOR

2. AP42, Section 12.13, Steel Foundries, January 1995, Table 12.13-2 Emission Factors for Steel Foundries
3. AP42, Section 12.5.1, Steel Minimills, April 2009, Table 12.5.1-5 CO Emission Factors for Minimills
4. Energy and Environment Profile of US Iron and Steel Industry, August 2000, Table 5-3 Emission Factors for EAF Steelmaking
5. Source Test Report (Volume I) 2005-2006 Emissions Source Tests, Toxic Air Contaminants, Pacific Steel Casting Company prepared by Avogadro Group:
   a. Table 6-9, Summary of Results Particulate Matter Emissions, Plant 1, Electric Arc Furnace Stack - after abatement
   b. Table 6-4, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 1, Casting Pour-off Area - unabated in ducting upstream of abatement system
   c. Table 6-1, Summary of Results Particulate Matter Emissions, Plant 1, Casting Pour-off Area - unabated in ducting upstream of abatement system
   d. Table 6-8, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 1, A & B Shakeout - unabated in ducting upstream of abatement system
   e. Table 6-5, Summary of Results Particulate Matter Emissions, Plant 1, A & B Shakeout - unabated in ducting upstream of abatement system
6. BAAQMD DataBank emission factor
7. AP42, Section 13.2.6 , Abrasive Blasting, September 1997, Table 13.2.6-1 Particulate Emission Factors for Abrasive Blasting
   a. PM10 emission factor = (13 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (121 tons steel shot/ 7947 tons steel casting) = 4.0 E-2 lbs PM10/ton steel casting
   b. PM2.5 emission factor = (1.3 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (121 tons steel shot/ 7947 tons steel casting) = 4.0 E-3 lbs PM2.5/ton steel casting
8. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-1 Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion. Emission factor converted from lb/1E6 scf to lb/therm assuming NG heat content of 1020 Btu/scf.
9. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion. Emission factor converted from lb/1E6 scf to lb/therm assuming NG heat content of 1020 Btu/scf.
10. Mass balance based on a VOC content of 41.62% wt and density of 7.34 lbs/gal for Whirl Air Flow System spray application of an anti-corrosive release agent on the interior surface of the mix tank to prevent sand from sticking to the wall (ref. AN14784).
11. Mass balance based on a VOC content of 23.24% wt and density of 6.90 lbs/gal.
12. EAF PM emissions based on Permit Condition #23694(2) grain loading limit of 0.0017 gr/dscf AND the November 2012 source test volumetric flow rate of 35,557 dscfm.
13. Based on use of Techniset binder in the core mold making operation: binder density = 9.23 lbs/gal., 6.96 wt% VOC. Current permit condition limit of 12,608 lbs VOC/year must be revised.
14. Casting Emission Reduction Program (CERP) - "Carbon Monoxide and Carbon Dioxide Emissions in Metalcasting Pouring, Cooling, and Shakeout Operations", March 2008. District Source Tests: ST0272 & ST0273 (Plant 3 - S-4, S-19)

Plant 1	PTE tons/yr		Proposed Limit tons/yr
CO	**122.58**		**30.11**
NOx	**6.65**		**4.28**
SO2	**10.75**		**2.45**
VOC	**11.71**		**4.28**
PM10	0.04		0.00
PM10/2.5	74.70		23.32
PM2.5	0.004		0.000
PM total	**74.74**		**23.32**

																	Potential to Emit			Proposed Limits		
PSC Plant#	Source Number	Source Name	Potential to Emit Annual Throughput	Proposed Throughput Limit	Throughput Units	Pollutant	Unabated Emissions Factor (lbs/throughput)	Uncontrolled Emission Factor (total) (lbs/throughput unit)	Effective Fugitive Emission Factor (lbs/throughput)	Uncontrolled Emission Factor (captured emissions) (lbs/throughput unit)	Controlled Emission Factor (captured emissions) (lbs/throughput unit)	Basis for Emission Factor	A#	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)
2	2001	SAND SILO LOADING ELEVATOR	262,800	5,175	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2005	Baghouse, Shaking	90.00%	99.57%	549	14,191	14,740	11	279	290
2	2002	SAND SILO #1	52,560	2,588	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2005	Baghouse, Shaking	90.00%	99.57%	110	2,838	2,948	5	140	145
2	2003	SAND SILO #2	52,560	2,587	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2005	Baghouse, Shaking	90.00%	99.57%	110	2,838	2,948	5	140	145
2	2004	BUCKET ELEVATOR	43,800	5,175	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2005	Baghouse, Shaking	90.00%	99.57%	92	2,365	2,457	11	279	290
2	2005	RESIN TANK (HAI 789HE)	80,000	80000	gallons	VOC	5.91E-04	5.91E-04	0.00E+00	NA	NA	3		None	100.00%	0.00%	47	0	47	47	0	47
2	2006	SAND HEATER	52,560	37,318	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4	2004	Baghouse, Shaking	100.00%	0.00%	515	0	515	366	0	366
2	2006	SAND HEATER	52,560	37,318	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4	2004	Baghouse, Shaking	100.00%	0.00%	433	0	433	307	0	307
2	2006	SAND HEATER	52,560	37,318	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5	2004	Baghouse, Shaking	100.00%	0.00%	28	0	28	20	0	20
2	2006	SAND HEATER	52,560	37,318	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5	2004	Baghouse, Shaking	100.00%	99.57%	0	0	0	0	0	0
2	2006	SAND HEATER	52,560	37,318	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5	2004	Baghouse, Shaking	100.00%	0.00%	3	0	3	2	0	2
2	2006 - 12	COMBINED SOURCES	43,800	5,175	tons sand	CO	4.80E-01	NA	0.00E+00	NA	4.80E-01	6	2004	Baghouse, Shaking	100.00%	0.00%	21,024	0	21,024	2,484	0	2,484
2	2006 - 12	COMBINED SOURCES	43,800	5,175	tons sand	VOC	1.36E+01	NA	0.00E+00	NA	1.36E+01	6	2004	Baghouse, Shaking	100.00%	0.00%	595,680	0	595,680	70,380	0	70,380
2	2006 - 12	COMBINED SOURCES	43,800	5,175	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	2004	Baghouse, Shaking	100.00%	99.57%	102	0	102	12	0	12
2	2006 - 12	COMBINED SOURCES	43,800	5,175	tons sand	SO2	4.80E+00	NA	0.00E+00	NA	4.80E+00	6	2004	Baghouse, Shaking	100.00%	0.00%	210,240	0	210,240	24,840	0	24,840
2	2013 - 18	CORE MOLDING MACHINES [exempt]	26,280	493	tons sand	VOC	3.53E-02	NA	0.00E+00	3.53E-02	NA	7a		None	100.00%	0.00%	928	0	928	17	0	17
2	2013 - 18	CORE MOLDING MACHINES [exempt]	26,280	493	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2		None	100.00%	0.00%	14,191	0	14,191	266	0	266
2	2013	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	94	0	94	67	0	67
2	2013	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	79	0	79	56	0	56
2	2013	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	5	0	5	4	0	4
2	2013	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	7	0	7	5	0	5
2	2013	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	0	0	0
2	2014	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	94	0	94	67	0	67
2	2014	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	79	0	79	56	0	56
2	2014	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	5	0	5	4	0	4
2	2014	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	7	0	7	5	0	5
2	2014	CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	0	0	0
2	2015	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	169	0	169	120	0	120
2	2015	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	142	0	142	101	0	101
2	2015	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	9	0	9	7	0	7
2	2015	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	13	0	13	9	0	9
2	2015	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	1	0	1
2	2016	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	169	0	169	120	0	120
2	2016	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	142	0	142	101	0	101
2	2016	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	9	0	9	7	0	7
2	2016	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	13	0	13	9	0	9
2	2016	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	1	0	1
2	2017	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	169	0	169	120	0	120
2	2017	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	142	0	142	101	0	101
2	2017	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	9	0	9	7	0	7
2	2017	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	13	0	13	9	0	9
2	2017	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	1	0	1
2	2018	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	169	0	169	120	0	120
2	2018	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	142	0	142	101	0	101
2	2018	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	9	0	9	7	0	7
2	2018	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	13	0	13	9	0	9
2	2018	CORE MOLDING MACHINE [exempt]	17,274.7	12,265	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	1	0	1	1	0	1
2	2019	COATED SAND BIN	175,200	5,175	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	2004	Baghouse, Shaking	100.00%	99.57%	407	0	407	12	0	12
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	VOC	3.53E-02	NA	0.00E+00	3.53E-02	NA	7a		None	100.00%	0.00%	309	0	309	29	0	29
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2		None	100.00%	0.00%	4,730	0	4,730	442	0	442
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	558	0	558	396	0	396
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	469	0	469	333	0	333
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	31	0	31	22	0	22
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	42	0	42	30	0	30
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	3	0	3	2	0	2
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	VOC	3.53E-02	NA	0.00E+00	3.53E-02	NA	7a		None	100.00%	0.00%	464	0	464	97	0	97
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2		None	100.00%	0.00%	7,096	0	7,096	1,480	0	1,480
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	942	0	942	669	0	669
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	791	0	791	562	0	562
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	52	0	52	37	0	37
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	72	0	72	51	0	51
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	6	0	6	4	0	4
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	VOC	3.92E-02	NA	3.92E-03	3.53E-02	NA	7a	2007	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	44	52	96	9	11	20
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	6,386	710	7,096	1,332	148	1,480
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	96097.2	68,229	therms	NOx	9.80E-03	9.80E-03	9.80E-04	NA	NA	4	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	848	94	942	602	67	669
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	96097.2	68,229	therms	CO	8.24E-03	8.24E-03	8.24E-04	NA	NA	4	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	712	79	791	506	56	562
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	96097.2	68,229	therms	VOC	5.39E-04	5.39E-04	5.39E-05	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	4	5	10	3	4	7
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	96097.2	68,229	therms	PM10/2.5	7.45E-04	7.45E-04	7.45E-05	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	64	7	72	46	5	51
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	96097.2	68,229	therms	SO2	5.88E-05	5.88E-05	5.88E-06	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	5	1	6	4	0	4
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	13140	2,740	tons sand	VOC	3.92E-02	NA	3.92E-03	3.53E-02	NA	7a	2007	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	44	52	96	9	11	20
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	13140	2,740	tons sand	PM10/2.5	5.40E-01	5.40E-01	5.40E-02	NA	NA	2	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	6,386	710	7,096	1,332	148	1,480
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	NOx	9.80E-03	9.80E-03	9.80E-04	NA	NA	4	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	848	94	942	602	67	669
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	CO	8.24E-03	8.24E-03	8.24E-04	NA	NA	4	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	712	79	791	506	56	562
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	VOC	5.39E-04	5.39E-04	5.39E-05	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	4	5	10	3	4	7
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	PM10/2.5	7.45E-04	7.45E-04	7.45E-05	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	64	7	72	46	5	51
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	96,097.2	68,229	therms	SO2	5.88E-05	5.88E-05	5.88E-06	NA	NA	5	2007	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	5	1	6	4	0	4

																Potential to Emit			Proposed Limits		
PSC Plant#	Source Number	Source Name	Potential to Emit Annual Throughput	Proposed Throughput Limit	Throughput Units	Pollutant	Unabated Emissions Factor (lbs/throughput)	Uncontrolled Emission Factor (total) (lbs/throughput unit)	Effective Fugitive Emission Factor (lbs/throughput)	Uncontrolled Emission Factor (captured emissions) (lbs/throughput unit)	Controlled Emission Factor (captured emissions) (lbs/throughput unit)	Basis for Emission Factor	A#	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	VOC	3.53E-02	NA	0.00E+00	3.53E-02	NA	7a		None	100.00%	0.00%	309	0	309	29	0	29
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2		None	100.00%	0.00%	4,730	0	4,730	442	0	442
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	558	0	558	396	0	396
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	469	0	469	333	0	333
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	31	0	31	22	0	22
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	42	0	42	30	0	30
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	3	0	3	2	0	2
2	2025	ABRASIVE BLASTER, CORE AREA [exempt]	262.8	263	lbs steel shot	PM10	8.63E-03	NA	1.73E-03	NA	6.90E-04	8a	2006	Baghouse	80.00%	90.00%	0	0	1	0	0	1
2	2026	LARGE LADLE HEATER	105,120	74,635	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	0.00%	1,031	0	1,031	732	0	732
2	2026	LARGE LADLE HEATER	105,120	74,635	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	0.00%	866	0	866	615	0	615
2	2026	LARGE LADLE HEATER	105,120	74,635	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	90.50%	5	0	5	4	0	4
2	2026	LARGE LADLE HEATER	105,120	74,635	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	99.85%	0	0	0	0	0	0
2	2026	LARGE LADLE HEATER	105,120	74,635	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	0.00%	6	0	6	4	0	4
2	2027	ELECTRIC ARC FURNACE	33,288	6,950	tons steel	NOx	2.00E-01	2.00E-01	5.00E-03	NA	NA	2	2003	Baghouse, Shaking	97.50%	0.00%	6,491	166	6,658	1,355	35	1,390
2	2027	ELECTRIC ARC FURNACE	33,288	6,950	tons steel	CO	1.80E+00	1.80E+00	4.50E-02	NA	NA	9	2003	Baghouse, Shaking	97.50%	0.00%	58,420	1,498	59,918	12,197	313	12,510
2	2027	ELECTRIC ARC FURNACE	33,288	6,950	tons steel	VOC	3.50E-01	3.50E-01	8.75E-03	NA	NA	10	2003	Baghouse, Shaking	97.50%	0.00%	11,360	291	11,651	2,372	61	2,433
2	2027	ELECTRIC ARC FURNACE	33,288	6,950	tons steel	PM10/2.5	5.06E+01	NA	1.27E+00	NA	2.12E-01	12	2003	Baghouse, Shaking	97.50%	99.57%	7,062	42,110	49,172	1,474	8,792	10,266
2	2027	ELECTRIC ARC FURNACE	33,288	6,950	tons steel	SO2	7.00E-01	7.00E-01	1.75E-02	NA	NA	10	2003	Baghouse, Shaking	97.50%	0.00%	22,719	583	23,302	4,743	122	4,865
2	2028, 2029 & 2031	EAF LADLE STATION W/CANOPY HOOD, SHELL MOLD POURING STATION/SHAKEOUT & TRAY SANDING	33,288	6,950	tons steel	VOC	8.33E-02	NA	8.33E-03	7.50E-02	NA	7c	2001 & 2002, 2007	Baghouse/Filter/Carbon	90.00%	90.50%	237	277	515	50	58	107
2	2028, 2029 & 2031	EAF LADLE STATION W/CANOPY HOOD, SHELL MOLD POURING STATION/SHAKEOUT & TRAY SANDING	33,288	6,950	tons steel	PM10/2.5	1.61E+01	NA	1.77E+00	1.43E+01	NA	7d	2001 & 2002, 2007	Baghouse/Filter/Carbon	89.00%	99.85%	715	58,916	59,631	149	12,301	12,450
2	2030	CAST MOLD COOLING ROOM	33,288	6,950	tons steel	CO	6.00E+00	6.00E+00	0.0006	NA	NA	13	2 & 7	Baghouse/Filter/Carbon	99.99%	0.00%	199,708	20	199,728	41,696	4	41,700
2	2030	CAST MOLD COOLING ROOM	33,288	6,950	tons steel	VOC	7.20E-02	NA	7.20072E-06	7.20E-02	NA	7e	2002 & 2007	Baghouse/Filter/Carbon	99.99%	90.50%	228	0	228	48	0	48
2	2030	CAST MOLD COOLING ROOM	33,288	6,950	tons steel	PM10/2.5	2.57E-01	NA	2.57026E-05	2.57E-01	NA	7f	2002 & 2007	Baghouse/Filter/Carbon	99.99%	99.85%	13	1	14	3	0	3
2	2032	ROTOBLAST	350,400	13,500	tons steel	PM10	3.96E-02	3.96E-02	0.00E+00	NA	NA	8b	2001 & 2002, 2007	Baghouse & Carbon Adsorber	100.00%	99.85%	21	0	21	1	0	1
2	2032	ROTOBLAST	350,400	13,500	tons steel	PM2.5	3.96E-03	3.96E-03	0.00E+00	NA	NA	8c	2001 & 2002, 2007	Baghouse & Carbon Adsorber	100.00%	99.85%	2	0	2	0	0	0
2	2033 - 40	ABRASIVE CUT-OFF SAW / GRINDING [exempt]	28,032	13,500	tons steel	PM10/2.5	1.70E+00	1.7	0.17	NA	NA	2	2005	Baghouse, Shaking	90.00%	99.57%	184	4,765	4,950	80	2,295	2,384
2	2044 - 49	Thermal Sand Recycling System	17,520	10,000	tons sand	VOC	4.85E-02	NA	4.85E-04	NA	4.80E-02	7g	2010	Baghouse, Pulse Jet	99.00%	0.00%	841	8	849	480	5	485
2	2044 - 49	Thermal Sand Recycling System	17,520	10,000	tons sand	PM10/2.5	8.55E+00	NA	8.55E-02	NA	3.64E-02	7h	2010	Baghouse, Pulse Jet	99.00%	99.57%	638	1,498	2,136	364	855	1,219
2	2044 - 49	Thermal Sand Recycling System	262,800	186,588	therms	NOx	9.80E-03	9.80E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	2,576	0	2,576	1,829	0	1,829
2	2044 - 49	Thermal Sand Recycling System	262,800	186,588	therms	CO	8.24E-03	8.24E-03	0.00E+00	NA	NA	4		None	100.00%	0.00%	2,164	0	2,164	1,537	0	1,537
2	2044 - 49	Thermal Sand Recycling System	262,800	186,588	therms	VOC	5.39E-04	5.39E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	142	0	142	101	0	101
2	2044 - 49	Thermal Sand Recycling System	262,800	186,588	therms	PM10/2.5	7.45E-04	7.45E-04	0.00E+00	NA	NA	5		None	100.00%	0.00%	196	0	196	139	0	139
2	2044 - 49	Thermal Sand Recycling System	262,800	186,588	therms	SO2	5.88E-05	5.88E-05	0.00E+00	NA	NA	5		None	100.00%	0.00%	15	0	15	11	0	11
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	NOx	9.80E-03	9.80E-03	9.80E-03	NA	NA	4		None	0.00%	0.00%	0	515	515	0	366	366
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	CO	8.24E-03	8.24E-03	8.24E-03	NA	NA	4		None	0.00%	0.00%	0	433	433	0	307	307
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	VOC	5.39E-04	5.39E-04	5.39E-04	NA	NA	5		None	0.00%	0.00%	0	28	28	0	20	20
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	PM10/2.5	7.45E-04	7.45E-04	7.45E-04	NA	NA	5		None	0.00%	0.00%	0	39	39	0	28	28
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	SO2	5.88E-05	5.88E-05	5.88E-05	NA	NA	5		None	0.00%	0.00%	0	3	3	0	2	2

NOTES:

1. Emission Calculation - when uncontrolled emission factor total emissions is available:
   abated emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (capture efficiency, column O) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (1 - capture efficiency, column O)
   - when uncontrolled emission factor for captured emissions is available (source test in ducting before abatement device):
   abated emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column J) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column I) / (capture efficiency, column O) * (1 - capture efficiency, column O)
   - when controlled emission factor for captured emissionsis available (source test in ducting after abatement device):
   abated emissions = (throughput, column E or F) * (controlled captured emission factor, column J)
   fugitive emissions = (throughput, column E or F) * (controlled captured emission factor, column I) / (1- abatement efficiency, column P) / (capture efficiency, column O) * (1 - capture efficiency, column O)

BASIS FOR EMISSION FACTOR

2. AP42, Section 12.13, Steel Foundries, January 1995, Table 12.13-2 Emission Factors for Steel Foundries
3. Momentive technical support email product composition and AP42, Section 7.1.3.1, Liquid Storage Tanks
4. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-1 Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion
5. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion
6. BAAQMD Summary of Source Test Results, Report No. 05176 April 14, 2005, Sand Heater & Sand Coating
7. Source Test Report (Volume I) 2005-2006 Emissions Source Tests, Toxic Air Contaminants, Pacific Steel Casting Company prepared by Avogadro Group:
   a. Table 7-25, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 2, Shell Molding Machine
   b. Table 7-29, Summary of Results Particulate Matter Emissions, Plant 2, Electric Arc Furnace Stack - after abatement
   c. Table 7-7, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 2, Shell Mold Pouring (and Shakeout) - unabated in ducting upstream of abatement system
   d. Table 7-1, Summary of Results Particulate Matter Emissions, Plant 2, Shell Mold Pouring (and Shakeout) - unabated in ducting upstream of abatement system
   e. Table 7-21, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 2, Cast Mold Cooling - unabated in ducting upstream of abatement system
   f. Table 7-15, Summary of Results Particulate Matter Emissions, Plant 2, Cast Mold Cooling - unabated in ducting upstream of abatement system
   g. Table 7-8, Summary of Results Non-Methane Hydrocarbon, Plant 2, Thermal Sand Recycling System - after abatement
   h. Table 7-8, Summary of Results Particulate Matter Emissions, Plant 2, Thermal Sand Recycling System - after abatement
8. AP42, Section 13.2.6, Abrasive Blasting, September 1997, Table 13.2.6-1 Particulate Emission Factors for Abrasive Blasting
   a. Emission factor for unspecified metal part controlled with fabric filter.
   b. PM10 emission factor = (13 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (121 tons steel shot/ 7947 tons steel casting) = 3.96 E-2 lbs PM10/ton steel casting
   c. PM2.5 emission factor = (1.3 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (121 tons steel shot/ 7947 tons steel casting) = 3.96 E-3 lbs PM2.5/ton steel casting
9. AP42, Section 12.5.1, Steel Minimills, April 2009, Table 12.5.1-5 CO Emission Factors for Minimills
10. Energy and Environment Profile of US Iron and Steel Industry, August 2000, Table 5-3 Emission Factors for EAF Steelmaking
11. BAAQMD DataBank emission factor
12. EAF PM emissions based on:
    BAAQMD BACT 1 grain loading limit of 0.0013 gr/dscf AND the 2005-2006 source test volumetric flow rate of 22,053 dscfm.
13. Casting Emission Reduction Program (CERP) - "Carbon Monoxide and Carbon Dioxide Emissions in Metalcasting Pouring, Cooling, and Shakeout Operations", March 2008. District Source Tests: ST0272 & ST0273 (Plant 3 - S-4, S-19)

Plant 2	PTE tons/yr		Proposed Limit tons/yr
CO	**144.30**		**31.16**
NOx	**8.05**		**4.05**
SO2	**116.80**		**14.87**
VOC	**305.78**		**36.99**
PM10	0.01		0.00
PM10/2.5	92.52		16.62
PM2.5	0.001		0.000
PM total	**92.53**		**16.62**

																	Potential to Emit			Proposed Limits		
PSC Plant#	Source Number	Source Name	Potential to Emit Annual Throughput	Proposed Throughput Limit	Throughput Units	Pollutant	Unabated Emissions Factor (lbs/throughput)	Uncontrolled Emission Factor (total) (lbs/throughput unit)	Effective Fugitive Emission Factor (lbs/throughput)	Uncontrolled Emission Factor (captured emissions) (lbs/throughput unit)	Controlled Emission Factor (captured emissions) (lbs/throughput unit)	Basis for Emission Factor	A#	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)	Abated Emissions (lbs/yr)	Fugitive Emissions (lbs/yr)	Total (lbs/yr)
3	3001	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	NOx	2.00E-01	2.00E-01	5.00E-03	NA	NA	2	3001	EAF Baghouse	97.50%	0.00%	5,125	131	5,256	1,355	35	1,390
3	3001	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	CO	1.80E+00	1.80E+00	4.50E-02	NA	NA	3	3001	EAF Baghouse	97.50%	0.00%	46,121	1,183	47,304	12,197	313	12,510
3	3001	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	VOC	3.50E-01	3.50E-01	8.75E-03	NA	NA	4	3001	EAF Baghouse	97.50%	0.00%	8,968	230	9,198	2,372	61	2,433
3	3001	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	PM10/2.5	1.03E+02	NA	2.58E+00	NA	4.33E-01	10	3001	EAF Baghouse	97.50%	99.57%	11,371	67,808	79,180	3,007	17,933	20,940
3	3001	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	SO2	7.00E-01	7.00E-01	1.75E-02	NA	NA	4	3001	EAF Baghouse	97.50%	0.00%	17,936	460	18,396	4,743	122	4,865
3	3002	Ladle Heater [exempt]	105,120	105,120	therms	NOx	9.80E-03	9.80E-03	9.80E-03	NA	NA	7		None	0.00%	0.00%	0	1,031	1,031	0	1,031	1,031
3	3002	Ladle Heater [exempt]	105,120	105,120	therms	CO	8.24E-03	8.24E-03	8.24E-03	NA	NA	7		None	0.00%	0.00%	0	866	866	0	866	866
3	3002	Ladle Heater [exempt]	105,120	105,120	therms	VOC	5.39E-04	5.39E-04	5.39E-04	NA	NA	8		None	0.00%	0.00%	0	57	57	0	57	57
3	3002	Ladle Heater [exempt]	105,120	105,120	therms	PM10/2.5	7.45E-04	7.45E-04	7.45E-04	NA	NA	8		None	0.00%	0.00%	0	78	78	0	78	78
3	3002	Ladle Heater [exempt]	105,120	105,120	therms	SO2	5.88E-05	5.88E-05	5.88E-05	NA	NA	8		None	0.00%	0.00%	0	6	6	0	6	6
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	VOC	8.18E+00	NA	8.18E-02	8.10E+00	NA	5b	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	20,230	2,151	22,381	5,350	569	5,919
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	CO	6.00E+00	6.00E+00	6.00E-02	NA	NA	15	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	99.00%	0.00%	156,103	1,577	157,680	41,283	417	41,700
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	PM10/2.5	1.80E-02	NA	1.80E-04	NA	6.24E-03	13	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	164	5	169	43	1	45
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Condensable PM10/2.5	1.09E-02	NA	1.09E-04	NA	3.76E-03	13		Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	99	3	102	26	1	27
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	37,800	tons sand	PM10/2.5	4.48E-02	NA	4.48E-04	NA	1.55E-02	14	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	408	12	420	587	17	604
3	3004 & 3019	Casting Mold Shake Out & Pour Area	26,280	37,800	tons sand	Condensable PM10/2.5	3.49E-02	NA	3.49E-04	NA	1.21E-02	14		Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	318	9	327	457	13	471
3	3005	Blast Table	87,600	12,150	tons steel	PM10	3.30E-02	3.30E-02	0.00E+00	NA	NA	6a	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	12	0	12	2	0	2
3	3005	Blast Table	87,600	12,150	tons steel	PM2.5	3.30E-03	3.30E-03	0.00E+00	NA	NA	6b	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	1	0	1	0	0	0
3	3006	Tumble Blast	21,900	12,150	tons steel	PM10	3.30E-02	3.30E-02	0.00E+00	NA	NA	6a	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	3	0	3	2	0	2
3	3006	Tumble Blast	21,900	12,150	tons steel	PM2.5	3.30E-03	3.30E-03	0.00E+00	NA	NA	6b	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	0	0	0	0
3	3007	New Sand Silo #1	28,470	3,366	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	66	0	66	8	0	8
3	3009	Sand Cooler Classifier	131,400	37,800	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	88	0	88
3	3010	Sand Conditioning Unit #1	131,400	18,900	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	44	0	44
3	3011	Sand Conditioning Unit #2	219,000	18,900	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	509	0	509	44	0	44
3	3012	Return Sand Bin #1	131,400	37,800	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	88	0	88
3	3013	Reclaimed Sand Bin #2	131,400	34,020	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	79	0	79
3	3015	New Sand Receiving Bucket Elevator #1	219,000	3,366	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	509	0	509	8	0	8
3	3016	Bucket Elevator #2 Returned Sand	131,400	37,800	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	88	0	88
3	3017	Bucket Elevator #3 Reclaimed Sand	131,400	34,020	tons sand	PM10/2.5	5.40E-01	5.40E-01	0.00E+00	NA	NA	2	3004	Sand System Baghouse	100.00%	99.57%	305	0	305	79	0	79
3	3014 & 3018	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	VOC	8.50E-02	8.50E-02	2.13E-02	NA	NA	5d	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	968	3,397	4,365	229	803	1,032
3	3014 & 3018	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	PM10/2.5	6.00E-03	6.00E-03	1.50E-03	NA	NA	5e	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	99.85%	1	240	241	0	57	57
3	3018	Coating Operation	1,200	1,200	gal Ceramol	VOC	3.69E+00	3.69E+00		NA	NA	11	3005, 3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	315	1,106	1,421	315	1,106	1,421
3	3020	Holcote 578 CCD Coating [exempt]	1,200	1,200	gal mold coating	VOC	1.00E-01	1.00E-01	2.50E-02	NA	NA	12	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	9	30	39	9	30	39
3		Heat treat furnaces [exempt]	105,120	102,664	therms	NOx	9.80E-03	9.80E-03	9.80E-03	NA	NA	7		None	0.00%	0.00%	0	1,031	1,031	0	1,007	1,007
3		Heat treat furnaces [exempt]	105,120	102,664	therms	CO	8.24E-03	8.24E-03	8.24E-03	NA	NA	7		None	0.00%	0.00%	0	866	866	0	845	845
3		Heat treat furnaces [exempt]	105,120	102,664	therms	VOC	5.39E-04	5.39E-04	5.39E-04	NA	NA	8		None	0.00%	0.00%	0	57	57	0	55	55
3		Heat treat furnaces [exempt]	105,120	102,664	therms	PM10/2.5	7.45E-04	7.45E-04	7.45E-04	NA	NA	8		None	0.00%	0.00%	0	78	78	0	76	76
3		Heat treat furnaces [exempt]	105,120	102,664	therms	SO2	5.88E-05	5.88E-05	5.88E-05	NA	NA	8		None	0.00%	0.00%	0	6	6	0	6	6
3		Cleaning and Grinding in Finishing Room [exempt]	23,652	12,150	tons steel	PM10/2.5	1.70E+00	1.70E+00	1.70E-01	NA	NA	2		Finishing Room Vent	90.00%	50.00%	18,094	4,021	22,115	9,295	2,066	11,360
3		Arc Air Booth/Welding in Finishing Room [exempt]	23,652	12,150	tons steel	PM10/2.5	1.00E-03	1.00E-03	0.00E+00	NA	NA	9		Finishing Room Vent	100.00%	50.00%	12	0	12	6	0	6

NOTES:

1. Emission Calculation - when uncontrolled emission factor total emissions is available
   abated emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (capture efficiency, column O) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled emission factor, column I) * (1 - capture efficiency, column O)
   - when uncontrolled emission factor for captured emissions is available (source test in ducting before abatement device):
   abated emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column J) * (1 - abatement efficiency, column P)
   fugitive emissions = (throughput, column E or F) * (uncontrolled captured emission factor, column I) / (capture efficiency, column O) * (1 - capture efficiency, column O)
   - when controlled emission factor for captured emissionsis available (source test in ducting after abatement device):
   abated emissions = (throughput, column E or F) * (controlled captured emission factor, column J)
   fugitive emissions = (throughput, column E or F) * (controlled captured emission factor, column I) / (1- abatement efficiency, column P) / (capture efficiency, column O) * (1 - capture efficiency, column O)

BASIS FOR EMISSION FACTOR

2. AP42, Section 12.13, Steel Foundries, January 1995, Table 12.13-2 Emission Factors for Steel Foundries
3. AP42, Section 12.5.1, Steel Minimills, April 2009, Table 12.5.1-5 CO Emission Factors for Minimills
4. Energy and Environment Profile of US Iron and Steel Industry, August 2000, Table 5-3 Emission Factors for EAF Steelmaking
5. Source Test Report (Volume I) 2005-2006 Emissions Source Tests, Toxic Air Contaminants, Pacific Steel Casting Company prepared by Avogadro Group:
   a. Table 8-14, Summary of Results Particulate Matter Emissions, Plant 3, Electric Arc Furnace Outlet Stack - after abatement
   b. Table 8-7, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 3, Pour Area - unabated in ducting upstream of abatement system
   c. Table 8-1, Summary of Results Particulate Matter Emissions, Plant 3, Pour Area - unabated in ducting
   d. Table 8-13, Summary of Results Non-Methane Hydrocarbon Emissions, Plant 3, Mold Mixing Area - unabated in ducting upstream of abatement system
   e. Table 8-8, Summary of Results Particulate Matter Emissions, Plant 3, Mold Mixing Area - unabated in ducting upstream of abatement system
6. AP42, Section 13.2.6 , Abrasive Blasting, September 1997, Table 13.2.6-1 Particulate Emission Factors for Abrasive Blasting
   a. PM10 emission factor = (13 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (112 tons steel shot/ 8853 tons steel casting) = 3.3 E-2 lbs PM10/ton steel casting
   b. PM2.5 emission factor = (1.3 lbs/1000lbs sand) * (2000lbs /ton sand) * (0.1 ton steel shot/ ton sand) * (112 tons steel shot/ 8853 tons steel casting) = 3.3 E-3 lbs PM2.5/ton steel casting
7. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-1 Emission Factors for Nitrogen Oxides (NOx) and Carbon Monoxide (CO) from Natural Gas Combustion
8. AP42, Section 1.4, Natural Gas Combustion, Table 1.4-2 Emission Factors for Criteria Pollutants and Greenhouse Gases from Natural Gas Combustion
9. BAAQMD DataBank emission factor.
10. EAF PM emissions based on:
    Proposed new Permit Condition #23703(2) grain loading limit of 0.0014 gr/dscf AND the November 2012 source test volumetric flow rate of 27,042 dscfm.
11. Additional S18 VOC emissions based on the estimated Isopropanol emissions from Ceramol usage in the Mold Mixing Area reported in Table B.4.3 of the ATHS HRA.
12. S20 VOC emissions based on Databank throughput and AN14780 VOC content.
13. BAAQMD Summary of Source Test Results, Report No. 10272 June 8-10, 2010, Pouring & Cooling (S-4) abated by Twin Baghouses & Pre-Filter/Carbon Bed (A-3, 7, & 8)
14. BAAQMD Summary of Source Test Results, Report No. 10273 June 8-10, 2010, Shakeout (S-19) abated by Twin Baghouses & Pre-Filter/Carbon Bed (A-3, 7, & 8)
15. Casting Emission Reduction Program (CERP) - "Carbon Monoxide and Carbon Dioxide Emissions in Metalcasting Pouring, Cooling, and Shakeout Operations", March 2008, BAAQMD Source Test Report No. 10272 (S-3004, June 8 - 10, 2010) and No. 10273 (S-3019, June 8 - 10, 2010)

Plant 3	PTE tons/yr			Proposed Limit tons/yr
CO	**103.36**			**27.96**
NOx	**3.66**			**1.71**
SO2	**9.20**			**2.44**
VOC	**18.76**			**5.48**
PM10	0.01			0.00
PM10/2.5	52.60			16.85
PM2.5	0.001			0.000
PM total	**52.61**			**16.85**

Plant 1	PTE tons/yr			Proposed Limit tons/yr
CO	**122.58**			**30.11**
NOx	**6.65**			**4.28**
SO2	**10.75**			**2.45**
VOC	**11.71**			**4.28**
PM10	0.04			0.00
PM10/2.5	74.70			23.32
PM2.5	0.00			0.00
PM total	**74.74**			**23.32**

Plant 2	PTE tons/yr			Proposed Limit tons/yr
CO	**144.30**			**31.16**
NOx	**8.05**			**4.05**
SO2	**116.80**			**14.87**
VOC	**305.78**			**36.99**
PM10	0.01			0.00
PM10/2.5	92.52			16.62
PM2.5	0.00			0.00
PM total	**92.53**			**16.62**

Total for all three plants				Proposed Limit tons/yr
CO	**370.24**			**89.24**
NOx	**18.36**			**10.04**
SO2	**136.76**			**19.77**
VOC	**336.25**			**46.75**
PM10	0.06			0.01
PM10/2.5	219.83			56.78
PM2.5	0.01			0.00
PM total	**219.88**			**56.78**

APPENDIX D
Criteria Air Pollutant Emission Factor Bases

		Pollutant Emitted by Source?					Emission Factor Basis				
Source Number	Source Name	NO_X	CO	VOC	$PM_{10/2.5}$	SO_2	NO_X	CO	VOC	$PM_{10/2.5}$	SO_2
1001	ARC FURNACE	X	X	X	X	X	AP-42	AP-42	Energy Study	PC 23694 & Source Test	Energy Study
1002	POUR-OFF AREA		X	X	X			CERP	OS-1492	OS-1492	
1003	B SHAKE OUT (DUST COLLECTION)			X	X				OS-1493	OS-1493	
1004	A SHAKE OUT (DUST COLLECTION)			X	X				OS-1493	OS-1493	
1005	SAND SYSTEM (DUST COLLECTION)				X					AP-42	
1005	SAND SYSTEM (DUST COLLECTION)			X					Mass Balance		
1006	SAND COOLER 6 SCREEN				X					AP-42	
1006	SAND COOLER 6 SCREEN			X					Mass Balance		
1007	SAND SCREEN				X					AP-42	
1008	MULLER				X					AP-42	
1010	MULLER, CORE SAND				X					AP-42	
1011	MULLER				X					AP-42	
1012	CLEANING & GRINDING DEPT.				X					AP-42	
1013	ARC-AIR BOOTH				X					Databank (AP-42)	
1014	ARC-AIR BOOTH				X					Databank (AP-42)	
1015	PANGBORN TABLE BLAST				X					AP-42	
1016	ROTO-BLAST				X					AP-42	
1017	ROTO-BLAST				X					AP-42	
1018	HEAT TREATING FURNACES [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
1019	RAW SAND RECEIVING				X					AP-42	
1022	CORE BAKE OVENS [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
1027	Core-Making Operation			X					Mass Balance		
32001	MINOR SOURCES [small ladle heater, exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2001	SAND SILO LOADING ELEVATOR				X					AP-42	
2002	SAND SILO #1				X					AP-42	
2003	SAND SILO #2				X					AP-42	
2004	BUCKET ELEVATOR				X					AP-42	
2005	RESIN TANK (HAI 789HE)			X					AP-42		
2006	SAND HEATER	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2006 - 12	COMBINED SOURCES		X	X	X	X		ST 5176	ST 5176	AP-42	ST 5176
2013 - 18	CORE MOLDING MACHINES [exempt]			X	X				OS-1498	AP-42	
2013	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2014	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2015	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2016	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2017	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2018	CORE MOLDING MACHINE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2019	COATED SAND BIN				X					AP-42	
2020	SHELL MOLDING MACHINE, SINGLE [exempt]			X	X				OS-1498	AP-42	
2020	SHELL MOLDING MACHINE, SINGLE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2021	SHELL MOLDING MACHINE, TWIN [exempt]			X	X				OS-1498	AP-42	
2021	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2022	SHELL MOLDING MACHINE, TWIN [exempt]			X	X				OS-1498	AP-42	
2022	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2023	SHELL MOLDING MACHINE, TWIN [exempt]			X	X				OS-1498	AP-42	
2023	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2024	SHELL MOLDING MACHINE, SINGLE [exempt]			X	X				OS-1498	AP-42	
2024	SHELL MOLDING MACHINE, SINGLE [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2025	ABRASIVE BLASTER, CORE AREA [exempt]				X					AP-42	
2026	LARGE LADLE HEATER	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
2027	ELECTRIC ARC FURNACE	X	X	X	X	X	AP-42	AP-42	Energy Study	BACT & 2005-06 Source Tests	Energy Study
2031	EAF LADLE STATION W/CANOPY HOOD, SHELL MOLD POURING STATION/SHAKEOUT & TRAY SANDING			X	X				OS-1495	OS-1495	
2030	CAST MOLD COOLING ROOM		X	X	X			CERP	OS-1497	OS-1497	
2032	ROTOBLAST				X					AP-42	
2033 - 40	ABRASIVE CUT-OFF SAW / GRINDING [exempt]				X					AP-42	
2044 - 49	Thermal Sand Recycling System			X	X				OS-1496	OS-1496	
2044 - 49	Thermal Sand Recycling System	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
32000	MISCELLANEOUS MINOR SOURCES [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
3001	ELECTRIC ARC FURNACE	X	X	X	X	X	AP-42	AP-42	Energy Study	PC 23703 & 2012 Source Test	Energy Study
3002	Ladle Heater [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
3004 & 3019	Casting Mold Shake Out & Pour Area		X	X	X			CERP	OS-1500	ST 10272	
3004 & 3019	Casting Mold Shake Out & Pour Area				X					ST 10273	
3005	Blast Table				X					AP-42	
3006	Tumble Blast				X					AP-42	
3007	New Sand Silo #1				X					AP-42	
3009	Sand Cooler Classifier				X					AP-42	
3010	Sand Conditioning Unit #1				X					AP-42	
3011	Sand Conditioning Unit #2				X					AP-42	
3012	Return Sand Bin #1				X					AP-42	
3013	Reclaimed Sand Bin #2				X					AP-42	
3015	New Sand Receiving Bucket Elevator #1				X					AP-42	
3016	Bucket Elevator #2 Returned Sand				X					AP-42	
3017	Bucket Elevator #3 Reclaimed Sand				X					AP-42	
3014 & 3018	Mold Mixing Area/Coating Operation			X	X				OS-1501	OS-1501	
3018	Coating Operation			X					Mass Balance		
3020	Holcote 578 CCD Coating [exempt]			X					Mass Balance		
	Heat treat furnaces [exempt]	X	X	X	X	X	AP-42	AP-42	AP-42	AP-42	AP-42
	Cleaning and Grinding in Finishing Room [exempt]				X					AP-42	
	Arc Air Booth/Welding in Finishing Room [exempt]				X					Databank (AP-42)	

NOTE:

Detailed specifics on emission factor basis are listed in the "Notes" section of the emission calculations within Appendix C.

Plant#	S #	Source Name	A#	Abatement Device Description	Efficiency (%)	Control Pollutant	Capture Efficiency Basis
1	1001	ARC FURNACE	1009	Baghouse	97.50%	PM	Assumes hood capture of 50% of fugitives: 95% + 5% * 0.5 = 97.5%.
1	1002	POUR-OFF AREA	1008 & 1007	#8 Baghouse/prefilter & #7 Carbon Adsorption System	86.50%	VOC/PM	Estimate
1	1003	B SHAKE OUT (DUST COLLECTION)	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	95.00%	VOC/PM	Estimate
1	1004	A SHAKE OUT (DUST COLLECTION)	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	VOC/PM	Estimate
1	1005	SAND SYSTEM (DUST COLLECTION)	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	VOC/PM	Estimate
1	1006	SAND COOLER 6 SCREEN	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	VOC/PM	Estimate
1	1007	SAND SCREEN	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	PM	Estimate
1	1008	MULLER	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	PM	Estimate
1	1010	MULLER, CORE SAND	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	PM	Estimate
1	1011	MULLER	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	PM	Estimate
1	1012	CLEANING & GRINDING DEPT.	1004	BAGHOUSE #4	90.00%	PM	Not fully enclosed, local exhaust hood located directly behind the blade or wheel
1	1013	ARC-AIR BOOTH	1004	BAGHOUSE #4	90.00%	PM	Estimate
1	1014	ARC-AIR BOOTH	1006	BAGHOUSE #6	90.00%	PM	Estimate
1	1015	PANGBORN TABLE BLAST	1003	BAGHOUSE #3	100.00%	PM	Fully enclosed
1	1016	ROTO-BLAST	1002	BAGHOUSE #2	100.00%	PM	Fully enclosed
1	1017	ROTO-BLAST	1002	BAGHOUSE #2	100.00%	PM	Fully enclosed
1	1018	HEAT TREATING FURNACES [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
1	1019	RAW SAND RECEIVING	1001 & 1007	#1 Baghouse/prefilter & #7 Carbon Adsorption System	99.00%	PM	Estimate
1	1022	CORE BAKE OVENS [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
1	32001	MINOR SOURCES [small ladle heater, exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2001	SAND SILO LOADING ELEVATOR	2005	Baghouse, Shaking	90.00%	PM	Estimate
2	2002	SAND SILO #1	2005	Baghouse, Shaking	90.00%	PM	Estimate
2	2003	SAND SILO #2	2005	Baghouse, Shaking	90.00%	PM	Estimate
2	2004	BUCKET ELEVATOR	2005	Baghouse, Shaking	90.00%	PM	Estimate
2	2005	RESIN TANK (HAI 789HE)		None	100.00%	VOC	No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2006	SAND HEATER	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2007	SAND COATING	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2008	COATED SAND PUG MILL	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2009	COATED SAND VIBRATING SCREEN	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2010	BUCKET ELEVATOR	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2011	COOLING TOWER, COATED SAND	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2012	BUCKET ELEVATOR	2004	Baghouse, Shaking	100.00%	PM	Fully enclosed
2	2013	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2014	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2015	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2016	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2017	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2018	CORE MOLDING MACHINE [exempt]		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
2	2019	COATED SAND BIN	2004	Baghouse, Shaking	100.00%	PM	
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]		None	100.00%		No collection system
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]		None	100.00%		Almost fully enclosed
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	2007	Adsorption, Activated Carbon/Charcoal	90.00%	VOC	Hoods over the units
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	2007	Adsorption, Activated Carbon/Charcoal	90.00%	VOC	Hoods over the units
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]		None	100.00%		No collection system
2	2025	ABRASIVE BLASTER, CORE AREA [exempt]	2006	Baghouse	80.00%	PM	Estimate
2	2026	LARGE LADLE HEATER	2001 & 2002, 2007	Baghouse/Filter/Carbon	100.00%	VOC/PM	Fully Enclosed
2	2027	ELECTRIC ARC FURNACE	2003	Baghouse, Shaking	97.50%	PM	Assumes hood capture of 50% of fugitives: 95% + 5% * 0.5 = 97.5%.
2	2028, 2029 & 2031	EAF LADLE STATION W/CANOPY HOOD, SHELL MOLD POURING STATION/SHAKEOUT & TRAY SANDING	2001 & 2002, 2007	Baghouse/Filter/Carbon	90.00%	VOC	Shakeout and tray sanding systems almost entirely enclosed
2	2028, 2029 & 2031	EAF LADLE STATION W/CANOPY HOOD, SHELL MOLD POURING STATION/SHAKEOUT & TRAY SANDING	2001 & 2002, 2007	Baghouse/Filter/Carbon	89.00%	PM	Shakeout and tray sanding systems almost entirely enclosed
2	2030	CAST MOLD COOLING ROOM	2002 & 2007	Baghouse/Filter/Carbon	99.99%	VOC/PM	Fully enclosed with only a small opening sufficient for conveyor transfer of poured castings
2	2032	ROTOBLAST	2001 & 2002, 2007	Baghouse & Carbon Adsorber	100.00%	PM	Fully enclosed
2	2033 - 40	ABRASIVE CUT-OFF SAW / GRINDING [exempt]	2005	Baghouse, Shaking	90.00%	PM	Not fully enclosed, local exhaust hood located directly behind the blade or wheel
2	2044 - 49	Thermal Sand Recycling System	2010	Baghouse, Pulse Jet	99.00%	PM	Estimate
2	2044 - 49	Thermal Sand Recycling System		None	100.00%		No basis needed as source is not abated (capture efficiency can be zero to 100 with no change in emissions)
3	3001	ELECTRIC ARC FURNACE	3001	EAF Baghouse	97.50%	PM	Assumes hood capture of 50% of fugitives: 95% + 5% * 0.5 = 97.5%.
3	3004 & 3019	Casting Mold Shake Out & Pour Area	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	99.00%	VOC/PM	Enclosed room with plast strips covering opening and meeting minimum inlet face velocity requirements
3	3005	Blast Table	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	PM	Fully enclosed
3	3006	Tumble Blast	3002 & 3006	Cleaning Room Baghouse #1 &#2	100.00%	PM	Enclosed
3	3007	New Sand Silo #1	3004	Sand System Baghouse	100.00%	PM	Fully enclosed
3	3009	Sand Cooler Classifier	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3010	Sand Conditioning Unit #1	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3011	Sand Conditioning Unit #2	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3012	Return Sand Bin #1	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3013	Reclaimed Sand Bin #2	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3015	New Sand Receiving Bucket Elevator #1	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3016	Bucket Elevator #2 Returned Sand	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3017	Bucket Elevator #3 Reclaimed Sand	3004	Sand System Baghouse	100.00%	PM	Enclosed
3	3014 & 3018	Mold Mixing Area/Coating Operation	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	VOC/PM	Source test
3	3018	Coating Operation	3005,3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	VOC	Soure test
3	3020	Holcote 578 CCD Coating [exempt]	3003 & 3007, 3008	Shake Out Baghouse/prefilter/carbon	75.00%	VOC	Source test
3		Cleaning and Grinding in Finishing Room [exempt]		Finishing Room Vent	90.00%	PM	Estimate
3		Arc Air Booth/Welding in Finishing Room [exempt]		Finishing Room Vent	100.00%	PM	Enclosed

APPENDIX E
Detailed Emission Calculations
(Hazardous Air Pollutants)

Information Source for Hazardous Air Pollutant Emission Factors

Plant	Source Number	Source Description	Source Tests	US EPA AP-42	From MSDS
1	1001	ARC FURNACE	X		
1	1002	POUR-OFF AREA	X		
1	1003	B SHAKE OUT (DUST COLLECTION)	X		
1	1004	A SHAKE OUT (DUST COLLECTION)	X		
1	1012	CLEANING & GRINDING DEPT.	X	X	
1	1013	ARC-AIR BOOTH	X	X	
1	1014	ARC-AIR BOOTH	X	X	
1	1015	PANGBORN TABLE BLAST	X	X	
1	1016	ROTO-BLAST	X	X	
1	1017	ROTO-BLAST	X	X	
1	1018	HEAT TREATING FURNACES [exempt]		X	
1	1022	CORE BAKE OVENS [exempt]		X	
1	32001	MINOR SOURCES [exempt]		X	
2	2006	SAND HEATER		X	
2	2007	SAND COATING	X		X
2	2008	COATED SAND PUG MILL	X		X
2	2009	COATED SAND VIBRATING SCREEN	X		X
2	2010	BUCKET ELEVATOR	X		X
2	2011	COOLING TOWER, COATED SAND	X		X
2	2012	BUCKET ELEVATOR	X		X
2	2013	CORE MOLDING MACHINE [exempt]	X	X	X
2	2014	CORE MOLDING MACHINE [exempt]	X	X	X
2	2015	CORE MOLDING MACHINE [exempt]	X	X	X
2	2016	CORE MOLDING MACHINE [exempt]	X	X	X
2	2017	CORE MOLDING MACHINE [exempt]	X	X	X
2	2018	CORE MOLDING MACHINE [exempt]	X	X	X
2	2020	SHELL MOLDING MACHINE, SINGLE [exempt]	X	X	X
2	2021	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X
2	2022	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X
2	2023	SHELL MOLDING MACHINE, TWIN [exempt]	X	X	X
2	2024	SHELL MOLDING MACHINE, SINGLE [exempt]	X	X	X
2	2026	LARGE LADLE HEATER		X	
2	2027	ELECTRIC ARC FURNACE	X		
2	2029 & 2031	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	X		X
2	2030	CAST MOLD COOLING ROOM	X		X
2	2032	ROTOBLAST	X	X	
2	2033 thru 2040	ABRASIVE CUT-OFF SAWS & GRINDERS [exempt]	X	X	
2	2044 thru 2049	Thermal Recycling Unit (Sand Reclamation)	X	X	X
2	32000	MISCELLANEOUS MINOR SOURCES [exempt]		X	
3	3001	ELECTRIC ARC FURNACE	X		
3	3005	Blast Table	X	X	
3	3006	Tumble Blast	X	X	
3	3004 & 3019	Casting Mold Shake Out & Pour Area	X		
3	3014 & 3018	Mold Mixing Area/Coating Operation	X		X
3		Heat treat furnaces [exempt]		X	
3		Cleaning and Grinding in Finishing Room [exempt]	X	X	
3		Arc Air Booth/Welding in Finishing Room [exempt]	X	X	

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
1	1001		ARC FURNACE	30,660	6,950	tons steel	Arsenic			7.39E-06	3	BAGHOUSE	97.50%	99.57%	0.2	0.05
1	1001		ARC FURNACE	30,660	6,950	tons steel	Beryllium			3.72E-06	3	BAGHOUSE	97.50%	99.57%	0	0
1	1001		ARC FURNACE	30,660	6,950	tons steel	Cadmium			1.37E-05	3	BAGHOUSE	97.50%	99.57%	0.4	0.1
1	1001		ARC FURNACE	30,660	6,950	tons steel	Chromium, Total			3.02E-04	3	BAGHOUSE	97.50%	99.57%	9.3	2.1
1	1001		ARC FURNACE	30,660	6,950	tons steel	Chromium (VI)			2.66E-06	3	BAGHOUSE	97.50%	99.57%	0.1	0.02
1	1001		ARC FURNACE	30,660	6,950	tons steel	Lead			1.06E-04	3	BAGHOUSE	97.50%	99.57%	3.2	0.7
1	1001		ARC FURNACE	30,660	6,950	tons steel	Manganese			2.68E-03	3	BAGHOUSE	97.50%	99.57%	82.2	18.6
1	1001		ARC FURNACE	30,660	6,950	tons steel	Mercury			1.88E-05	3	BAGHOUSE	97.50%	99.57%	0.6	0.1
1	1001		ARC FURNACE	30,660	6,950	tons steel	Nickel			9.22E-05	3	BAGHOUSE	97.50%	99.57%	2.8	0.6
1	1001		ARC FURNACE	30,660	6,950	tons steel	Selenium			2.05E-05	3	BAGHOUSE	97.50%	99.57%	0.6	0.1
1	1001		ARC FURNACE	30,660	6,950	tons steel	Zinc			1.38E-02	3	BAGHOUSE	97.50%	99.57%	423.1	95.9
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Arsenic		3.30E-04		4	None	97.50%	0.00%	0.3	0.06
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Beryllium		2.52E-06		4*	None	97.50%	0.00%	0	0
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Cadmium		2.92E-04		4	None	97.50%	0.00%	0.2	0.05
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Chromium, Total		2.25E-02		4	None	97.50%	0.00%	17.7	4.0
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Chromium (VI)		1.97E-04		4	None	97.50%	0.00%	0.2	0.04
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Lead		7.58E-03		4	None	97.50%	0.00%	6.0	1.4
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Manganese		2.92E-01		4	None	97.50%	0.00%	229.6	52.0
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Mercury		1.00E-05		4	None	97.50%	0.00%	0.01	0.002
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Nickel		3.34E-03		4	None	97.50%	0.00%	2.6	0.6
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Selenium		2.65E-05		4	None	97.50%	0.00%	0.02	0.005
1	1001fug	X	ARC FURNACE	30,660	6,950	tons steel	Zinc		1.48E+00		4	None	97.50%	0.00%	1,163.5	263.7
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Arsenic		5.40E-06		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.0002	0.0001
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Beryllium		1.99E-06		1*	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0	0
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Cadmium		1.84E-05		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.001	0.0002
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Chromium, Total		7.70E-05		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.004	0.001
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Lead		8.58E-05		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.004	0.001
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Manganese		1.11E-03		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.1	0.01
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Mercury		3.39E-06		1*	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0	0
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Nickel		9.67E-05		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.004	0.001
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Selenium		1.99E-06		1*	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0	0
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Zinc		5.11E-04		1	BAGHOUSE & Carbon Adsorption System	86.50%	99.85%	0.02	0.01
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Formaldehyde		2.54E-03		1	BAGHOUSE & Carbon Adsorption System	86.50%	0.00%	78	18
1	1002		POUR-OFF AREA	30,660	6,950	tons steel	Acetaldehyde		1.16E-02		1	BAGHOUSE & Carbon Adsorption System	86.50%	90.50%	33.8	7.7
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Arsenic		5.40E-06		1	None	86.50%	0.00%	0.03	0.01
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Beryllium		1.99E-06		1*	None	86.50%	0.00%	0	0
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Cadmium		1.84E-05		1	None	86.50%	0.00%	0.1	0.02
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Chromium, Total		7.70E-05		1	None	86.50%	0.00%	0.4	0.08
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Lead		8.58E-05		1	None	86.50%	0.00%	0.4	0.09
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Manganese		1.11E-03		1	None	86.50%	0.00%	5.3	1.2
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Mercury		3.39E-06		1*	None	86.50%	0.00%	0	0
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Nickel		9.67E-05		1	None	86.50%	0.00%	0.5	0.1
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Selenium		1.99E-06		1*	None	86.50%	0.00%	0	0
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Zinc		5.11E-04		1	None	86.50%	0.00%	2.4	0.6
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Formaldehyde		2.54E-03		1	None	86.50%	0.00%	12	3
1	1002fug	X	POUR-OFF AREA	30,660	6,950	tons steel	Acetaldehyde		1.16E-02		1	None	86.50%	0.00%	55.5	12.6
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Arsenic		2.19E-05		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.001	0.001
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Beryllium		5.47E-06		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.0004	0.0002
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Cadmium		8.91E-06		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.001	0.0003
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Chromium, Total		2.80E-04		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.02	0.01
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Lead		1.28E-04		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.01	0.004
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Manganese		2.10E-03		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.1	0.07
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Mercury		1.35E-06		2*	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0	0
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Nickel		2.24E-04		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.01	0.01
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Selenium		9.63E-06		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.001	0.0003
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Zinc		1.02E-03		2	BAGHOUSE & Carbon Adsorption System	95.00%	99.85%	0.1	0.04
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Formaldehyde		1.73E-03		2	BAGHOUSE & Carbon Adsorption System	95.00%	0.00%	75.8	39.7
1	1003		B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Acetaldehyde		1.88E-03		2	BAGHOUSE & Carbon Adsorption System	95.00%	90.50%	7.8	4.1

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Arsenic		2.19E-05		2	None	95.00%	0.00%	0.1	0.03
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Beryllium		5.47E-06		2	None	95.00%	0.00%	0.01	0.01
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Cadmium		8.91E-06		2	None	95.00%	0.00%	0.02	0.01
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Chromium, Total		2.80E-04		2	None	95.00%	0.00%	0.6	0.3
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Lead		1.28E-04		2	None	95.00%	0.00%	0.3	0.2
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Manganese		2.10E-03		2	None	95.00%	0.00%	4.8	2.5
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Mercury		1.35E-06		2*	None	95.00%	0.00%	0	0
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Nickel		2.24E-04		2	None	95.00%	0.00%	0.5	0.3
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Selenium		9.63E-06		2	None	95.00%	0.00%	0.02	0.01
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Zinc		1.02E-03		2	None	95.00%	0.00%	2.4	1.2
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Formaldehyde		1.73E-03		2	None	95.00%	0.00%	4.0	2.1
1	1003fug	X	B SHAKE OUT (DUST COLLECTION)	43,800	22,920	tons sand	Acetaldehyde		1.88E-03		2	None	95.00%	0.00%	4.3	2.3
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Arsenic		2.19E-05		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.001	0.002
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Beryllium		5.47E-06		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.0004	0.0004
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Cadmium		8.91E-06		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.001	0.001
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Chromium, Total		2.80E-04		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.02	0.02
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Lead		1.28E-04		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.01	0.01
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Manganese		2.10E-03		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.1	0.1
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Mercury		1.35E-06		2*	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0	0
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Nickel		2.24E-04		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.01	0.02
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Selenium		9.63E-06		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.001	0.001
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Zinc		1.02E-03		2	BAGHOUSE & Carbon Adsorption System	99.00%	99.85%	0.1	0.07
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Formaldehyde		1.73E-03		2	BAGHOUSE & Carbon Adsorption System	99.00%	0.00%	75.8	79.3
1	1004		A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Acetaldehyde		1.88E-03		2	BAGHOUSE & Carbon Adsorption System	99.00%	90.00%	8.2	8.6
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Arsenic		2.19E-05		2	None	99.00%	0.00%	0.01	0.01
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Beryllium		5.47E-06		2	None	99.00%	0.00%	0.002	0.003
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Cadmium		8.91E-06		2	None	99.00%	0.00%	0.004	0.004
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Chromium, Total		2.80E-04		2	None	99.00%	0.00%	0.1	0.1
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Lead		1.28E-04		2	None	99.00%	0.00%	0.1	0.06
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Manganese		2.10E-03		2	None	99.00%	0.00%	0.9	1.0
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Mercury		1.35E-06		2*	None	99.00%	0.00%	0	0
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Nickel		2.24E-04		2	None	99.00%	0.00%	0.1	0.1
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Selenium		9.63E-06		2	None	99.00%	0.00%	0.004	0.004
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Zinc		1.02E-03		2	None	99.00%	0.00%	0.5	0.5
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Formaldehyde		1.73E-03		2	None	99.00%	0.00%	0.8	0.8
1	1004fug	X	A SHAKE OUT (DUST COLLECTION)	43,800	45,840	tons sand	Acetaldehyde		1.88E-03		2	None	99.00%	0.00%	0.8	0.9
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons steel	Arsenic	8.25E-06			6	BAGHOUSE #4	90.00%	99.57%	0.001	0.0004
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Beryllium				6	BAGHOUSE #4	90.00%	99.57%	0	0
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Cadmium	3.77E-06			6	BAGHOUSE #4	90.00%	99.57%	0.0003	0.0002
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Chromium, Total	3.27E-05			6	BAGHOUSE #4	90.00%	99.57%	0.002	0.002
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Lead	7.91E-04			6	BAGHOUSE #4	90.00%	99.57%	0.1	0.04
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Manganese	1.08E-03			6	BAGHOUSE #4	90.00%	99.57%	0.1	0.05
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Mercury	7.80E-06			6	BAGHOUSE #4	90.00%	99.57%	0.001	0.0004
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Nickel				6	BAGHOUSE #4	90.00%	99.57%	0	0
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Selenium				6	BAGHOUSE #4	90.00%	99.57%	0	0
1	1012		CLEANING & GRINDING DEPT.	17,520	12,600	tons	Zinc	5.46E-04			6	BAGHOUSE #4	90.00%	99.57%	0.04	0.03
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons steel	Arsenic	8.25E-06			6	None	90.00%	0.00%	0.01	0.01
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Beryllium				6	None	90.00%	0.00%	0	0
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Cadmium	3.77E-06			6	None	90.00%	0.00%	0.01	0.005
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Chromium, Total	3.27E-05			6	None	90.00%	0.00%	0.1	0.04
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Lead	7.91E-04			6	None	90.00%	0.00%	1.4	1.0
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Manganese	1.08E-03			6	None	90.00%	0.00%	1.9	1.4
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Mercury	7.80E-06			6	None	90.00%	0.00%	0.01	0.01
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Nickel				6	None	90.00%	0.00%	0	0
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Selenium				6	None	90.00%	0.00%	0	0
1	1012fug	X	CLEANING & GRINDING DEPT.	17,520	12,600	tons	Zinc	5.46E-04			6	None	90.00%	0.00%	1.0	0.7

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Arsenic	4.85E-09			6	BAGHOUSE #4	90.00%	99.57%	0.0000002	0.0000002
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Beryllium				6	BAGHOUSE #5	90.00%	99.57%	0	0
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Cadmium	2.22E-09			6	BAGHOUSE #6	90.00%	99.57%	0.0000001	0.0000001
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium, Total	1.93E-08			6	BAGHOUSE #7	90.00%	99.57%	0.000001	0.000001
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium (VI)	1.69E-10			7	BAGHOUSE #7	90.00%	99.57%	0.00000001	0.00000001
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Lead	4.66E-07			6	BAGHOUSE #9	90.00%	99.57%	0.00002	0.00002
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Manganese	6.33E-07			6	BAGHOUSE #10	90.00%	99.57%	0.00002	0.00002
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Mercury	4.59E-09			6	BAGHOUSE #11	90.00%	99.57%	0.0000002	0.0000002
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Nickel				6	BAGHOUSE #12	90.00%	99.57%	0	0
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Selenium				6	BAGHOUSE #13	90.00%	99.57%	0	0
1	1013		ARC-AIR BOOTH	8,760	8,760	tons steel	Zinc	3.21E-07			6	BAGHOUSE #14	90.00%	99.57%	0.00001	0.00001
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Arsenic	4.85E-09			6	None	90.00%	0.00%	0.000004	0.000004
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Beryllium				6	None	90.00%	0.00%	0	0
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Cadmium	2.22E-09			6	None	90.00%	0.00%	0.000002	0.000002
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium, Total	1.93E-08			6	None	90.00%	0.00%	0.00002	0.00002
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium (VI)	1.69E-10			7	None	90.00%	0.00%	0.0000001	0.0000001
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Lead	4.66E-07			6	None	90.00%	0.00%	0.0004	0.0004
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Manganese	6.33E-07			6	None	90.00%	0.00%	0.001	0.001
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Mercury	4.59E-09			6	None	90.00%	0.00%	0.000004	0.000004
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Nickel				6	None	90.00%	0.00%	0	0
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Selenium				6	None	90.00%	0.00%	0	0
1	1013fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Zinc	3.21E-07			6	None	90.00%	0.00%	0.0003	0.0003
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Arsenic	4.85E-09			6	BAGHOUSE #6	90.00%	99.57%	0.0000002	0.0000002
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Beryllium				6	BAGHOUSE #6	90.00%	99.57%	0	0
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Cadmium	2.22E-09			6	BAGHOUSE #6	90.00%	99.57%	0.0000001	0.0000001
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium, Total	1.93E-08			6	BAGHOUSE #6	90.00%	99.57%	0.000001	0.000001
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium (VI)	1.69E-10			7	BAGHOUSE #6	90.00%	99.57%	0.00000001	0.00000001
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Lead	4.66E-07			6	BAGHOUSE #6	90.00%	99.57%	0.00002	0.00002
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Manganese	6.33E-07			6	BAGHOUSE #6	90.00%	99.57%	0.00002	0.00002
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Mercury	4.59E-09			6	BAGHOUSE #6	90.00%	99.57%	0.0000002	0.0000002
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Nickel				6	BAGHOUSE #6	90.00%	99.57%	0	0
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Selenium				6	BAGHOUSE #6	90.00%	99.57%	0	0
1	1014		ARC-AIR BOOTH	8,760	8,760	tons steel	Zinc	3.21E-07			6	BAGHOUSE #6	90.00%	99.57%	0.00001	0.00001
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Arsenic	4.85E-09			6	None	90.00%	0.00%	0.000004	0.000004
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Beryllium				6	None	90.00%	0.00%	0	0
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Cadmium	2.22E-09			6	None	90.00%	0.00%	0.000002	0.000002
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium, Total	1.93E-08			6	None	90.00%	0.00%	0.00002	0.00002
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Chromium (VI)	1.69E-10			7	None	90.00%	0.00%	0.0000001	0.0000001
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Lead	4.66E-07			6	None	90.00%	0.00%	0.0004	0.0004
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Manganese	6.33E-07			6	None	90.00%	0.00%	0.001	0.001
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Mercury	4.59E-09			6	None	90.00%	0.00%	0.000004	0.000004
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Nickel				6	None	90.00%	0.00%	0	0
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Selenium				6	None	90.00%	0.00%	0	0
1	1014fug	X	ARC-AIR BOOTH	8,760	8,760	tons steel	Zinc	3.21E-07			6	None	90.00%	0.00%	0.0003	0.0003
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Arsenic	1.92E-07			6	BAGHOUSE #3	100.00%	99.57%	0.0001	0.000003
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Beryllium				6	BAGHOUSE #3	100.00%	99.57%	0	0
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Cadmium	8.77E-08			6	BAGHOUSE #3	100.00%	99.57%	0.00003	0.000002
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Chromium, Total	7.62E-07			6	BAGHOUSE #3	100.00%	99.57%	0.0003	0.00001
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Lead	1.84E-05			6	BAGHOUSE #3	100.00%	99.57%	0.01	0.0003
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Manganese	2.51E-05			6	BAGHOUSE #3	100.00%	99.57%	0.01	0.0005
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Mercury	1.82E-07			6	BAGHOUSE #3	100.00%	99.57%	0.0001	0.000003
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Nickel				6	BAGHOUSE #3	100.00%	99.57%	0	0
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Selenium				6	BAGHOUSE #3	100.00%	99.57%	0	0
1	1015		PANGBORN TABLE BLAST	87,600	4,200	tons steel	Zinc	1.27E-05			6	BAGHOUSE #3	100.00%	99.57%	0.005	0.0002
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Arsenic	1.92E-07			6	BAGHOUSE #2	100.00%	98.00%	0.0001	0.00002
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Beryllium				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Cadmium	8.77E-08			6	BAGHOUSE #2	100.00%	98.00%	0.0001	0.00001
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Chromium, Total	7.62E-07			6	BAGHOUSE #2	100.00%	98.00%	0.001	0.0001

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	Annual Throughput SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	Annual Emissions SMOP (lbs/year)
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Lead	1.84E-05			6	BAGHOUSE #2	100.00%	98.00%	0.01	0.002
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Manganese	2.51E-05			6	BAGHOUSE #2	100.00%	98.00%	0.02	0.002
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Mercury	1.82E-07			6	BAGHOUSE #2	100.00%	98.00%	0.0001	0.00002
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Nickel				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Selenium				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1016		ROTO-BLAST	35,040	4,200	tons steel	Zinc	1.27E-05			6	BAGHOUSE #2	100.00%	98.00%	0.01	0.001
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Arsenic	1.92E-07			6	BAGHOUSE #2	100.00%	98.00%	0.0002	0.00002
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Beryllium				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Cadmium	8.77E-08			6	BAGHOUSE #2	100.00%	98.00%	0.0001	0.00001
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Chromium, Total	7.62E-07			6	BAGHOUSE #2	100.00%	98.00%	0.001	0.0001
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Lead	1.84E-05			6	BAGHOUSE #2	100.00%	98.00%	0.02	0.002
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Manganese	2.51E-05			6	BAGHOUSE #2	100.00%	98.00%	0.02	0.002
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Mercury	1.82E-07			6	BAGHOUSE #2	100.00%	98.00%	0.0002	0.00002
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Nickel				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Selenium				6	BAGHOUSE #2	100.00%	98.00%	0	0
1	1017		ROTO-BLAST	43,800	4,200	tons steel	Zinc	1.27E-05			6	BAGHOUSE #2	100.00%	98.00%	0.01	0.001
1	1018		HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	Benzene	2.10E-07			5	None	100.00%	0.00%	0.1	0.1
1	1018		HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	Formaldehyde	7.50E-06			5	None	100.00%	0.00%	4.2	4.2
1	1018		HEAT TREATING FURNACES [exempt]	560,640	560,640	therm	Toluene	3.40E-07			5	None	100.00%	0.00%	0.2	0.2
1	1022		CORE BAKE OVENS [exempt]	140,160	140,160	therm	Benzene	2.10E-07			5	None	100.00%	0.00%	0.03	0.03
1	1022		CORE BAKE OVENS [exempt]	140,160	140,160	therm	Formaldehyde	7.50E-06			5	None	100.00%	0.00%	1.1	1.1
1	1022		CORE BAKE OVENS [exempt]	140,160	140,160	therm	Toluene	3.40E-07			5	None	100.00%	0.00%	0.05	0.05
1	32001		MINOR SOURCES [exempt]	29,696	29,696	therm	Benzene	2.10E-07			5	None	100.00%	0.00%	0.01	0.01
1	32001		MINOR SOURCES [exempt]	29,696	29,696	therm	Formaldehyde	7.50E-06			5	None	100.00%	0.00%	0.2	0.2
1	32001		MINOR SOURCES [exempt]	29,696	29,696	therm	Toluene	3.40E-07			5	None	100.00%	0.00%	0.01	0.01

NOTES:

BASIS FOR EMISSION FACTOR

* Pollutant not measured above detection levels, one-half of the detection level used

1. Source Test OS-1492, December 7, 2005

2. Source Test OS-1493, December 8, 2005

3. Emissions from the Plant 1 EAF (S-1001) are based on Source Test OS-1499 for Plant 2 EAF (S-2027), scaled by a ratio of the filterable particulate matter at Plant 1 EAF (S-1001) to that measured at Plant 2 EAF (S-2027)
   - 0.095 Filterable particulate matter emission factor (lb/ton steel) at Plant 1 EAF baghouse outlet, Source Test OS-1494
   - 0.051 Filterable particulate matter emission factor (lb/ton steel) at Plant 2 EAF baghouse outlet, Source Test OS-1499
   - 1.9 Ratio

4. Source test OS-1499, used to estimate fugitive emissions from EAFs for all three plants

5. U.S. EPA AP-42, Section 1.4 (July 1998), Table 1.4-3. Assumes a natural gas heating value of 1000 Btu/scf in coverting emission factor units from lbs/MMscf to lbs/therm. Only organic HAP emission factors that had an EPA Grade of C or better were used.

6. Derivation of speciated metals emissions for finishing processes:

   Speciated metal emission factors (lb metal/tons steel) are estimated by multiplying the weight fraction of metal HAPs found in the testing for the finishing operations of Plant 2 S-2033 through S-2040 to arc-air booth PM_{10} emission factors (lb PM10/ton steel).

   Speciated metal emission factors (lb metal/tons steel) are derived using the following PM10 emission factors:

   1.7 PM_{10} Emission factor (lb PM_{10}/ton steel) for Casting Cleaning, AP-42, Chapter 12.13 Steel Foundries, January 1995, Table 12.13-2. Used to convert S-2033 - S-2040 source test results into metal HAP/PM_{10} weight fraction [metal HAP/PM_{10} = unabated emission factor for S-2033 - S-2040 (lb metal/tons steel)/PM_{10} emission factor (lb PM_{10}/ton steel)]
   Assume weight fractions between Plant 2 S-2033-S-2040 and Pant 1 are similar.

   0.001 PM_{10} emissions (lb/ton) from District's inventory for arc air booth. Used to convert metal weight fractions (metal/PM10) to uncontrolled metal emission factors (lb metal/tons steel).

   0.040 PM_{10} emission factor (lb PM10/ton steel) for abrasive blasting with steel shots. Based on AP-42, Table 13.2.6-1, emission factor = (1.3 lb PM_{10}/1000 lbs steel shot) x (121 tons steel shot/7947 tons steel casting).
   Per AP-42 Chapter 13.2.6, assume PM_{10} from using shots equals 10% of using sand for abrasive blasting.

HAP	Speciation profie (lb metal/lb PM10) From S-2033 - 2044 Source Test	Uncontrolled Emission Factor for arc air booth (lb metal/ton steel)	Uncontrolled Emission Factor for pangborn table and rotoblasts (lb metal/ton steel)
Arsenic	4.85E-06	4.85E-09	1.92E-07
Beryllium	ND	ND	ND
Cadmium	2.22E-06	2.22E-09	8.77E-08
Chromium, Total	1.93E-05	1.93E-08	7.62E-07
Lead	4.66E-04	4.66E-07	1.84E-05
Manganese	6.33E-04	6.33E-07	2.51E-05
Mercury	4.59E-06	4.59E-09	1.82E-07
Nickel	ND	ND	ND
Selenium	ND	ND	ND
Zinc	3.21E-04	3.21E-07	1.27E-05

7. As emissions of chromium (VI) were only measured in the Plant 2 EAF (Source 2027), a separate analysis was conducted by GT Engineering to determine the potential for other sources of chormium (VI) in other operations at the facility. Based on that analysis, emissions of chromium (VI) are estimated for areas where molten steel is produced (i.e. in the EAF and welding operations). The chomium (VI) emission factor is based on Plant 2 EAF source test data (inlet) using the chromium (VI) to chromium (total) ratio listed below. (Note: this is an extremely conservative assumption for air welding processes as only portions of the cast are welded):

   0.88% chromium (VI)/chromium (total)

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	Annual Throughput SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	Annual Emissions SMOP (lbs/year)
2	2006		SAND HEATER	52,560	37,318	therms	Benzene	2.10E-07			7	Baghouse, Shaking A-2004	100.00%	0.00%	0.01	0.01
2	2006		SAND HEATER	52,560	37,318	therms	Phenol	7.50E-06			7	Baghouse, Shaking A-2004	100.00%	0.00%	0.4	0.3
2	2006		SAND HEATER	52,560	37,318	therms	Formaldehyde	3.40E-07			7	Baghouse, Shaking A-2004	100.00%	0.00%	0.02	0.01
2	2007		SAND COATING	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking A-2004	100.00%	0.00%	876.0	114.3
2	2007		SAND COATING	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking A-2004	100.00%	0.00%	219.0	28.6
2	2008		COATED SAND PUG MILL	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking	100.00%	0.00%	876.0	114.3
2	2008		COATED SAND PUG MILL	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking	100.00%	0.00%	219.0	28.6
2	2009		COATED SAND VIBRATING SCREEN	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking	100.00%	0.00%	876.0	114.3
2	2009		COATED SAND VIBRATING SCREEN	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking	100.00%	0.00%	219.0	28.6
2	2010		BUCKET ELEVATOR	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking	100.00%	0.00%	876.0	114.3
2	2010		BUCKET ELEVATOR	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking	100.00%	0.00%	219.0	28.6
2	2011		COOLING TOWER, COATED SAND	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking	100.00%	0.00%	876.0	114.3
2	2011		COOLING TOWER, COATED SAND	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking	100.00%	0.00%	219.0	28.6
2	2012		BUCKET ELEVATOR	43,800	5,715	tons sand	Phenol		2.00E-02		8	Baghouse, Shaking	100.00%	0.00%	876.0	114.3
2	2012		BUCKET ELEVATOR	43,800	5,715	tons sand	Formaldehyde		5.00E-03		9	Baghouse, Shaking	100.00%	0.00%	219.0	28.6
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	3.7	0.1
2	2013		CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.003	0.002
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	210.2	3.9
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	30.7	0.6
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	883.0	16.6
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2013		CORE MOLDING MACHINE [exempt]	26,280	493	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	3.7	0.1
2	2014		CORE MOLDING MACHINE [exempt]	9,636	6,841	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.003	0.002
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	210.2	5.0
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	30.7	0.7
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	883.0	20.9
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2014		CORE MOLDING MACHINE [exempt]	26,280	623	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	3.7	0.3
2	2015		CORE MOLDING MACHINE [exempt]	17,275	12,265	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.01	0.004
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	210.2	16.4
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	30.7	2.4
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	883.0	68.7
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2015		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2016		CORE MOLDING MACHINE [exempt]	26,280	2,046	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	3.7	0.3
2	2016		CORE MOLDING MACHINE [exempt]	17,275	12,265	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.01	0.004
2	2016		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	350.4	16.4
2	2016		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	51.2	2.4
2	2016		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	1,471.7	68.7
2	2016		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2016		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	6.2	0.3
2	2017		CORE MOLDING MACHINE [exempt]	17,275	12,265	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.01	0.004
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	350.4	16.4
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	51.2	2.4
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	1,471.7	68.7
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2017		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	6.2	0.3
2	2018		CORE MOLDING MACHINE [exempt]	17,275	12,265	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.01	0.004
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	350.4	16.4
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	51.2	2.4
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	1,471.7	68.7
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2018		CORE MOLDING MACHINE [exempt]	43,800	2,046	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	8,760	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	1.2	1.2
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.02	0.01
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	13,140	818	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	105.1	6.5
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	13,140	818	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	15.4	1.0
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	13,140	818	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	441.5	27.5
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	13,140	818	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2020		SHELL MOLDING MACHINE, SINGLE [exempt]	13,140	818	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	1.9	0.4
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	96,097	68,229	therms	Toluene	3.40E-07			7	None	100.00%	0.00%	0.03	0.02
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	105.1	21.9
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	15.4	3.2
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	441.5	92.1
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2021		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Benzene	1.41E-04			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0.2	0.03
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	96,097	68,229	therms	Toluene	3.40E-07			7	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0.003	0.002
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Formaldehyde	8.00E-03			4	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	94.6	19.7
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Acetaldehyde	1.17E-03			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	1.3	0.3
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Phenol	3.36E-02			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	37.7	7.9
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, m,p-	9.25E-06			4*	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0	0
2	2022		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, o-	9.25E-06			4*	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0	0
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Benzene	1.41E-04			4	None	90.00%	0.00%	0.2	0.04
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	96,097	68,229	therms	Toluene	3.40E-07			7	None	90.00%	0.00%	0.003	0.002
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Formaldehyde	8.00E-03			4	None	90.00%	0.00%	10.5	2.2
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Acetaldehyde	1.17E-03			4	None	90.00%	0.00%	1.5	0.3
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Phenol	3.36E-02			4	None	90.00%	0.00%	44.2	9.2
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, m,p-	9.25E-06			4*	None	90.00%	0.00%	0	0
2	2022fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, o-	9.25E-06			4*	None	90.00%	0.00%	0	0
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Benzene	1.41E-04			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0.2	0.03
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	96,097	68,229	therms	Toluene	3.40E-07			7	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0.003	0.002
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Formaldehyde	8.00E-03			4	Adsorption, Activated Carbon/Charcoal	90.00%	0.00%	94.6	19.7
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Acetaldehyde	1.17E-03			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	1.3	0.3
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Phenol	3.36E-02			4	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	37.7	7.9
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, m,p-	9.25E-06			4*	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0	0
2	2023		SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, o-	9.25E-06			4*	Adsorption, Activated Carbon/Charcoal	90.00%	90.50%	0	0
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Benzene	1.41E-04			4	None	90.00%	0.00%	0.2	0.04
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	96,097	68,229	therms	Toluene	3.40E-07			7	None	90.00%	0.00%	0.003	0.002
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Formaldehyde	8.00E-03			4	None	90.00%	0.00%	10.5	2.2
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Acetaldehyde	1.17E-03			4	None	90.00%	0.00%	1.5	0.3
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Phenol	3.36E-02			4	None	90.00%	0.00%	44.2	9.2
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, m,p-	9.25E-06			4*	None	90.00%	0.00%	0	0
2	2023fug	X	SHELL MOLDING MACHINE, TWIN [exempt]	13,140	2,740	tons sand	Cresol, o-	9.25E-06			4*	None	90.00%	0.00%	0	0
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Benzene	1.41E-04			4	None	100.00%	0.00%	1.2	0.1
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	56,940	40,427	sand	Toluene	3.40E-07			7	None	100.00%	0.00%	0.02	0.01
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Formaldehyde	8.00E-03			4	None	100.00%	0.00%	70.1	6.5
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Acetaldehyde	1.17E-03			4	None	100.00%	0.00%	10.2	1.0
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Phenol	3.36E-02			4	None	100.00%	0.00%	294.3	27.5
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Cresol, m,p-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2024		SHELL MOLDING MACHINE, SINGLE [exempt]	8,760	818	tons sand	Cresol, o-	9.25E-06			4*	None	100.00%	0.00%	0	0
2	2026		LARGE LADLE HEATER	105,120	74,635	therms	Benzene	2.10E-07			7	Baghouse/Carbon	100.00%	90.50%	0.002	0.001
2	2026		LARGE LADLE HEATER	105,120	74,635	therms	Formaldehyde	7.50E-06			7	Baghouse/Carbon	100.00%	0.00%	0.8	0.6
2	2026		LARGE LADLE HEATER	105,120	74,635	therms	Toluene	3.40E-07			7	Baghouse/Carbon	100.00%	90.50%	0.003	0.002
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Arsenic			3.89E-06	5*	Baghouse, Shaking	99.00%	99.57%	0.13	0.06
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Beryllium			1.96E-06	5*	Baghouse, Shaking	99.00%	99.57%	0	0
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Cadmium			7.36E-06	5	Baghouse, Shaking	99.00%	99.57%	0.2	0.1
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Chromium, Total			1.62E-04	5	Baghouse, Shaking	99.00%	99.57%	5.4	2.4
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Chromium (VI)			1.43E-06	5	Baghouse, Shaking	99.00%	99.57%	0.05	0.02
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Lead			5.70E-05	5	Baghouse, Shaking	99.00%	99.57%	1.9	0.9
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Manganese			1.44E-03	5	Baghouse, Shaking	99.00%	99.57%	47.9	21.6
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Mercury			1.00E-05	5	Baghouse, Shaking	99.00%	99.57%	0.3	0.2
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Nickel			4.95E-05	5	Baghouse, Shaking	99.00%	99.57%	1.6	0.7
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Selenium			1.10E-05	5	Baghouse, Shaking	99.00%	99.57%	0.4	0.2
2	2027		ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Zinc			7.41E-03	5	Baghouse, Shaking	99.00%	99.57%	246.7	111.2
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Arsenic		3.30E-04		5	None	99.00%	0.00%	0.1	0.1
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Beryllium		2.52E-06		5*	None	99.00%	0.00%	0	0
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Cadmium		2.92E-04		5	None	99.00%	0.00%	0.1	0.04
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Chromium, Total		2.25E-02		5	None	99.00%	0.00%	7.6	3.4
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Chromium (VI)		1.97E-04		5	None	99.00%	0.00%	0.1	0.03
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Lead		7.58E-03		5	None	99.00%	0.00%	2.5	1.1
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Manganese		2.92E-01		5	None	99.00%	0.00%	98.2	44.2
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Mercury		1.00E-05		5	None	99.00%	0.00%	0.003	0.002
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Nickel		3.34E-03		5	None	99.00%	0.00%	1.1	0.5
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Selenium		2.65E-05		5	None	99.00%	0.00%	0.01	0.004
2	2027fug	X	ELECTRIC ARC FURNACE	33,288	15,000	tons steel	Zinc		1.48E+00		5	None	99.00%	0.00%	497.6	224.2

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Arsenic		3.15E-05		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.002	0.001
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Beryllium		5.00E-06		1*	Baghouse & Carbon Adsorber	90.00%	99.85%	0	0
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cadmium		6.31E-05		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.003	0.001
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Chromium, Total		1.06E-03		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.1	0.02
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Lead		1.15E-03		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.1	0.02
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Manganese		1.99E-02		1	Baghouse & Carbon Adsorber	90.00%	99.85%	1.0	0.4
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Mercury		8.35E-06		1*	Baghouse & Carbon Adsorber	90.00%	99.85%	0	0
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Nickel		7.08E-04		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.04	0.01
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Selenium		1.66E-05		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.001	0.0003
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Zinc		1.78E-02		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.9	0.4
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Formaldehyde		1.60E-02		1	Baghouse & Carbon Adsorber	90.00%	0.00%	532.6	216.0
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acetaldehyde		1.70E-03		1	Baghouse & Carbon Adsorber	90.00%	90.50%	5.4	2.2
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Phenol		1.27E-02		1	Baghouse & Carbon Adsorber	90.00%	90.50%	40.2	16.3
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cresol, m,p-		3.28E-03		1	Baghouse & Carbon Adsorber	90.00%	90.50%	10.4	4.2
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cresol, o-		4.24E-03		1	Baghouse & Carbon Adsorber	90.00%	90.50%	13.4	5.4
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzene		1.35E-02		1	Baghouse & Carbon Adsorber	90.00%	90.50%	42.7	17.3
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Naphthalene		2.53E-03		1	Baghouse & Carbon Adsorber	90.00%	90.55%	8.0	3.2
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	2-Methylnaphthalene		3.31E-04		1	Baghouse & Carbon Adsorber	90.00%	90.75%	1.0	0.4
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acenaphthylene		2.94E-04		1	Baghouse & Carbon Adsorber	90.00%	91.04%	0.9	0.4
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acenaphthene		1.13E-05		1	Baghouse & Carbon Adsorber	90.00%	92.05%	0.03	0.01
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Fluorene		3.56E-04		1	Baghouse & Carbon Adsorber	90.00%	93.42%	0.8	0.3
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Phenanthrene		3.98E-04		1	Baghouse & Carbon Adsorber	90.00%	98.59%	0.2	0.1
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Anthracene		3.06E-04		1	Baghouse & Carbon Adsorber	90.00%	98.59%	0.1	0.1
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Fluoranthene		1.10E-04		1	Baghouse & Carbon Adsorber	90.00%	99.69%	0.01	0.005
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Pyrene		6.24E-05		1	Baghouse & Carbon Adsorber	90.00%	99.74%	0.01	0.002
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benz(a)anthracene		2.67E-05		1	Baghouse & Carbon Adsorber	90.00%	99.84%	0.001	0.001
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Chrysene		1.94E-05		1	Baghouse & Carbon Adsorber	90.00%	99.84%	0.001	0.0004
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(b)fluoranthene		2.89E-05		1	Baghouse & Carbon Adsorber	90.00%	99.81%	0.002	0.001
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(k)fluoranthene		7.35E-06		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.0004	0.0001
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(e)pyrene		1.19E-05		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.001	0.0002
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(a)pyrene		1.33E-05		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.001	0.0003
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Perylene		2.14E-06		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.0001	0.00004
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Indeno(1,2,3-cd)pyrene		8.35E-06		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.0004	0.0002
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Dibenzo(a,h)anthracene		2.18E-06		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.0001	0.00004
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(g,h,i)perylene		8.64E-06		1	Baghouse & Carbon Adsorber	90.00%	99.85%	0.0004	0.0002
2	2029 & 2031		SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Total PCDD/PCDF (TEF wt-equiv.)		7.85E-12			Baghouse & Carbon Adsorber	90.00%	90.50%	0.00000002	0.00000001
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Arsenic		3.15E-05		1	None	90.00%	0.00%	0.1	0.05
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Beryllium		5.00E-06		1*	None	90.00%	0.00%	0	0
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cadmium		6.31E-05		1	None	90.00%	0.00%	0.2	0.1
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Chromium, Total		1.06E-03		1	None	90.00%	0.00%	3.9	1.6
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Lead		1.15E-03		1	None	90.00%	0.00%	4.3	1.7
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Manganese		1.99E-02		1	None	90.00%	0.00%	73.6	29.9
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Mercury		8.35E-06		1*	None	90.00%	0.00%	0	0
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Nickel		7.08E-04		1	None	90.00%	0.00%	2.6	1.1
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Selenium		1.66E-05		1	None	90.00%	0.00%	0.1	0.02
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Zinc		1.78E-02		1	None	90.00%	0.00%	65.8	26.7
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Formaldehyde		1.60E-02		1	None	90.00%	0.00%	59.2	24.0
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acetaldehyde		1.70E-03		1	None	90.00%	0.00%	6.3	2.6
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Phenol		1.27E-02		1	None	90.00%	0.00%	47.0	19.1
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cresol, m,p-		3.28E-03		1	None	90.00%	0.00%	12.1	4.9
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Cresol, o-		4.24E-03		1	None	90.00%	0.00%	15.7	6.4
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzene		1.35E-02		1	None	90.00%	0.00%	49.9	20.3
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Naphthalene		2.53E-03		1	None	90.00%	0.00%	9.4	3.8
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	2-Methylnaphthalene		3.31E-04		1	None	90.00%	0.00%	1.2	0.5
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acenaphthylene		2.94E-04		1	None	90.00%	0.00%	1.1	0.4
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Acenaphthene		1.13E-05		1	None	90.00%	0.00%	0.04	0.02
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Fluorene		3.56E-04		1	None	90.00%	0.00%	1.3	0.5
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Phenanthrene		3.98E-04		1	None	90.00%	0.00%	1.5	0.6
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Anthracene		3.06E-04		1	None	90.00%	0.00%	1.1	0.5
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Fluoranthene		1.10E-04		1	None	90.00%	0.00%	0.4	0.2
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Pyrene		6.24E-05		1	None	90.00%	0.00%	0.2	0.1
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benz(a)anthracene		2.67E-05		1	None	90.00%	0.00%	0.1	0.04
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Chrysene		1.94E-05		1	None	90.00%	0.00%	0.1	0.03
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(b)fluoranthene		2.89E-05		1	None	90.00%	0.00%	0.1	0.04
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(k)fluoranthene		7.35E-06		1	None	90.00%	0.00%	0.03	0.01
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(e)pyrene		1.19E-05		1	None	90.00%	0.00%	0.04	0.02
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(a)pyrene		1.33E-05		1	None	90.00%	0.00%	0.05	0.02

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	SMOP (lbs/year)
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Perylene		2.14E-06		1	None	90.00%	0.00%	0.01	0.003
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Indeno(1,2,3-cd)pyrene		8.35E-06		1	None	90.00%	0.00%	0.03	0.01
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Dibenzo(a,h)anthracene		2.18E-06		1	None	90.00%	0.00%	0.01	0.003
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Benzo(g,h,i)perylene		8.64E-06		1	None	90.00%	0.00%	0.03	0.01
2	2029 & 2031fug	X	SHELL MOLD POURING STATION & SHAKEOUT/TRAY SANDING	33,288	13,500	tons steel	Total PCDD/PCDF (TEF wt-equiv.)		7.85E-12			None	90.00%	0.00%	0.00000003	0.00000001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Arsenic		1.68E-06		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.0001	0.00003
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Beryllium		6.80E-07		3*	Baghouse & Carbon Adsorber	99.99%	99.85%	0	0
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cadmium		6.25E-06		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.0003	0.0001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Chromium, Total		6.03E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.003	0.001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Lead		6.80E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.003	0.001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Manganese		8.14E-04		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.04	0.02
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Mercury		1.17E-06		3*	Baghouse & Carbon Adsorber	99.99%	99.85%	0	0
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Nickel		4.75E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.002	0.001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Selenium		3.08E-06		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.0002	0.0001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Zinc		4.72E-04		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.02	0.01
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Formaldehyde		2.35E-03		3	Baghouse & Carbon Adsorber	99.99%	0.00%	78.2	31.7
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acetaldehyde		3.72E-03		3	Baghouse & Carbon Adsorber	99.99%	90.50%	11.8	4.8
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Phenol		9.60E-03		3	Baghouse & Carbon Adsorber	99.99%	90.50%	30.4	12.3
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cresol, m,p-		2.89E-03		3	Baghouse & Carbon Adsorber	99.99%	90.50%	9.1	3.7
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cresol, o-		5.89E-03		3	Baghouse & Carbon Adsorber	99.99%	90.50%	18.6	7.6
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzene		3.48E-02		3	Baghouse & Carbon Adsorber	99.99%	90.50%	110.1	44.6
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Naphthalene		2.85E-03		3	Baghouse & Carbon Adsorber	99.99%	90.51%	9.0	3.7
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	2-Methylnaphthalene		6.06E-04		3	Baghouse & Carbon Adsorber	99.99%	90.53%	1.9	0.8
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acenaphthylene		4.42E-04		3	Baghouse & Carbon Adsorber	99.99%	90.58%	1.4	0.6
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acenaphthene		2.33E-05		3	Baghouse & Carbon Adsorber	99.99%	90.75%	0.1	0.03
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Fluorene		1.05E-03		3	Baghouse & Carbon Adsorber	99.99%	91.05%	3.1	1.3
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Phenanthrene		8.29E-04		3	Baghouse & Carbon Adsorber	99.99%	94.90%	1.4	0.6
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Anthracene		1.15E-03		3	Baghouse & Carbon Adsorber	99.99%	94.90%	2.0	0.8
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Fluoranthene		1.86E-04		3	Baghouse & Carbon Adsorber	99.99%	98.83%	0.1	0.03
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Pyrene		1.04E-04		3	Baghouse & Carbon Adsorber	99.99%	99.12%	0.03	0.01
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benz(a)anthracene		5.55E-05		3	Baghouse & Carbon Adsorber	99.99%	99.80%	0.004	0.001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Chrysene		2.91E-05		3	Baghouse & Carbon Adsorber	99.99%	99.80%	0.002	0.001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(b)fluoranthene		4.97E-05		3	Baghouse & Carbon Adsorber	99.99%	99.55%	0.01	0.003
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(k)fluoranthene		8.24E-06		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.0004	0.0002
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(e)pyrene		2.12E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.001	0.0004
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(a)pyrene		2.01E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.001	0.0004
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Perylene		3.40E-06		3	Baghouse & Carbon Adsorber	99.99%	99.82%	0.0002	0.0001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Indeno(1,2,3-cd)pyrene		1.41E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.001	0.0003
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Dibenzo(a,h)anthracene		3.76E-06		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.0002	0.0001
2	2030		CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(g,h,i)perylene		1.39E-05		3	Baghouse & Carbon Adsorber	99.99%	99.85%	0.001	0.0003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Arsenic		1.68E-06		3	None	99.99%	0.00%	0.00001	0.000002
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Beryllium		6.80E-07		3*	None	99.99%	0.00%	0	0
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cadmium		6.25E-06		3	None	99.99%	0.00%	0.00002	0.00001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Chromium, Total		6.03E-05		3	None	99.99%	0.00%	0.0002	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Lead		6.80E-05		3	None	99.99%	0.00%	0.0002	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Manganese		8.14E-04		3	None	99.99%	0.00%	0.003	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Mercury		1.17E-06		3*	None	99.99%	0.00%	0	0
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Nickel		4.75E-05		3	None	99.99%	0.00%	0.0002	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Selenium		3.08E-06		3	None	99.99%	0.00%	0.00001	0.000004
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Zinc		4.72E-04		3	None	99.99%	0.00%	0.002	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Formaldehyde		2.35E-03		3	None	99.99%	0.00%	0.01	0.003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acetaldehyde		3.72E-03		3	None	99.99%	0.00%	0.01	0.01
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Phenol		9.60E-03		3	None	99.99%	0.00%	0.03	0.01
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cresol, m,p-		2.89E-03		3	None	99.99%	0.00%	0.01	0.004
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Cresol, o-		5.89E-03		3	None	99.99%	0.00%	0.02	0.01
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzene		3.48E-02		3	None	99.99%	0.00%	0.1	0.05
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Naphthalene		2.85E-03		3	None	99.99%	0.00%	0.01	0.004
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	2-Methylnaphthalene		6.06E-04		3	None	99.99%	0.00%	0.002	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acenaphthylene		4.42E-04		3	None	99.99%	0.00%	0.001	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Acenaphthene		2.33E-05		3	None	99.99%	0.00%	0.0001	0.00003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Fluorene		1.05E-03		3	None	99.99%	0.00%	0.003	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Phenanthrene		8.29E-04		3	None	99.99%	0.00%	0.003	0.001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Anthracene		1.15E-03		3	None	99.99%	0.00%	0.004	0.002
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Fluoranthene		1.86E-04		3	None	99.99%	0.00%	0.001	0.0003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Pyrene		1.04E-04		3	None	99.99%	0.00%	0.0003	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benz(a)anthracene		5.55E-05		3	None	99.99%	0.00%	0.0002	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Chrysene		2.91E-05		3	None	99.99%	0.00%	0.0001	0.00004

Plant#	S #	Fugitive?	Source Name	Annual Throughput			Pollutant	Emission Factors (lbs/unit throughput)			Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions	
				PTE	SMOP	Units		Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)					PTE (lbs/year)	SMOP (lbs/year)
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(b)fluoranthene		4.97E-05		3	None	99.99%	0.00%	0.0002	0.0001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(k)fluoranthene		8.24E-06		3	None	99.99%	0.00%	0.00003	0.00001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(e)pyrene		2.12E-05		3	None	99.99%	0.00%	0.0001	0.00003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(a)pyrene		2.01E-05		3	None	99.99%	0.00%	0.0001	0.00003
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Perylene		3.40E-06		3	None	99.99%	0.00%	0.00001	0.000005
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Indeno(1,2,3-cd)pyrene		1.41E-05		3	None	99.99%	0.00%	0.00005	0.00002
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Dibenzo(a,h)anthracene		3.76E-06		3	None	99.99%	0.00%	0.00001	0.00001
2	2030fug	X	CAST MOLD COOLING ROOM	33,288	13,500	tons steel	Benzo(g,h,i)perylene		1.39E-05		3	None	99.99%	0.00%	0.00005	0.00002
2	2032		ROTOBLAST	350,400	13,500	tons steel	Arsenic	1.64E-07			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.0001	0.000003
2	2032		ROTOBLAST	350,400	13,500	tons steel	Beryllium				9	Baghouse & Carbon Adsorber	100.00%	99.85%	0	0
2	2032		ROTOBLAST	350,400	13,500	tons steel	Cadmium	7.49E-08			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.00004	0.000002
2	2032		ROTOBLAST	350,400	13,500	tons steel	Chromium, Total	6.51E-07			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.0003	0.00001
2	2032		ROTOBLAST	350,400	13,500	tons steel	Lead	1.57E-05			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.01	0.0003
2	2032		ROTOBLAST	350,400	13,500	tons steel	Manganese	2.14E-05			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.01	0.0004
2	2032		ROTOBLAST	350,400	13,500	tons steel	Mercury	1.55E-07			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.0001	0.000003
2	2032		ROTOBLAST	350,400	13,500	tons steel	Nickel				9	Baghouse & Carbon Adsorber	100.00%	99.85%	0	0
2	2032		ROTOBLAST	350,400	13,500	tons steel	Selenium				9	Baghouse & Carbon Adsorber	100.00%	99.85%	0	0
2	2032		ROTOBLAST	350,400	13,500	tons steel	Zinc	1.09E-05			9	Baghouse & Carbon Adsorber	100.00%	99.85%	0.01	0.0002
2	2033 thru 2040		ABRASIVE CUT-OFF SAWS & GRINDERS [exempt]	28,032	13,500	tons steel	Arsenic			2.38E-08	9	Baghouse, Shaking	90.00%	99.57%	0.001	0.0003
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Beryllium				9	Baghouse, Shaking	90.00%	99.57%	0	0
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Cadmium			1.09E-08	9	Baghouse, Shaking	90.00%	99.57%	0.0003	0.0001
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Chromium, Total			9.43E-08	9	Baghouse, Shaking	90.00%	99.57%	0.003	0.001
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Lead			2.28E-06	9	Baghouse, Shaking	90.00%	99.57%	0.1	0.03
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Manganese			3.10E-06	9	Baghouse, Shaking	90.00%	99.57%	0.1	0.04
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Mercury			2.25E-08	9	Baghouse, Shaking	90.00%	99.57%	0.001	0.0003
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Nickel				9	Baghouse, Shaking	90.00%	99.57%	0	0
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Selenium				9	Baghouse, Shaking	90.00%	99.57%	0	0
2	2033 thru 2040		ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Zinc			1.57E-06	9	Baghouse, Shaking	90.00%	99.57%	0.04	0.02
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAWS & GRINDERS [exempt]	28,032	13,500	tons steel	Arsenic			2.38E-08	9	None	90.00%	99.57%	0.02	0.01
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Beryllium				9	None	90.00%	99.57%	0	0
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Cadmium			1.09E-08	9	None	90.00%	99.57%	0.01	0.004
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Chromium, Total			9.43E-08	9	None	90.00%	99.57%	0.1	0.03
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Lead			2.28E-06	9	None	90.00%	99.57%	1.7	0.8
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Manganese			3.10E-06	9	None	90.00%	99.57%	2.2	1.1
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Mercury			2.25E-08	9	None	90.00%	99.57%	0.02	0.01
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Nickel				9	None	90.00%	99.57%	0	0
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Selenium				9	None	90.00%	99.57%	0	0
2	2033 thru 2040 fug	X	ABRASIVE CUT-OFF SAW [exempt]	28,032	13,500	tons steel	Zinc			1.57E-06	9	None	90.00%	99.57%	1.1	0.5
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Arsenic			1.48E-06	2*	Baghouse, Pulse Jet	99.00%	99.57%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Beryllium			1.48E-06	2*	Baghouse, Pulse Jet	99.00%	99.57%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cadmium			1.32E-02	6	Baghouse, Pulse Jet	99.00%	99.57%	231.75	132.28
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Chromium, Total			1.86E-05	2	Baghouse, Pulse Jet	99.00%	99.57%	0.3	0.2
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Lead			3.31E-03	2	Baghouse, Pulse Jet	99.00%	99.57%	57.9	33.1
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Manganese			2.87E-02	6	Baghouse, Pulse Jet	99.00%	99.57%	502.1	286.6
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Mercury			5.50E-06	2	Baghouse, Pulse Jet	99.00%	99.57%	0.1	0.1
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Nickel			1.76E-02	6	Baghouse, Pulse Jet	99.00%	99.57%	309.0	176.4
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Selenium			7.84E-06	2	Baghouse, Pulse Jet	99.00%	99.57%	0.1	0.1
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Zinc			2.38E-04	2	Baghouse, Pulse Jet	99.00%	99.57%	4.2	2.4
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Formaldehyde			1.90E-03	2	Baghouse, Pulse Jet	99.00%	0.00%	33.3	19.0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acetaldehyde			2.00E-04	2*	Baghouse, Pulse Jet	99.00%	0.00%	4	2
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Phenol			9.90E-06	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cresol, m,p-			2.79E-04	2	Baghouse, Pulse Jet	99.00%	0.00%	4.9	2.8
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cresol, o-			9.90E-06	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzene			9.43E-05	2	Baghouse, Pulse Jet	99.00%	0.00%	1.7	0.9
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Naphthalene			6.80E-06	2	Baghouse, Pulse Jet	99.00%	0.01%	0.1	0.1
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	2-Methylnaphthalene			6.80E-06	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acenaphthylene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acenaphthene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Fluorene			8.52E-08	2	Baghouse, Pulse Jet	99.00%	5.89%	0.001	0.001
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Phenanthrene			5.56E-07	2	Baghouse, Pulse Jet	99.00%	5.89%	0.01	0.01
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Anthracene			9.70E-08	2	Baghouse, Pulse Jet	99.00%	36.42%	0.002	0.001
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Fluoranthene			2.72E-07	2	Baghouse, Pulse Jet	99.00%	45.36%	0.005	0.003
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Pyrene			2.94E-07	2	Baghouse, Pulse Jet	99.00%	0.00%	0.01	0.003
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benz(a)anthracene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Chrysene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	67.67%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(b)fluoranthene			8.75E-08	2	Baghouse, Pulse Jet	99.00%	0.00%	0.002	0.001
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(k)fluoranthene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	Annual Throughput SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Emission Factors (lbs/unit throughput) Captured (Uncontrolled)	Emission Factors (lbs/unit throughput) Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	Annual Emissions SMOP (lbs/year)
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(e)pyrene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(a)pyrene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Perylene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Indeno(1,2,3-cd)pyrene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Dibenzo(a,h)anthracene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(g,h,i)perylene			4.98E-08	2*	Baghouse, Pulse Jet	99.00%	0.00%	0	0
2	2044 thru 2049		Thermal Recycling Unit (Sand Reclamation)	262,800	186,588	therms	Toluene	3.40E-07			7	Baghouse, Pulse Jet	99.00%	0.00%	0.1	0.1
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Arsenic			1.48E-06	2*	None	99.00%	99.57%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Beryllium			1.48E-06	2*	None	99.00%	99.57%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cadmium			1.32E-02	6	None	99.00%	99.57%	544.4	310.7
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Chromium, Total			1.86E-05	2	None	99.00%	99.57%	0.8	0.4
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Lead			3.31E-03	2	None	99.00%	99.57%	136.1	77.7
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Manganese			2.87E-02	6	None	99.00%	99.57%	1,179.5	673.2
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Mercury			5.50E-06	2	None	99.00%	99.57%	0.2	0.1
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Nickel			1.76E-02	6	None	99.00%	99.57%	725.9	414.3
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Selenium			7.84E-06	2	None	99.00%	99.57%	0.3	0.2
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Zinc			2.38E-04	2	None	99.00%	99.57%	9.8	5.6
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Formaldehyde			1.90E-03	2	None	99.00%	0.00%	0.3	0.2
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acetaldehyde			2.00E-04	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Phenol			9.90E-06	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cresol, m,p-			2.79E-04	2	None	99.00%	0.00%	0.05	0.03
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Cresol, o-			9.90E-06	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzene			9.43E-05	2	None	99.00%	0.00%	0.02	0.01
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Naphthalene			6.80E-06	2	None	99.00%	0.01%	0.001	0.001
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	2-Methylnaphthalene			6.80E-06	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acenaphthylene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Acenaphthene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Fluorene			8.52E-08	2	None	99.00%	0.44%	0.00002	0.00001
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Phenanthrene			5.56E-07	2	None	99.00%	5.89%	0.0001	0.0001
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Anthracene			9.70E-08	2	None	99.00%	5.89%	0.00002	0.00001
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Fluoranthene			2.72E-07	2	None	99.00%	36.42%	0.0001	0.00004
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Pyrene			2.94E-07	2	None	99.00%	45.36%	0.0001	0.0001
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benz(a)anthracene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Chrysene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(b)fluoranthene			8.75E-08	2	None	99.00%	67.67%	0.00005	0.00003
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(k)fluoranthene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(e)pyrene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(a)pyrene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Perylene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Indeno(1,2,3-cd)pyrene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Dibenzo(a,h)anthracene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	17,520	10,000	tons sand	Benzo(g,h,i)perylene			4.98E-08	2*	None	99.00%	0.00%	0	0
2	2044 thru 2049 fug	X	Thermal Recycling Unit (Sand Reclamation)	262,800	186,588	therms	Toluene	3.40E-07			7	None	99.00%	0.00%	0.001	0.001
2	32000		MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	Benzene	2.10E-07			7	Baghouse & Carbon Adsorber	100.00%	90.50%	0.001	0.001
2	32000		MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	Formaldehyde	7.50E-06			7	Baghouse & Carbon Adsorber	100.00%	0.00%	0.4	0.3
2	32000		MISCELLANEOUS MINOR SOURCES [exempt]	52,560	37,318	therms	Toluene	3.40E-07			7	Baghouse & Carbon Adsorber	100.00%	90.50%	0.002	0.001

NOTES:

BASIS FOR EMISSION FACTOR

* Pollutant not measured above detection levels, one-half of the detection level used

1. Source Test OS-1495, December 14 - 15, 2005
2. Source Test OS-1496, December 19, 2005
3. Source Test OS-1497, December 12 - 14, 2005
4. Source Test OS-1498, March 20, 2006
5. Source Test OS-1499, March 15 - 16, 2006
6. Sourt Test ST05199, May 11 - 12, 2005
7. U.S. EPA AP-42, Section 1.4 (July 1998), Table 1.4-3. Assumes a natural gas heating value of 1000 Btu/scf in coverting emission factor units from lbs/MMscf to lbs/therm. Only organic HAP emission factors that had an EPA Grade of C or better were used.
8. Unabated phenol emission factor from District source test of P-2004 stack dated 04/14/05 and using the following equation: S-2007 to S-2012 lbs phenol/ton steel = (P-2004 emissions from Plant 2 source test, lb/hr)/(1.25 tons steel/hr)/(6 sources), Assumes no phenol in S-2006 (binder not added until S-2007)
9. Source test by facility per AB 2588, November 1989

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	Annual Throughput SMOP	Annual Throughput Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Emission Factors (lbs/unit throughput) Captured (Uncontrolled)	Emission Factors (lbs/unit throughput) Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	Annual Emissions SMOP (lbs/year)	Notes
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Arsenic			6.10E-07	5	EAF Baghouse	99.00%	99.57%	0.02	0.004	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Beryllium			3.07E-07	5	EAF Baghouse	99.00%	99.57%	0	0	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Cadmium			1.15E-06	5	EAF Baghouse	99.00%	99.57%	0.03	0.01	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Chromium, Total			2.54E-05	5	EAF Baghouse	99.00%	99.57%	0.7	0.18	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Chromium (VI)			2.24E-07	5	EAF Baghouse	99.00%	99.57%	0.01	0.002	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Lead			8.94E-06	5	EAF Baghouse	99.00%	99.57%	0.2	0.06	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Manganese			2.26E-04	5	EAF Baghouse	99.00%	99.57%	5.9	1.57	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Mercury			1.57E-06	5	EAF Baghouse	99.00%	99.57%	0.04	0.01	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Nickel			7.76E-06	5	EAF Baghouse	99.00%	99.57%	0.2	0.05	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Selenium			1.73E-06	5	EAF Baghouse	99.00%	99.57%	0.05	0.01	
3	3001		ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Zinc			1.16E-03	5	EAF Baghouse	99.00%	99.57%	30.5	8.06	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Arsenic		2.72E-06		4	None	99.00%	0.00%	0.001	0.0002	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Beryllium		2.52E-06		4*	None	99.00%	0.00%	0	0	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Cadmium		2.75E-05		4	None	99.00%	0.00%	0.01	0.002	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Chromium, Total		1.54E-04		4	None	99.00%	0.00%	0.04	0.01	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Chromium (VI)		1.36E-06		4	None	99.00%	0.00%	0.0004	0.0001	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Lead		1.22E-03		4	None	99.00%	0.00%	0.3	0.09	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Manganese		4.73E-03		4	None	99.00%	0.00%	1.3	0.33	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Mercury		6.04E-06		4	None	99.00%	0.00%	0.002	0.0004	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Nickel		7.45E-04		4	None	99.00%	0.00%	0.2	0.05	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Selenium		8.93E-05		4	None	99.00%	0.00%	0.02	0.01	
3	3001fug	X	ELECTRIC ARC FURNACE	26,280	6,950	tons steel	Zinc		8.84E-04		4	None	99.00%	0.00%	0.2	0.06	
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Arsenic			1.65E-05	1*	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Beryllium			8.15E-06	1*	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cadmium			6.42E-05	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	1.7	0.45	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chromium, Total			8.02E-04	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	21.1	5.57	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chromium (VI)		0.00E+00		9	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Lead			1.06E-04	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	2.8	0.74	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Manganese			1.67E-03	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	43.9	11.61	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Mercury			2.29E-05	1*	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	1	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Nickel			5.63E-04	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	14.8	3.91	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Selenium		4.19E-05		1*	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	0.4	0.10	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Zinc			2.01E-03	1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	52.8	13.97	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Phenol		3.04E-01		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	759.0	200.72	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cresol, m,p-		2.15E-03		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	5.4	1.42	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cresol, o-		2.65E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	66.2	17.50	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzene		4.97E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	124.1	32.81	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Toluene		2.28E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	56.9	15.05	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Ethyl benzene		1.01E-03		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	2.5	0.67	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, m,p-		1.06E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	26.5	7.00	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, o-		4.73E-03		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	11.8	3.12	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, Total		1.53E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	38.2	10.10	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Methylene diphenyl diisocyanate (MDI)		8.00E-04		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	2.0	0.53	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Naphthalene		2.23E-01		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.48%	557.9	147.55	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	2-Methylnaphthalene		1.15E-02		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.42%	29.0	7.66	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Acenaphthylene		3.02E-05		1	Shake Out Baghouse/prefilter/carbon	99.00%	90.31%	0.1	0.02	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Acenaphthene		4.30E-05		1	Shake Out Baghouse/prefilter/carbon	99.00%	89.89%	0.1	0.03	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Fluorene		1.60E-04		1	Shake Out Baghouse/prefilter/carbon	99.00%	89.16%	0.5	0.12	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Phenanthrene		2.20E-04		1	Shake Out Baghouse/prefilter/carbon	99.00%	79.28%	1.2	0.32	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Anthracene		7.08E-05		1	Shake Out Baghouse/prefilter/carbon	99.00%	79.28%	0.4	0.10	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Fluoranthene		9.00E-06		1	Shake Out Baghouse/prefilter/carbon	99.00%	68.11%	0.1	0.02	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Pyrene		3.54E-06		1	Shake Out Baghouse/prefilter/carbon	99.00%	67.23%	0.03	0.01	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benz(a)anthracene		8.44E-07		1	Shake Out Baghouse/prefilter/carbon	99.00%	65.14%	0.01	0.002	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chrysene		1.84E-06		1	Shake Out Baghouse/prefilter/carbon	99.00%	65.14%	0.02	0.004	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(b)fluoranthene		5.34E-07		1	Shake Out Baghouse/prefilter/carbon	99.00%	65.93%	0.005	0.001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(k)fluoranthene		2.21E-07		1*	Shake Out Baghouse/prefilter/carbon	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(e)pyrene		2.21E-07		1*	Shake Out Baghouse/prefilter/carbon	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(a)pyrene		7.09E-07		1	Shake Out Baghouse/prefilter/carbon	99.00%	65.00%	0.01	0.002	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Perylene		3.52E-07		1	Shake Out Baghouse/prefilter/carbon	99.00%	65.10%	0.003	0.001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Indeno(1,2,3-cd)pyrene		2.21E-07		1*	Shake Out Baghouse/prefilter/carbon	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Dibenzo(a,h)anthracene		2.21E-07		1*	Shake Out Baghouse/prefilter/carbon	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(g,h,i)perylene		2.21E-07		1*	Shake Out Baghouse/prefilter/carbon	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019		Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Total PCDD/PCDF (TEF wt-equiv.)		9.81E-11		3	Shake Out Baghouse/prefilter/carbon	99.00%	90.50%	0.0000002	0.0000001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Arsenic			1.65E-05	1*	None	99.00%	99.57%	1	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Beryllium			8.15E-06	1*	None	99.00%	99.57%	1	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cadmium			6.42E-05	1	None	99.00%	99.57%	3.96	1.048	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chromium, Total			8.02E-04	1	None	99.00%	99.57%	49.5	13.09	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chromium (VI)		0.00E+00		9	None	99.00%	99.57%	0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Lead			1.06E-04	1	None	99.00%	99.57%	6.54	1.73	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Manganese			1.67E-03	1	None	99.00%	99.57%	103.1	27.26	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Mercury			2.29E-05	1*	None	99.00%	99.57%	1	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Nickel			5.63E-04	1	None	99.00%	99.57%	34.8	9.19	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Selenium		4.19E-05		1*	None	99.00%	99.57%	0.01	0.003	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Zinc			2.01E-03	1	None	99.00%	99.57%	124.1	32.82	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Phenol		3.04E-01		1	None	99.00%	0.00%	80.7	21.34	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cresol, m,p-		2.15E-03		1	None	99.00%	0.00%	0.6	0.15	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Cresol, o-		2.65E-02		1	None	99.00%	0.00%	7.0	1.86	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzene		1.80E-01		6	None	99.00%	0.00%	47.8	12.64	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Toluene		2.28E-02		1	None	99.00%	0.00%	6.1	1.60	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Ethyl benzene		1.01E-03		1	None	99.00%	0.00%	0.3	0.07	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, m,p-		1.06E-02		1	None	99.00%	0.00%	2.8	0.74	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	Annual Throughput SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	Annual Emissions SMOP (lbs/year)	Notes
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, o-		4.73E-03		1	None	99.00%	0.00%	1.3	0.33	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Xylene, Total		1.53E-02		1	None	99.00%	0.00%	4.1	1.07	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Methylene diphenyl diisocyanate (MDI)		8.00E-04		1	None	99.00%	0.00%	0.2	0.06	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Naphthalene		2.23E-01		1	None	99.00%	0.00%	59.2	15.66	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	2-Methylnaphthalene		1.15E-02		1	None	99.00%	0.00%	3.1	0.81	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Acenaphthylene		3.02E-05		1	None	99.00%	1.00%	0.01	0.002	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Acenaphthene		4.30E-05		1	None	99.00%	1.99%	0.01	0.003	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Fluorene		1.60E-04		1	None	99.00%	4.98%	0.04	0.01	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Phenanthrene		2.20E-04		1	None	99.00%	43.81%	0.1	0.02	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Anthracene		7.08E-05		1	None	99.00%	43.81%	0.02	0.005	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Fluoranthene		9.00E-06		1	None	99.00%	87.42%	0.002	0.001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Pyrene		3.54E-06		1	None	99.00%	90.91%	0.001	0.0002	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benz(a)anthracene		8.44E-07		1	None	99.00%	99.02%	0.0002	0.0001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Chrysene		1.84E-06		1	None	99.00%	99.02%	0.0005	0.0001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(b)fluoranthene		5.34E-07		1	None	99.00%	95.94%	0.0001	0.00004	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(k)fluoranthene		2.21E-07		1*	None	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(e)pyrene		2.21E-07		1*	None	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(a)pyrene		7.09E-07		1	None	99.00%	99.56%	0.0002	0.00005	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Perylene		3.52E-07		1	None	99.00%	99.17%	0.0001	0.00002	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Indeno(1,2,3-cd)pyrene		2.21E-07		1*	None	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Dibenzo(a,h)anthracene		2.21E-07		1*	None	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Benzo(g,h,i)perylene		2.21E-07		1*	None	99.00%		0	0	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3004 & 3019 fug	X	Casting Mold Shake Out & Pour Area	26,280	6,950	tons steel	Total PCDD/PCDF (TEF wt-equiv.)		9.81E-11		3	None	99.00%	99.57%	0.00000003	0.00000001	Note: S-3004 & S-3019 emission factors are for point after baghouse, but before carbon. Listed control efficiency is for carbon.
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Formaldehyde	4.40E-04			2	Shake Out Baghouse/prefilter/carbon	75.00%	0.00%	52.8	12.47	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Acetaldehyde	7.00E-05			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	0.8	0.19	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Phenol	2.45E-03			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	27.9	6.60	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Cresol, m,p-	5.80E-05			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	0.7	0.16	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Cresol, o-	2.18E-04			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	2.5	0.59	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Benzene	2.76E-03			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	31.4	7.43	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Methylene diphenyl diisocyanate (MDI)	6.62E-05			2	Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	0.8	0.18	
3	3014 & 3018		Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Naphthalene		1.81E-03			Shake Out Baghouse/prefilter/carbon	75.00%	90.50%	27.5	6.50	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Formaldehyde	4.40E-04			2	None	75.00%	0.00%	17.6	4.16	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Acetaldehyde	7.00E-05			2	None	75.00%	0.00%	2.8	0.66	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Phenol	2.45E-03			2	None	75.00%	0.00%	97.9	23.15	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Cresol, m,p-	5.80E-05			2	None	75.00%	0.00%	2.3	0.55	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Cresol, o-	2.18E-04			2	None	75.00%	0.00%	8.7	2.06	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Benzene	2.76E-03			2	None	75.00%	0.00%	110.3	26.08	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Methylene diphenyl diisocyanate (MDI)	6.62E-05			2	None	75.00%	0.00%	2.6	0.63	
3	3014 & 3018 fug	X	Mold Mixing Area/Coating Operation	159,870	37,800	tons sand	Naphthalene		1.81E-03			None	75.00%	0.00%	96.5	22.81	
3	3005		Blast Table	87,600	12,150	tons steel	Arsenic	1.60E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.0001	0.00001	
3	3005		Blast Table	87,600	12,150	tons steel	Beryllium				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3005		Blast Table	87,600	12,150	tons steel	Cadmium	7.29E-08			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.00003	0.000004	
3	3005		Blast Table	87,600	12,150	tons steel	Chromium, Total	6.33E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.0002	0.00003	
3	3005		Blast Table	87,600	12,150	tons steel	Lead	1.53E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.01	0.001	
3	3005		Blast Table	87,600	12,150	tons steel	Manganese	2.08E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.01	0.001	
3	3005		Blast Table	87,600	12,150	tons steel	Mercury	1.51E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.0001	0.00001	
3	3005		Blast Table	87,600	12,150	tons steel	Nickel				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3005		Blast Table	87,600	12,150	tons steel	Selenium				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3005		Blast Table	87,600	12,150	tons steel	Zinc	1.06E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.004	0.001	
3	3006		Tumble Blast	21,900	12,150	tons steel	Arsenic	1.60E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.00002	0.00001	
3	3006		Tumble Blast	21,900	12,150	tons steel	Beryllium				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3006		Tumble Blast	21,900	12,150	tons steel	Cadmium	7.29E-08			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.00001	0.000004	
3	3006		Tumble Blast	21,900	12,150	tons steel	Chromium, Total	6.33E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.0001	0.00003	
3	3006		Tumble Blast	21,900	12,150	tons steel	Lead	1.53E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.001	0.001	
3	3006		Tumble Blast	21,900	12,150	tons steel	Manganese	2.08E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.002	0.001	
3	3006		Tumble Blast	21,900	12,150	tons steel	Mercury	1.51E-07			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.00001	0.00001	
3	3006		Tumble Blast	21,900	12,150	tons steel	Nickel				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3006		Tumble Blast	21,900	12,150	tons steel	Selenium				7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0	0	
3	3006		Tumble Blast	21,900	12,150	tons steel	Zinc	1.06E-05			7	Cleaning Room Baghouse #1 &#2	100.00%	99.57%	0.001	0.001	
3			Heat treat furnaces [exempt]	105,120	102,664	therms	Benzene	2.10E-07			8	Finishing Room Vent	100.00%	0.00%	0.02	0.02	
3			Heat treat furnaces [exempt]	105,120	102,664	therms	Formaldehyde	7.50E-06			8	Finishing Room Vent	100.00%	0.00%	0.8	0.77	
3			Heat treat furnaces [exempt]	105,120	102,664	therms	Toluene	3.40E-07			8	Finishing Room Vent	100.00%	0.00%	0.04	0.03	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Arsenic	8.25E-06			7	Finishing Room Vent	100.00%	0.00%	0.2	0.10	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Beryllium				7	Finishing Room Vent	100.00%	0.00%	0	0	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Cadmium	3.77E-06			7	Finishing Room Vent	100.00%	0.00%	0.1	0.05	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Chromium, Total	3.27E-05			7	Finishing Room Vent	100.00%	0.00%	0.8	0.40	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Lead	7.91E-04			7	Finishing Room Vent	100.00%	0.00%	18.7	9.61	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Manganese	1.08E-03			7	Finishing Room Vent	100.00%	0.00%	25.5	13.12	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Mercury	7.80E-06			7	Finishing Room Vent	100.00%	0.00%	0.2	0.09	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Nickel				7	Finishing Room Vent	100.00%	0.00%	0	0	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Selenium				7	Finishing Room Vent	100.00%	0.00%	0	0	
3			Cleaning and Grinding in Finishing Room [exemp	23,652	12,150	tons steel	Zinc	5.46E-04			7	Finishing Room Vent	100.00%	0.00%	12.9	6.63	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Arsenic	4.85E-09			7	Finishing Room Vent	100.00%	0.00%	0.0001	0.0001	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Beryllium				7	Finishing Room Vent	100.00%	0.00%	0	0	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Cadmium	2.22E-09			7	Finishing Room Vent	100.00%	0.00%	0.0001	0.00003	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Chromium, Total	1.93E-08			7	Finishing Room Vent	100.00%	0.00%	0.0005	0.0002	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Chromium (VI)	1.69E-10			7	Finishing Room Vent	100.00%	0.00%	0.000004	0.000002	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Lead	4.66E-07			7	Finishing Room Vent	100.00%	0.00%	0.01	0.01	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Manganese	6.33E-07			7	Finishing Room Vent	100.00%	0.00%	0.01	0.01	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Mercury	4.59E-09			7	Finishing Room Vent	100.00%	0.00%	0.0001	0.0001	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Nickel				7	Finishing Room Vent	100.00%	0.00%	0	0	

Plant#	S #	Fugitive?	Source Name	Annual Throughput PTE	SMOP	Units	Pollutant	Emission Factors (lbs/unit throughput) Uncontrolled	Captured (Uncontrolled)	Captured (Controlled)	Emission Factor Source	Abatement Device Description	Capture Efficiency (%)	Control Efficiency (%)	Annual Emissions PTE (lbs/year)	SMOP (lbs/year)	Notes
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Selenium				7	Finishing Room Vent	100.00%	0.00%	0	0	
3			Arc Air Booth/Welding in Finishing Room [exen	23,652	12,150	tons steel	Zinc	3.21E-07			7	Finishing Room Vent	100.00%	0.00%	0.01	0.004	

NOTES:

BASIS FOR EMISSION FACTOR

* Pollutant not measured above detection levels, one-half of the detection level used

1. Source Test OS-1500, March 22 - 23, 2006
2. Source Test OS-1501, December 21, 2005
3. Source Test OS-1530, May 5, 2006
4. Source test OS-1499, used to estimate fugitive emissions from EAFs for all three plants
5. Emissions from the Plant 3 EAF (S-3001) are based on Source Test OS-1499 for Plant 2 EAF (S-2027), scaled by a ratio of the filterable particulate matter at Plant 3 EAF (S-3001) to that measured at Plant 2 EAF (S-2027)
   0.008 Filterable particulate matter emission factor (lb/ton steel) at Plant 1 EAF baghouse outlet, Source Test OS-1494
   0.051 Filterable particulate matter emission factor (lb/ton steel) at Plant 2 EAF baghouse outlet, Source Test OS-1499
   0.16 Ratio
6. Source Test OS-2100, August 23, 2007
7. Derivation of speciated metals emissions for finishing processes:
   Speciated metal emission factors (lb metal/tons steel) are estimated by multiplying the weight fraction of metal HAPs found in the testing for the finishing operations of Plant 2 S-2033 through S-2040 to arc-air booth PM_{10} emission factors (lb PM10/ton steel).
   Speciated metal emission factors (lb metal/tons steel) are derived using the following PM10 emission factors:
   1.7 PM_{10} Emission factor (lb PM_{10}/ton steel) for Casting Cleaning, AP-42, Chapter 12.13 Steel Foundries, January 1995, Table 12.13-2. Used to convert S-2033 - S-2040 source test results into metal HAP/PM_{10} weight fraction [metal HAP/PM_{10} = unabated emission factor for S-2033 - S-2040 (lb metal/tons steel)/PM_{10} emission factor (lb PM_{10}/ton steel)]
   Assume weight fractions between Plant 2 S-2033-S-2040 and Plant 3 are similar.
   0.001 PM_{10} emissions (lb/ton) from District's inventory for arc air booth. Used to convert metal weight fractions (metal/PM10) to uncontrolled metal emission factors (lb metal/tons steel).
   0.033 PM_{10} emission factor (lb PM10/ton steel) for abrasive blasting with steel shots. Based on AP-42, Table 13.2.6-1, emission factor = (1.3 lb PM_{10}/1000 lbs steel shot) x (112 tons steel shot/8853 tons steel casting).
   Per AP-42 Chapter 13.2.6, assume PM_{10} from using shots equals 10% of using sand for abrasive blasting.

HAP	Speciation profie (lb metal/lb PM10) From S-2033 - 2044 Source Test	Uncontrolled Emission Factor for arc air booth (lb metal/ton steel)	Uncontrolled Emission Factor for pangborn table and rotoblasts (lb metal/ton steel)
Arsenic	4.85E-06	4.85E-09	1.60E-07
Beryllium	ND	ND	ND
Cadmium	2.22E-06	2.22E-09	7.29E-08
Chromium, Total	1.93E-05	1.93E-08	6.33E-07
Lead	4.66E-04	4.66E-07	1.53E-05
Manganese	6.33E-04	6.33E-07	2.08E-05
Mercury	4.59E-06	4.59E-09	1.51E-07
Nickel	ND	ND	ND
Selenium	ND	ND	ND
Zinc	3.21E-04	3.21E-07	1.06E-05

8. U.S. EPA AP-42, Section 1.4 (July 1998), Table 1.4-3. Assumes a natural gas heating value of 1000 Btu/scf in coverting emission factor units from lbs/MMscf to lbs/therm. Only organic HAP emission factors that had an EPA Grade of C or better were used.
9. As emissions of chromium (VI) were only measured in the Plant 2 EAF (Source 2027), a separate analysis was conducted by GT Engineering to determine the potential for other sources of chormium (VI) in other operations at the facility. Based on that analysis, emissions of chromium (VI) are estimated for areas where molten steel is produced (i.e. in the EAF and welding operations).

APPENDIX F
Responses to Public Comments

RESPONSE TO COMMENTS

Per SIP Regulation 2-6-423.3, the District provided an initial 30-day public comment period from July 15, 2016 to August 15, 2016. At the request of the public and the EPA, this period was later extended an additional 30 days to September 15, 2016. At the request of the public, a second public comment period was held from December 6, 2016 to January 19, 2017 and the District held a community meeting in the City of Berkeley on December 14, 2016 to accept public comments in person. In total, the District provided 105 days of notice to the public for public participation.

This document summarizes the comments that District staff received on the draft evaluation report and permit conditions for Application 14029 Revised Synthetic Minor Operating Permit for Pacific Steel Casting.

The District received comments regarding the draft evaluation report and SMOP conditions from 45 individuals, one online publication (Berkeley Citizen), two organized groups (West Berkeley Alliance for Clean Air and Safe Jobs; Golden Gate University School of Law, Environmental Law and Justice Clinic (ELJC)), and one public agency: the United States Environmental Protection Agency (EPA). The District also received a comment from one commenter that wished to remain confidential.

District staff have considered all comments received and have revised the draft evaluation report and made significant changes to the proposed SMOP conditions, as reflected in the final version of the evaluation report and conditions. Staff have also prepared specific responses to comments received. These responses are set forth below.

A. List of Comments Received in Response to Posting

The following is a list of comments received via e-mail, letter, or in person during the community meeting.

1. L A Wood, August 3, 2016
2. Janice Schroeder, West Berkeley Alliance for Clean Air and Safe Jobs, August 10, 2016
3. Alejandro Soto-Vigil, August 10, 2016
4. L A Wood, Berkeley Citizen, August 15, 2016
5. Meryl Siegal, August 15, 2016
6. Rhiannon, August 15, 2016
7. L A Wood, August 30, 2016
8. U.S. EPA, August 30, 2016
9. Matt Haber, September 9, 2016
10. Golden Gate University School of Law, Environmental Law and Justice Clinic, September 15, 2016
11. Golden Gate University School of Law, Environmental Law and Justice Clinic, September 19, 2016
12. Janice Schroeder, West Berkeley Alliance for Clean Air and Safe Jobs, December 14, 2016
13. Steve Martino, December 14, 2016
14. Steve Castleman, ELJC, December 14, 2016
15. L A Wood, December 14, 2016
16. Colin McCarthy, ELJC, December 14, 2016
17. Linda Listrom, December 14, 2016
18. Meryl Siegal, December 14, 2016
19. Helen Kang, ELJC, December 14, 2016
20. Breen Fulton, December 14, 2016
21. Amanda Silas, December 14, 2016
22. Confidential, December 14, 2016
23. Elisabeth Lamoureaux, January 14, 2017
24. Pam Tellew, January 14, 2017
25. Tom Molyneaux, January 14, 2017
26. Will Rachelson, January 14, 2017
27. Nancy Bartell, January 15, 2017
28. Andrew Berna-Hicks, January 15, 2017
29. Cathy Duenas, Julian Duenas, and David Rink, January 15, 2017

30. Charlene Woodcock, January 15, 2017
31. John Hitchen, January 15, 2017
32. Jeannie Choe, January 15, 2017
33. Thianh Lu, January 16, 2017
34. Bob Harlow, January 16, 2017
35. Maureen Perez Lu, January 16, 2017
36. Keith Skinner, January 16, 2017
37. Alice Chen, January 17, 2017
38. David Lerman, January 17, 2017
39. Jason Gardner, January 17, 2017
40. Karyn Lynn Newman, January 17, 2017
41. Alicia Moore, January 18, 2017
42. Kirsten Lindquist, January 18, 2017
43. EPA, January 19, 2017
44. Golden Gate University, ELJC, January 19, 2017
45. Ariela Ronay-Jinich, January 19, 2017
46. Ash Berman, January 19, 2017
47. Chadd Wolfe, January 19, 2017
48. Corey Block, January 19, 2017
49. Hilary Curtis, January 19, 2017
50. Jen Stern, January 19, 2017
51. Jhos J Singer, January 19, 2017
52. Judith Katz, January 19, 2017
53. Mike Perlmutter, January 19, 2017
54. Rachel Hurwitz and Martha Westland, January 19, 2017
55. Sharon Bernstein, January 19, 2017
56. Shirley Dean, January 19, 2017
57. Rachel Binstock, January 20, 2017

B. Comments and Responses

Comments have been categorized and identified by commenter using the list above [comment #] with responses following the comment. Where the District received multiple, slightly variable comments for the same topic, a summary of the comment is provided in lieu of listing the various comment permutations.

AB 2588 Notification

Comment:

"P.11 shows that excess cancer risk from the plant is 31 in a million and that any exceedance of 10 in a million requires public noticing. Apparently the definition of public noticing did not include notification to those most impacted, the members of the community living in closest proximity. A map of the plant should be included in the report with isopleths showing where the 10, 20, and 30 in a million risk isopleths are located. The [sic] plant should be required to notify those residences or businesses of the excess risk." [28]

Response:

The regulation under which the Synthetic Minor Operating Permit is issued does not apply to AB2588 nor does AB2588 apply to the Synthetic Minor Operating Permit. However, the comment will be forwarded to the District personnel charged with the responsibility of enforcing AB2588 and required notifications.

Comment:

"Has Pacific Steel provided notification required under the Air Toxics Hot Spots Program?" [10]

Response:

Yes, Pacific Steel Casting has and continues to provide notification required under the Air Toxics Hot Spots Program.

Abatement

Comment:
"…they should be installing top-of-the-line scrubbers, not just monitors…" [32]

Response:
The regulation under which the proposed permit is being issued - Regulation 2, Rule 6 - does not grant the District the authority to mandate the facility install abatement devices. If there were no enforceable conditions that could be imposed to limit emissions to below major source levels, the facility could decide to install scrubbers if the facility wanted a SMOP.

Although the regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to health risk, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities would be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies to all facilities within the District including Pacific Steel Casting.

Comment:
"In order to prevent noxious odors, the District should require 'the permanent venting of all emissions to existing carbon adsorption units,' as contemplated by the PTO, paragraph 9." [44]

Response:
The District believes the comment is referring to Part 9 of Condition 14767:

"9. Should the operation of Source 2049 and any or all associated equipment (Sources 2044-2048) be determined by the District to cause nuisance odors, the permit holder shall immediately cease operation of the entire sand recycling system (Sources 2044-2049). In the event that this occurs, the operation of the sources shall be prohibited until all odor problems are resolved by the permit holder. Resolution of any odor problems may require the permanent shut down of sources 2044-2048 or the permanent venting of all emissions to existing carbon adsorption units located at Pacific Steel Casting. (Regulation 7)."

As noted in the condition, the basis for the cited requirement is District Regulation 7, which limits odorous substances. The regulation under which the proposed permit, District Regulation 2, Rule 6, requires limiting facility-wide emissions. Although some emissions limits should reduce some odors, it will not eliminate all odors. If in the future, the facility is determined to be a nuisance facility per District Regulation 1 and Regulation 7, similar requirements as the one cited by the comment may be imposed. However, the District's authority to impose conditions within the SMOP is limited to that which is granted by District Regulation 2, Rule 6.

Accountability

Comment:
"And please hold Pacific Steel to the standards needed to protect the community." [45, 46, 48, 50, 51, 52, 53, 57]

Response:
The intent of the proposed conditions is to ensure the facility complies with facility-wide emissions limits. Limiting such emissions will limit impacts to the community.

Alarm Systems/Violations

Comment:
"Please require an alarm system for these monitors so that air quality violations are known, reported, and responded to instantly by Pacific Steel and the District" [53]

Comment:
"…with alarm systems in the case of air quality violations…" [55]

Response:
Pacific Steel Casting will be required to install alarms on the pollutant abatement devices to alert the facility to potential problems before an air quality violation occurs. Pacific Steel Casting will be required to fix any problems before there is an air quality violation. Pacific Steel Casting will be required to keep records of any such alarms and of any corrective actions taken.

Backsliding
Comment:
"…I'm concerned they are backsliding, when they still need to improve." [24]

Response:
The proposed SMOP conditions contain rigorous conditions for estimating, controlling, monitoring, recording, and reporting of facility-wide emissions. Such conditions are more rigorous than previous SMOP conditions and represent an improvement.

Baghouse Pressure Drop Ranges
Comment:
"In part 50 of condition 20207, the pressure drop ranges do not appear to be tailored for the baghouse control device, but rather appear to be the entire range (minimum and maximum). This is inadequate."

"Please specify in part 50 more specific pressure drop ranges, or testing requirements to obtain the appropriate pressure drop ranges, that ensure proper operation of the baghouses." [8]

Response:
The facility has confirmed that the pressure drop ranges are specific to each baghouse and not the entire range of the gauge.

Broken Bag Detectors Alternative
Comment:
"In addition, baghouses associated with carbon or electric arc furnaces are required to be equipped with broken bag detectors or "APCO pre-approved alternative" (page 27). ... cannot determine what those alternatives are and when they are required to be installed. Broken baghouse detection is important as the community has repeatedly expressed concerns about heavy metals, and monitoring requirements should be determined in the final permit rather than in the future." [9]

Response:
The proposed conditional language would require Pacific Steel Casting to install broken bag detectors. "APCO pre-approved alternatives" would only be installed if broken bag detectors could not be installed. Such alternatives would only be approved if the alternatives function as well as or better than broken bag detectors. A definition of "APCO approved" has been added to the conditions.

Black Soot
Comment:
"We have black soot that covers our house regularly. We often smell horrible, toxic smells in the air. I fear for having my children play outside, not only because of presumably toxic air, but also because of contact with black soot. I cannot keep the house or outdoor surfaces in our yard clean, as the soot is a constant problem." [49]

Response:
Emissions of particulate matter such as black soot is limited by District Regulation 6, Rule 1. Impacts from odors are limited by District Regulation 1 and Regulation 7. Members of the public affected by such impacts should submit a complaint to the District's Compliance & Enforcement Division so that an investigation can occur. To file a complaint, members of the public should call our 24-hour toll-free hotline at 1-800-334-ODOR (6367) or submit a complaint online at https://permits.baaqmd.gov/PublicForms/ComplaintWizardSelection

Capture Efficiency

Comment:
"The permit requires capture efficiency of 90-100 percent for many emission units in conditions 24466 (Plant #1), 24547 (Plant #2), and 24548 (Plant #3), but does not clearly require venting of emissions to a control device or provide for enforceable monitoring or testing."
"Please specify in the SMOP appropriate conditions to ensure that capture efficiency will be achieved as required."[8]

Response:
The conditions have been revised to include requirements for capture efficiency demonstrations.

Comment:
Multiple commenters stated that a minimum capture efficiency of 99 percent should be required rather than 90 percent. [27, 34, 37, 41, 49]

Response:
There are dozens of individual sources at Pacific Steel Casting that have associated capture efficiencies. Many of these sources will be required to have capture efficiencies greater than 90 percent.

Comment:
"Other sources, such as Source 1014 (arc-electric air booth) may not be totally enclosed. For non-totally enclosed emissions units, 90% capture efficiency is a very high capture efficiency, and usually not possible without advanced engineering design. It is not reasonable for the District to assume 90%. If other than a default capture efficiency (60%?) is assumed, the District should require demonstration of capture efficiency with a known protocol. For example, SCAQMD published one for use for certain VOC sources. ...In other words, much more must be fundamentally explained before we can assume that the selected capture efficiencies are justified." [9]

Response:
The conditions have been revised to include more requirements for capture efficiency demonstrations.

Comment:
"The 'required capture efficiencies' are intended to be enforceable and are … an integral part of the emissions limit. If capture efficiencies are unrealistically high (i.e. they assume a higher capture than is actually possible), the permit will assume that more pollution is abated than is in fact abated through control devices." "Without a sound basis in fact, overly optimistic capture efficiencies fail to ensure that the facility will operate as a synthetic minor. The required capture efficiencies do not have a basis." [10]

Comment:
"The Engineering Evaluation Report does not provide a basis for the required capture efficiencies. No explanation is provided for the capture efficiencies selected. Most, although not all, capture efficiencies that are associated with these limits are either in the 99-100% or 86.5-90% ranges." [9]

Comment:
"For capture efficiencies in the 99/100% range, a reasonable assumption is that the sources are totally enclosed and under negative pressure. For example, Source 1018 (heat treating furnaces) is required to have a 100% capture efficiency and so it could be that it is totally enclosed and under negative pressure. From the Engineering Evaluation, however, it is difficult to tell that it is totally enclosed under negative pressure." [9]

Response:
The Engineering Evaluation report has been amended to include a basis for the capture efficiencies used in the analysis.

Comment:
"…how the District intends to enforce capture efficiencies is not explained in detail, but only with a brief comment in the Evaluation that 'the facility will be required to conduct source tests at the inlets and outlets of abatement devices'." [10]

Response:
The conditions have been revised to include requirements for capture efficiency demonstrations.

Continuous Emissions Monitors (CEMs)
Comment:
Multiple commenters requested that CEMs be required. [2, 3, 4, 5, 12, 13, 14, 15, 24, 26, 29, 42, 44, 45, 46, 48, 50, 51, 52, 53, 55, 57]

Response:
The proposed SMOP conditions already include requirements to install flame ionization devices (FIDs) to continuously monitor organic compounds, which constitute the majority of odorous compounds.

However, the conditions have been revised to include further requirements to install CEMs for pollutants other than organic compounds if the emission factors determined by periodic source testing demonstrate a necessity for a CEM rather than periodic source tests.

Comment:
"The carbon adsorption systems in the three plants are the primary mechanism for controlling the noxious odors PSC's neighbors have complained about. CEM is the best way to assure the adsorption systems are functioning adequately and insure compliance with the SMOP. It may be that odors impacting neighbors could be correlated with the efficiency (or lack thereof) of the carbon adsorption system. FIDs can provide the continuous monitoring data necessary to establish a correlation or, in the alternative, demonstrate there is no correlation." [44]

Response:
The proposed conditions include a requirement for continuous monitoring by FID for the carbon absorption systems for Plant 1 and 2 if the actual or projected actual throughput at Plant 1 or 2 exceeds 65 percent of the proposed throughput limit.

At the proposed throughput limits, the carbon absorption systems could have zero abatement and estimated VOC emissions would still remain below the major source threshold. Therefore, the proposed conditions are adequate to meeting the criteria specified in District Regulation 2-6-423.2.3 ("Permit conditions requiring monitoring, recordkeeping, and reporting sufficient to determine compliance with the emissions limits set forth in subsection 423.2.1 or 423.2.2.")

Fence Line Monitoring
Comment:
Multiple commenters requested that fence line monitoring around the facility be required as a condition. [2, 3, 4, 5, 12, 13, 14, 15, 24, 26, 29, 42, 44, 45, 46, 48, 50, 51, 52, 53, 55, 57]

Response:
The District's authority regarding the SMOP is limited in that the District can only consider conditions to ensure total emissions remain below major source thresholds. Depending on meteorological conditions, fence line monitors may not adequately quantify facility emissions. However, data from fence line monitors may be useful for determining potential health-related emissions impact on the local community. The District recently adopted a health-related emissions rule (Regulation 11, Rule 18) that requires facilities to conduct a facility-wide health risk analysis (HRA) and implement emissions reducing measures if HRA results indicate a significant impact. Depending on HRA results, fence line monitors may be installed.

Comment:
"PSC's Odor Management Plan refers to 'alleged offsite odors,' and flatly denies 'that the Company has, at any time created, or is creating, offsite odors that have or may have impacted the community any respect ….'
"People who live downwind of PSC don't smell 'alleged' odors, they smell real ones. Horrible ones. In some cases, sickening ones." [44]

"Continuous fence-line monitoring of emissions is the best way to demonstrate that complaints about PSC's odors are deniable or frivolous; they have a real negative impact. Fence-line monitoring can provide data to bridge the gap between what the community smells and what PSC disputes. And, if PSC is correct in its blanket denial, fence-line monitoring may be able to clear PSC of responsibility for some odors, providing the District an opportunity to investigate others' responsibility." [44]

"Fence-line monitoring should be an added condition of the SMOP" [44]

Response:
Over the course of the years, the District has confirmed several odor complaints to Pacific Steel Casting and therefore, does not agree with the assertion that Pacific Steel Casting has never caused an offsite odor impact.
However, depending on meteorology, fence-line monitoring may or may not detect offsite impacts as to be able to detect any potential offsite impact.

Before the District can mandate expensive equipment such as fence line monitoring, the District is required to make a health-based demonstration justifying the requirement. In 2008, the District conducted community-monitoring as well as a Health Risk Analysis where both did not result in such a justification. In addition to justifying fence line monitoring, there has to be equipment that can detect compounds that cause odors. The human sense of smell is far more sensitive than today's instruments. In addition, because the sense of smell is so sensitive, it may be able to detect odors at thresholds that are much lower than levels that impact human health, depending upon the specific compounds.

However, the District recently adopted a new rule (Regulation 11, Rule 18) that would require high risk facilities such as Pacific Steel Casting to conduct new Health Risk Analyses and impose risk reduction measures that may include fence line monitoring.

The District is also in the process of revising Regulation 7 (Odors) and the District's Meteorology and Measurements Section is identifying instruments that can detect odorous compounds. Regulation 7 may be able to leverage new technology and require monitoring of odorous compounds.

Chemicals
Comment:
"...what PSC is doing to monitor what those additional chemicals [in scrap metal] are and the fugitive fumes?" [13]

Response:
Pacific Steel Casting has a scrap metal inspection and management plan required by the Odor Management Plan as well as the facility's Emissions Minimization Plan required by District Regulation 12, Rule 13. The Emissions Minimization Plan has been attached to the evaluation report as an appendix but may also be viewed at the following link:

http://www.baaqmd.gov/~/media/files/compliance-and-enforcement/metal-facilities/psc-llc-reg-12_13-emp-jan-2015-final-public.pdf

Clarity
Comment:
"And it also says within 30 days of the collection, every six months, one year and three years of FID data from the day of issuance of this permit condition the owner will submit an application. It isn't clear what the owner is submitting an application for. Is an application for an FID?" [14]

Response:
The preceding section of that requirement states: "Breakthrough definition will be determined within applications required to be submitted as specified in this part below.

In order to establish the initial and subsequent carbon breakthrough-related parameters, the owner/operator shall submit applications to the District within 30 days of collection of 6 months, one year, and two years of FID data ..."

Accordingly, the permit applications will be to set the definition of when breakthrough of the carbon adsorption unit occurs.

Since breakthrough definition cannot be determined until after a FID has been installed, it is not possible to determine breakthrough definition beforehand. However, until such time that an FID is installed, the facility will conduct daily hydrocarbon sampling at the inlet and outlet of the carbon abatement device to determine if breakthrough has occurred.

Comment:
"What is the basis of stating that the FID at Plants 1 and 2 are not required until 4500 tons per year of steel have been produced, or are about to be produced? The engineering evaluation report, Page 13, says the FID will be installed in Plants 1 and 2 when there's production or there's a contract for more than fifty percent of the maximum allowable production. But as I read Appendix A of the engineering report, the production is going to be 6,950 tons per year. 50 percent of that is 3,475 tons per year. So why isn't the FID triggered by 3,500 tons as opposed to ...4,500 tons? There is no rational reason given in the permit to delay ... until there's 4,500 tons per year." [14]

Response:
The 50 percent statement in the permit evaluation is incorrect. At the threshold proposed, the carbon adsorption unit, for which a FID would be used to determine if operating properly, is not needed to remain below the major source threshold. Therefore, requiring a FID is not warranted at such low throughputs. The evaluation report will be revised to provide more clarity.

Comment:
"Pacific Steel Casting's monitoring history of emissions contained within the proposed permit summary provides very little information of what has actually transpired. It's unclear how much additional emissions monitoring has been done, if any, beyond the normal, annual test requirements for Pacific Steel Casting's permits." [4]

Response:
The evaluation report has been revised to include more information regarding what additional monitoring was done.

Community Monitoring
Comment:
"I sincerely hope you will take this opportunity to require they clean up their act…by requiring ongoing monitoring at multiple sites proximal to their operations." [41]

Response:
The District's authority regarding the SMOP is limited in that the District can only consider conditions to ensure total emissions remain below major source thresholds.

However, as a routine practice, the District reviews and assesses the appropriate placement of the limited ambient air quality monitors available to the District. In the future, the District may consider moving existing or placing more ambient air quality monitors within the City of Berkeley. Such decisions are made by the District's Meteorological and Measurement Division.

Community Protection
Comment:
"…I am pleading to the BAAQMD to issue a permit that protects the community…" [33, 35]

Response:
The proposed limits on criteria pollutants and hazardous air pollutants will limit total facility-wide emissions. Such limitations should limit associated air pollution-based health impacts on the surrounding community.

Community Update

Comment:
"I sincerely hope that, at the very least, the resolution of the proposal can be sent to those who took the time to express their comments, and those in the 94702 area code and other area codes that are affected will be sent letters knowing of the change. " [5]

Response:
All public comments and the District's responses as well as any and all revisions to the proposed permit evaluation report and Synthetic Minor Operating Permit will be posted online and made available to the public including to those who took the time to express their comments.

Complaint Process
Comment:
"From the community's perspective, BAAQMD's odor-complaint system is broken. Less than positive interactions with BAAQMD's complaint hotline dispatchers and inspectors, as well as the lack of changes in PSC's noxious odors, result in complainants deciding to stop making odor complaints, as it seems useless.
An ongoing problem is that while PSC can operate around the clock, BAAQMD inspectors don't. It's rare for an inspector to respond to odor complaints before or after regular business hours, or on weekends and holidays. In our experience, after-hour complaints are met by an answering service; an inspector almost never comes out to investigate. Or an inspector will come out the next business day but the odor will have long since dissipated. Complainants give up in frustration and anger." [44]

Response:
The District has received feedback from the community regarding improving the District's complaint response procedure and is in the process of updating the procedure with input from the community. The District anticipates this to occur within the year and will conduct outreach to ensure community concerns are considered.

Comment:
"…BAAQMD needs to streamline its complaint process to restore public faith in plant oversight. Any decrease in the volume of calls and written complaints since PSC's last permit application is the result of frustration and disillusionment - not a sign that PSC issues have gone away." [54]

Response:
See response to comment above.

Comment:
"BAAQMD's complaint line should be staffed 24 hours a day, seven days a week. Inspectors should be able to respond, in a timely manner, to odor complaints 24 hours a day every day of the year." [44]

Response:
The District contracts with a company to receive and log complaints during non-business hours. At least one District Compliance & Enforcement supervisor is always on-call to respond to potential incidents and call out District inspectors to respond to public complaints if needed. However, the District currently does not have the resources to maintain staff 24 hours a day.

Comment:
"On numerous times I've reported air quality violations to the District's complaint line, though the District has never been able to follow-up on these reports in real time - but at best hours later, often after the odor is gone." [53]

Response:
The District has received feedback from the community regarding improving the District's complaint response procedure and is in the process of updating the procedure with input from the community. The District anticipates this to occur within the year and will conduct outreach to ensure community concerns are considered.

Comment:
"…I am pleading to the BAAQMD to issue a permit that …requires appropriate responses to odor complaints..." [33, 35]

Response:
See response to comment above.

Compliance
Comment:
"…new owner; to bring all of its local plants up to the highest standards of compliance." [31]

Response:
The District has noticed a marked difference in the ownership change with a commitment by the new owner to comply with all applicable requirements. The District expects the facility to comply with all such requirements and will conduct announced inspections, review all facility records and monitoring data, as well require the facility to report all instances of an air quality violation.

Comment:
"…how will members of the public be able to determine if these Synthetic Minor Operating Permit conditions have been exceeded?" [16]

Response:
Pacific Steel Casting will be required to submit a notification to the District within 10 days of the discovery of a violation. Pacific Steel Casting will be required to report to the District, on a quarterly basis, the facility-wide emissions totals and compliance with the SMOP limits. If members of the public are interested, they may submit a request to review such notifications and reports.

Per Regulation 2-6-419 (Availability of Information), "[t]he contents of permit applications, compliance plans, emissions or compliance monitoring reports, and compliance certification reports shall be made available to the public, subject to the restrictions of the District's Administrative Code, Section 11. The contents of the permit shall be available to the public and shall not be subject to the above restrictions."

Consent Decree
Comment:
"The following actions are requested of BAAQMD:"
"Provide evidence that PSC's SMOP actually complied with the requirement to reduce emissions by 2 tons of Allowed Reductions as stated in Case No.: C 06 4184 BZ, Communities for a Better Environment V Pacific Steel Casting 2007 Consent Decree. The 2007 settlement agreement applies to the proposed SMOP permit. The new owners of Pacific Steel Casting are not exempt from this court-ordered settlement requirement. I believe there is a legal requirement for inclusion of this provision in the proposed SMOP for the implementation of emissions reductions." [7]

Response:
The District was not a party to the referenced consent decree. The District has no authority to enforce its provisions, nor does it have obligations imposed upon it through the consent decree. Further, it is unclear whether the consent decree remains in effect.

Comment:
"Pacific Steel and its successors are subject to a binding Consent Decree resulting from a lawsuit brought by Communities for a Better Environment, which is federally enforceable. The Consent Decree provisions relating to scrap metal selection and inspection impose more stringent requirements than the NESHAP provisions at 40 C.F.R. Part 63 subpart ZZZZZ. ... request that the SMOP at least acknowledge the existence of the Consent Decree, or explicitly make as SMOP conditions the relevant provisions of the Decree." [10]

Response:

See response to the comment above.

Consequences

Comment:

"There must be real consequences, not just repeated fines, but a limit to repeated infractions that lead to closure." [32]

Response:

If a facility is found to repeatedly be in violation of a requirement, per Section 42451 of the California Health & Safety Code, the District may request from the District's Hearing Board an Order for Abatement where, if granted, a facility operating out of compliance will be required to take specific actions to curtail or shut down its operations.

Contiguous Letter

Comment:

"We note that although this document is referenced in the Engineering Evaluation Report (see bottom of p. 4), it was not included with the SMOP documents. It would be helpful to include this document in the permit record since it is the basis for including all three PSC plants in the SMOP." [8]

Response:

This letter has been included within the permit application file and will be included within the permit record.

Control Efficiency

Comment:

"1) Page 12 indicates that the minimum Control Efficiency Requirement for VOCs is 90%. As a result the plant is allowed to emit 90 tons of pollutants into the surrounding atmosphere every year. In view of the fact that the control efficiency requirement for hazardous waste incinerators is 99.99%, why is Pacific Casting held to such a pitifully low standard?" [28]

Response:

The regulation under which the Synthetic Minor Operating Permit is issued requires the facility to accept enforceable conditions to demonstrate emissions would not exceed 90 tons per year. At 90 percent abatement, maximum VOC emissions from the facility are estimated to be 47 tons per year. Therefore, requiring an abatement efficiency greater than 90 percent is not required. The control efficiency requirement for hazardous waste incinerators is a source-specific emission reduction requirement. The regulation under which the SMOP is issued is a facility-wide emissions reduction requirement. Therefore, the District does not have the authority to impose more stringent source-specific requirements than are necessary for the facility to meet the SMOP limits.

Comment:

"What is the legal basis for this Control Efficiency" [28]

Response:

See response to comment above.

Comment:

"In view of the fact that this plant operates upwind from a high density residential community, there is ample need to impose a higher control efficiency on the plants emissions control systems." [28]

Response:

See response to comment above.

Cumulative Impacts

Comment:

"Are the cumulative impacts of the surrounding polluting activities accounted for in the permit conditions, including impact on sensitive receptors like children and the elderly?" [17]

Response:
Although cumulative impacts may be considered within environmental impact reports per the California Environmental Quality Act, the regulation that applies to Synthetic Minor Operating Permits (District Regulation 2, Rule 6) does not grant such authority to the District. However, the District recently adopted a regulation (Regulation 11, Rule 18) to address community health impacts that would apply to Pacific Steel Casting.

Data Availability
Comment:
Multiple comments were received regarding providing real time emissions data accessible to the public. [2, 3, 5, 12, 15, 24, 29, 33, 35, 44, 45, 50, 51, 52, 53, 54, 55, 57]

Response:
The regulation under which the proposed permit is being issued - Regulation 2, Rule 6 - does not grant the District the authority to mandate the facility to provide real-time access to facility data. The current examples of data access from certain facilities (petroleum refineries) were the result of either a settlement agreement, federal or District regulation pertaining specifically to refineries, or a mitigation measure listed within an environmental impact report.

The District may explore requiring real-time data availability from high risk facilities in future rule making though such effort would be led by the District's Rule Development Section.

However, emissions data for any facility, including Pacific Steel Casting, may be requested and obtained through a public records request. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

The District also publishes an interactive facility data map that lists facilities and facility details (number of sources, emissions, etc.) at the following web address:

http://www.baaqmd.gov/research-and-data/interactive-data-maps

Comment:
"Withholding critical emissions-related documents is contrary to both state and federal law; it is also contrary to the Air District's acknowledgement that all information used in permit applications is a matter of public record. Under California law, all information that discloses the "nature, extent, quantity, or degree of air contaminants or other pollution" are public records and thus subject to disclosure. Such information includes all air pollution emission data, including those emission data which would constitute trade secrets. The federal Clean Air Act follows the same approach, requiring all records, reports or information relating to a facility's emissions be publicly available. As EPA has stated, emission data, including "[i]nformation necessary to determine the identity, amount, frequency, concentration, or other characteristics...of any emission which has been emitted by the source," are not confidential. As section 6254.7 of the Government Code provides, 'all air pollution emission data, including those emission data which constitute trade secrets ..., are public records." [10]

Response:
The District has provided access to the detailed calculations used to estimate both the facility's potential to emit as well as limited emissions under the proposed SMOP conditions.

Comment:
"The Air District has illegally withheld emissions information and has failed to provide information that is referenced in the Evaluation."
"As established in other sections of this comment, having access to the documents that supply the basis of the permitting decision is critical for meaningful evaluation of the terms of the SMOP permit; yet the Evaluation references documents that are not publicly available. First, the proposed SMOP describes the HRA that the Air District approved on November 5, 2008. As noted in the Health Risk Assessment section, the HRA is the basis on which the District updated emissions estimates for both hazardous air pollutants and criteria pollutants for all three plants, which presumably formed the basis for

many of the SMOP conditions. Significantly, however, the full text of the HRA is not publicly available. Although the appendices to the HRA Report are listed on the BAAQMD website, none of the hyperlinks are live. Similarly, as already discussed, the Odor Management Plan and Appendix A to the evaluation are not publicly available." [10]

Response:
The District has made available the referenced documents to members of the public who have submitted public records request. The Health Risk Assessment was made publicly available at the time it was created and the District received input from members of the Berkeley community.

The Odor Management Plan was previously made public and is stored at the City of Berkeley's website at the following address:

https://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_City_Council/2010/03Mar/2010-03-23_Item_42_Settlement_of_Litigation.pdf

A copy of the detailed emissions calculation is attached to the SMOP evaluation report.

Comment:
"…request that the Air District make these documents available to allow the public an opportunity to meaningfully evaluate the proposed SMOP." [10]

Response:
The District has made available the referenced documents to members of the public who have submitted public records request. The Health Risk Assessment was made publicly available at the time it was created and the District received input from members of the Berkeley community. The Odor Management Plan was previously made public and is stored at the City of Berkeley's website. A copy of the Appendix A is attached to the SMOP evaluation report.

Delay
Comment:
Multiple comments were received asking why there was a delay in issuing the revised SMOP. [2, 5, 12, 17, 18]

Response:
The District cannot mandate that a facility with the potential to emit large quantities of emissions must obtain a Synthetic Minor Operating Permit. Rather, such a facility may choose to apply for and accept a SMOP or must obtain a Title V Operating Permit. The intent of a Title V permit is to identify and list all local, state, and federal requirements applicable to significant sources of emissions. If emissions of a certain pollutant are not limited by an existing rule, a Title V permit does not give the District the authority to mandate new limits. For foundries, the majority of the existing rules pertain to particulate matter. With a SMOP, the District can impose new and/or more stringent emissions limits and monitoring requirements than would otherwise be available with a Title V permit. The proposed SMOP will limit facility emissions hundreds of tons of per year lower than with a Title V permit.

However, such conditions must be accepted by the facility. A facility may choose not to accept the more stringent emissions limits and monitoring requirements. The District believes the community is better served with a SMOP and therefore, spent years gathering data, reviewing emissions estimation bases, and negotiating with the facility to find permit conditions that would be both practically enforceable as well as acceptable to the facility. During negotiations, the facility went bankrupt and the District had to discuss the proposed SMOP with the new management. A timeline of events is included as an appendix to the evaluation report.

For these reasons, issuance of the revised SMOP has been delayed.

Comment:
"1. Since 2005 when the District ruled that plant # 1as "adjacent' to plants # 2 and 3, and that the three of them together would be regarded as one, why did it take about ten years for the District to conclude in 2015 that the plant was

"potentially" emitting carbon monoxide, and in 2017 to come to the conclusion that a revised SMOP was necessary? It is important for all stakeholders in this situation understand fully how the regulatory bodies operate, so my request is to be specific in your response. Knowing what happened in the past will help us understand what needs to be done now to ensure more timely responses to concerns of the public?" [56]

Response:
The District was aware much sooner of the need for a revised SMOP. We spent a lot of time in testing to determine emissions so that we could impose meaningful limits. We became aware of additional carbon monoxide emissions from six sources in 2017 and further revised the proposed SMOP to include limits on these emissions and applicable monitoring and record keeping requirements.

Description of Regulatory Requirements
Comment:
"A clear description of the full scope of regulatory requirements applicable to PSC, including NSR determinations, is paramount for the public's understanding of all applicable regulatory requirements and the ability to hold PSC accountable. Further, given the immense complexity of the regulatory landscape, with both EPA and BAAQMD responsible for regulation at times, attempting to piece together an understanding of all applicable regulatory requirements is hopeless for the general public. In an effort to better inform the public's understanding of BAAQMD's regulation of PSC, the permit documents should detail the full scope of applicable legal requirements, including all mandated emission controls under federal, state, and Air District law." [44]

Response:
The regulation under which the proposed Synthetic Minor Operating Permit will be issued does not require a listing of all applicable regulations and requirements to which Pacific Steel Casting sources are subject. That is the intent and requirement of a Title V operating permit.

Deteoriation
Comment:
"…clearly the air quality the last 10 years has deteriated [sic]!" [48]

Response:
The District does not know the basis for the commenter's statement as data from the District's ambient air quality monitoring network indicate that air quality has improved over the last 10 years.

Discretion
Comment:
"There are some instances in the proposed permit where the meaning of a requirement is subject to decisions by the District at a subsequent date. It is therefore not possible to tell whether that particular requirement is adequate for practical enforceability. Notably, Conditions 2 and 3, critical to demonstrating that Pacific Steel is in fact a synthetic minor, are dependent on calculation methods that are not contained in the permit. " [9]

Response:
The proposed conditions have been revised to explicitly state an approved method rather than indirectly through the separate conditions applicable to each plant.

Comment:
"Several conditions in the proposed SMOP rely on future decisions by the District. It is therefore not possible to tell whether that particular requirement is adequate for practical enforceability. Notably…Conditions 2 and 3, critical to demonstrating that Pacific Steel is in fact a synthetic minor, are dependent on calculation methods that are not contained in the permit." [10]

Response:
See response to comment above.

District Response

Comment:

"Truly, in our current political climate, can the BAAQMD side with the people? … Please do not allow this company to save a buck on the backs of innocent children." [32]

Response:

The proposed permit will limit total facility-wide criteria air pollutants as well as hazardous air pollutants. This should reduce air quality-related impacts on the surround community

To further reduce health impacts, the District has adopted a new regulation, Regulation 11, Rule 18, that will require high risk facilities to conduct new health risk assessments and implement risk reduction measures if results indicate a high impact on the surrounding community.

Comment:

"Please let us know what you are doing about the situation." [37]

Response:

See response to comment above.

Document Release

Comment:

"Documents should also be released well in advance of public-comment periods so that commenters have sufficient time to review and analyze them." [44]

Response:

SIP Regulation 2, Rule 6, Section 423.3 lists the requirements for public noticing as well as the public comment period given. If the public requires more than 30 days to review documents, an extension may be requested. In the case of Pacific Steel Casting, multiple extension requests were made and granted by the District such that the public had more than 100 days to review and provide comments.

Economic Recovery/Fees

Comment:

"Pacific Steel is currently a Title V source and has been since the inception of the Title V program. … request that the economic benefits of noncompliance be recovered and designated to a supplemental environmental project to benefit the community by reducing emissions. The MOP [District Manual of Procedures] also provides that back permit fees be recovered. " [10]

Response:

Pacific Steel Casting has never been officially designated a major stationary source and therefore, has not been found in violation of Title V requirements. If a violation has occurred, the District's Legal Division will pursue fines and/or cost recovery at such time. However, such discussions are outside of the scope of whether the proposed SMOP conditions are adequate to ensuring emissions from Pacific Steel Casting remain below major source thresholds.

Editorial Correction

Comment:

"Correction to condition 20207 – It appears that the following correction should be made in part 4 in permit condition 20207: change “Parts 1a and 1c” to 'Parts 1b and 1c'." [8]

Response:

The commenter is correct. This was an error that has been corrected in the revised conditions.

Emissions Calculations

Comment:
"Parts 3 and 4 of condition 20207 refer to "District-approved calculation methods," and part 56 of condition 20207 refers to a 'District-approved quarterly throughput and emission report.'

"Please specify in the SMOP how emissions will be calculated for determining compliance with the emission limits in parts 1 and 2 of condition 20207. Calculation methods used to demonstrate compliance with the emission caps must be specified in the permit. The District may include a statement in parts 3 and 4 of condition 20207 that PSC shall use the compliance equations in conditions 24466 (Plant #1), 24547 (Plant #2), and 24548 (Plant #3), and emission factors from periodic source tests for each pollutant. " [8]

Response:
The commenter's suggested language has been addition to Parts 3 and 4 of Condition 20207.

Comment:
Multiple commenters requested providing a publicly available version of the detailed emission calculations that were initially marked as "Confidential" in the posting. [7, 8, 10, 28, 43]

Response:
Detailed emission calculations have been attached to the revised evaluation report.

Emission Factors
Comment:
"The Evaluation states that the emission factors used to estimate emissions will become enforceable limits; however, the Evaluation states that the basis for calculating the emission factors is set forth in the missing Appendix. In other words, the Evaluation fails to disclose the basis for the emission factors, which is an integral component of the equation used for determining a facility's captured and fugitive emissions, and in turn the total emissions used for assessing compliance with permit limitations. The public would have no means of determining the facility's compliance with enforceable limits." [8]

Response:
The emission factors used to estimate emissions are included as enforceable limits within Conditions 24466, 24547, and 24548. The detailed calculations are included as an appendix to the evaluation report. The conditions have also been revised to explicitly state how emission factors should be derived and used in calculating emissions for demonstrating compliance with the emissions limits.

Emission Limits
Comment:
"Part 1 of condition 20207 includes facility-wide emission limits. Part 2 of condition 20207 requires that PSC remain below throughputs, emission factors, emissions, and all data and assumptions in conditions 24466 (Plant #1), 24547 (Plant #2), and 24548 (Plant #3). These conditions do not clearly provide that all actual facility emissions should be considered in determining compliance with the emission limits in parts 1 and 2 of condition 20207, including emissions during startup periods, shutdown periods, and during periods of malfunction or upset." [8]
Response:
Parts 1 and 2 of Condition 20207 have been revised to include language stating that the facility-wide emissions limits apply to all emissions including during startup, shutdown, or malfunction periods.

Comment:
"To effectively limit PSC's facility-wide emissions limits, please specify in the SMOP that all actual emissions be considered in determining compliance with the respective limits. The District may include a statement in parts 1 and 2 stating that the compliance demonstration for the emission limits shall include emissions from all equipment covered by the permit, including emissions during startup periods, shutdown periods, and during periods of malfunction or upset." [8]

Response:

Parts 1 and 2 of Condition 20207 have been revised to include language stating that the facility-wide emissions limits apply to all emissions including during startup, shutdown, or malfunction periods.

Emissions Comparisons

Comment:

"Even USS-POSCO which employs 1,000 workers and produces over 1,000,000 tons per year has total particulate emissions one tenth those of PSC (See Table 10). " [6]

Response:

The referenced table is from a preliminary staff report for Regulation 12, Rule 13. In the final staff report is a note stating that the referenced emissions for Pacific Steel Casting were an error. Therefore, the emissions listed in the commenter's letter are not correct.

The USS-POSCO facility is a steel finishing plant that manufactures cold rolled, galvanized and tin mill products from hot rolled steel whereas Pacific Steel Casting is a secondary steel foundry. Therefore, an emissions comparison is not appropriate.

Emissions Guarantee

Comment:

"…they should … guarantee that they are not spewing pollutants and particulates…ever." [32]

Response:

The District regulates the facility's emissions to ensure that emissions comply with all applicable regulatory limits. The District's authority is limited to ensuring that the region meets federal and state ambient air quality standards by pursuing source specific measures.

Emissions Increase

Comment:

"In the proposed summary of PSC's 2008-2013 activities, there is no mention of the huge rise in the foundry's emissions during that timeframe (or after). The rise in emissions would have become apparent if more attention had been paid to the total impact of PSC's emissions instead of the historic, piecemeal approach to Pacific Steel Casting's SMOP(s) and their enforcement. The District's regulatory oversight has been negligently out of touch with the foundry's ramped-up emissions during the last decade." [4]

Response:

The apparent increase in emissions during the referenced time frame is primarily due to the District updating the emission estimation methodologies for several sources to include emissions that were previously not included within the emissions inventory. The District was following a standard practice of updating and revising the emissions inventory to account for improvements in measurement technology, emission estimation methodologies, and emissions knowledge.

Emissions/All Sources

Comment:

"Please specify in the SMOP that the facility shall demonstrate compliance by compiling emissions data each month for all emission sources and determine emissions for each consecutive 12-month period every month for the criteria pollutant and HAP emission limits in parts 1 and 2 of condition 20207." [8]

Response:

Part 56 (quarterly report) has been revised to specify reporting total facility emissions of each pollutant on a tons per month basis as well as a tons per consecutive 12-month basis for each month covered by the quarterly report.

Enforcement

Comment:

"…if there's noncompliance, PSC has to report it every 10 days. But reporting it every 10 days, what does that imply for enforcement? What kind of enforcement and how rapidly does enforcement of recompliance occur under this SMOP?" [13]

Response:
The 10-day self-reporting requirement improves compliance. The facility must report noncompliance to the District's Compliance & Enforcement Division within 10 calendar days of discovering the noncompliance. This requirement notifies the District of potential non-compliance sooner than we may otherwise detect it. The District's Compliance & Enforcement Division is required to investigate all indications of a potential violation. The District conducts routine unannounced compliance inspections of facilities throughout the District. However, such inspections do not occur more than every 10 days for a given facility. Therefore, by self-reporting violations, the District will be alerted to potential violations sooner than if discovered by the District at a later date. As such, noncomplying situations will be resolved quicker than if left to be discovered by the District during our routine inspections.

Comment:
"…I am pleading to the BAAQMD to issue a permit that …guarantees that the Air District will strictly enforce PSC's permit conditions." [33, 35]

Response:
The District's Compliance & Enforcement Division is charged with enforcing all requirements whether they are District, State, or Federal regulations or District permit conditions. The District's Compliance & Enforcement Division conducts unannounced inspections of all facilities located within the Air District including Pacific Steel Casting and will continue to do so with the revised permit. The proposed conditions require the facility to report any violation within 10 days of discovering the violation. In addition to conducting unannounced inspections, the District will investigate all such notifications.

Comment:
"Regular unannounced inspections and timely responding to community complaints are simple measures that the District can take to begin regaining the trust of the communities it serves, and to fulfill its duty to provide clean air for all Bay Area residents to breath." [12]

Response:
The District's Compliance & Enforcement Division conducts unannounced inspections of all facilities located within the Air District including Pacific Steel Casting. As most of these inspections are not publicized in any way (e.g. incident notifications, updates, etc.), the public is not aware of all the District's Compliance & Enforcement activities that occur. However, the District is exploring ways to be more transparent and highlight the efforts undertaken by District staff.

The District has received feedback from the community regarding improving the District's complaint response procedure and is in the process of updating the procedure with input from the community. The District anticipates this to occur within the year and will conduct outreach to ensure community concerns are considered.

Engineering Evaluation Report
Comment:
"In the engineering report provided, the early portions provided tons per year limits, and then later portions provide annual throughput limits without, kind of, clearly demonstrating how these conditions are connected." [16]

Response:
The conditions and report have been revised to clearly demonstrate how the conditions are connected.

Environmental Justice
Comment:
"West Berkeley is a CARE area and has many homes still in the industrial districts, historically very low income people of color. The census tract that houses PSC has over 50% of the children under the age of 17 living in poverty. They and we deserve to breathe." [6]

Response:
With the proposed limits on hazardous air pollutants and toxic air contaminants, health impacts on the surrounding community should be reduced. Further, the District recently adopted Regulation 11, Rule 18 which requires existing facilities with significant potential health impacts on surrounding communities to conduct a facility-wide health risk assessment and reduce any significant health risks by installing new control technologies and other mitigation measures to reduce health risk on the surrounding community. Pacific Steel Casting is subject to this regulation.

Epidemiology Report
Comment:
"I also request that BAAQMD and EPA do an epidemiology report on the 94702 area in West Berkeley, especially focusing on women and children." [5]

Response:
Previously, the District limits health risk to the community under two regulations: AB 2588 and District Regulation 2, Rule 5. AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds.

The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to health risk and does not provide the District the authority to require a new health risk assessment or conduct an epidemiology study. However, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities would be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 will apply to all facilities within the District including Pacific Steel Casting.

Exemption Basis
Comment:
"The bases for exemptions are not stated." [10]

Response:
The bases for permit exemptions are listed within the respective NSR permit applications in which the facility applied for the exemption. Unlike a Title V permit, Regulation 2, Rule 6 does not require Synthetic Minor Operating Permits to list the bases for permit exemptions.

Extension Request
Comment:
"The following actions are requested of BAAQMD:"
"Extend the comment period until such time as the public has the opportunity to review all the documents under consideration. A couple of months delay to get this right is a relatively short time given that we have waited ten years for PSC's permit to come into compliance with its SMOP." [7]

Response:
In response to the extension requests, the District extended the initial public comment period an additional 30 days, opened a second public comment period, and held a community meeting in the City of Berkeley in evening hours to allow community members to attend after work and present public comments in person. In total, the public had 105 days of comment period to review the documents under consideration and provide comments.

Comment:
"…do not believe the permit comment period is adequate…" "We …request that the permit comment period be further extended to allow for a community meeting and review of information that the Bay Area Air Quality Management District … has so far withheld from the public..." [10]

Response:
See response to comment above.

Extreme Measures

Comment:

"Hopefully the additional restrictions and increased monitoring will reduce the problem to a more acceptable level. If not, BAAQMD must consider taking more extreme measures." [36]

Response:

If a facility is found to repeatedly be in violation of a requirement, per Section 42451 of the California Health & Safety Code, the District may request from the District's Hearing Board an Order for Abatement where, if granted, a facility operating out of compliance will be required to take specific actions to curtail or shut down its operations.

Facility Status

Comment:

"…what was the status of the three plants for the past 10 years? Was it a major facility or a SMOP? Was it somehow both?" [17]

Response:

The facility has a Synthetic Minor Operating Permit and is considered a synthetic minor facility.

Federal Standards

Comment:

"Page 15 of the Engineering Evaluation Report discusses applicability of certain National Emission Standards for Hazardous Air Pollutants (NESHAP). Although NESHAP Subpart YYYYY (NESHAP for Area Sources: Electric Arc Furnace Steelmaking Facilities) is included in the list identified, the Engineering Evaluation Report does not contain an applicability analysis for this NESHAP. We note that if this rule applies to PSC, 40 CFR 63.10680(d) would require the facility to obtain a title V operating permit."

"Please specify in the Engineering Evaluation Report whether NESHAP Subpart YYYYY applies to sources S-1001, S-2027, S-3001 (electric arc furnaces) at the PSC facility." [8]

Response:

The evaluation report has been revised to include a detailed discussion of NESHAP Subpart YYYYY. The District believes that the facility may be subject to NESHAP Subpart YYYYY. However, the District has not been delegated authority by the EPA to make any applicability determinations nor for enforcing compliance with the rule. If the EPA determines that the facility is subject to NESHAP Subpart YYYYY and that the facility is therefore required to obtain a Part 70 or Part 71 permit, the District will work with the facility to obtain a Title V operating permit.

Comment:

"I am curious as to why this application doesn't use the NESHAPS standards currently in effect for new and existing ferro alloy casting facilities, including revisions to particulate matter standards for electric arc furnaces (0.1 lbs/ton); metal oxygen refining processes; crushing and screening operations; as well as expanded and revised requirements to control process fugitive emissions from furnace operations, tapping, casting, and other processes. They also require opacity monitoring with digital camera opacity technique (DCOT) and enhanced reporting. The updated regulations include emissions standards for four previously unregulated hazardous air pollutants: Formaldehyde, hydrogen chloride (HCl), mercury (Hg) and polycyclic aromatic hydrocarbons (PAH). Facilities must install, operate, and maintain a process fugitives capture system that is designed to capture 95 percent or more of the combined process and fugitive emissions. Ducting must be installed to capture process fugitive emissions using full building enclosure with negative pressure and the captured emissions rerouted to a control device. Revisions to the opacity standards (8% max) were made to reflect effective capture and control of process fugitive emissions. This would ensure that no fugitive particulates leave the plant. For existing sources, required MACT standards cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory. These standards have been in effect since 2015 for new sources. Existing sources must be brought into compliance by next year, 20175 [sic]." [6]

Response:
The commenter does not cite the referenced NESHAP. However, it appears the commenter is referring to 40 CFR Part 63 Subpart YYYYYY (Ferroalloys Production Facilities) that was amended in the Federal Register on June 30, 2015 and reconsidered on January 18, 2017.

Pacific Steel Casting is not a ferroalloy production facility but rather a steel foundry and is not subject to the referenced NESHAP. Therefore, the facility is not required to comply with the referenced requirements.

Comment:
"The Standards of Performance for Steel Plants: Electric Arc Furnaces Constructed after October 21, 1974 and on or before August 17, 1983 (NSPS Subpart AA), and the Standards of Performance for Steel Plants: Electric Arc Furnaces and Argon-Oxygen Decarburization Vessels Constructed after August 17, 1983 (NSPS Subpart AAa) apply to certain electric arc furnaces. Plant 2 and Plant 3 were constructed after October 1974."
"Please specify in the Engineering Evaluation Report whether NSPS Subpart AA or AAa applies to sources S-1001, S-2027, S-3001 (electric arc furnaces) at the PSC facility." [8]

Response:
The Engineering Evaluation report has been revised to include an applicability analysis for NSPS Subpart AA and AAa.

Flame Ionization Device (FID)
Comment:
"Parts 6 through 17 of condition 20207 concerns installation of an automatic monitoring and recording flame ionization detector (FID) system."

"Please clarify in the SMOP whether parts 7 through 9, and parts 16 and 17 of condition 20207 apply to all three PSC plants." [8]

Response:
The District believes that the preamble language to Parts 6 through 17 of Condition 20207 provides clarity in that it states "…Parts 6 through 17…for each carbon adsorption system in Plants 1, 2, and 3….".

Further, the specific language within Parts 7 through 9 and Parts 16 and 17 state the requirements apply to "each FID system". In the absence of limiting language such as "at Plant 1 or Plant 2", these requirements by default apply to all FID systems at the facility. Therefore, further clarifying language is unnecessary.

Comment:
"The preamble to Part 6 of the proposed SMOP conditions states, 'The following Parts 6 through 17 require the installation and operation of an organic vapor-analyzer-flame ionization detector (FID) system for each carbon adsorption system in Plants 1, 2 and 3 as the parametric monitoring and recording system to demonstrate compliance with the Synthetic Minor Operating Permit ....'

"Why then does the SMOP delay installation of FID systems in Plants 1 and 2 until after the plants exceed an output of 4500 tons of steel each 'or an indication' thereof? The truth is the FIDS are not required, as the preamble claims, until and unless the 4500 ton threshold is met. Neither the SMOP nor any of its supporting documents even attempts to justify this FID-installation trigger-level" [44]

Response:
The evaluation report has been revised to clarify that conditions 6 through 17 apply to FIDs, where installed, and that a FID will be required at Plant 1 or 2 if throughput exceeds a certain threshold.

At the threshold proposed, the carbon adsorption unit, for which a FID would be used to determine if operating properly, is not needed to remain below the major source threshold. Therefore, requiring a FID is not warranted at such low throughputs. The evaluation report has been revised to provide more clarity.

Comment:
"... the permit contemplates situations where the FID breaks down, but does not seem to have a procedure for what happens to data during the period that the FID is not functioning. Again, if emissions during breakthrough are significant, and breakthrough is not detected because of a broken FID, it could be an important issue for the community. Again, without an engineering analysis, it is difficult to say whether this issue is significant. " [44]

Response:
The condition has been revised to include a data substitution methodology for periods where an FID has malfunctioned.

Comment:
"There is no explanation, for example, for why the trigger output should be 4500 tons, versus 4000 or 3500. The Engineering Evaluation Report states that the FIDs will be required at Plants 1 and 2 'once production or a contract for production exceeds 50 percent of the maximum allowable production.' If it is the intention to trigger FID installation upon reaching 50% of total output capacity, why? Furthermore, Appendix A to the Engineering Evaluation Report Indicates that the SMOP will limit total steel output in Plants 1 and 2 to 6950 tons a piece. Even if there was a rational basis for requiring FIDs on reaching 50% of maximum output, the arithmetic is wrong: 50% of 6950 tons is not 4500 tons; it is 3475. Why don't the FID requirements kick in at that level of production?" [44]

Response:
The 50 percent statement in the permit evaluation is incorrect. At the threshold proposed, the carbon adsorption unit, for which a FID would be used to determine if operating properly, is not needed to remain below the major source threshold. Therefore, requiring a FID is not warranted at such low throughputs. The evaluation report has been revised to provide more clarity.

Comment:
"FIDs should be required for Plants 1 and 2 immediately, regardless of the level of steel output, to assure PSC is doing everything possible to prevent noxious odors from being emitted." [44]

Response:
The District's authority regarding the SMOP is limited in that the District can only consider conditions to ensure total emissions remain below major source thresholds. The District's ability to mandate mitigation of odors is subject to the District's Regulation 7 and the District's complaint and Odor Abatement process.

Comment:
"It's unclear when FID will be required in Plants 1 and 2. We suggest that it needs to be required immediately. First of all, the engineering report says that conditions 6 through 17, which are about the FID, required the installation for FID for each carbon adsorption system. However, later it says that that will be delayed until 90 days after 4,500 tons per year of steel are being produced." [14]

Response:
The evaluation report has been revised to clarify that conditions 6 through 17 apply to FIDs, where installed, and that a FID will be required at Plants 1 or 2 if throughput exceed a certain threshold. Until a FID is installed, the facility will be required to conduct periodic monitoring using handheld devices.

Comment:
"The proposed SMOP fails to require FID installation at Plant 3, perhaps because an FID is already installed. The District should clearly state an FID system is required at Plant 3 so that a FID is part of an enforceable condition of the permit." [10]

Response:

District Permit Condition 23147 Part 1 already requires the installation of a FID at Plant 3. The permit will be revised to reference this condition.

Financial Justification

Comment:

"The financial success of Pacific Steel Casting removes any further justification for allowing the company to emit toxic pollution well beyond what is possible to clean up." [30]

Response:

The District's regulations do not allow for considering the finances of a company when imposing requirements. However, the District recently adopted Regulation 11, Rule 18, which requires facility to conduct a new facility-wide health risk assessment for potentially significant health impacts as well as require that facilities reduce significant health risks by installing control technologies and mitigation measures. Such technologies and mitigation measures will reduce toxic emissions.

Fugitive Emissions

Comment:

"After 40 years of living downwind of PSC, it's become clear that their emission reduction is not working. Their fugitive emissions are far higher than their process emissions, and are an order of magnitude above those of every other foundry in the Bay Area" [6]

Response:

Each of the three secondary steel foundries within the Air District use different equipment types (e.g. electric arc furnaces, cupula furnaces, etc.), number of equipment, and processes (e.g. sand molds, fixed molds, etc.). Therefore, emissions from each facility cannot be compared on the same basis.

Comment:

"BAAQMD needs to start calculating the total facility emissions, and not simply report the numbers coming off of the stacks." [6]

Response:

In its evaluation, the District estimated emissions from fugitive sources as well as from emission points. Emission estimates from both were used to develop the proposed permit conditions. Further, the facility will be required to calculate and report fugitive emissions to demonstrate compliance with emissions limits.

Comment:

"That has been a problem with other heavy industry in the neighborhood also, even where there are AP-42 standards for calculating total facility emissions, the stack is all that's reported to CalARB or noted by the District." [6]

Response:

Emissions will be required by the conditions to be estimated and reported for both process and fugitive sources. Total emissions (process and fugitive) will be recorded in the District's emissions inventory as well reported to the California Air Resources Board.

Funding

Comment:

"But furthermore, because my health is at stake, I ask that BAAQMD and PSC fund a non-partisan CBO to meet with the community yearly to review the data." [5]

Response:

Emissions data for any facility, including Pacific Steel Casting, may be requested and obtained through a public records request. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

As a requirement of the proposed conditions, Pacific Steel Casting will submit quarterly reports detailing the estimated emissions from each source and the facility as a whole. Therefore, there is no need to fund a separate entity to review emissions data.

General Statement

Comment:
"The rules should never be waived or altered to afford any company special consideration at the expense of an entire community. The Air District does not possess that particular regulatory discretion. However, in the case of Pacific Steel Casting, BAAQMD continues to support historic environmental injustice in west Berkeley with little regulatory accountability and no significant community input. This issue should not have to be settled by a court of law." [4]

Response:
No rules have been waived or altered to benefit Pacific Steel Casting.

Comment:
"It is the obligation of the Bay Area Air Quality Management District to see that our air is cleaned up, and yet everyday we see a pall of polluted air heavy in the air around the Bay. Much more forceful action is necessary, as I think most residents of the Bay Area would agree." [30]

Response:
The District does not know if the commenter is making a generalized statement to the existing conditions or making a statement to the proposed conditions. If to the existing conditions, the District believes the proposed conditions are much more stringent and address the comment made. If to the proposed conditions, the District does not know the basis for why the proposed conditions are not adequate and therefore, cannot address the comment made. District-wide ambient air monitoring data indicate a decrease in emissions over the years.

Comment:
"The nature and extent of pollutants emitted by PSC, together with the long-term odor problems experienced by the community, call for the best available mechanisms to ensure PSC is doing everything in its power to prevent pollution from emanating from its three plants and preventing noxious odors from negatively impacting the community." [44]

Response:
The proposed SMOP conditions contain rigorous conditions for estimating, controlling, monitoring, recording, and reporting of facility-wide emissions. Such conditions are more rigorous than previous SMOP conditions.

Comment:
"A better system and better quantified and continuous data is needed for Pacific Steel to reduce air pollution…" [45, 46, 48, 53, 57]

Response:
The proposed conditions include requirements to conduct periodic source tests, install continuous monitoring (e.g. FID, baghouse leak detection, etc.), as well as require reporting of air quality violations and emission reports. These measures should reduce air pollution within the community.

Comment:
"…do whatever you can to curb this irresponsible urban industrial activity." [25]

Response:
See response to comment above.

Comment:

"Please keep us in mind during PSC's Synthetic Minor Operating Permit renewal process." [26, 42]

"Please help us! Please do all you can to end the pollution of the only air available to breathe by so many people." [40]

Response:
The Air District aims to create a healthy breathing environment for every Bay Area resident while protecting and improving public health, air quality, and the global climate.

Greenhouse Gas Emissions
Comment:
"The wider effects, including the issue of global warming due to increased greenhouse gases, are important as well." [34]

Response:
Although the regulation (Regulation 2, Rule 6) under which the District has authority to issue this permit does not address greenhouse gases, the Air District is committed to addressing greenhouse gas emissions. The Air District has a goal to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050.

Hazardous Air Pollutants
Comment:
"The Evaluation also fails to explain the connection between HAPs and the limits for the various sources. Thus, the proposed SMOP is practically unenforceable as to emissions of those pollutants." [10]

Response:
The District estimated the facility's potential to emit - maximum ability to emit - hazardous air pollutants and determined that estimated maximum emissions did not exceed the major source thresholds for HAPs. The SMOP includes enforceable permit conditions limiting HAPs and requiring source testing, emissions calculations, and reporting.

Comment:
"The Evaluation is silent as to how hazardous air pollutants ("HAPs") are being limited to below the major threshold other than to prohibit generally that Pacific Steel is not allowed to exceed, in a 12-monthf period, 9 tons of any single HAP and 23 tons of any combination of HAPs." [10]

Response:
See response to previous comment.

Comment:
"While the Evaluation states that the District's "estimates show that at the maximum or permit limit levels, no individual HAP is emitted in amounts greater than [the thresholds]," that showing is not made to the public." [10]

Response:
The evaluation report has been revised to include the detailed calculations for hazardous air pollutants.

Health Impacts
Comment:
"The pollution Pacific Steel has blown over Berkeley has bothered me nearly as long." [23]

"We have installed air-tight windows and I have stopped opening them to air out the house after coming home from work in the evening to avoid not just the odor but also health risks. I have developed allergies and cannot sleep without medication." [23]

Response:
The District urges any member of the public that has a complaint about an air quality-related impact to file a complaint either online (https://permits.baaqmd.gov/PublicForms/ComplaintWizardSelection) or call the District's 24-hour toll free

hotline at 1-800-334-ODOR (6367). A member of the District will investigate all complaints received by the District and can address questions from members of the public.

Comment:
"Why is this plant allowed to impose such a high cancer risk on the public?" [28]

Response:
Previously, the District limits cancer risk to the community under two regulations: AB 2588 and District Regulation 2, Rule 5.

AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds. The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to cancer risk.

However, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities will be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies to all facilities within the Air District including Pacific Steel Casting.

Comment:
"I work nearby to Pacific Steel and am concerned with air pollution emitted from the plant. I am concerned about the negative air quality impacts of the plant on public health such as respiratory impacts and higher levels of cancer in the area." [52]

Response:
The District urges any member of the public that has a complaint about an air quality-related impact should file a complaint either online (https://permits.baaqmd.gov/PublicForms/ComplaintWizardSelection) or call the District's 24-hour toll free hotline at 1-800-334-ODOR (6367). A member of the District will investigate all complaints received by the District and can address questions from members of the public.

Comment:
"…we have been regularly impacted by PSC emissions…" [54]

Response:
See response to comment above.

Comment:
"This is an incredibly dense populated area with a lot of children. Toxins typically harm children more than adults, since the concentration can be so much higher for small bodies and they are still developing." [37]

Response:
The District's mission is to alleviate air pollution-related health impacts on all community members throughout the District.

Although the regulation under which the Synthetic Minor Operating Permit is being issued does not grant the District the authority to revise the previously conducted health risk assessment, the proposed permit does limit hazardous air pollutants/toxic air contaminant emissions. Such limitation should reduce health impacts on the community.

The District is committed to reducing toxic air contaminant-related impacts on the community. For this reason, the District has recently adopted Regulation 11, Rule 18 that requires facilities, such as Pacific Steel Casting, to update facility-wide health risk assessments. Depending on the results of the health risk assessment, Regulation 11, Rule 18 will require high risk facilities to implement risk reduction measures that will reduce health impacts on the surrounding community.

Comment:

"Add to that the harmful effects on the health and development of our citizens, including large numbers of children, and it is very difficult to understand why this type of pollution is allowed to continue." [39]

Response:
See response to comment above.

Comment:
"I frequently smell acrid odors from the plants operation and am concerned for myself, my family, my coworkers, our family visitors and my neighbors, about the negative air quality impacts of the plant on public health such as respiratory impacts and higher levels of cancer in the area." [47]

Response:
See response to comment above.

Comment:
"The smell made me sick daily, especially when there is a low cloud cover." [25]

Response:
See response to comment above.

Comment:
"We also attempted to raise awareness of potential PSC-related health risks, by volunteering the roof of our home for air bag testing by a third party. The results of those tests were of particular concern to us, as our daughter was diagnosed with a rare childhood cancer during a peak period of PSC operations...several of our neighbors also developed cancers around that time." [54]

Response:
See response to comment above.

Health Risk Assessment
Comment:
Multiple comments were received stating that the facility's health risk assessment is outdated and that a new one should be conducted. [4, 18, 28, 56]

Response:
Previously, the District limits health risk to the community under two regulations: AB 2588 and District Regulation 2, Rule 5. AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds.

The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain specifically to health risk and does not provide the District the authority to require a new health risk assessment. However, the District recently adopted Regulation 11, Rule 18, which requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities will be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies to all facilities within the District including Pacific Steel Casting.

Comment:
Several comments were received requesting that the facility's health risk assessment be made available. [19, 28]

Response:
The health risk assessment is a public document and may be requested via a public records request. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

Comment:
"The proposed permit summary reads that the District has undertaken a 'comprehensive review of emissions estimation methodologies, assumptions, and emission factors.' So, why has the wind rose issue not been rectified yet, even after a decade or more of public and written comments to the issue? There is no specific need to use the District's monitor in Richmond like they did in the '90s." [4]

Response:
The regulation under which the proposed permit is being issued - Regulation 2, Rule 6 - does not grant the District the authority to review, revise, and update the previously approved facility health risk assessment. The regulation only grants the authority to impose enforceable permit conditions to limit those pollutants for which the facility's potential to emit exceed the major source thresholds.

However, the District recently adopted a new regulation - Regulation 11, Rule 18 – that requires high priority facilities, such as Pacific Steel Casting, to conduct new or updated facility-wide health risk assessments. Such assessments will use the best data available.

Comment:
"It is requested that this proposed permit include a statement that only a local Berkeley air monitoring station should be used for ALL permit modeling and issues of regulatory compliance and health." [4]

Response:
See response to comment above.

Comment:
"There is more than sufficient anecdotal evidence pointing to potentially serious health exposures of downwind residents well beyond the fence line of Pacific Steel Casting. The most focused evidence on PSC emissions in the last decade comes from the West Berkeley Community Air Monitoring Project. It was funded in part by a grant from the District. This pilot project conducted during 2007 was the first offsite monitoring of airborne metals from PSC.

The project measured levels of six metals, all of which are found in the emissions inventory of PSC. Two metals, manganese and nickel, that are nearly exclusive to PSC's emissions inventory, were found at high levels. These elevated levels of toxic metals in the neighborhood downwind from the company directly challenge the evaluations and assumptions put forth by PSC and BAAQMD to their permit and HRA. These questions of offsite exposure and health risks have not been resolved since they were raised in 2007. A Continuous Emissions Monitoring network would clarify actual offsite exposure and would demonstrate if the permit is in compliance." [4]

Response:
In 2008 and 2009, the District reviewed the referenced study results and discovered serious technical deficiencies (e.g. failing to perform proper quality control, failing to monitor at fixed monitoring locations, mathematical errors, etc.) and that the results were not technically valid. Some of these deficiencies were discussed with the study author prior to conducting the study. Therefore, the District does not agree with basis for the commenter's request for a continuous emissions monitoring network.

Hydrocarbon Sampling
Comment:
"While constructing and testing FID systems, PSC should be required to do daily hydrocarbon sampling at the inlet and outlet of each carbon bed, and analyze those samples. Results should be reported to BAAQMD and be made available to the public." [44]

Response:

A requirement to conduct a hydrocarbon analysis to determine an appropriate FID response factor has been added to the proposed conditions though this is limited to the inlet of the carbon unit.

Impacts on Children

Comments:

"My concern for the chemical and heavy metal pollution is not just for myself, but for the many children in the west- and north-Berkeley area that are playing outside at school yards and pre-schools as well in their home yard. Have playground and soil samples ever been tested? We know the public health hazard for children especially, i.e. lead has an irreversibly damaging effect, and I don't even know what the long term effect of the other metals and chemicals are." [23]

Response:

The District is not aware of soil sampling having been conducted.

Previously, the District limited health risk to the community under only two regulations: AB 2588 and District Regulation 2, Rule 5. AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds.

The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to health risk and does not provide the District the authority to require a new health risk assessment. However, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities will be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies all facilities within the District including Pacific Steel Casting.

Lead Emissions

Comment:

"Page 8 of the Engineering Evaluation Report states that "PSC sources emit criteria pollutants (NOx, VOC, PM10, CO, SO2, lead) as well as HAPs and toxic air contaminants (TACs)". However, Tables 4 and 5 of the Engineering Evaluation Report, which contain the PTE and proposed emissions, does not provide the emission levels for lead."

"Please specify in the Engineering Evaluation Report, and, if needed in the SMOP also, the PTE and proposed emission information for lead as provided in Tables 4 and 5 of the Engineering Evaluation Report for the other pollutants." [8]

Response:

Tables 4 and 5 have been revised to include lead. Table 6 has been revised to include emissions of hazardous air pollutants at potential to emit as well as the proposed limits.

Limits

Comment:

"We demand that the Air District do everything possible to limit the pollution emitted by PSC and put a stop, once and for all, to the odors impacting the community and workers alike." [33, 35]

Response:

The intent of the proposed conditions is to ensure the facility complies with facility-wide emissions limits. Limiting such emissions will limit impacts to the community.

Comment:

"I believe that the most strict limits on air borne pollutants should be implemented to protect our health and safety." [51]

Response:

The District's authority to limit emissions within this SMOP is limited by our regulations. However, with the proposed emissions limits, maximum facility emission will be reduced considerably (approximately 80 percent). Beyond that,

Regulation 11, Rule 18 will require a new health risk assessment for Pacific Steel Casting. Based on those results, the District may impose additional emissions reductions.

Malfunctions

Comment:

"To the extent that malfunction conditions and the frequency of the breakthrough conditions are not accounted for in the facility emissions, the synthetic minor cap may be illusory. In addition, optimistic assumptions about conditions after breakthrough may also underestimate facility emissions. For example, stopping emissions from ongoing processes will be impossible during malfunction and breakthrough conditions; but it is difficult to tell whether the PTE accounted for emissions during these periods." [10]

Response:

All emissions whether they occur during normal operation, malfunction, or startup or shutdown periods are subject to the emissions caps and the facility will be required to estimate and account for emissions that may occur during those periods.

The Part 1 and Part 2 of Condition 20207 have been modified to explicitly state this:

"The emissions limits listed above apply to emissions from all equipment covered by the permit, including emissions during startup periods, shutdown periods, and during periods of malfunction or upset."

Monitoring

Comment:

"... at Plants 1 and 2, the proposed SMOP would require in the near term, not an FID, but daily manual tests; an automated FID device will be required, but only once Pacific Steel has either exceeded or there is "an indication" that production will exceed 4,500 tons of steel. This two step monitoring structure contemplates action once breakthrough is detected. Since we were not provided an engineering analysis, we don't know how large excess emissions between breakthrough and carbon replacement are. ... don't know how frequently breakthrough might occur. For example, if the emissions are significant, and carbon has to be replaced monthly, the excess emissions could cause emissions limits in the SMOP to be exceeded, potentially causing Pacific Steel Castings to again be a major source. In addition, those emissions may impact the community significantly, especially since the emissions, if they are unabated, can cause a nuisance, as they historically have. It is also unclear whether these excess emissions are being accounted for in fugitive emissions for the total emissions. Some of the remaining questions I have include how the adsorption systems are monitored currently and how they will be monitored until the SMOP becomes effective." [44]

Response:

At the proposed threshold of 4,500 tons of steel, the carbon absorption systems could not be operating (i.e. zero abatement efficiency) and estimated facility-wide organic emissions would still remain below 90 tons per year. Therefore, the emissions that occur at breakthrough would not contribute to the facility exceeding 90 tons per year (the SMOP emissions limit).

Comment:

"Similarly, Conditions 11 and 12, which relate to operation of carbon adsorption systems, provide that initial carbon-breakthrough parameters for plants 1 and 2 will be established after collection of six months of FID data. The conditions further state that, upon application, '[t]he APCO shall determine enforceable parameters ... following similar FID data analysis used to determine carbon breakthrough-related parameters for Plant 3 in Part 10.' Given that the analysis for defining breakthrough parameters was conducted in Plant 3, it is unclear why an initial determination for plants 1 and 2 would be deferred for six months, and not included as permit conditions." [10]

Response:

The three plants use different processes (e.g. greensand, shell-mould, phenolic binders) and have different emissions profiles. Therefore, the emissions data that was used to develop the breakthrough criteria at Plant 3 is expected to be different for Plants 1 and 2. As such, emissions data gathering will be required if and when a FID is required to be installed at either Plant 1 or Plant 2.

Comment:

"A better system and better quantified and continuous data is needed for Pacific Steel to…monitor emissions…" [39, 45, 46, 48, 53, 57]

Response:
The proposed conditions include requirements to conduct periodic source tests, install continuous monitoring (e.g. FID, baghouse leak detection, etc.), as well as require reporting of air quality violations and emission reports. These measures should reduce air pollution within the community.

Comment:
"Please require an alarm system for these monitors so that air quality violations are known, reported, and responded to instantly by Pacific Steel and the District" [45, 46, 48, 50, 51, 52, 57]

Response:
The proposed conditions already include requirements for audible and visual alarms to be triggered at carbon breakthrough of the carbon abatement devices (abating organic compounds) as well as audible alarms for when baghouses (abating particulate matter emissions) are not functioning properly.

The proposed conditions also include requirements for the facility to respond to these alarms as well as to notify the District of potential air quality violations.

Comment:
"Please use monitoring data to supplement public air quality complaint information in real time." [45, 46, 48, 50, 51, 52, 57]

Response:
This is currently the practice of the District's Compliance & Enforcement. When investigating a complaint, the District's Compliance & Enforcement Division will review facility, District, and other monitoring data available to determine the source and potential impacts of air quality complaints.

Negative Pressure
Comment:
"Negative pressure may be essential to compliance with the emissions caps in part 1 of condition 20207; however, but the permit does not require monitoring of negative pressure."

"Please specify in the SMOP monitoring conditions to ensure that the negative pressure will be maintained in the buildings housing the emissions sources at all three plants." [8]

Response:
Requirements for negative pressure monitoring have been added to the proposed conditions.

Comment:
"…Pacific Steel still appears to operate regularly with the plant doors open and the roof vents unclosed." "The Air District should therefore require Pacific Steel to provide a study documenting pressure measurements throughout the building or pressure modeling to support the assumption in the proposed SMOP that negative pressure is a condition that Pacific Steel is maintaining." [10]

Response:
As evidence that Pacific Steel Casting continues to operate with its doors and vents open, the commenter points to a website containing photos of the facility. However, the referenced photos are from 2011, prior to the change in ownership and prior to the proposed SMOP evaluation. However, the conditions have been revised to include more requirements for negative pressure and monitoring within the buildings as well as requiring that certain vents be kept closed.

Comment:

"The District should also supply the basis for the assumption in the draft SMOP that negative pressure will be maintained for certain sources. Without ensuring that negative pressure is in fact being achieved - especially since negative pressure appears to be a critical assumption for achieving emissions control (and possibly the high capture efficiencies), the SMOP will in fact be a sham permit." [10]

Response:
Requirements for negative pressure monitoring have been added to the proposed conditions.

Negligence
Comment:
It is our right to participate, especially given the gross negligence in the management of the permit(s) for the last 10 years by BAAQMD and Pacific Steel Casting. Had the public been allowed to participate in the permitting processes over the last decade, this breach of regulatory oversight would not have occurred....Please remember: the breach in BAAQMD's oversight was brought forward by a Berkeley citizen and NOT by the District's engineers or PSC." [4]

Response:
The District has been working on the permit since the application was received as shown in the timeline that has been attached as an appendix to the evaluation report. The current permit engineer has been working on the application since he was assigned the application and since facility ownership was changed as shown by correspondence between the District and Pacific Steel Casting in years 2015 and 2016. The District received a call in 2015 from a Berkeley citizen enquiring of the status of the SMOP at which the District stated that a SMOP application was being evaluated but could not go further into details until the evaluation was completed. The District does not disclose preliminary drafts or notes.

It appears that the citizen mistook a lack of information for a lack of action on the part of the District. Therefore, the assertion that the current SMOP evaluation is the result of the actions of a Berkeley citizen and not the District is false.

New Source Review
Comment:
"The evaluation process for the draft SMOP does not ensure compliance with federally enforceable requirements."
"The Evaluation states that Pacific Steel began operations in 1981, after Prevention of Significant Deterioration and new source review requirements began to apply. The District must determine whether these requirements should be made applicable by calculating the PTE at the time Plant 3 was proposed to be constructed. If indeed these requirements should have applied at that time, Best Available Control Technology should be mandated as applicable." [10]

Response:
The regulation (Regulation 2, Rule 6) under which the revised SMOP is being evaluated and issued does not allow the District to impose New Source Review requirements that are imposed under Regulation 2, Rule 2. A separate application is required. However, the Evaluation report has been revised to address this issue. A new permit condition has been added to require the facility to submit a permit application to allow the District to conduct a New Source Review analysis of the affected sources.

Comment:
"Page 4 of the Engineering Evaluation Report notes that PSC's Plant 3 began operations in 1981, some four years after the adoption of the 1977 Clean Air Act Amendments and the revised New Source Review ('NSR') program. With regard to NSR requirements the Evaluation states, in the section titled Statement of Compliance, that '[n]one of PSC sources is considered new or modified with this application.
Therefore, Regulation 2, Rule 2 does not apply.' Importantly, however, the Evaluation Report includes no discussion whatsoever as to whether Plant 3 was ever subject to NSR for past permits, or whether required emissions controls (i.e., Lowest Achievable Emissions Rate/Best Available Control Technology ['LAER/BACT']) have been incorporated in the facility's permit conditions." [44]

Response:

Plant 3 has numerous permits to operate for individual pieces of equipment some of which were subject to New Source Review requirements. In addition, although Plant 1 and Plant 2 were originally constructed prior to 1981, there have been new and/or modified sources at both plants that have been subject to New Source Review requirements.

A SMOP is not the mechanism for enforcing New Source Review requirements (Regulation 2, Rule 2) that apply to individual equipment deemed new or modified. A SMOP is a mechanism for enforcing Regulation 2, Rule 6 requirements that apply to the entire facility. If the facility were installing new or modifying existing sources, then a pre-construction review permit application would be required and would be analyzed to determine if subject to New Source Review requirements. Such a permitting action cannot occur within a SMOP permit application.

Comment:
"Emissions of carbon monoxide ('CO'), one of the federal criteria pollutants, are of particular concern at the PSC facility. The Evaluation shows that the PTE for CO surpasses the NSR major facility threshold of 100 tons per year, and when Plant 3 came on-line in 1981 the Bay Area was designated as a nonattainment area for CO. Although BAAQMD concedes it only recently discovered PSC's operations may be a large source of CO, if the PTE CO was in fact the same in 1981 - the Engineering Report includes no discussion of major modifications - Plant 3 should have been subject to LAER for CO since operations began. Conversely, if PSC's operations only recently began emitting large quantities of CO, an appropriate modification analysis should be included." [44]

Response:
The Evaluation report has been revised to address this issue. A new permit condition has been added to require the facility to submit a permit application to allow the District to conduct a New Source Review analysis of the affected sources.

Comment:
"The Engineering Evaluation Report states that the District became aware that Pacific Steel's operations could potentially be large sources of CO emissions, which the Report says "were previously unknown" (page 5). Did the emissions increase at some point in time after 1977? If so, were Prevention of Significant Deterioration requirements triggered, requiring application of Best Available Control Technology? Or were CO emissions always such that Pacific Steel Casting was a major source? In any case, Pacific Steel Casting currently is a major source, and has been for at least some time, and will be until a practically enforceable SMOP permit is issued. The District should determine if past production increases may have triggered PSD requirements, requiring, in part, application of BACT. " [9]

Response:
The Evaluation report has been revised to address this issue. A new permit condition has been added to require the facility to submit a permit application to allow the District to conduct a New Source Review analysis of the affected sources.

Non-Compliance
Comment:
"Finally, I want to know precisely what the BAAQMD will do when the emissions are out of compliance. Don't forget the permits have been lousy for over 10 years and the community has suffered." [5]

Response:
If a facility is in violation of a requirement, the facility will be issued a Notice of Violation.

If a facility is found to repeatedly be in violation of a requirement, per Section 42451 of the California Health & Safety Code, the District may request from the District's Hearing Board an Order for Abatement where, if granted, a facility operating out of compliance will be required to take specific actions or shut down its operations.

If a facility knowingly violates a requirement, the District can forward the matter to the local District Attorney to pursue criminal charges for negligent behavior.

Comment:

"The explanation included that if PSC emitted an over-abundance of various items that they would, quote, unquote, 'Get a ticket'. So those of us who have lived downwind from PSC would like to know what that means because, you know, no ticket can help bring back a baby's lungs or reverse someone's cancer system, you know?" [18]

Response:
If a facility is in violation of a requirement, the facility will be issued a Notice of Violation.

If a facility is found to repeatedly be in violation of a requirement, per Section 42451 of the California Health & Safety Code, the District may request from the District's Hearing Board an Order for Abatement where, if granted, a facility operating out of compliance will be required to take specific actions to curtail or shut down its operations.

If a facility knowingly violates a requirement, the District can forward the matter to the local District Attorney to pursue criminal charges for negligent behavior.

Comment:
"A better system and better quantified and continuous data is needed for Pacific Steel …and respond to and be held accountable for air quality violations" [45, 46, 48, 53, 57]

Response:
The comments do not specify how the proposed conditions are inadequate to address air quality violations. The conditions require the facility to report any indication of an air quality violation to the District's Compliance & Enforcement Division within 10 calendar days. The District's Enforcement Division will investigate any such notifications as well as continue to conduct unannounced compliance inspections to review throughput and monitoring data records.

Noticing
Comment:
"The Air District has not provided notice calculated to reach the concerned public."
"While appreciative of the extension already granted, …the extension is insufficient because the notice of the proposed SMOP has likely failed to reach Berkeley and Albany residents who are concerned about Pacific Steel's emissions. For example, even though the District represented that it had notified the public of the proposed SMOP through the Oakland Tribune, that newspaper is no longer published..." [10]

"…the representatives of the Alliance and Berkeley Citizen, who had long appeared before the District to address Pacific Steel's emissions, only learned of the proposed SMOP because Berkeley Citizen had been in contact with EPA about the facility, and EPA itself notified ... of the issuance of the draft SMOP." [10]

"The groups … request that the proposed SMOP be noticed in a manner calculated to reach concerned residents. The groups also reiterate the request made … that the District hold a public meeting in Berkeley concerning the proposed SMOP." [10]

Response:
In response to the comments made, the District has updated its public noticing procedures. The District also extended the initial public comment period an additional 30 days, opened a second public comment period, and held a community meeting in the City of Berkeley in evening hours to allow community members to attend after work and present public comments in person.

Comment:
"…Berkeley Citizen asked the District for a copy of the ad in the Oakland Tribune and has not received such a copy." [10]

Response:
A copy of the ad is attached to these comments.

Comment:

"In closing, I want to express my surprise about the way the information regarding the comment period was communicated. Here is the news of the Tribune's demise: http://www.sfchronicle.com/business/article/As-Oakland-Tribune-disappears-a-city-mourns-its-7223729.p. As someone who has experienced the fumes of PSC for a long time, the city council members who wrote a report on PSC know how to reach me as does BAAQMD. Also, I am on several Berkeley commission listservs regarding health and environmental concerns. Perhaps they could have been notified? Asking the 94702 councilperson to send out an email would have been easy. Why wasn't a more efficient way to reach the 94702 community created? I am shocked that we, as a community, were not officially notified in a more respectful manner." [5]

Response:
Although the letter to EPA stated the public notice would be published in the Oakland Tribune, the public notice was issued in the East Bay Times - West County Times on July 15, 2016. The publisher of the "East Bay Times - West County Times" has requested that the District continue to reference the Oakland Tribune for public notices as it helps the publisher understand where to list the public notice within the Cities of Alameda, Berkeley, El Cerrito, and Oakland circulation area rather than in the Cities of Antioch, Brentwood, and Concord circulation area.

The publisher of East Bay Times - West County Times still issues a newspaper under the title "Oakland Times" on Fridays. The public notice was issued in this paper on July 15, 2016.

However, because of public feedback, the District extended the initial public comment period an additional 30 days, held a second comment period as well as community meeting within the City of Berkeley in the evening hours.

Comment:
"Regarding public comment and public participation, according to the letter written by Director of Engineering Division Jaimie Williams, dated July 7, 2016 to US EPA Director Deborah Jordan, public notice regarding the SMOP for the PSC facilities would be published in the Oakland Tribune, a defunct newspaper."

"The BAAQMD appears to be out of touch regarding appropriate media for notice of public comment. This greatly impacts public participation. " [2]

Response:
Although the letter to EPA stated the public notice would be published in the Oakland Tribune, the public notice was issued in the East Bay Times - West County Times on July 15, 2016. The publisher of the "East Bay Times - West County Times" has requested that the District continue to reference the Oakland Tribune for public notices as it helps the publisher understand where to list the public notice within the Cities of Alameda, Berkeley, El Cerrito, and Oakland circulation area rather than in the Cities of Antioch, Brentwood, and Concord circulation area.

The publisher of East Bay Times - West County Times still issues a newspaper under the title "Oakland Times" on Fridays. The public notice was issued in this paper on July 15, 2016.

However, because of public feedback, the District extended the initial public comment period an additional 30 days, held a second comment period as well as community meeting within the City of Berkeley in the evening hours.

Comment:
"Why wasn't this meeting noted in the public notice?: How was this meeting noticed?" [28]

Response:
The District's procedures for noticing are listed in SIP Regulation 2, Rule 6, Section 423.3:

"423.3 Public Participation: Prior to any determination by the APCO that a facility may be issued a synthetic minor operating permit, the APCO shall notify the public in accordance with the following procedures:

3.1 The APCO shall publish a notice in a major newspaper in the area where the facility is located.

3.2 The notice shall provide at least 30 days for public comment.

3.3 The notice shall state that permit conditions for the facility will be modified to provide a facility wide emission limit in accordance with Section 2-6-310 and shall include information as to how the public may obtain copies of the permit conditions associated with the limit, any information regarding the modification submitted by the owner or operator of the facility, the APCO's analysis of this information, and of the effect, if any, of the modification on air quality.

The above requirement applies to an initial synthetic minor operating permit, not to a revised permit like the one under consideration. However, to allow for public participation, the District decided to hold a public comment period and published an initial public notice within a major newspaper of the area. The District subsequently granted multiple extension requests, held a second public comment period with additional extension requests granted. Because of public input from the first public comment period, the District decided to hold a public meeting and notified the non-profits working in the area as well as the community members that had provided previous input.

Comment:
Several commenters stated that they were not notified of the public comment period. [2, 4]

Response:
In response to the comments made, the District has updated its public noticing procedures. The District also extended the initial public comment period an additional 30 days, opened a second public comment period, and held a community meeting in the City of Berkeley in evening hours to allow community members to attend after work and present public comments in person.

Comment:
"As I understand it, future regulatory activities involving Pacific Steel Casting's SMOP do not legally provide any opportunity for formal citizen participation. The District needs to put a special condition in PSC's new permit that requires adequate noticing of the City of Berkeley and its citizens regarding any changes in the company's permit as well as the opportunity to submit legal, written comments." [4]

Response:
Conditions that may be imposed within a Synthetic Minor Operating Permit are limited by District Regulation 2, Rule 6 to conditions that limit the facility's potential to emit to no greater than 90 percent of the threshold for the requirement to be avoided. District Regulation 2, Rule 6 does not permit the District to impose a public noticing requirement like Title V permits.

Odor Management Plan
Comment:
"…the Odor Management Plan…has not been provided in full to the public. It is not possible for the public to evaluate the permit terms, and it is not possible for the public to enforce the permit terms when the permit terms are secret." [19]

Response:
The District is prohibited by Government Code 6254 from disclosing material deemed to be a trade secret. Some of the material included within the Odor Management Plan has been deemed to meet the criteria specified in Government Code 6254. Therefore, the entire Odor Management Plan cannot be disclosed by the District.

However, the District has provided a public copy where trade secret material has been redacted.

Comment:
"The Odor Management Plan should be a part of the SMOP. The conditions of the Odor Management Plan should be the conditions of the permit, and there is no reason why that Odor Management Plan should not be an ongoing document. It should not sunset, it should not close, and it certainly should be in effect after 2009." [19]

Response:
The District is not sure of the basis for the comment that the Odor Management Plan would not be in effect after 2009 or that the Odor Management Plan is not an ongoing document. Per the Section 1.0 (Introduction) of the Odor Management

Plan, "[t]he OMP is an ongoing document that will be updated or modified by the Company as Company odor abatement measures, District permit conditions or any plant operations at Plants 1, 2, and 3 are added, modified or deleted reflecting a Company goal to continually reduce alleged offsite odors."

The comment may be referencing Section 7.0 (Complaint Response Procedures) that states "[t]he Complaint Response Procedures are effective until the Company ceases receiving complaint notifications from BAAQMD or April 1, 2009, whichever occurs first."

However, the Complaint Response Procedures only involve the facility recording odor complaints received by the company and attempts by the facility to identify the source of odors, if applicable. The sunset date does not apply to any other provisions of the OMP such as use of control equipment, monitoring devices, or any other measures to reduce offsite odors.

Comment:
"Condition 22 requires Pacific Steel to 'maintain a negative pressure at each of the plant's exterior doors, windows, and other openings as identified and required within Appendix D of the facility's Odor Management Plan'. The Odor Management Plan was not provided with the Evaluation." [10]

Response:
A copy of the redacted Odor Management Plan was made available as part of a Public Records Act request by the commenter.

Comment:
"While Condition 22 (page 26) requires Pacific Steel to "maintain a negative pressure at each of the plant's exterior doors, windows, and other openings as identified and required within Appendix D of the facility's Odor Management Plan," ... unable to review that plan. It has not been provided to the public with this proposed SMOP. In any event, the negative pressure that Pacific Steel is required to maintain does not appear to be for specific sources within the plants and therefore it is difficult ... to evaluate whether sources such as Source 1018 will in fact be operating under negative pressure." [9]

Response:
This condition has been revised to reference the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan.

Comment:
"Engineering Evaluation Report Attachments - The following attachments identified in the Engineering Evaluation Report were not available online for the public during the public comment period. We also note that EPA did not receive a full package of these materials. We request that these materials be made readily available to the public with the other SMOP documents.

a. Odor Management Plan - Parts 22 and 23 of condition 20207 refer to Appendices D and F of the facility's Odor Management Plan, though these were not available on BAAQMD's website. It appears that these documents relate to how the facility will maintain negative pressure at all exterior doors, windows and other openings. Negative pressure may be essential to compliance with the emission caps in part 1 of condition 20207. After discussing with the District that it provide a public version of the facility's Odor Management Plan, the District provided a link to a public version of the Odor Management Plan dated October 3,2008 found here:
http://www.cityofberkeley.info/uploadedFiles/Clerk/Level_3_-_City_Council/2010/03Mar/2010-03-23_Item_42_Settlement_of_Litigation.pdf" [8]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The Emissions Minimization Plan is a more recent document than the previously referenced Odor Management Plan and is publicly available at the following link:

http://www.baaqmd.gov/~/media/files/compliance-and-enforcement/metal-facilities/psc-llc-reg-12_13-emp-jan-2015-final-public.pdf

Comment:
Paragraph 54 of the SMOP conditions requires that PSC comply with Sections 1-6 of its October 3, 2008 OMP. Without explanation, however, Section 7 of the OMP ("Complaint Response Procedures"), detailing the actions to be taken when odor complaints are made, is excluded from this requirement. The Complaint Response Procedures ought not to be mere suggestions; BAAQMD should require PSC to comply with Section 7 so as to ensure odor complaints are investigated properly and thoroughly." [44]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The OMP was developed separately from the SMOP and has a different purpose than the SMOP. The purpose of the OMP was "prepared to address and prevent alleged odorous emissions". The purpose of the SMOP is to limit criteria pollutants to below major source thresholds and not necessarily odors, although some organic compounds are odorous.

The OMP resulted as part of a "Settlement Agreement" between the District and the facility prior to submittal of the SMOP application. Therefore, the District has no authority to require revising the OMP as a condition of obtaining the SMOP. Section 7 does not address limiting emissions but rather responding to complaints. Therefore, the District does not have the authority to include Section 7 within the SMOP.

Comment:
"The OMP requires investigation of odors if 'found immediately outside the facility buildings.' PSC personnel should be required to respond to a complainant's location in the community, not just in the areas 'immediately outside' of PSC. They should also be required to inquire whether complainants have any negative reactions to noxious odors, including listing symptoms, if any. These deficiencies in the OMP should be rectified." [44]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The District does not and cannot advocate for any facility personnel to know or respond to a complainant's location. The District keeps complainant information confidential. This is for the safety of both the complainant and facility personnel.

The OMP resulted as part of a "Settlement Agreement" between the District and the facility prior to submittal of the SMOP application. Therefore, the District has no authority to require revising the OMP as a condition of obtaining the SMOP.

Comment:
"The SMOP should also require PSC to affirmatively report the results of odor-complaint investigations to BAAQMD and those reports should be available to the public." [44]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The OMP was developed separately from the Synthetic Minor Operating Permit (SMOP) and has a different purpose than the SMOP. The purpose of the OMP was "prepared to address and prevent alleged odorous emissions". The purpose of the SMOP is to limit criteria pollutants to below major source thresholds and not necessarily odors, although some organic compounds are odorous.

The OMP resulted as part of a "Settlement Agreement" between the District and the facility prior to submittal of the SMOP application. Therefore, the District has no authority to require revising the OMP as a condition of obtaining the SMOP.

Comment:
"The OMP calls for identified personnel (though their names are redacted) to investigate odor complaints. There is no justification for keeping these names confidential. Names and contact information should be a matter of public record so residents who are affected by odors know how to contact responsible PSC personnel in addition to filing complaints with BAAQMD. The names and contact information should also be up-to-date, not from 2008, as is now the case. " [44]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The OMP was developed separately from the Synthetic Minor Operating Permit (SMOP) and has a different purpose than the SMOP. The purpose of the OMP was "prepared to address and prevent alleged odorous emissions". The purpose of the SMOP is to limit criteria pollutants to below major source thresholds and not necessarily odors, although some organic compounds are odorous.

The OMP resulted as part of a "Settlement Agreement" between the District and the facility prior to submittal of the SMOP application. Therefore, the District has no authority to require revising the OMP as a condition of obtaining the SMOP.

Comment:
"In response to #12.a. and #12.b. of our August 30, 2016 comment letter, the District provided to
EPA, by electronic mail, a public version of the facility's OMP and emissions calculations. First, rather than cross-referencing certain sections of the OMP in the permit, the District may consider adding the relevant, specific language from the OMP directly into the permit, or include the OMP as an attachment to the permit." [43]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. The OMP was developed separately from the Synthetic Minor Operating Permit (SMOP) and has a different purpose than the SMOP.

Comment:
"…the Odor Management Plan is not an enforceable document … the facility has stated in the past that it is a voluntary plan." "…strongly support the District's effort to ensure that pollution control measures in the Odor Management Plan, to the extent they indeed reduce pollution, become enforceable. Nevertheless, the approach reflected in the Evaluation is insufficient to ensure enforceability."
"First, the proposed SMOP simply refers to Appendix D of the Management Plan without including the requirements in the permit. Whether the conditions in Appendix D are written in a fashion that ensures practical enforceability thus cannot be determined. In addition, the permit must include the conditions from Appendix D so that they can become enforceable. To the extent that the assumption of negative pressure underlies Pacific Steel's ability to achieve a minor source status, the proposed SMOP also does not ensure that Pacific Steel will operate as a synthetic minor. [10]

Response:
The proposed SMOP conditions no longer refer to the Odor Management Plan (OMP) but rather to the facility's publicly available Regulation 12, Rule 13 (Foundry and Forging Operations) Emissions Minimization Plan. Appendix D of the Odor Management Plan contains physical layouts of all three Pacific Steel Casting Plants with the locations of exhaust and intake fans and exterior openings identified. These layouts have been determined to be trade secret under Government Code Section 6254.7(d).

However, additional requirements relating to negative pressure monitoring have been added to the proposed conditions. The District believes these new requirements address the commenter's concerns.

Comment:
"... the OMP should describe the minimum training required for any PSC personnel to be tasked with investigating odor complaints." [44]

Response:
The Odor Management Plan (OMP) was developed separately than the Synthetic Minor Operating Permit (SMOP) and has a different purpose than the SMOP. The purpose of the OMP was "prepared to address and prevent alleged odorous emissions". The purpose of the SMOP is to limit criteria pollutants to below major source thresholds and not necessarily odors, although some organic compounds are odorous.

The OMP resulted as part of a "Settlement Agreement" between the District and the facility prior to submittal of the SMOP application. Therefore, the District has no authority to require revising the OMP as a condition of obtaining the SMOP.

Comment:
"…the 2008 OMP referred to in SMOP condition 54 is outdated. PSC should be required to make and keep the OMP current by requiring annual updates" [44]
Response:
See response to comment above.

Comment:
"…the Complaint Response Procedures are in effect only until either PSC stops receiving from BAAQMD or April 1, 2009, 'whichever occurs first.' It is self-evident that a provision that sunsets on April Fools' Day 2009 does not apply to the present time, six-plus years later, rendering the Complaint Response Procedures meaningless. It is irrational and indefensible for an odor-complaint procedure to terminate years before it even starts. It is equally indefensible that the Complaint Response Procedures ever expire; as long as steel castings are being manufactured, there is the potential for noxious odors to be created and for complaints to be forthcoming. Thus, there is no justification for the Complaint Response Procedures to expire when 'the Company ceases receiving complaint notifications from BAAQMD." [44]

Response:
See response to comment above.

Comment:
"The OMP's Complaint Response Procedures should be mandatory, not meaningless, and they should never expire under any circumstances." [44]

Response:
See response to comment above.

Odors
Comment:
Multiple commenters stated that they regularly smell odors from the facility and are affected by them. [21, 23, 24, 26, 29, 33, 35, 37, 39, 40, 41, 42, 45, 46, 47, 48, 50, 53, 57]

Response:
The District urges any member of the public that has a complaint about an odor impact should file a complaint either online (https://permits.baaqmd.gov/PublicForms/ComplaintWizardSelection) or call the District's 24-hour toll free hotline at 1-800-334-ODOR (6367). A member of the District will investigate all odor complaints received by the District and can address questions from members of the public.

Comment:
"I have reported noxious odors countless times to the BAAQMD, and on several occasions have met with one of your reps who have informed me that, more or less, this company does what it wants without real consequence. This is unethical and wrong." [32]

Response:
The District does not agree with any assertion that any company may impact any community without consequences. The District's Regulation 1 prohibits a public nuisance defined to be:

"No person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public; or which endangers the comfort, repose, health or safety of any such persons or the public, or which causes, or has a natural tendency to cause, injury or damage to business or property."

Comment:
"For many years, we call BAAQMD every time we smelled the recognizable odors associated with PSC plants. However, the BAAQMD complaint process proved so cumbersome that, like many of our neighbors, we eventually abandoned these efforts." [54]

Response:
The District has received feedback from the community regarding improving the District's complaint response procedure and is in the process of updating the procedure with input from the community. The District anticipates this to occur within the year and will conduct outreach to ensure community concerns are considered.

Comment:
"Nauseating odors emanating from the facility …are the most frequent causes for complaints against Pacific Steel. The current permit includes at least one provision relating to the operation of the sand recycling system which requires Pacific Steel to immediately cease operations in the event that nuisance odors occur, and to resolve the problem. Why are there no similar requirements to shut down operations in the proposed SMOP? Has the Air District identified the source of the burnt plastic odor, and is so what permit requirements address this issue?" [18]

Response:
The District's authority regarding the SMOP is limited by District Regulation 2, Rule 6 in that conditions imposed are to ensure emissions remain below major source thresholds. If the facility can demonstrate that emissions remain below major source thresholds, the facility can continue to operate per the SMOP. However, the District's Regulation 1 prohibits the facility from being a public nuisance. If the facility is deemed to be a public nuisance from odor complaints, the District may pursue an order of abatement to require the facility to curtail or shutdown operations.

Comment:
"I smell burnt plastic all the time. I call the 1-800 number to the Air Quality Management District, leave a message and never really hear anything or know what happens to those comments. What happens … to Pacific Steel; why it's being caused; what's being done about it? One time out of probably 30, 40 times someone who came to my door and asked about it. That's the only thing that's ever happened in the course of two, three years making these calls when I smell it." [20]

Response:
The District is committed to responding to every odor complaint received by the District within a timely manner. However, the District does not have the resources to have staff employed on a continually, 24-hour basis, and thus is limited in responding after hours.

The District has received feedback from the community regarding improving the District's complaint response procedure and is in the process of updating the procedure with input from the community. The District anticipates this to occur within the year and will conduct outreach to ensure community concerns are considered.

Online Access
Comment:
"In an August 3, 2016 letter to LA Wood from Gerardo Rios, US EPA Chief, Permits Office, Air Division reference is made to BAAQMD's webpage for information on a synthetic minor operating permit for the PSC facilities. However, the Alliance has been unable to access this information by going to the footnoted BAAQMD website below." [2]

Response:

The District reviewed EPA's letter and found that the web address was listed correctly and worked when entered manually. However, the hyperlink did not function correctly. The District does not know why the hyperlink did not work.

Outdated Information

Comment:

"The Evaluation itself does not ensure that the most recently available information is used for setting the permit conditions, raising the possibility that the proposed SMOP may be based on conditions that do not fully reflect the conditions under which the facility will operate. Most prominently, ...the proposed SMOP is based on an application from 2005..." [10]

Response:

Although the application was submitted in 2005, data used in the evaluation derived from source tests and monitoring and other information gathering activities that occurred from 2006 until 2015.

Comment:

"According to the information the Air District provided, the permit application was first submitted in late 2005. The engineering report further mentions that the District and Pacific Steel conducted extensive monitoring, source testing and a comprehensive review of emission calculations during the 2008, 2013 period, and required a health risk assessment in 2008 before the change in ownership.
Given Pacific Steel's emission levels have changed drastically from year to year in the past, how do you know the information provided years ago remains consistent with the current operating conditions of the facility?" [18]

Response:

The proposed conditions memorialize emission factors used in determining the facility's potential to emit as well as require the facility to conduct source testing to verify compliance with those limits. If source test results indicate emissions from a source are greater than permitted, the facility will be in violation of those conditions and will be required to implement measures to either reduce emissions and/or apply for a Title V permit.

Comment:

"The District must ensure itself and the public that the information it has collected is based on complete information that is attested to by Pacific Steel's responsible official who can be held accountable for the accuracy of the information." [10]

"Furthermore, if processes, materials, or throughput have changed since the source tests, emissions factors may have changed as well as the PTE." [10]

Response:

See response to comment above.

Permit Examples

Comment:

Examples of enforceable emission limits and compliance demonstration methods
can be found in the following synthetic minor permits:
Warm Springs Forest Products Industries
(See https://www3.epa.gov/region10/pdf/permits/air/warm_springs_titlev_permit_2014.pdf)
• Silgan Containers Manufacturing Corporation, Toppenish Plant
(See https://www3.epa.gov/region10/pdf/permits/air/silgan-nt5-permit-final-06082015.pdf)
• Washington Beef, LLC
(See https://www3.epa.gov/region10/pdf/permits/air/wa_beef/wa_beef_nontitleVpermit_final_integrated_permit_document_2015_01_23.pdf) [8]

Response:

The District has reviewed the examples provided and revised the proposed permit to account for best practices.

Permit Issuance

Comment:

"So it's a foregone conclusion that a permit is going to be issued, no matter what the community says?" [17]

Response:

The issuance of a SMOP is not a "foregone conclusion" irrespective of public input. Depending on the input received, changes to the SMOP conditions may be required. If a facility does not agree to the proposed changes, the facility may elect to apply for a Title V Operating Permit. Depending on input from the public, a facility may not be eligible for a SMOP. Therefore, the issuance of a SMOP permit is not foregone. However, per federal and District requirements, the issuance of either a SMOP or a Title V permit is required. Based on public input, the District has made many changes to improve permit conditions for this SMOP.

Permit to Operate

Comment:

"…the current PTO identifies both Sources 44-49 (the Sand Thermal Recycling system) and Sources 22 and 23 (Shell Molding machines) in Plant 2 as sources which can cause odorous emissions. ... PSC may be required to shut down operation of the Sand Thermal Recycling system in the event of repeated odors. However, no similar provision applies to the Shell Molding machines. All sources known to be associated with emission of noxious odors should be subject to the same permit condition as Sources 44-49, that is, containing provisions for ceasing operations until odor complaints are resolved." [44]

Response:

The "PTO" is a collection of New Source Review permits that have previously been issued, including conditions that were imposed at the time of permitting. The PTO is not the SMOP or SMOP conditions. Under the SMOP, the District's authority is limited to imposing conditions to keep emissions below major facility thresholds. The District does have a Compliance and Enforcement mechanism through Regulation 7 to require abatement or curtailment for sources with respect to odors.

Comment:

"The PTO also calls for emissions from Sources 22 and 23 to 'be collected, to the maximum extent possible' and vented to the carbon adsorption system. However, the permit does not define 'to the maximum extent possible.' Such vagueness renders this provision practically unenforceable and should be corrected." [44]

Response:

The "PTO" is a collection of New Source Review permits that have previously been issued, including conditions that were imposed at the time of permitting. The PTO is not the SMOP or SMOP conditions. However, the SMOP Condition 24548 do impose minimum capture efficiencies for Sources 2022 and 2023 (formerly Sources 22 and 23).

Comment:

"Although PSC's current Permit to Operate ('PTO') requires odor testing of the carbon adsorption systems, the OMP is silent about odor testing in the areas 'immediately outside' PSC or at the locations complainants perceive noxious odors. The OMP should include provisions for odor testing in response to complaints. It should also specify the threshold, expressed in odor units, beyond which PSC is required to take action to abate the odors, such as ceasing operations, as called for in PSC's existing permit." [44]

Response:

The "PTO" is a collection of New Source Review permits that have previously been issued, including conditions that were imposed at the time of permitting. The PTO is not the SMOP or SMOP conditions. Under the SMOP, the District's authority is limited to imposing conditions to keep emissions below major facility thresholds. The District does have a Compliance and Enforcement mechanism through Regulation 7 to require abatement or curtailment for sources with respect to odors.

Comment:

"Additionally, we request that the District make the updated PTO available to the public on its website." [8]

Response:
The District will make an updated PTO available to the public on its website.

PM Emissions
Comment:
"Since 2005, PM emissions at Pacific Steel have increased significantly, at least according to the data available from … the California Air Resources Board ("CARB"). In 2005, PM emissions reported for all three plants were 14 tons; in 2014, which is the year for which the latest information is available from CARB, the PM emissions were 71 tons." [10]

Response:
The apparent increase in emissions during the referenced time frame is primarily due to the District updating the emission estimation methodologies for several sources to include emissions that were previously not included within the emissions inventory. The District was following a standard practice of updating and revising the emissions inventory to account for improvements in measurement technology, emission estimation methodologies, and emissions knowledge.

Potential to Emit
Comment:
"(PTE) based not on any actual readings, but apparently on the maximum emissions the plant could produce if it had no pollution controls whatsoever. With a permit renewal, there are actual readings from previous years on which to base any change in emissions, up or down. The EPA requires that permit renewal emissions must be based on actual readings before permitting, not on unrealistically estimated potential" [6]

Response:
EPA requires the use of actual emissions rather than the potential to emit when determining whether New Source Review standards apply to existing sources undergoing a permit review for a potential modification. The proposed Synthetic Minor Operating Permit is not a construction review permit to allow a modification to an existing source. Rather, it is a permit to limit facility-wide emissions to less than 90 tons per year.

When determining whether a facility is a major stationary source, the potential to emit is used because the maximum emissions are higher than actual emissions and thus more likely to exceed major source thresholds.

Practically Enforceable Conditions
Comment:
"Source tests are critical to determining (1) the basis for the emissions limits and the assumptions underlying them, (2) actual emissions, and (3) PTE. Source tests are thus important for establishing enforceable permit conditions and Pacific Steel's eligibility as a synthetic minor source. The Evaluation does not provide sufficient information to determine whether the source tests provide information necessary for practical enforceability." [10]

Response:
The District does not understand the commenter's concerns regarding source testing and to practical enforceability. The facility will be required to demonstrate compliance with a rate-based emission limit through a representative source test. If a source test indicates higher emissions than expected, the facility will be required to reduce throughput to meet the individual source and facility-wide emission limits. All source test results, throughput records, and mass emission calculations will be required to be maintained and reported to the District on a frequent basis. Source testing and emission factors derived from source testing are integral components to the enforceability of these proposed SMOP conditions.

Comment:
"Permit conditions based on estimates of emissions factors added together from a multitude of small individual sources; allowing the industry to conduct its own annual stack tests and keep its own records and reports; and depending upon them to determine when there might be a problem, or if they feel they're no longer in compliance; hardly creates legally enforceable permit conditions with any teeth. The fact that PSC was allowed to recalculate its own PTE by eliminating any

existing reductions from already permitted emissions controls proves, by your own definition (2-6-218), that this permit is not federally, legally, or practicably enforceable. With no consequence there is little demand for compliance." [6]

Response:
The proposed SMOP conditions limit emissions and assumptions (maximum throughput, control efficiencies, capture efficiency, and emission factor) for each individual source. The facility will be required to demonstrate compliance with these limits through recordkeeping, source tests, continuous monitors, and compliance reports. In addition to facility-conducted source tests, the District conducts its own source tests. In addition to facility-recorded/reported information, the District conducts unannounced, surprise inspections to verify compliance with all applicable requirements including the SMOP conditions.

"Potential to Emit" is defined in District Regulation 2-6-218 as " [t]he maximum capacity of a facility to emit a pollutant based on its physical and operational design. Any physical or operational limitation on the capacity of the facility to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, processed, shall be treated as a part of its design only if the limitation, or the effect it would have on emissions, is federally enforceable or legally and practicably enforceable by the District." By this definition, if a facility installs emissions controls that are legally required to be installed and operated per District permit conditions, then emission reductions from the use of emissions control equipment is allowed when calculating the PTE.

Comment:
"…Air District regulations require synthetic minor permit conditions to be practically enforceable. And this generally, means that the permit must clearly specify how emissions will be measured for purposes of demonstrating compliance, and provide sufficient monitoring for -- monitoring and reporting to enable both citizens and regulators alike to determine whether the permit limits have been exceeded and to pursue enforcement measures where appropriate.
So I would pose the question of how will members of the public be able to determine if these Synthetic Minor Operating Permit conditions have been exceeded? In the engineering report provided, the early portions provided tons per year limit, and then later portions provide annual throughput limits without, kind of, clearly demonstrating how these conditions are connected." [16]

Response:
The proposed conditions have been revised for clarity to clearly specify how compliance with the permit will be demonstrated.

Comment:
"…throughout the engineering report, the permit conditions are made to referencing District approved calculations and limits to be determined at a later date. In some instances, these are related to critical features such as demonstrating compliance with emission limits. If this information isn't included, how is the permit practically enforceable for members of the community?" [16]

Response:
The proposed conditions have been revised to explicitly state an approved method rather than indirectly through the separate conditions application to each plant. The conditions have been revised to include all critical features to demonstrating compliance with the permit.

Comment:
"As the U.S. Environmental Protection Agency recently reiterated, '[o]ne of the key concepts in evaluating the enforceability of PTE limits is whether the limit is enforceable as a practical matter.' In the Matter of Yuhuang Chemical, Inc., Order on Petition No. VI-2015-03 (Aug. 31, 2016), at page 14."
"To the extent that this section purports to be the synthetic minor portion of the permit, it fails completely. It only contains blanket TPY limits, which are not practically enforceable...To the extent that this section relies on the rest of the permit, there is no demonstration as to how the conditions that follow operate together to limit PTE. It is possible that some combination of these conditions could effectively and enforceably limit PTE, but the District has not made that

demonstration. The District cannot state that all of the conditions operate to limit PTE, as many are not enforceable as a practical matter." [9]

Response:
The proposed conditions have been revised for clarity to clearly specify how compliance with the permit will be demonstrated and to meet the enforceability criteria specified in In the Matter of Yuhuang Chemical, Inc., Order on Petition No. VI_2015-03 as well as In the Matter of Hu Honua Bioenergy Facility, Order on Petition No. IX-2011-1

Comment:
"... the draft SMOP does not ensure that Pacific Steel will in fact operate as a minor facility." [10]

"... the draft SMOP does not ensure that the proposed conditions are practically enforceable. Practical enforceability in plain terms means that an inspector visiting the facility can make the determination, based on records required to be kept, that the facility is in compliance with a limit; and that a citizen looking at the permit and available records can do the same. The proposal fails this basis test." [10]

"…practical enforceability requires that the SMOP be justified on conditions that will exist at the facility and clearly articulate how the limitations will be used to determine compliance. Practical enforceability further requires that the SMOP include all relevant and necessary information to enable both the regulators and citizens to determine the facility's compliance." [10]

Response:
See response to comment above.

Public Hearing
Comment:
"I understand that public hearing was held regarding this permit on December 14, 2016. Is a list of comments and BAAQMD's responses available?" [28]

Response:
The District did not hold a "public hearing" as that has a legally defined purpose. Rather, the District held a public meeting to accept public comments in person. This Responses to Comments document includes comments made during the meeting as well as written comments received, and the District's responses to those comments.

Comment:
"I request that the public comment period be extended and that another public hearing be held regarding this permit because the last hearing and public notice were inadequately noticed. Notices of the public hearing should be sent to the homes of all residents and businesses and schools in the vicinity who potential could be impacted by this plant (5 mile radius minimum) and to all historical commenters." [28]

Response:
The District did not hold a "public hearing" as that has a legally defined purpose. Rather, the District held a public meeting to accept public comments in person. The District has held two public comment periods with multiple extensions requests granted as well as held a public meeting. Therefore, the District believes sufficient time has been allotted to the public for input.

Public Inspection
Comment:
"The following actions are requested of BAAQMD:"
"Provide all communications, including emails and other written documents between Pacific Steel Casting and BAAQMD regarding the current revision of the SMOP from January 1, 2014 to August 30th, 2016 for public inspection." [7]

Provide the current Pacific Steel Casting SMOP application for public inspection."

Response:
The commenter may make such a request through a public records act request. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

Public Records Act Requests
Comment:
"The following actions are requested of BAAQMD:"
"Provide some accounting for the unfulfilled PRA requests and why the legacy permit's applications, so relevant to understanding the history of this SMOP revision, were not available." [7]

Response:
The District has worked with requesters to fulfill PRA requests and believes the District has since provided all information available.

Comment:
"On April 14, 2016, the Environmental Law and Justice Clinic at the Golden Gate University School of Law (ELJC) made a Public Records request to the Bay Area Air Quality Management District (BAAQMD) on my behalf for documents relating specifically to PSC, including permit applications from 2006 to the present. The ELJC has indicated that they did not receive any documents, not even the current permit application. (See attached PRA request & Summary report dated April 14, 2016.)"
"Note: A look at the PRA gives the reader some idea of the fragmented record keeping and the SMOP history of the PSC process. Record keeping for this permit needs to be seriously addressed. The scattered and "unavailable" records dilute informed citizen participation as demonstrated by the unfulfilled PRA request above. This certainly doesn't meet the demand of the law today and is major failing of the District." [7]

Response:
The District has completed all public records requests and responded with available records.

Comment:
"BAAQMD has a history of late disclosure of documents sought under California's PRA. In PSC's case, ELJC made PRA requests for PSC's PTOs and permit applications in April 2016. Those requests were repeated in August. Yet the documents weren't produced until November. No sufficient explanation for the delay was offered. This delay negatively impacted ELJC's ability to review the highly-technical documents prior to the public-comment meeting in mid-December." [44]

Response:
The District is aware of an e-mail request made by the ELJC to a District Engineering Manager on April 18, 2016. Unfortunately, this request did not follow the District's Public Records Acts procedures nor was it made through the District's Public Records office. However, although not requested through the proper channels, the District did provide responses to the April request on May 9th with some of the requested PTOs as well as statements that some could not be located.

Comment:
"The law requires BAAQMD to respond within ten (10) calendar days to an information request. BAAQMD needs to take its obligation to produce public records more seriously, so that it complies with the law." [44]

Response:
The law requires that the District respond with either the requested information or whether the requested records are available and with a schedule for providing the requested records. The District has completed all public records requests and responded with available records.

Comment:
"The Air District has illegally withheld information requested that would have aided meaningful review of the proposed SMOP."
"Beginning in April 2016 … requested that the Air District provide documents relating to permit applications….again requests the Air District to furnish the requested documents." [10]

Response:
The District believes it has completed the referenced public records requests and provided all available information.

Comment:
"BAAQMD withheld certain documents sought under the PRA on the ground that they were 'trade secrets,' and thus confidential. BAAQMD's procedures suggest the District plays only a ministerial-messenger role in disputes over trade secrets. The District's procedures should call for BAAQMD to actively protect the public-disclosure rights of interested information seekers, not simply acquiesce when a regulated party asserts trade secret confidentiality. A mere assertion of confidentiality is insufficient. It must be backed up by convincing evidence that the documents in question qualify as trade secrets under the law. All documents concerning the 'nature, extent, quantity, or degree of air contaminants or other pollution' are public records subject to disclosure. The community has a right to these documents; BAAQMD should actively litigate if necessary to defend that right." [44]

Response:
The District has worked with both members of the public who have made public records act requests and Pacific Steel Casting to address records request. The District will consider the comment made regarding the District's records request procedure and all applicable legal requirements. However, the District's public records request procedures are outside the purview of the proposed action under consideration relating to the revised Synthetic Minor Operating Permit.

Reporting
Comment:
"Please include in the SMOP reporting forms that will be used to determine compliance." [8]

Response:
Due to the limitations of the District's database that stores conditions, it is not possible to include reporting forms within the SMOP conditions.

Comment:
"Reporting should be public."
"When the facility reports noncompliance, such information must be shared publicly. Given the difficulty that the public has had in obtaining information about this facility from the District, compliance information should be posted on the web." [10]

Response:
The District is exploring ways to become more transparent with all District's activities and findings including monitoring data, compliance results, and complaint investigative efforts. However, this effort involves multiple divisions at the District (Engineering, Compliance & Enforcement, Information Technology, etc.) and will not be accomplished prior to the issuance of this revised SMOP permit. As the facility has no control over posting of information by the District, the District does not believe such a requirement should be imposed as a condition within the revised Synthetic Minor Operating Permit.

However, per District Regulation 2-6-419 (Availability of Information), "[t]he contents of permit applications, compliance plans, emissions or compliance monitoring reports, and compliance certification reports shall be made available to the public, subject to the restrictions of the District's Administrative Code, Section 11. The contents of the permit shall be available to the public and shall not be subject to the above restrictions." Members of the public may submit a public records act request to view these documents. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

Comment:
Several comments were received stating concerns about the transparency of emissions reporting. [29, 54, 56]

Response:
Emissions data and compliance reports for any facility, including Pacific Steel Casting, may be requested and obtained through a public records request. Such a request may be made at the following web address:

https://cwp-baaqmd.secureprtportal.com/

Members of the public may request such data and reports for review.

Comment:
"…from the second engineer, Nicholas Maiden. Your comments about monitoring the reporting that would be required of PSC or maybe is required by PSC sounds really tough, but self-monitoring is just - ..it's a joke… that can't be taken seriously." [17]

Response:
The facility will have to report any noncompliance to the District's Compliance & Enforcement Division within 10 calendar days of discovering the noncompliance. The District's Compliance & Enforcement Division is required to investigate all indications of a potential violation. The District conducts routine unannounced compliance inspections of facilities throughout the District. However, such inspections do not occur more than every 10 days for a given facility. Therefore, by self-reporting violations, the District will be alerted to potential violations sooner than if discovered by the District at a later date. As such, noncomplying situations would be resolved quicker than if left to be discovered by the District.

If the District determines that a violation was not self-reported, the facility would receive a Notice of Violation both for the noncomplying activity as well as for not self-reporting the noncomplying activity, in effect two Notices of Violation.

For these reasons, the District believes that self-reporting in conjunction with unannounced District inspections and monitoring data is more stringent than simply unannounced inspections.

Source Tests
Comment:
"The source testing conditions in parts 33 through 47 include testing for POC, PM10, CO, as well as various other HAPs, but do not include requirements for testing for SO2 emissions."
"Please specify the method for determining compliance with the facility-wide SO2 emissions limit in part 1 of condition 20207." [8]

Response:
Approximately 80 percent of estimated SO_2 emissions occur from one stack associated with sources S-2006 through S-2012. The District will impose an annual SO_2 source test for these sources to determine an average emission factor and verify compliance with the Part 1 of Condition 20207.

Comment:
"Parts 33 through 47 in condition 20207 require the source testing requirements in Table 1 below. After the initial source test for sources of metal HAPs, filterable PM, polycyclic aromatic hydrocarbons (PAHs), benzene, formaldehyde, and non-methane hydrocarbon (NMHC) in parts 37 through 41, there is no requirement for another source test. Also, the deadline for CO test of the shakeout/pouring/cooling operations is 3 years in parts 42 through 44."
"Please consider more frequent source testing (i.e., earlier than 3 years) for determining and accurately calculating CO emissions in parts 42 through 44." [8]

Response:
The condition will be revised to require more source tests dependent upon the results of the initial source tests.

The deadline for the initial source test will be revised from three years to one year.

Comment:
"Part 47 of condition 20207 contains source testing frequencies for PM10 source tests, and does not contain the frequencies for source testing the other pollutants."
"Please specify the source testing frequencies for the other pollutants (i.e., NOx, POC, CO, SO2, and HAPs). Please consider either putting Table 7 of the Engineering Evaluation Report in part 47 of permit condition 20207, or adding the organization and comprehensive information contained within Table 7 to part 47 of permit condition 20207." [8]

Response:
The estimated potential to emit for NO_X and HAP emissions are well below the major source threshold. Therefore, the District does not believe requiring the facility to conduct multiple or recurring sources tests for these pollutants is warranted.

The condition has been revised to include the source test frequency for all recurring source tests.

Comment:
"The permit does not specify test methods for each pollutant"
"Please specify in the SMOP the source test methods for each pollutant that will be used for determining compliance and identify whether any of these methods deviate from the federal EPA testing and monitoring methods (we note that the permit includes the source test frequency in part 47 of condition 20207, but not the actual source test methods)." [8]

Response:
Source test methodologies have been included within Condition 20207 as Part 4.31.

Comment:
"Under the proposed SMOP, source tests for both criteria and hazardous air pollutants (or "full set of metals") are to be conducted as late as 120 days, one year, and three years from the final issuance of the SMOP. Yet these source tests appear to be necessary for setting the SMOP conditions, if indeed the existing source tests are not current. If so, these source tests should be conducted before the permit is issued to ensure that Pacific Steel can qualify as a synthetic minor source. The source tests may further show that conditions need to be further tightened to ensure the facility's status as a synthetic minor." [10]

Response:
Emissions may be estimated using default emission factors or source-specific emissions data. The District provided the facility the option to either use a default emission factor or a source-specific emissions data. For most of the sources, emissions were estimated using source-specific emission factors. Due to cost and resource considerations, it is not practical to require all sources to be source tested immediately prior to issuing a Synthetic Minor Operating Permit. However, it is practical to require source tests to demonstrate compliance with emission factors used in the District's emissions estimates.

Comment:
"…source tests should be done under stress at full capacity or well-justified representative conditions…applicable to future source tests." [10]

Response:
Source tests conducted under non-representative conditions are not accepted by the District's Source Test Section. As such, results from such tests would not be District-approved and would not comply with the proposed conditions.

Comment:
"…the conditions under which the source tests were performed can vary significantly for a source like Pacific Steel because…the foundry's production is highly varied." "Thus, source tests must be performed under either the worst case scenario or, at least the District and the public must have information to ensure that the source tests are performed under

"representative" scenarios' that said, the "representative" scenario would be difficult to justify given the high degree of variability in the facility's production." [10]

Response:
Source tests conducted under non-representative conditions are not accepted by the District's Source Test Section. As such, results from such tests would not be District-approved and would not comply with the proposed conditions.

Comment:
"Paragraphs 33 through 44 of the proposed SMOP conditions impose source testing requirements for: 1) each baghouse abating an Electric Arc Furnace; 2) shakeout stations; and 3) pouring and cooling areas at each of PSC's three plants. As stated in the Engineering Report, this source testing is intended 'to determine initial compliance' with PM, CO, and HAP limits contained in the permit, and to 'characterize' emissions from pouring, cooling, and shakeout operations. Without basis, however, Paragraphs 33 through 44 allow anywhere from 120 days to three years from the time of permit issuance for such source testing to occur." [44]

Response:
The evaluation report has been revised to include a basis for selecting the source test frequency.

Comment:
"Although the Evaluation states that "[t]hrough 2008 and 2013, the District and Pacific Steel Casting conducted extensive ambient air quality monitoring, source stack testing," etc., it is difficult to discern (1) which source testing informed which limitations, and (2) the conditions under which the source tests were performed - i.e. whether such source testing reflects the conditions now existing at the facility or conditions that are representative." [10]

Response:
The Engineering Evaluation report has been amended to include a basis for emission factors and the source test conditions for those factors for which a source test was used as the basis.

Comment:
"…delayed source testing requirements, several of the proposed permit conditions impose source testing requirements which are required to be performed at a future date. Some source tests must be performed within 120 days of permit issuance, while others must be performed within three years. Those are fairly long delay times. If source tests show operating conditions at the facility, what is the basis for the delay?...shouldn't these tests be performed before a permit is issued, particularly since the source test mentioned in the engineering report occurred several years ago?" [13]

Response:
Emissions may be estimated using default emission factors or source-specific emissions data. The District provided the facility the option to either use a default emission factor or a source-specific emissions data. For most of the sources, emissions were estimated using source-specific emission factors. Due to cost and resource considerations, it is not practical to require all sources to be source tested immediately prior to issuing a Synthetic Minor Operating Permit. However, it is practical to require source tests to demonstrate compliance with emission factors used in the District's emissions estimates.

Comment:
"…delaying source testing for 120 days to three years is inconsistent with BAAQMD's own permitting guidance document. BAAQMD's Permit Handbook recommends that permit conditions require District approved source testing to occur 'not later than 60 days' from the date of startup." [44]

Response:
If the facility were installing new or modifying existing equipment, the District would follow the permitting handbook. However, the facility is not installing new or modifying existing equipment. When setting the source test requirements, the District made several considerations including whether the source would be operating within 60 days of permit issuance, the complexity involved in source testing a source, the resources needed for source testing within a given time frame, etc.

Comment:
"Source tests are too infrequently required during the permit term for some of the pollutants, including for CO and metals. For some sources, tests are limited to a one-time initial source test. In addition, source tests for HAPs (with the exceptions specifically listed in Table 7) appear not to be required. The District should provide a basis for selecting the source test frequency and should require source tests at least once a year. Source tests must be done to ensure the District's estimates and assumptions remain justified." [10]

Response:
The evaluation report has been revised to include a basis for selecting the source test frequency.

Comment:
"Source testing is the most accurate method for determining actual source emissions at the facility and as a result is critical for establishing permit conditions that ensure PSC operates as a synthetic minor source. BAAQMD should follow the guidance set forth in its permitting handbook and, at minimum, require source testing for all sources to occur no later than 60 days from the date of permit issuance." [44]

Response:
If the facility were installing new or modifying existing equipment, the District would follow the permitting handbook. However, the facility is not installing new or modifying existing equipment. When setting the source test requirements, the District made several considerations including whether the source would be operating within 60 days of permit issuance, the complexity involved in source testing a source, the resources needed for source testing within a given time frame, etc.

Comment:
"It is difficult to conclude that the emissions calculations are correct (and that the facility will remain as a synthetic minor) because the District has not identified when the source tests were done, the conditions under which they were done, and the specific relationship between the source test and the emission factor for each source." [10]

Response:
The Engineering Evaluation report has been revised to include the basis for source emission factors including the source test conditions for those emission factors based on source test results.

Comment:
"2) Page 5, 3rd paragraph discusses carbon monoxide as a newly discovered pollutant however at p.13 Table 7 shows that is only required to be monitored every 2 to 5 years; shouldn't some baseline testing be conducted for this newly discovered source?" [28]

Response:
Carbon monoxide emissions from pouring, cooling, and shakeout operations were newly identified. Carbon monoxide emissions from the furnaces were always identified and included within baseline testing performed. Carbon monoxide emissions from pouring, cooling, and shakeout operations were conservatively estimated using an emission factor based on research on similar operations. Carbon monoxide emissions from the facility's pouring, cooling, and shakeout operations are expected to be lower. The District has some baseline data for some of the operations showing agreement with the emission factor used. Further, the deadline for the source test requirement has been revised from three years to one year and the evaluation report has been revised to include an explanation for the necessity for the delay.

Comment:
"…the Evaluation provides no basis for the tests being required so far out into the future. Nor is there any explanation of why certain source tests are years away from being performed. For example, Condition 42 provides source tests are required for CO no later than three years from the issuance of the SMOP. We cannot determine from this condition why the time period of three years was selected. It is possible that a CO source test was recently performed and thus the District has made the determination that a source test would only be required three years from now. In that case, the three-year interval is not frequent enough for practical enforceability." [10]

Response:
The deadline for the source test requirement has been revised from three years to one year and the evaluation report has been revised to include an explanation for the necessity for the delay.

Comment:
"…Paragraphs 42-44 require source testing for carbon monoxide within three years of permit issuance to 'characterize carbon monoxide emissions from pouring, cooling, and shakeout operations at …' Plants 1, 2, and 3. That is, PSC is given up to three years to fulfill carbon monoxide source testing requirements despite the fact that, in the District's own words, 'In 2015, the District became aware that PSC's pouring, cooling, and shake out operations could potentially be large sources of carbon monoxide emissions, which were previously unknown.' It is unreasonable to allow three years to perform source testing for carbon monoxide, when emissions levels from pouring, cooling, and shakeout are unknown to the District, especially when the proposed CO emissions are so close to exceeding the synthetic minor threshold. In the absence of up-to-date source test data the District cannot conclusively state current emissions levels at the facilities, nor that the proposed permit conditions are adequate for ensuring compliance with synthetic minor limits." [44]

Response:
The proposed permit conditions have been revised to change the requirement from three years to one year. Due to the nature of the operation and difficulty involved in source testing the operations, a deadline sooner than one year is not practical.

When estimating CO emissions from pouring, cooling, and shakeout operations; the District used a conservatively high emission factor based on research on similar operations.

Comment:
"Conditions 42-44 appear to be data gathering requirements, rather than compliance assurance requirements. If the District is unsure about the total PTE of CO, it should have required testing prior to proposing a SMOP permit." [44]

Response:
Emissions may be estimated using default emission factors or source-specific emissions data. The District provided the facility the option to either use a conservative default emission factor or source-specific emissions data. The District and facility spent considerable effort in discussing this option. Ultimately, the facility decided to use a conservatively high default emission factor rather than source specific data. Therefore, the CO source testing requirement is to demonstrate compliance with the default emission factor.

Separate Permit Document
Comment:
"Complete Permit - The SMOP action consists of an Engineering Evaluation Report containing the draft permit conditions. It is unclear whether or how the permit conditions in the Engineering Evaluation Report will be integrated into existing BAAQMD permits for the facility. We also note that an actual "draft permit document" was not issued, separate from the engineering evaluation, for public comment. Based on discussions with the District, it is our understanding that there is no separate "draft permit document" that is issued separate from the Engineering Evaluation Report. Also, based on these discussions, we understand the District will incorporate the final SMOP conditions (20207, 24466, 24547, and 24548) into the facility's locally-issued PTO which must be renewed annually."
"We request that the District clarify the above process in writing for the public. " [8]

Response:
The District will provide a statement to this effect on the District's website.

Comment:
"It is unclear that the Air District has in fact proposed a SMOP. Although the District's notice inviting written public comment states that is has made a decision to issue a revision to the existing SMOP for Pacific Steel, and while the Evaluation refers to conditions, the District has not provided any document that constitutes a revised proposed SMOP. If the Evaluation starting at page 18 constitutes the proposed permit, then the permit is confusing. It does not have general

provisions or definitions. The lack of a proposed permit is a fundamental deficiency that must be corrected, and the public should be provided with an opportunity to comment on that proposed permit." [10]

Response:
The District does not issue a separate permit document like Title V or New Source Review Permits for Synthetic Minor Operating Permits. The District creates a Synthetic Minor Operating Permit within a District Permit Condition that is assigned to the facility. This SMOP condition is issued to the facility with a cover letter and then re-issued whenever the facility's permits to operate are renewed and issued.

Smoke Plume
Comment:
Two comments stated that they see a smoke plume from the facility. [30, 31]

Response:
There are several stacks at the facility that release plumes of steam. These plumes appear as white, billowing puffs that dissipate at a given distance from the stack exit. Steam is not subject to the District's visible emission regulation, Regulation 6, Rule 1.

However, if there are non-steam plumes with an opacity greater than allowed by District Regulation 6, Rule 1; the District encourages members of the community to call in a complaint so that a District inspector may investigate and determine if a violation has occurred.

Complaints may be made either online (https://permits.baaqmd.gov/PublicForms/ComplaintWizardSelection) or by calling the District's 24-hour toll free hotline at 1-800-334-ODOR (6367). A member of the District will investigate all complaints received by the District and can address questions from members of the public.

Timely Application
Comment:
"If in fact the Air District is relying on this 2005 application, the proposed SMOP does not comply with the requirements of BAAQMD Regulations for a timely and complete application." "Without a current application, emissions calculations - even where the District has spent years to study them - may not be based on incomplete information since the District cannot verify the completeness of the information without a submission from the responsible official. In addition, without a current application, the District cannot be assured that is has complied with its own procedures governing trade secrets and may incorrectly rely on the facility's claim of confidentiality without an attestation." [10]

Response:
The District is relying on the 2005 application as well as information subsequently provided by the applicant up to 2017. The District believes the application and application materials reflect the current configuration/operation of the facility.

Title V Permit
Comment:
"The Alliance strongly urges that PSC be subject to title V as soon as possible." [2]
“PSC be subject to title V as soon as possible” [3]
"In light of the cozy relationship, I concur with the West Berkeley Alliance that “PSC be subject to title V as soon as possible. " [5]

Response:
The purpose of a Title V operating permit is to document all applicable regulations at a facility for "significant sources", those with the potential to emit more than 2.5 tons per year. A Title V permit does not, by itself, limit emissions. The purpose of a Synthetic Minor Operating Permit is to limit facility-wide emissions. With a Title V permit, the facility could conceivably emit hundreds of tons of pollutants more than under a Synthetic Minor Operating Permit. With a Synthetic Minor Operating Permit, the facility will be subject to more stringent monitoring and recordkeeping requirements than

under a Title V permit. For these reasons, the District believes a Synthetic Minor Operating Permit will be better for the community than a Title V permit.

Comment:
"Pacific Steel is a major stationary source and their Title V Permit must reflect that. They emit particulate matter (combined process and fugitive) of over 170 tons per year even with their capture mechanisms in place; nearly 10 times the amount of the next higher emitter which had twice their production rate. 40 CFR 51.166(b)(1)(iii) details 27 separate industries subject to combining fugitive and process emissions in determining major source. To the EPA, "an iron foundry is considered a "a secondary metal production plant, if it uses scrap metal to produce iron, even if the metal is poured into molds3[sic]" while BAAQMD reports: "Pacific Steel Casting (PSC) is a secondary steel foundry that operates in a mixed industrial area in West Berkeley4[sic]" "Secondary metal production" is number 19 on the 51.166(b)(1)(iii) list, and as such, PSC is subject to combining and mitigating both fugitive and process emissions." [6]

Response:
The District estimated both process and fugitive emissions and combined both in determining whether the facility's potential to emit exceeded major stationary source thresholds. The purpose of a Synthetic Minor Operating Permit is to limit the potential to emit to below major stationary source thresholds thus negating the requirement for a Title V permit.

The basis for the comment is an outdated District preliminary staff report for District Regulation 12, Rule 13, dated February 2013. However, in the final staff report, dated April 2013, the referenced table and emissions were corrected with a footnote stating the previously listed emissions totals were an error.

Toxic Emissions
Comment:
"The engineering report provided notes that Pacific Steel was required to prepare a health risk assessment in 2008 in connection with the Air Toxics Hot Spots Program. That report indicated an estimated cancer risk of thirty-one in a million. It's my understanding that Pacific Steel is the only facility in the Bay Area subject to the public notification requirements under the Hot Spots Program despite many refineries, power plants, and many other sources of toxic air contaminants in the region. What is being done to reduce the risks associated with the toxic air contaminants at the facility and health effects on the surrounding community? Does the permit include specific conditions for addressing these risks, such as risks stemming from magnesium and nickel?" [12]

Response:
Previously, the District limits health risk to the community under two regulations: AB 2588 and District Regulation 2, Rule 5. AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds.

The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to health risk and does not provide the District the authority to require a new health risk assessment. However, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities would be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies to all facilities within the District including Pacific Steel Casting.

Comment:
"…we often experience the noxious fumes that emit from the plant. I had been told that these had been proven to be non-toxic, but now understand that may not be the case, and that there is, in fact, no system for ensuring the safety of the air we and our children breathe." [55]

Response:
See response to comment above.

USA Today Article

Comment:
"3. 3. In December 2009, a USA Today newspaper printed an article indicating how residential and child-sensitive land uses (schools and child care facilities) were affected by PSC. This article highlighted that while nearby uses were most affected, air pollution problems from plant emissions reached and spread out over large areas of the City to the east. Other maps showed this same effect. This doesn't seem to be addressed in the District's material. The mapping should be carried out by an independent body - something in the nature of what would be done in the case of an independent audit." [56]

Response:
The District is aware of the USA Today 2009 article and has identified numerous deficiencies with the article. The District staff has determined that the USA Today risk figures for the Berkeley schools were in error based on incorrect emissions of manganese and nickel reported by PSC to the Toxics Release Inventory (TRI). PSC had indicated in 2009 that the correct emissions would be reported to the TRI for their next update due in 2009.

Previously, the District's limited health risk to the community only under two regulations: AB 2588 and District Regulation 2, Rule 5. AB 2588 required Pacific Steel Casting to complete a one-time facility-wide cancer risk analysis while Regulation 2, Rule 5 requires a health risk assessment for an individual new or modified source whose emissions exceed certain thresholds.

The regulation under which the Synthetic Minor Operating Permit (Regulation 2, Rule 6) does not pertain to health risk and does not provide the District the authority to require a new health risk assessment. However, the District recently adopted Regulation 11, Rule 18 that requires facilities with significant potential health impacts to conduct new facility-wide health risk assessments (HRA). If these new HRAs indicate significant health impacts, including cancer risk, then facilities would be required to implement measures such as installing new control technologies to reduce such risk. Regulation 11, Rule 18 applies to all facilities within the District including Pacific Steel Casting.

Comment:
"A USATODAY study found Pacific Steel to be a major source of dangerous air pollution at schools in Berkeley." [38]

Response:
See response to comment above.

Zoning
Comment:
"It is the city's responsibility to ensure it's residents will not be negatively impacted by activities permitted by the city." [42]

Response:
Although the City of Berkeley is located within the Air District, the District does not have jurisdiction over actions taken or not taken by the City of Berkeley.

Comment:
Multiple comments were received stating that the facility should not be allowed to continue operating in an densely populated area or urban area near residences. [21, 23, 25, 26, 32, 40 42, 47]

Response:
The District's authority extends only to limiting air quality impacts. The District does not have any authority regarding facility placement and/or land use.

Facility placement and/or land use is limited by the City of Berkeley Zoning Ordinance. Complaints regarding facility placement and/or land use should be directed to the City of Berkeley's Department of Planning & Development:

Department of Planning & Development
1947 Center Street, 3rd Floor
Berkeley, CA 94704

E-mail: planning@cityofberkeley.info
Telephone: (510) 981-7400 or (510) 981-CITY/2489

APPENDIX G
Emissions Minimization Plan
(Public Version)

Emissions Minimization Plan

Regulation 12, Miscellaneous Standards of Performance, Rule 13
Foundry and Forging Operations

Pacific Steel Casting Company LLC

District Site #187, 703, 1603
1333 Second Street
Berkeley, CA 94710

Table of Contents

I, as the Responsible Manager of this facility, hereby certify that as of this date, this Emissions Minimization Plan contains all elements and information required of a complete EMP pursuant to District Regulation Section 12-13-403 and that the information contained in this EMP is accurate.

Certified by: _____ *Dated:* 1/11/15

Krishnan Venkatesan, Chief Operating Officer

Responsible Manager

Designation of Confidential Business Information

Describe the information you designate as "CONFIDENTIAL" that are trade secret or otherwise exempt under law from public disclosure. Specify what is "CONFIDENTIAL" and include specific section(s) and corresponding page number(s).

Name of Section / Page Number(s)	Description of Confidential Information
Organization Chart / Appendix A	This section is business confidential for security reasons and since their disclosure may give competitors and economic advantage. No bearing on air emissions.
Schedule of Operations / Pg 12	This section is business confidential for security reasons.
Mold and Core Making Operations / Page 14-18	Binders used at the facility are business confidential since their disclosure may give competitors and economic advantage
Description of Operations-Mold and Core Making Operations / Page 20	The Binders, Mix Ratio & MSDS information is propriatary
Appendix C All pages	Plant Layout is business confidential for security reasons and since their disclosure may give competitors and economic advantage

Company Description

Pacific Steel Casting Company LLC purchased Pacific Steel Casting Company. The tranfer of assests was completed on August 29, 2014

Pacific Steel Casting Company LLC (PSC LLC) has three (3) separate steel foundries, which are located within a two-block area in Berkeley, California. They are generally referred to as Plant 187, Plant 703 and Plant 1603. The facilities are located in the Berkeley manufacturing and industrial area. Other industrial facilities such as a forging manufacturer, pattern shop, machine shop, railroad lines, and brewery are also located near PSC LLC. Further, PSC LLC is located adjacent and close to a major East Bay freeway.

PSC LLC produces high quality steel casting using different sand molding processes. Thousands of custom-made parts are produced at PSC LLC that are used in everyday lives by individuals and businesses. PSC LLC cast steel parts can be found in bridges, wheelchair lifts, truck parts, agricultural equipment, valves for sanitary sewers, public water systems, the oil and gas industry, landfill compactors and, in the structural aspects of buildings.

PSC LLC employs over 400 employees. Most of them are union members of the Glass Molders and Plastics Union, Local 164. Many of PSC LLC employees are second or third generation foundry employees. More than 85% of PSC LLC employees live near PSC LLC commuting within 15 miles or less. Employees from PSC LLC participate in health and welfare and pension benefits.PSC LLC maintains an excellent safety and health record. PSC LLC regularly works with material manufacturers to develop better and lower emitting products.

PSC LLC purchases scrap metal from qualified vendors. The scrap is melted into metal that are alloys of steel. The molten steel is poured into sand molds. This is the basic sand mold method of producing castings. The metal inside these molds cools and hardens to form the castings. Once the castings have cooled and adopted their forms, they are sent to the shakeout station in which the sand is separated from the casting both internally and externally. Sand from the shakeout station is transferred to a reclamation unit where it is cleaned of material and processed for reuse. This sand reuse conserves tons of new sand that would otherwise be needed and eliminates tons of sand from landfill disposal. The sand reclamation unit at PSC LLC is, and always has been, state of the art equipment. The cooled castings are next sent to the finishing department before going to the shipping department.

In general, each Company plant produces steel castings using sand molding processes that are best suited for the design and size of the casting made at that plant. The binders are mixed with the sand and are used to harden the sand chemically with or without external heat.

Plant I87 began operations in the 1930's making medium sized castings using primarily the Green Sand molding process. The binder for green sand molds is a combination of clay, water, and cornstarch compacted to form the necessary molds.

Plant 703 began operations in 1975. This plant uses a Shell process for the molding system. This sand molding process uses a binder mixed with the sand and baked to form the necessary molds and cores for the castings.

Plant 1603 began operations in 1981. This plant primarily uses a phenolic urethane binder, which is a chemical binder mixed with the sand.

Company Organizational Chart and Schedule of Management Operators
12-13-403.1.3

A. *Company Organizational Chart-* Attach a copy of the organizational chart of the company, which describes the business structure and includes the name of the facility's Responsible Official.

B. *Schedule of Management Operators* - Provide the names and contact information of the Onsite Responsible Manager(s) and Onsite Alternate Contact(s) and their duty schedule.

A. Company Organizational Chart

In Appendix A - Confidential

B. Schedule of Management Operators

Onsite Responsible Manager(s)

Name: Confidential
Title: Environmental, Health & Safety Director
Phone: Confidential
Email: Confidential
Schedule/Shift: Confidential

Name: Confidential
Title: Chief Operating Officer
Phone: Confidential
Email: Confidential
Schedule/Shift: Confidential

Onsite Alternate Contact(s)

Name: Confidential
Title: Environmental Technician
Phone: Confidential
Email: Confidential
Schedule/Shift: Confidential

Name: Confidential
Title: Supervisor
Phone: Confidential
Email: Confidential
Schedule/Shift: Confidential

Name: Confidential
Title: Supervisor
Phone: Confidential
Email: Confidential
Schedule/Shift: Confidential

Contents of the EMP

12-13-403

The owner of operator of the foundry or forge subject to Section 12-13-401 shall prepare a complete and accurate EMP that details the management practices, measures, equipment and procedures that are employed or scheduled to be implemented to minimize fugitive emissions of particulate matter and odorous substances for the operations subject to the EMP.

A. *Operations Subject to EMP and Schedule of Operations*

B. *Description of Operations* - Facilities with operations under 12-13-402 must list and provide description of all process equipment, material usages, abatement and control equipment and monitoring parameters to reduce fugitive emissions of particulates and odors. Please provide information for all the following operations that apply.

C. *Management Practices to Reduce Fugitive Emissions*- Facilities with operations under 12-13-402 must list and provide descriptions of all preventative maintenance activities, pollution prevention and source reduction measures to reduce fugitive emissions of particulates and odors. Provide schedules of activities conducted.

D. *Description of Abatement and Control Equipment*- Facilities must provide a comprehensive list of all abatement and control equipment for operations subject to 12-13-402 and name the source(s) of operation in which it abates.

A. Operations Subject to EMP and Schedule of Operations

The EMP shall address all of the following operations that are conducted at a foundry or forge per 12-13-402.

Please check all facility operations that apply and provide the schedule of operation.

Operation	Schedule of Operations
☒ 402.1 Mold and Core Making Operations	Confidential
☒ 402.2 Metal Management	Confidential
☒ 402.3 Furnace Operations, including tapping and pouring	Confidential
☐ 402.4 Forging Operations	N/A
☒ 402.5 Casting and Cooling Operation	Confidential
☒ 402.6 Shake Out Operations	Confidential
☒ 402.7 Finishing Operations	Confidential
☒ 402.8 Sand Reclamation	Confidential
☒ 402.9 Dross and Slag Management	Confidential

402.1 Mold and Core Making Operations

B. Description of Operations - MOLD AND CORE MAKING OPERATIONS

Section #	Equipment Name and Manufacturer /Model #	District S# and Applicable NESHAPs Section	NAME OF MATERIALS USED IN MOLDING OPERATIONS					ABATEMENT					
			Binders	Coatings	Adhesives	Mold Release Agents	Other	Source abated	Abatement Required by Permit	A#	Type of Abatement and Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	187- 4 Mold machine British Molding Machines BMM CT 3	Exempt 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
.2	187 - 2 Squeezer machines SPO	Exempt 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
3	187 - 2 Molding machines BMM CT 6	Exempt 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
4	187 - 2 Core machine Dependable 400 FA, 200SA	Exempt 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
5	187 - 2 Core machines Redford HS 22 RA	Exempt 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
6	187 - 6 Core blower systems B & P CB 5	Exempt 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	
7	703 - 2 Shell Molding Machines DSM 3	703 S20, S24 40 CFR 63.10886	Confidential	NA	Confidential	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No	NA		☐ Yes ☐ No	

A. Description of Operations - MOLD AND CORE MAKING OPERATIONS

Section #	Equipment Name and Manufacturer /Model #	District S# and Applicable NESHAPs Section	NAME OF MATERIALS USED IN MOLDING OPERATIONS					ABATEMENT					
			Binders	Coatings	Adhesives	Mold Release Agents	Other	Source abated	Abatement Required by Permit	A#	Type of Abatement and Purpose of Abatement	Abatement Monitored	Monitoring Parameters
8	703 --Shalco Molding Machine DSM 3	703 S21 40 CFR 63.10886	Confidential	NA	Confidential	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No			☐ Yes ☐ No	
9	703 - 2 Shalco Molding Machines DSM 3	703 S22, S23 40 CFR 63.10886	Confidential	NA	Confidential	Confidential	NA	☒ Yes ☐ No	☒ Yes ☐ No	A7	Carbon Absorption Unit Odor Control	☒ Yes ☐ No	Pressure drop across Carbon units 1<P<9, Temp <110 F Odor level < 60 odor units
10	703 - 2 Beardsley & Piper core mach. SF 6 CA	703 S13, S14 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No			☐ Yes ☐ No	
11	703 - 4 Redford core machines HS 16 RA	703 S15, S16, S17, S18 40 CFR 63.10886	Confidential	NA	NA	Confidential	NA	☐ Yes ☒ No	☐ Yes ☒ No			☐ Yes ☐ No	
12	187 - Simpson Sand Muller 1.5	187 S-10 40 CFR 63.10886	Confidential	NA	NA	NA	NA	☒ Yes ☐ No	☒ Yes ☐ No	A10	Baghouse, Pulse Jet Particulate Matter	☒ Yes ☐ No	Weekly visual inspections of A10 are performed on the interior and exterior of the unit for mechanical integrity. The filter bags are visually inspected for rips/tears. Verification of pulse jet activity is verified weekly by the inspector.
13	187 - Omco Sand Mixer MS 1	Exempt 40 CFR 63.10886	Confidential	NA	NA	NA	NA	☒ Yes ☐ No	☐ Yes ☒ No	A-10	Baghouse, Pulse Jet Particulate Matter	☒ Yes ☐ No	Weekly visual inspections of A10 are performed on the interior and exterior of the unit for mechanical integrity. The filter bags are visually inspected for rips/tears. Verification of pulse jet

													activity is verified weekly by the inspector.
14	187 - Tinker Omega Sand mixer TOM 250	Exempt 40 CFR 63.10886	Confidential	NA	NA	NA	NA	☒ Yes ☐ No	☐ Yes ☒ No	A-10	Same as #12	☒ Yes ☐ No	Weekly visual inspections of A10 are performed on the interior and exterior of the unit for mechanical integrity. The filter bags are visually inspected for rips/tears. Verification of pulse jet activity is verified weekly by the inspector.

A. Description of Operations - MOLD AND CORE MAKING OPERATIONS

Section #	Equipment Name and Manufacturer /Model #	District S# and Applicable NESHAPs Section	NAME OF MATERIALS USED IN MOLDING OPERATIONS					ABATEMENT					
			Binders	Coatings	Adhesives	Mold Release Agents	Other	Source abated	Abatement Required by Permit	A#	Type of Abatement and Purpose of Abatement	Abatement Monitored	Monitoring Parameters
15	187 - B & P Sand Muller 75 B	187 S-8 40 CFR 63.10886	Confidential	NA	NA	NA	NA	☒ Yes ☐ No	☒ Yes ☐ No	A-1, A-7	Baghouse, Shaking into Carbon Adsorption Odors & Particulate	☒ Yes ☐ No	Pressure drop across Carbon units 1<P<9, Temp <110 F
16	703 - Shell sand coating system B&P Muller	703 S-5 thru S-12 40 CFR 63.10886	Confidential	NA	NA	NA	NA	☒ Yes ☐ No	☒ Yes ☐ No	A-4	Baghouse, Shaking Particulate	☒ Yes ☐ No	Daily - Visual inspection for filter and mechanical integrity and particulate Pressure drop across baghouse
17	1603 - Omco Sand Muller LAM 50	1603 S-14 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☒ Yes ☐ No	A-5, A-3, A-7, A-8	Dry filter, into Baghouse, Pulse Jet into Carbon Adsorption Odors & Particulate	☒ Yes ☐ No	A3 and A7 - Pressure drop across baghouses - 4.5<P<7; A5 - Visual inspection for filter integrity A8 - FID continuous monitoring At 50 ppm in a 90 minute average): Have full load carbon (52,000 lbs.) on standby within 3 business days. At 65 ppm in a 90 minute average change carbon no later than 7 calendar days. At 85 ppm in a 90 minute average - Cease shakeout operations immediately and pouring operations within 2 hours. Maintain Inlet Face velocity into cooling room, minimum 200 ft/min.
18	1603 - No Bake Molding System	1603 S18, S20 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☒ Yes ☐ No	A-3, A-7, A-8	Baghouse, Pulse Jet into Carbon Adsorption Odors & Particulate	☒ Yes ☐ No	A3 and A7 - Pressure drop across baghouses 4.5<P<7; Visual inspection A3 and A7 - Pressure drop across baghouses - 4.5<P<7; Visual inspection A8 - FID continuous monitoring At 50 ppm in a 90 minute average):

													Have full load carbon (52,000 lbs.) on standby within 3 business days. At 65 ppm in a 90 minute average change carbon no later than 7 calendar days. At 85 ppm in a 90 minute average - Cease shakeout operations immediately and pouring operations within 2 hours. Maintain Inlet Face velocity into cooling room, minimum 200 ft/min.
19	1603 - Kloster Core Sand Mixer Type 1	NA 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	A-3, A-7, A-8	Baghouse, Pulse Jet into Carbon Adsorption Odor & Particulate Matter	☒ Yes ☐ No	A3 and A7 - Pressure drop across baghouses - 4.5<P<7; Visual inspection A8 - FID continuous monitoring At 50 ppm in a 90 minute average): Have full load carbon (52,000 lbs.) on standby within 3 business days. At 65 ppm in a 90 minute average change carbon no later than 7 calendar days. At 85 ppm in a 90 minute average - Cease shakeout operations immediately and pouring operations within 2 hours. Maintain Inlet Face velocity into cooling room, minimum 200 ft/min.
20	1603 - Omco Core Sand Mixer HMC-5	NA 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	NA	Dynamic Air Pulse Cleaner Baghouse Particulate Matter	☒ Yes ☐ No	Daily - Visual Inspection - particulate
21	1603 - Omco Core Sand Mixer MS1	NA 40 CFR 63.10886	Confidential	Confidential	Confidential	Confidential	NA	☒ Yes ☐ No	☐ Yes ☒ No	A-3, A-7, A-8	Baghouse, Pulse Jet into Carbon Adsorption Odor & Particulate Matter	☒ Yes ☐ No	A3 and A7 - Pressure drop across baghouses - 4.5<P<7; Visual inspection A8 - FID continuous monitoring At 50 ppm in a 90 minute average): Have full load carbon (52,000 lbs.) on standby within 3 business days. At 65 ppm in a 90 minute average change carbon no later than 7 calendar days. At 85 ppm in a 90 minute average - Cease shakeout operations immediately and pouring operations

													within 2 hours. Maintain Inlet Face velocity into cooling room, minimum 200 ft/min.

B. Description of Operations – MOLD AND CORE MAKING OPERATIONS

Provide information on binders used in mold and core making operations.

Section #	Name of Binder	Binder Mix Ratio	Name of Source(s) and/or District S# Where Binder Is Used	Product Specification per MSDS
1	Confidential	Confidential	No Bake Systems Plants 187 Cores & 1603 Molding & Cores	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
2	Confidential2	Confidential	No Bake Systems Plants 187 Cores & 1603 Molding & Cores	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
3	Confidential	Confidential	No Bake Systems Plants 187 Cores & 1603 Molding & Cores	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
4	Confidential	Confidential	Plant 703 - Core & Shell molding S13 - S24	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
5	Confidential	Confidential	Plant 703 - Core & Shell molding S13 - S24	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
6	Confidential	Confidential	Plant 187 - CO 2 Core Blower System	VOC CONTENT (%): Confidential PHENOL CONTENT (%): Confidential
7	Confidential	Confidential	Plant 187 Molding	VOC CONTENT (%): Confidential PHENOL CONTENT (%):

				Confidential
				VOC CONTENT (%): PHENOL CONTENT (%):
				VOC CONTENT (%): PHENOL CONTENT (%):

C. Management Practices to Reduce Fugitive Emissions – MOLD AND CORE MAKING OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for core and mold making operations.

Section #	Name of Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A8 Baghouse Torit/22,000 cfm	1.Check manometer across baghouse 0<P<7. 2.Visual inspection - internal & external , check cartridge filter integrity and condition. 3.Replace cartridge filters based on inspection and/or changing manometer readings .	1.Weekly 2.SemiAnnual 3.As required, based on inspection
2	187 A7 Carbon Adsorption System Melrose/Blamer Eng. 60,000 cfm	Replace carbon and prefilters based on daily pressure readings across the carbon beds, prefilters and the semi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
3	703 A4 Shaker Baghouse Industrial Clean Air/3-700SW	1.Inspect & lube Shaker & Fan bearings, inspect & check sheaves & V belts 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse and replace bags as necessary. Wire brush fan blades.	1.Weekly 2.Quarterly
4	703 A7 Carbon Adsorption System Melrose	Replace carbon and prefilters based on daily pressure readings across the carbon beds, prefilters and the semi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
5	187 A10 Baghouse, Pulse Jet 5,600 cfm	1. Check pulse jet pressures 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3. Replace filter bags based on inspection and/or changing manometer readings .	1. Monthly 2. Quarterly 3.As required, based on inspection
6	187 A1 Baghouse, Pulse Jet Industrial Clean Air/30,000 cfm	Monitor carbon prefilters, troubleshoot if necessary. Inspection of the interior of baghouse for structural integrity and fabric bag condition. Replace filter bags as necessary.	Daily Quarterly

7	1603 A3 Baghouse, Pulse Jet Bahnson/Hawley/HE-378-10	1.Check Manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace bags based on inspection and/or changing manometer readings .	1. Monthly 2. Quarterly 3.As required, based on inspection
8	1603 A7 Baghouse, Pulse Jet Bahnson/Hawley/HE-378-10	Same as #7	1. Monthly 2. Quarterly 3.As required, based on inspection
9	1603 A8 Carbon Adsorption Melrose	Replace carbon and prefilters based on FID, steel output, pressure drops across carbon bed & prefilters checked daily	Permit required - FID >65ppm (PSC policy when FID outlet >20 ppm and/or >700 tons of steel processed)

C. Management Practices to Reduce Fugitive Emissions – MOLD AND CORE MAKING OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Sweeping mold & core rooms once per shift, at a minimum.	Contain particulate matter	On going
2	All paved outdoor areas are swept twice per day.	Storage bins containing used sand and/or broken molds are moved and stored outside. Storage areas are swept to remove any spilled or leaking sand, inorder to remove a potential source of airborne particulate matter.	Twice per day
3	Visually check exhaust stacks for particulate and dust.	Insure proper functioning of the baghouse, and identify presence of torn bags or bags that have fallen off.	Daily

402.2 Metal Management

B. Description of Operations - Metal Management

Section #	Name of Non-Exempt Metal or Metal Alloy Used for Production	Metal Type	Method of Verification for Determining Chemical Composition
1	Ferrous Feed Stock (Incoming Scrap) - 100% recycled scrap steel	☒ Ferrous ☐ Non-Ferrous	All 3 plant scrap yards, yearly random sampling of all vendors - composition verified using Optical Emission Spectrometer and carbon anlyzer testing equipment.
2	Ferrous Feed Stock (After Melting) - 100% recycled scrap steel	☒ Ferrous ☐ Non-Ferrous	All Heats- composition verified using Optical Emission Spectrometer and carbon analyzer testing equipment. Off specification material identified by heat analysis initiates additional testing of the feed stock in the scrap yard storage.
3	Ferro Chromium	☒ Ferrous ☐ Non-Ferrous	Product certified by vendor
4	Ferro Manganese	☒ Ferrous ☐ Non-Ferrous	Product certified by vendor
5	Ferro Molybdenum	☒ Ferrous ☐ Non-Ferrous	Product certified by vendor
6	Ferro Vanadium	☒ Ferrous ☐ Non-Ferrous	Product certified by vendor
7	Nickel	☐ Ferrous ☒ Non-Ferrous	Product certified by vendor
8	Molybdenum Trioxide	☐ Ferrous ☒ Non-Ferrous	Product certified by vendor
9	Silicon Manganese	☐ Ferrous ☒ Non-Ferrous	Product certified by vendor
10	Ferro Aluminum	☒ Ferrous ☐ Non-Ferrous	Product certified by vendor
		☐ Ferrous ☐ Non-Ferrous	
		☐ Ferrous ☐ Non-Ferrous	

B. Description of Operations - Metal Management

Describe the facility's metal inspection program, work practice standards and material acquisition plan/procedures upon receipt of scrap or unprocessed metal. Include any pollution prevention management practices and source reduction measures to ensure the metal received is clean.

All Pacific Steel scrap yards are indoors, under cover, to minimize fugitive dust. Only scrap originating from the United States which does not contain motor vehicle scrap is purchased. Each Request for Quote (RFQ) and Purchase Order (PO) provided to a scrap vendor shall include the following;

"Material types not acceptable: Automotive Body Scrap, By-products, cans, cylinders, oil, used oil filters, other lubricants, free organic liquids, cholorinated plastic parts, dirt, engine block components, galvanized, lead components, mercury switches, I-beam, Paint, pipe, plastic, skeleton, tubing, or turnings. Scrap must be lead, mercury and Radiation free."

All 3 plant scrap yards conduct yearly random sampling of all vendors - composition of scrap is verified using Optical Emission Spectrometer and carbon analyzer testing equipment. In addition, all heats are analyzed and the composition is verified. If a descrepant heat analytical result is discovered, additional verification of the scrap used for that heat is conducted. All scrap deliveries to PSC must be visually inspected to make sure that each delivery does NOT contain any of the materials listed above.

If any of the above materials are noted in the delivery, the load is rejected and returned to the suppliers. Any rejected scrap shipments not immediately returned to the supplier, shall be sequestered or visibly marked until the shipment is returned to the vendor.

All scrap yard employees are trained concerning proper metal management handling procedures. Training is conducted yearly.

C. Management Practices to Reduce Fugitive Emissions– Metal Management

Describe control measures to minimize fugitive emissions from scrap or unprocessed metal.

All scrap is stored indoors under cover. At the end of each shift the scrap rooms are first swept with a magnetic sweeper to pick up any metal fines, followed by regular sweeping to contain any dust.

402.3 Furnace Operations

B. Description of Operations - FURNACE OPERATIONS

Section #	Furnace Name and Manufacturer/ Model #	District S# and Applicable NESHAPs Section	Type of Operation	Source abated	Type of Abatement Device	District A#	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	187 - Electromelt - Electric Arc Furnace ARC FURNACE QT	187 S-1 40 CFR 63.10895(b) 40 CFR 63.10686	☒ Melting ☐ Heat Treating	☒ Yes ☐ No	Baghouse, Pulse Jet	A-9	Particulate Matter abatement	☒ Yes ☐ No	Grain loading less than 0.0017 grains per dry cubic foot. Pressure drop across the baghouse 2<P<12. Semi annual opacity testing
2	187 - 2 Berkley Steel Heat Treat - HEAT TREATING FURNACES Gas fired heat treat oven	187 S-18 Exempt	☐ Melting ☒ Heat Treating	☐ Yes ☒ No		NA		☐ Yes ☐ No	
3	703 - Electromelt - ELECTRIC ARC FURNACE CQT 7' 1097	703 S-27 40 CFR 63.10895(b) 40 CFR 63.10686	☒ Melting ☐ Heat Treating	☒ Yes ☐ No	Baghouse, Shaking	A-3	Particulate Matter abatement	☒ Yes ☐ No	Pressure drop across the baghouse 1<P<9 Semi annual opacity testing
4	1603 - Whiting EAF Rocker Style ELECTRIC ARC FURNACE 8'-0 R.H. Rocker Tilt	1603 S-1 40 CFR 63.10895(b) 40 CFR 63.10686	☒ Melting ☐ Heat Treating	☒ Yes ☐ No	Baghouse, Pulse Jet	A-1	Particulate Matter abatement	☒ Yes ☐ No	Grain loading less than 0.0033 grains per dry cubic foot. Pressure drop across the baghouse 2<P<12. Semi annual opacity testing
5	1603 - 2 Units - Johnston Gas fired recirculating box type Tempering ovens	Exempt	☐ Melting ☒ Heat Treating	☐ Yes ☒ No	NA	NA		☐ Yes ☐ No	
6	1603 - 5 Units - Johnston Gas fired box type Quench heat treat ovens	Exempt	☐ Melting ☒ Heat Treating	☐ Yes ☒ No	NA	NA		☐ Yes ☐ No	
7	1603 - Johnston 1524 Gas fired Car bottom normalizing heat treat oven	Exempt	☐ Melting ☒ Heat Treating	☐ Yes ☒ No	NA	NA		☐ Yes ☐ No	
			☐ Melting ☐ Heat Treating	☐ Yes ☐ No				☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions- FURNACE OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for furnace operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 - A-9 BHA/GE 36,000 cfm	Visual inspection of duct exhaust checking for PM. Verify leak detector supply air and opacity readings, check alarms	Daily
2	A-9 Continued	Visual inspection of ductwork system for leaks. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts	Monthly
3	A-9 Continued	Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse, replace bags as necessary	SemiAnnual
4	703 - A-3 Industrial Clean Air 4-3200AE	Visual inspection of duct exhaust checking for PM.	Daily
5	A-3 Continued	Visual inspection of ductwork system for leaks. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts	Monthly
6	A-3 Continued	Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse, replace bags as necessary	SemiAnnual
7	1603 - A-1 Bahnson Hawley/2-294-14-10	Visual inspection of duct exhaust checking for PM. Verify leak detector supply air and opacity readings, check alarms	Daily
8	A-1 Continued	Visual inspection of ductwork system for leaks. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts	Monthly
9	A-1 Continued	Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse, replace bags as necessary	Semi-annual
10	A-9, A-3, A-1	Drain gear box oil and refill, test run	Yearly

C. Management Practices to Reduce Fugitive Emissions - FURNACE OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Baghouse dust bags secured to baghouse outlet	Eliminate fugitive dust. Baghouse dust is transferred from baghouse to dust bag in a closed system	On going
2	Sweeping around baghouse dust collectors	Removal of potential Particulater Matter	Daily

402.4 Forging Operations

B. Description of Operations - FORGING OPERATIONS

Section #	Equipment Name and Manufacturer/ Model #	District S# and Applicable NESHAPs Section	Description of Use	Name of Lubricants and/or Oils	Other Materials Used	Source abated	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
	NA					☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	
						☐ Yes ☐ No			☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions - FORGING OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for forging operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM

C. Management Practices to Reduce Fugitive Emissions - FORGING OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity

402.5 Casting and Cooling Operations

B. Description of Operations - CASTING AND COOLING OPERATIONS

Section #	Name of Pouring and Cooling Operations and Manufacturer/ Model #	District S# and Applicable NESHAPs Section	Cooling Time of Product or Source	Designated Locations of Cooling Operation	Source Abated	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	Casting Pour off area Plant 187	187 S2	A-line 1 hr. minimum B-line 3-24 hrs.	A-line cooling deck, B-line main floor	☒ Yes ☐ No	Baghouse into Carbon Adsorption	Particulate matter and odors	☒ Yes ☐ No	Pressure drop across Carbon units 1<P<9, Temp <110 F
2	Cast mold cooling room Plant 703	703 S30	45 min.	Cooling room	☒ Yes ☐ No	Baghouse into Carbon Adsorption	Particulate matter and odors	☒ Yes ☐ No	Pressure drop across Baghouse 1<P<9 Carbon units 1<P<9, Temp <110 F
3	Cooling Room Plant 1603	1603 S19	23 - 131 hrs. dependant on Sleeve Diameter	Cooling Room	☒ Yes ☐ No	Baghouse into Carbon Adsorption	Particulate matter and odors	☒ Yes ☐ No	A3 and A7 - Pressure drop across baghouses - 4.5<P<7; Visual inspection A8 - FID continuous monitoring At 50 ppm in a 90 minute average): Have full load carbon (52,000 lbs.) on standby within 3 business days. At 65 ppm in a 90 minute average change carbon no later than 7 calendar days. At 85 ppm in a 90 minute average - Cease shakeout operations immediately and pouring operations within 2 hours. Maintain Inlet Face velocity into cooling room, minimum 200 ft/min.
					☐ Yes ☐ No			☐ Yes ☐ No	
					☐ Yes ☐ No			☐ Yes ☐ No	
					☐ Yes ☐ No			☐ Yes ☐ No	
					☐ Yes ☐ No			☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions - CASTING AND COOLING OPERATIONS

Describe the method to verify adequate cooling times are achieved to ensure minimization of fugitive emissions of particulates and odors prior to commencing shake out operations.

During the design phase of a new part at Pacific Steel Casting, the cooling rate/minimum cooling time is determined. Minimum cooling times are unique to each part. The cooling time is dependent on the mold type, mold size and sleeve size. The cooling time is recorded on all job/part cards. Quality assurance requires all minimum cooling times are achieved. Adequate cooling time is required to avoid hardening, cracking, internal damage or an undesired microstructure in the finished part.

Plant 187 - A Line molding is a batch process. The time each heat/batch is poured is recorded. At all times, the operators verify that each mold has cooled for a minimum of one hour before transfering the mold into the shakeout. During continuous pouring, the time of each heat is recorded, however, the minimum cooling time is achieved due to process constraints. Each batch of molds is poured from a small ladle, filled from the larger furnace ladle. The pouring deck space is limited by the small ladle travel availablity. Molds are lined up in the pouring deck area. As a mold is poured it is moved forward on to the cooling deck. To make space for the just poured mold, the molds already on the cooling deck are shuttled forward one position towards the shakeout. The cooling deck has space for multiple molds. As each batch is poured the molds are moved forward one position, on the cooling deck. During continuous pouring, the process of shuttling forward molds, one position for each heat, takes a minimum of one hour before the mold reaches the shakeout unit. Plant 187 - B line Molds are tagged with the pouring date and time and the time after which shakeout can proceed. Employees verify the tags in order to insure the minimum cooling time has transpired, prior to shaking out the parts.

Plant 703 - The molds are loaded on a continuous conveyor line which circulates around from 1) the mold loading station, 2) to the pouring station, 3) into the cooling room (multiple switch backs are located inside the cooling room which insure the minimum cooling times are achieved), 4) to the automatic shakout unit and 5) back to the mold loading station. If the conveyor is continuously run, the parts are in the cooling room for 45 minutes. During normal operations the conveyor is stopped and started, as each heat is poured, increasing the time molds are in the cooling room.

Plant 1603 - Floor molds are tagged on the flask with the pouring date and time and the time after which shakout can proceed. Tags are verified by employees prior to shakout. Line molds have the heat number written on the side of the molds, as they are poured. The melting reports are used to establish the pouring date and time from which the shakout time is verified.

C. Management Practices to Reduce Fugitive Emissions - CASTING AND COOLING OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for casting and cooling operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A8 Baghouse, Pulse Jet Torit Cartridge	1.Check manometer across baghouse. 2.Visual inspection internal & external, check cartridge filter integrity and condition. 3.Replace cartridge filters based on inspection and/or changing manometer readings.	1.Weekly 2.SemiAnnual 3. As required - based on visual inspection findings and/or manometer data
2	187 A7 Carbon Adsorption Melrose/Blamer Eng. 60,000 cfm	Replace carbon and prefilters based on daily pressure readings across the carbon beds, prefilters and the bi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
3	703 A2 Baghouse Shaking Industrial Clean Air/10-700 SN	1.Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse, replace bags as necessary. Wire brush fan blades.	1. Weekly 2. Semi-Annual
4	703 A7 Carbon Adsorption Melrose	Replace carbon and prefilters based on daily pressure readings across the carbon beds, prefilters and the bi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
5	1603 A3 Baghouse, Pulse Jet Bahnson Hwaley/HE-378-10	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace bags based on inspection and/or changing manometer readings .	1. Quarterly 2. Semi-Annual 3. As required, based on inspection
6	1603 A7 Baghouse, Pulse Jet Bahnson Hwaley/HE-378-10	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace bags based on inspection and/or changing manometer readings	1. Quarterly 2. Semi-Annual 3. As required, based on inspection
7	1603 A8 Carbon Adsorption	Replace carbon and prefilters based on FID, steel output, pressure drops across	Permit required - FID >65ppm (PSC policy

	Melrose	carbon bed & prefilters checked daily	when FID outlet >20 ppm and/or >700 tons of steel prosessed)

C. Management Practices to Reduce Fugitive Emissions - CASTING AND COOLING OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Configure door openings & room enclosures to enhance odor capture Plant #187 Pouring room, all 2nd street doors 1-C, & 1-J closed at all times, south doors open on calm days. Plant #703 2-D, 2-J doors closed. Plant #1603 3-A, 3-B, 3-D, 3-E, 3-O doors closed.	Eliminate odors through enhanced capture of casting and cooling fugitive emissions.	Daily
2	Hot molds only stored in designated areas. Plant #187 A line cooling deck or B line floor, Plant #703 inside the cooling room on the conveyor line, Plant #1603 inside the cooling room	Ensure molds are located in areas where odor abatement equipment is located	Continuous

402.6 Shake Out Operations

B. Description of Operations - SHAKE OUT OPERATIONS

Section #	Name of Shakeout Operations and Manufacturer/ Model #	District S# and Applicable NESHAPs Section	Describe Location of Shake Out Operation	Source Abated	A#	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	B Shake Out Simplicity M-11	187 S-3	Floor in the middle of B-line cooling room	☒ Yes ☐ No	A-1, A-7	Baghouse into Carbon Adsorption	Particulate matter and odor abatement	☒ Yes ☐ No	Pressure drop across Baghouse 1<P<9 / Carbon units 1<P<9, Temp <110 F
2	A Shake Out Floatex MF7	187 S-4	East end of A-line deck	☒ Yes ☐ No	A-1, A-7	Baghouse into Carbon Adsorption	Particulate matter and odor abatement	☒ Yes ☐ No	Pressure drop across Baghouse 1<P<9 / Carbon units 1<P<9, Temp <110 F
3	Shakeout & Tray Sanding Simplicity OA-10-N	703 S-31	In clean & finish room just outside the cooling room	☒ Yes ☐ No	A-1, A-7	Baghouse into Carbon Adsorption	Particulate matter and odor abatement	☒ Yes ☐ No	Pressure drop across Baghouse 1<P<9 / Carbon units 1<P<9, Temp <110 F
4	Casting Mold Shake Out Station General Kinematics TMTM-96X12-0	1603 S-4	Molding room just outside the cooling room	☒ Yes ☐ No	A3,A7, A-8	Baghouse into Carbon Adsorption	Particulate matter and odor abatement	☒ Yes ☐ No	Pressure drop across baghouses 4.5<P<7; Visual inspection FID continuous monitoring - At 50 ppm in a 90 minute average): Submit evidence of full load carbon (52,000 lbs.) on standby within 3 business days. Maintain the Inlet face velocity at the openings of the pouring and cooling areas at a minimum 200 fpm .
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions - SHAKE OUT OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for shake out operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A1 Baghouse, Pulse Jet Industrial Clean Air	Monitor carbon prefilters. Excessive prefilter pressure can indicate problem with A1 baghouse. Inspection of the interior of baghouse for structural integrity and fabric bag condition, replace bags as necessary	Weekly SemiAnnual
2	187 A7 Carbon Adsorption Melrose	Replace carbon and prefilters based on daily pressure readings across the carbon beds & prefilters and the semi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
3	703 A1 Baghouse, Shaker Industrial Clean Air/7-3200AE	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition. Dye check baghouse, replace bags as necessary. Wire brush fan blades.	1.Weekly 2.Quarterly
4	703 A7 Carbon Adsorption Melrose	Replace carbon and prefilters based on daily pressure readings across the carbon beds & prefilters and the semi-weekly odor tests	As required - based on monitoring data (1<P<9), Odor test >25 odor units
5	1603 A3 Baghouse, Pulse Jet Bahnson Hwaley/HE-378-10	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace bags based on inspection and/or changing manometer readings.	1. Monthly 2. Quarterly 3.As required, based on inspection
6	1603 A7 Baghouse, Pulse Jet	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace bags based on inspection and/or changing manometer readings	1. Monthly 2. Quarterly 3.As required, based on inspection
7	1603 A8 Carbon Adsorption Bahnson Hwaley/HE-378-10	Replace carbon and prefilters based on FID, steel output, pressure drops across carbon bed & prefilters checked daily	Permit required - FID >65ppm (PSC policy when FID outlet >20 ppm and/or >700 tons of steel prosessed)

C. Management Practices to Reduce Fugitive Emissions- SHAKE OUT OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Plant 187 B line shakout sand piles are frequently loaded into the shakout unit	Minimize the accumulation of sand emissions	On going
2	Plant 1603 Inlet face velocity monitored	Inlet face velocity maintained at a minimum 200 fpm, to insure adequate draw into the shakeout unit and into the control devices	Weekly

402.7 Finishing Operations

B. Description of Operations - FINISHING OPERATIONS

Section #	Type of Operation	District S# and Applicable NESHAPs Section	Describe Location of Finishing Operation	Number of Machines	Abated Source	A#	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	☒ Grinding ☐ Welding ☐ Other:	187 S12	North end of Plant 1, clean & finish room	GRINDERS: 7 WELDERS: OTHER:	☒ Yes ☐ No	A4	Baghouse, Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Visual inspection of stack emissions
2	☐ Grinding ☒ Welding ☐ Other:	187 S13	East Arc-Air Booth in Plant 1 clean & finish room	GRINDERS: WELDERS: 1 OTHER:	☒ Yes ☐ No	A4	Baghouse, Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Visual inspection of stack emissions
3	☐ Grinding ☒ Welding ☐ Other:	187 S14	West Arc-Air Booth in Plant 1 clean & finish room	GRINDERS: WELDERS: 1 OTHER:	☒ Yes ☐ No	A6	Baghouse, Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Visual inspection of stack emissions
4	☐ Grinding ☐ Welding ☒ Other: Table Blast	187 S15	South wall in Plant 1 clean & finish room next to furnace	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	A3	Baghouse, Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Visual inspection of stack emissions
5	☐ Grinding ☐ Welding ☒ Other: RotoBlast	187 S16, S17	East wall and NW corner in Plant 1 clean & finish room	GRINDERS: WELDERS: OTHER: 2	☒ Yes ☐ No	A2	Baghouse, Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Visual inspection of stack emissions
6	☐ Grinding ☐ Welding ☒ Other: Rotoblast	703 S32	North-West end of Clean & Finish room	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	A2 A7	Baghouse Shaker Carbon Adsorption	Particulate Matter Abatement Odor	☒ Yes ☐ No	Daily - Pressure drop across baghouse, Pressure Carbon Unit 1<P<9), Odor test >25 odor units
7	☐ Grinding ☐ Welding	703 S33, S34, S35, S36	West end of Clean and Finish lines	GRINDERS: WELDERS: OTHER: 4	☒ Yes ☐ No	A5	Baghouse Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Pressure drop across baghouse 1<P<9

	☒ Other: Cut Off Saw									
8	☒ Grinding ☐ Welding ☐ Other:	703 S37, S38, S39, S40	East end of Clean & Finish lines	GRINDERS: 4 WELDERS: OTHER:	☒ Yes ☐ No	A5	Baghouse Shaker	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Pressure drop across baghouse 1<P<9

B. Description of Operations - FINISHING OPERATIONS

Section #	Type of Operation	District S# and Applicable NESHAPs Section	Describe Location of Finishing Operation	Number of Machines	Abated Source	A#	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
9	☐ Grinding ☐ Welding ☒ Other: Tumble Blast	1603 S6	Middle of West Wall	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	A2 A6	Baghouse Shaking	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Pressure drop across baghouse 1<P<9
10	☐ Grinding ☐ Welding ☒ Other: Table Blast	1603 S5	East Center wall of Clean & Finish room	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	A2 A6	Baghouse Shaking	Particulate Matter Abatement	☒ Yes ☐ No	Daily - Pressure drop across baghouse 1<P<9
11	☒ Grinding ☐ Welding ☐ Other:	Exempt	5 Grinding stations middle of clean & finish room Plant 187	GRINDERS: 5 WELDERS: OTHER:	☐ Yes ☒ No	NA			☐ Yes ☐ No	
12	☐ Grinding ☒ Welding ☐ Other:	Exempt	8 Welding stations inside Plant 187 Clean & Finsih room	GRINDERS: WELDERS: 8 OTHER:	☐ Yes ☒ No	NA			☐ Yes ☐ No	

13	☐ Grinding ☐ Welding ☒ Other: Plasma Unit	Exempt	West side of Plant 187 Clean & Finsih room	GRINDERS: WELDERS: OTHER: 1	☐ Yes ☒ No	NA			☐ Yes ☐ No	
14	☒ Grinding ☐ Welding ☐ Other:	Exempt	Grinding stations in Plant 187 Cell	GRINDERS: 2 WELDERS: OTHER:	☐ Yes ☒ No	NA			☐ Yes ☐ No	
15	☐ Grinding ☒ Welding ☐ Other:	Exempt	Welding stations in Plant 187 Cell	GRINDERS: WELDERS: 9 OTHER:	☐ Yes ☒ No	NA			☐ Yes ☐ No	
16	☐ Grinding ☐ Welding ☒ Other: Rotoblast.	Exempt	East end of Plant 187 Cell	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	NA	Baghouse	Particulate Matter	☒ Yes ☐ No	Daily - Visual inspection of stack emissions

B. Description of Operations - FINISHING OPERATIONS

Section #	Type of Operation	District S# and Applicable NESHAPs Section	Describe Location of Finishing Operation	Number of Machines	Abated Source	A#	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
17	☒ Grinding ☐ Welding ☐ Other:	Exempt	South Wall of Tombstone	GRINDERS: 9 WELDERS: OTHER:	☐ Yes ☒ No	NA			☐ Yes ☐ No	
18	☐ Grinding ☐ Welding	Exempt	Middle North Wall of Tombstone	GRINDERS: WELDERS: OTHER: 1	☒ Yes ☐ No	NA	Baghouse	Particulate Matter	☒ Yes ☐ No	Daily - Pressure drop across baghouse

	☒ Other: Shot Blast Mach.									
19	☐ Grinding ☒ Welding ☐ Other:	Exempt	Arc-Air Booths NW corner of Plant 1603 Clean & Finish room	GRINDERS: WELDERS: 2 OTHER:	☒ Yes ☐ No	A2, A6	Baghouse, Shaking	Particulate Matter	☒ Yes ☐ No	Daily - Pressure drop across baghouse
20	☒ Grinding ☒ Welding ☐ Other:	Exempt	Combination grinding/welding booths located on South and West end of Plant 1603 C&F room	GRINDERS: 8 WELDERS: 8 OTHER:	☒ Yes ☐ No	A2, A6	Baghouse, Shaking	Particulate Matter	☒ Yes ☐ No	Daily - Pressure drop across baghouse
21	☐ Grinding ☒ Welding ☐ Other:	Exempt	Welding booths located SE corner of Plant 1603 C&F room	GRINDERS: WELDERS: 4 OTHER:	☒ Yes ☐ No	A2, A6	Baghouse, Shaking	Particulate Matter	☒ Yes ☐ No	Daily - Pressure drop across baghouse
	☐ Grinding ☐ Welding ☐ Other:			GRINDERS: WELDERS: OTHER:	☐ Yes ☐ No				☐ Yes ☐ No	
	☐ Grinding ☐ Welding ☐ Other:			GRINDERS: WELDERS: OTHER:	☐ Yes ☐ No				☐ Yes ☐ No	
	☐ Grinding ☐ Welding ☐ Other:			GRINDERS: WELDERS: OTHER:	☐ Yes ☐ No				☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions- FINISHING OPERATIONS

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for finishing operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A2 Baghouse Shaker Industrial Clean Air/6-700	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition.	Quarterly Semi Annual
2	187 A3 Baghouse Shaker Industrial Clean Air/10,000 cfm	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition	Quarterly Semi Annual
3	187 A4 Baghouse Shaker Industrial Clean Air/30,000 cfm	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition	Quarterly Semi Annual
4	187 A6 Baghouse Shaker Industrial Clean Air/8,000 cfm	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition	Quarterly Semi Annual
5	703 A2 Industrial Clean Air/10-700SN	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition /dye check baghouse, replace bags as necessary. Wire brush fan blades.	Quarterly Semi Annual
6	703 A7 Melrose	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition /dye check baghouse, replace bags as necessary. Wire brush fan blades.	Quarterly Semi Annual
7	703 A5 Industrial Clean Air/M-7-800SW	1. Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag	Quarterly Semi Annual

		condition /dye check baghouse, replace bags as necessary. Wire brush fan blades.	
8	1603 A2 Pitter Metal Pulse Jet	1. Inspect & lube fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition / dye check baghouse, replace bags as necessary.	Quarterly Semi Annual
9	1603 A6 Pitter Metal Pulse Jet	1. Inspect & lube fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition / dye check baghouse, replace bags as necessary.	Quarterly Semi Annual

C. Management Practices to Reduce Fugitive Emissions - FINISHING OPERATIONS

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Run magnetic sweeper followed by Auto Sweeper	Pick up and remove particulate matter from operational area	Twice per shift
2	Visually check exhaust stacks for particulates and dust.	Insure proper functioning of the baghouse, and identify presence of torn bags or bags that have fallen off.	Daily

402.7 Sand Reclamation

B. Description of Operations - SAND RECLAMATION

Section #	Name of Sand Reclamation Equipment and Manufacturer/Model #	District S# and Applicable NESHAPs Section	Describe Type of Sand Reclamation Equipment	Abated Source	A#	Type of Abatement Device	Purpose of Abatement	Abatement Monitored	Monitoring Parameters
1	2 Screens - Vibrating & Rotating Jeffery/Rotex	187 S6, S7	Sand Cooler, 6 screen w/mold release virbrating unit & Rotating sand screen	☒ Yes ☐ No	A1 A7	Baghouse Pulse Jet / Carbon Adsorption	Particulate Matter Odors	☒ Yes ☐ No	Daily visual check for particulates and dust. Carbon units Pressure 1<P<9, Temp <110 F
2	Thermal Recovery Lump Breaker Dependable	703 S45	Lump reducer	☒ Yes ☐ No	A10	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
3	TR Flow Bin - Rejected matl.	703 S46	Magnetic Separator, sand hopper & bucket elevator	☒ Yes ☐ No	A10	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
4	TR Sand Cooler/Air Bed Dependable/VTO JDR	703 S47	Sand Cooler, cooling tower & bucket elevator	☒ Yes ☐ No	A10	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
5	TR Material Handling Equip. Dependable	703 S48	3 hoppers, 3 bucket elevators	☒ Yes ☐ No	A10	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
6	Thermal Recycling Unit Dependable 2 TPH HTCC	703 S49	2 ton per hour gas fired thermal sand reclaimer	☒ Yes ☐ No	A10	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
7	Sand Cooler Classirier Omco Fin Type	1603 S9	Fin type sand cooling system	☒ Yes ☐ No	A4	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
8	2 Sand Conditioning Units B & P Pneu-claim	1603 S10, S11	Pneumatic sand reclaimers	☒ Yes ☐ No	A4	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
9	2 Sand storage silos	1603 S12, S13	Return sand bin, Reclaimed sand bin	☒ Yes ☐ No	A4	Baghouse Pulse Jet	Particulate Matter	☐ Yes ☒ No	Daily visual check for particulates and dust.
				☐ Yes ☐ No				☐ Yes ☐ No	
				☐ Yes ☐ No				☐ Yes ☐ No	

C. Management Practices to Reduce Fugitive Emissions - SAND RECLAMATION

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for sand reclamation making operations.

Section #	Abatement Device and Manufacturer/Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A1 Baghouse Shaking Industrial Clean Air 30,000cf	Monitor carbon prefilters. Increased prefilter pressure indicates A1 baghouse inefficiencies, troubleshoot if necessary. Visual inspection internal (bag condition (holes), linkage wear, excessive build-up, inner shell for holes) & external (outer shell for holes, leaks and seal condition). Replace or repair items based on inspection findings.	Daily Semi Annual
2	187 A7 Carbon Adsorption Melrose	Replace carbon and prefilters as necessary based on odor test & pressure drops across carbon bed & prefilters checked daily	As required - based on monitoring data (1<P<9), Odor test >25 odor units
3	703 A10 Pulse Jet Baghouse Sly/STJ-1511-10	Check pulse jet pressure. Check baghouse and filter cartridge integrity. Replace cartridge filters as necessary.	Weekly Semi Annual
4	1603 A4 Baghouse Pulse Jet Bahnson Hawley HE-210-10	Inspect & lube fan bearings, inspect & check sheaves & V belts. Visual inspection internal (bag condition (holes), linkage wear, excessive build-up, inner shell for holes) & external (outer shell for holes, leaks and seal condition). Replace or repair items based on inspection findings.	Quarterly Semi Annual

C. Management Practices to Reduce Fugitive Emissions - SAND RECLAMATION

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Plant 187 sand reclaim unit is on the roof of the building. Regular roof inspections are conducted. Roof sweeping is conducted if any sand is observed on the roof.	Remove particulate matter	Weekly

402.9 Dross and Slag Management

B. Description of Operations - DROSS AND SLAG MANAGEMENT									
Section #	**Material**	**Describe Location for Cooling of Material**	**Abated Source**	**A#**	**Type of Abatement Device**	**Purpose of Abatement**	**Abatement Monitored**	**Monitoring Parameters**	**Material Disposition**
1	Dross	Do not generate dross - associated with non ferrous metals	☐ Yes ☐ No				☐ Yes ☐ No		☐ Offsite Recycling ☐ Offsite Disposal ☐ Onsite Reprocessing
2	Slag	Plant 187 Between EAF and B line pouring Plant 703 Melting room North end Plant 1603 Pouring room South end	☒ Yes ☐ No	A8, A7 A1, A7 A3, A7, A8	Baghouse into Carbon unit	Particulate matter and odor abatement	☒ Yes ☐ No	187 & 703 - Carbon units Pressure 1<P<9, 703 - Temp <110 F 1603 - Permit required - FID >65ppm (PSC policy when FID outlet >20 ppm and/or >700 tons of steel prosessed)	☒ Offsite Recycling ☒ Offsite Disposal ☐ Onsite Reprocessing

C. Management Practices to Reduce Fugitive Emissions - DROSS AND SLAG MANAGEMENT

Provide description of preventative maintenance (PM) activities including PM schedules and work practice standards for each abatement device for dross and slag operations.

Section #	Abatement Device and Manufacturer/ Model #	Description of Preventative Maintenance Activity and Work Practice Standards	Schedule of PM
1	187 A8 Baghouse, Pulse Jet ToritCartridge	1.Check manometer across baghouse. 2.Visual inspection internal (condition of filter railings and integrity/condition of cartridge filter) & external (frame integrity, diaphragm seal). 3.Replace cartridge filters, based on inspection and/or changing manometer readings .	1.Weekly 2.SemiAnnual 3.As required, based on inspection
2	187 A7 Carbon Adsorption Melrose	Replace carbon and prefilters as necessary based on odor test & pressure drops across carbon bed & prefilters checked daily	As required - based on monitoring data (1<P<9), Odor test >25 odor units
3	703 A2 Baghouse Shaking Industrial Clean Air/10-700 SN	1.Inspect & lube shaker & fan bearings, inspect & check sheaves & V belts. 2. Inspection of the interior of baghouse for structural integrity and fabric bag condition/dye check baghouse, replace bags as necessary. Wire brush fan blades.	1.Weekly 2.Quarterly
4	703 A7 Carbon Adsorption Melrose	Replace carbon and prefilters as necessary based on odor test & pressure drops across carbon bed & prefilters checked daily	As required - based on monitoring data (1<P<9), Odor test >25 odor units
5	1603 A3 Baghouse, Pulse Jet Bahnson Hwaley/HE-378-10	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace cartridge filters based on inspection and/or changing manometer readings	1. Monthly 2. Quarterly 3.As required, based on inspection
6	1603 A7 Baghouse, Pulse Jet Bahnson Hwaley/HE-378-10	1.Check manometer across baghouse. 2.Inspection of the interior of baghouse for structural integrity and fabric bag condition. 3.Replace cartridge filters based on inspection and/or changing manometer readings	1. Monthly 2. Quarterly 3.As required, based on inspection

7	1603 A7 Carbon Adsorption Melrose	Replace carbon and prefilters as necessary based on FID, pressure drops across carbon bed & prefilters checked daily	Permit required - FID >65ppm (PSC policy when FID outlet >20 ppm and/or >700 tons of steel processed)

C. Management Practices to Reduce Fugitive Emissions - DROSS AND SLAG MANAGEMENT

Provide description of other housekeeping measures to abate and/or minimize fugitive emissions of odors and/or particulate matter at sources or source areas.

Section #	Description of Housekeeping Measure	Purpose of Activity	Schedule of Activity
1	Monitor bin loading to avoid overloading	Eliminate spills	On going
2	Sweep area after loading trucks for offsite disposition	Remove particulate matter	Every load pick up
3	Configure door openings & room enclosures to enhance odor capture Plant #187 Pouring room, all 2nd street doors 1-C, & 1-J closed at all times, south doors open on calm days. Plant #703 2-D, 2-J doors closed. Plant #1603 3-A, 3-B, 3-D, 3-E, 3-O doors closed.	Eliminate odors through enhanced capture of slag emissions	Daily

B. Description of Abatement and Control Equipment

Provide a comprehensive list of all abatement and control equipment for operations subject to 12-13-402 and identify the source(s) of operation in which it abates. If the abatement equipment abates multiple sources, provide a detailed description of how the abatement is designated to those sources.

Section #	Name of Abatement Equipment	District A#	Names of Source(s) Abated	District S#	Description of Abatement
1	187 A1 Baghouse	A1	A line Shakeout, B line Shakeout, Sand Muller, Sand reclaim system	S3, S4, S5, S6, S7, S8	Pulse Jet
2	187 A2 Baghouse	A2	Two Rotoblast units located in Clean & Finish room	S16, S17	Shaker
3	187 A3 Baghouse	A3	Table Blast	S15	Shaker
4	187 A4 Baghouse	A4	Cleaning & Grinding Dept., Arc-Air Booth	S12, S13	Shaker
5	187 A6 Baghouse	A6	Arc-Air Booth	NA	Shaker
6	187 A7 Adsorption, Activated carbon	A7	Pouring Area (S2) A line (S4) & B line (S3) shakeouts Sand reclaim (sand cooler,sand screen) (S6, S7) Sand Mixer (S5, S8)	S2, S3, S4, S5, S6, S7, S8	A8 Pulse Jet-S2. A1 Pulse Jet-S3,S4,S5,S6,S7,S8. CA-1, CA-2a and CA-2b Carbon bed-A1 Baghouse and A8 Baghouse.
7	187 A8 Baghouse	A8	Pour off area, main floor	S2	Pulse Jet
8	187 A9 Baghouse	A9	Electric Arc Furnace	S1	Shaker
9	187 A10 Baghouse	A10	Core Sand Muller	S10	Pulse Jet
10	187 E25 Baghouse	Exempt	Plant 1 Cell Rotoblast	NA	Shaker
11	703 A1 Baghouse	A1	EAF Ladle Station w/ canopy hood, Shell Mold Pour Station,Shakeout	S28, S29, S31	Shaker

Section #	Name of Abatement Equipment	District A#	Names of Source(s) Abated	District S#	Description of Abatement
12	703 A2 Baghouse	A2	Cast Mold Cooling Room, Rotoblast	S29, S31	Shaker
13	703 A3 Baghouse	A3	EAF Electirc Arc Furnace	S27	Shaker
14	703 A4 Baghouse	A4	Sand Heater, Sand Coating, Coated sand pug mill, Coated sand vibrating screen, Bucket elevator	S6, S7, S8, S9, S10	Shaker
15	703 A5 Baghouse	A5	Sand silos #1, #2 & loading elevator, Bucket elevator, 4 abrasive cut-off saws, 4 grinders	S1, S2, S3, S4, S33-S40	Shaker
16	703 A10 Baghouse	A10	Sand silo, Lump breaker, flow bin, Sand cooler, Material handling equipment, Thermal recycling unit	S44,S45 S46,S47 S48,S49	Pulse Jet
17	703 T127 Baghouse	Exempt	Shot blast machine	NA	Pulse Jet
18	703 A7 Adsorption, Activated Carbon	A7	EAF Ladle Station w/ canopy hood (S28) Shell Mold Pour Station (S29) Shakeout (S31) Cooling Room (S30) Rotoblast (S32) 2 Shell twin molding machines (S22, S23)	S22,S23 S28,S29 S30,S31 S32	A1 Shaker-S28, S29,S31. A2 Shaker-S30,S32. CA-1 carbon bed-A2 Baghouse. CA-2 & CA-3 Carbon bed-S22,S23 and A1 Baghouse.
19	1603 A1 Baghouse	A1	Electric Arc Furnace	S1	Pulse Jet
20	1603 A2Baghouse	A2	Blast table, Rotoblast, Arc-air booths, Welding booths	S5, S6	Shaker
21	1603 A3Baghouse	A3	Mold Shakout, Sand Mixer utiltizing Techniset binders, Mold coating, Pouring/cooling	S4, S14 S18,S19	Pulse Jet
22	1604 A4 Baghouse	A4	Sand silo #1, Sand cooler, Sand conditioning units #1 & #2, Return sand bin #1 & #2, Sand elevators #1, #2, & #3.	S7, S9, S10,S11 S12,S13 S15,S16 S17	Pulse Jet

Section #	Name of Abatement Equipment	District A#	Names of Source(s) Abated	District S#	Description of Abatement
23	1604 A5 Baghouse	A5	Sand Mixer utilizing Techiset Binders	S14	Dry Filter
24	1603 A6 Baghouse	A6	Blast table, Tumble blast, Arc-air booths, Welding booths	S5, S6	Shaker
25	1603 A7 Baghouse	A7	Mold Shakeout, Sand Mixer utiltizing Techniset binders, Mold coating, Pouring/cooling	S4, S14 S18,S19	Pulse Jet
26	1603 A8 Adsorption, Activated Carbon	A8	Mold Shakeout (S4) Sand Mixer utiltizing Techniset binders (S14) Mold coating (S18) Pouring/cooling (S19)	S4, S14 S18,S19	A3 and A7 Pulse Jet-S4,S14,S18 and S19. CA-1, CA-2 and CA-3 Carbon bed-A3 Baghouse and A7 Baghouse.

Technical Data

12-13-403.1

A. *Process Flow Diagram* – Facilities must indicate all operations in Section 12-13-402, the flow of materials used and identify all monitoring of processes, abatement and controls to minimize emissions beginning from material receipt to achievement of final product. Identify all abatement and control devices by District source numbers according to District Permit or as exempt from District Permit.

B. *Facility Layout / Floor Plan* - Facilities must indicate all relative locations of processing equipment and monitoring and controls, all permitted and exempt sources identified in the process flow diagram per Section 12-13-403.1.1 and any other source(s) that may contribute to particulates and odors. Include all building walls, partitions, doors, windows, vents and openings and indicate all areas that have abatement for particulates and odors. Identify all metal melting and processing equipment by District source numbers according to District Permit or as exempt from District Permit.

A. Process Flow Diagram

AppendixB - Confidential

B. Facility Layout / Floor Plan

AppendixC - Confidentials.

Fugitive Emissions Reductions Previously Realized

12-13-403.2

Facilities must provide a description of the equipment, processes and procedures installed or implemented within the last five years to reduce fugitive emissions. Include the purpose for implementation and detail any employee training that was conducted for that equipment, process or procedure and the frequency of any ongoing training.

12-13-403.2 FUGITIVE EMISSIONS PREVIOUSLY REALIZED						
Section #	**Identify Type of Operation per Section 12-13-402**	**Description of Equipment, Processes or Procedures Previously Realized**	**Implementation Date**	**Purpose of Implementation**	**Employee Training Conducted**	**Description of Employee Training and Frequency of Training**
1	Mold & core making, metal management, Furnace operations, casting & cooling, shakeout, finishing, Sand reclaim, Slag	Odor Management Plan approved by BAAQMD	10/03/2008	Reduce odors and particulate matter.	☒ Yes ☐ No	All employees trained after initial roll out. Yearly refresher training is conducted. Plan elements are also incorporated into PSC operating procedures. Job specific training is included during PSC operating procedure training, when conducted.
2	Mold & core making, casting & cooling, shakeout, Sand reclaim	Plant 1603 change to lower VOC binder;	2008	Reduce VOC emissions	☒ Yes ☐ No	Initial training to make employees aware of the sand recipe change.
3	Furnace operations	Plant 1603 EAF Room fume collection collection installed;	2008	Increase capture efficiency of odors and particulate matter	☒ Yes ☐ No	Maintenance trained on equipment PM
4	Mold & core making, casting & cooling, shakeout, Sand reclaim	Plant 703 precoated sand changed to lower VOC product	2009	Reduce VOC emissions	☒ Yes ☐ No	Employees trained on new MSDS after change.
5	Casting & cooling, shakeout	Plant 187 Main Floor fume collection directed to baghouse and carbon unit	2010	Increase capture efficiency of odors and particulate matter	☒ Yes ☐ No	Maintenance trained on equipment PM
6	Mold & core making	Plant 187 Core Room baghouse installed.	2010	Abate core room particulate matter.	☒ Yes ☐ No	Maintenance trained on equipment PM
					☐ Yes ☐ No	
					☐ Yes ☐ No	
					☐ Yes ☐ No	

Schedule for the Implementation of the EMP Elements

12-13-403.3

A. Provide a list of existing or current EMP elements in place pursuant to and under a District Authority to Construct as of the initial date of EMP submittal (on or before May 1, 2014). Include a description, the purpose and schedule of the element(s).

B. Provide a list of new or future EMP elements to be implemented following APCO approval of the EMP. Include a description, the purpose and schedule of the element(s) to be implemented.

A. 12-13-403.3.1 SCHEDULE FOR THE IMPLEMENTATION OF THE EMP ELEMENTS (on or before May 1, 2014)					
Section #	**Identify Type of Operation per Section 12-13-402**	**List Specific Elements to be Implemented on or before May 1, 2014**	**Implementation Date**	**Description of Elements to be Implemented**	**Purpose of Implementation**
	NA				

B. 12-13-403.3.2 NEW OR FUTURE EMP ELEMENTS TO BE IMPLEMENTED					
Section #	**Identify Type of Operation per Section 12-13-402**	**List Specific Elements to be Implemented Following APCO Approval of the EMP**	**Implementation Date**	**Description of Elements to be Implemented**	**Purpose of Implementation**
1	Mold and Core Making - 703	Consider installation of ventilation hoods over S-19 and S-26	To Be Determined	Working with Engineering and District Staff to determine equipment capabilities and permit requirements for implementation/installation of hoods over S-19 and S-26	Further reduce fugitive emissions of PM and odors
2	Casting and Cooling - 187	Consider installing wall to isolate pouring operations in Plant 1	To be Determined	Working with Engineering and District Staff to determine feasibility and permit requirements for implementation/installation of wall	Further reduce fugitive emissions of PM and odors
3	Mold ShakeoutSand Mixer utiltizing Techniset binders Mold coating Pouring/cooling - 1803	Consider increasing carbon system capacity which affects: Mold Shakeout (S4) Sand Mixer (S14) Mold coating (S18) Pouring/cooling (S19)	To be Determined	Working with Engineering and District Staff to determine equipment capabilities and permit requirements for implementation	Improve abatement capacity
4	Sand Reclamation - 703	Consider connecting Sand Reclamation Unit (S-49) to Carbon Unit	To be Determined	Working with Engineering and District Staff to determine equipment capabilities and permit requirements for implementation	Further reduce fugitive emissions of PM and odors

Compliance Schedule for the EMP

12-13-404

A. *APCO Recommendations to EMP and Determination of Approvability*– Acknowledge acceptance or rejection of each of the APCO's recommendations. For each of the accepted recommendations, describe the measures to be implemented and include the date of proposed implementation. If the facility rejects a recommendation, provide a detailed basis for that rejection.

A. APCO Recommendations to EMP and Determination of Approvability (12-13-405) Date of EMP:

Provide determination of acceptance to APCO recommendations. Include the determination of acceptance by the facility's Responsible Manager and the basis for rejecting any APCO recommendations. If recommendation is accepted, include measures to implement APCO recommendation and the proposed date of implementation.

Section #	Date of APCO Recommendation	(FOR APCO USE ONLY) APCO Recommendation	Acceptance of APCO Recommendation	If NO: Basis for Rejecting APCO Recommendation	If YES: Measures to Implement Recommendation	Proposed Date of Implementation	(APCO USE ONLY) Implementation Verified by APCO
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No

A. APCO Recommendations to EMP and Determination of Approvability (12-13-405) Date of EMP:

Provide determination of acceptance to APCO recommendations. Include the determination of acceptance by the facility's Responsible Manager and the basis for rejecting any APCO recommendations. If recommendation is accepted, include measures to implement APCO recommendation and the proposed date of implementation.

Section #	Date of APCO Recommendation	(FOR APCO USE ONLY) APCO Recommendation	Acceptance of APCO Recommendation	If NO: Basis for Rejecting APCO Recommendation	If YES: Measures to Implement Recommendation	Proposed Date of Implementation	(APCO USE ONLY) Implementation Verified by APCO
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No
			☐ Yes ☐ No				☐ Yes ☐ No

Appendix

If additional information are to be included in the EMP, identify the associated Appendix # as "*#*" in the text box of the specific table.

In the table below, note the Appendix # and provide the Page # and Section # of the EMP where the material references.

Appendix #	Reference to Page # and Section # of EMP
A	Page #9 , Section # 403.1.3 A
B	Page #75 , Section # 403.1.A
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Appendix # A

Reference to Page #9**, Section #** Confidential